DETERMINANTS FOR ADOPTION OF QUALITY MANAGEMENT SYSTEM IN PROJECT IMPLEMENTATION: A CASE OF NYANDARUA COUNTY GOVERNMENT CONSTRUCTION PROJECTS, KENYA

BY

NJUGUNA GERALD NDERITU

A Research Project Submitted in Partial Fulfillment of the Requirements for the Award of a Master of Arts Degree in Project Planning and Management of the University of Nairobi

2018
DECLARATION

This research project is my original work and has not been presented for a degree in any other University or any other award.

SIGNATURE…………………………... …… DATE……………………………………
NJUGUNA GERALD NDERITU
L50/ 82431/2015

This Research Project has been submitted with my approval as the University of Nairobi Supervisor.

SIGNATURE…………………………... …… DATE……………………………………
DR. OURU JOHN NYAEGAH (PH.D)
LECTURER: ODeL CAMPUS
UNIVERSITY OF NAIROBI
DEDICATION

This research project is dedicated to my wife Susan Wanjira and my mother Jane Wangeci Njuguna for their moral and unwavering support during the entire period of my studies. To my siblings Mercy Wangui Njuguna, George Wahome Njuguna and Gilbert Lee Mucheru Njuguna for believing in me and supporting my study.
ACKNOWLEDGEMENT

I would like to appreciate the University of Nairobi for providing this course, my supervisor Dr. Ouru John Nyaegah (Ph.D) for his dedication in enabling and assisting me develop quality research work. He ensured we did all that was needed to ensure the work reflected the intended purpose of the study. Additionally, he listened to my ideas of the project and guided me in developing this scholarly work. I am also honored to have Dr. Maina Waiganjo as my mentor, I appreciate the input he accorded the study in the conceptualization of the problem statement and the development of the research objectives. His in-put in the understanding of the County Challenges, enabled me to formulate research objectives that are researchable by looking at qualitative and quantitative attributes of the variables in this project.

I am grateful to Ol-Kalou National Library, for the assistance they according this study, in the literature review development and the motivation to the researcher. The library research material both online and books, were a great resource in developing this research project. Moreover, they library staff supported me in the registration of membership to the library, providing easier way to access library materials and borrow books. I appreciate the University of Nairobi Nakuru Centre, for the support they accorded me in undertaking my studies that have enabled me conceptualize the concept utilized in this research. The University of Nairobi Nakuru Campus Librarian, he supported this study in accessing the books and the university online repository materials for research. To my TQM lecturer, thank you for introducing me to a new area I was intellectually challenged and motivated to engage and research on, that has culminated to developing this research project. To the Non-Teaching staffs at the University, for the support that was offered in ensuring information was available for ease of learning and they created a learning environment that was both friendly and worth the acquired skills at the Nakuru Extra Mural Centre.

I appreciate the Nyandarua County Government for the opportunity they accorded me to serve on voluntary contracts at the department of Human Resource, Procurement and Roads where my desire to experience quality improvement in public service was formed. They also offered me opportunities to be a contractor after my voluntary contract ended, where I experienced the suppliers’ challenges, thus influencing my need to examine ways the County management and Project administration can adopt Quality Management Systems based models to resolve the project implementation challenges.
# TABLE OF CONTENT

<table>
<thead>
<tr>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DECLARATION</td>
<td>ii</td>
</tr>
<tr>
<td>DEDICATION</td>
<td>iii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENT</td>
<td>iv</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>ix</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>x</td>
</tr>
<tr>
<td>LIST OF ABBREVIATIONS AND ACRONYMS</td>
<td>xii</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>xiii</td>
</tr>
<tr>
<td>CHAPTER ONE</td>
<td>1</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>1.1 Background of the Study</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Statement of the Problem</td>
<td>4</td>
</tr>
<tr>
<td>1.3 Purpose of the Study</td>
<td>5</td>
</tr>
<tr>
<td>1.4 Objectives of the Study</td>
<td>5</td>
</tr>
<tr>
<td>1.5 Research Hypotheses</td>
<td>6</td>
</tr>
<tr>
<td>1.6 Significance of the Study</td>
<td>6</td>
</tr>
<tr>
<td>1.7 Basic Assumptions of the Study</td>
<td>7</td>
</tr>
<tr>
<td>1.8 Limitations of the Study</td>
<td>7</td>
</tr>
<tr>
<td>1.9 Delimitations of the Study</td>
<td>7</td>
</tr>
<tr>
<td>1.10 Definitions of Key Terms Used in the Study</td>
<td>8</td>
</tr>
<tr>
<td>1.11 Organization of the Study</td>
<td>8</td>
</tr>
<tr>
<td>CHAPTER TWO</td>
<td>9</td>
</tr>
<tr>
<td>LITERATURE REVIEW</td>
<td>9</td>
</tr>
<tr>
<td>2.1 Introduction</td>
<td>9</td>
</tr>
<tr>
<td>2.1.1 Quality Management System</td>
<td>9</td>
</tr>
<tr>
<td>2.1.2 Project Implementation</td>
<td>10</td>
</tr>
<tr>
<td>2.2 Quality Planning and Project Implementation</td>
<td>10</td>
</tr>
</tbody>
</table>
2.3 Monitoring and Evaluation and Project Implementation ........................................ 12
2.4 Organizational Context and Project Implementation ........................................... 13
2.5 Quality Training and Project Implementation ....................................................... 16
2.6 Theoretical Framework ......................................................................................... 18
   2.6.1 Joseph M. Juran Theory .............................................................................. 18
   2.6.2 Philip B. Crosby Theory ............................................................................. 19
   2.6.3 International Organization of Standardization based Models ................. 21
2.7 Conceptual Framework ....................................................................................... 21
2.8 Knowledge Gap .................................................................................................... 22
2.9 Summary of the Literature Reviewed ................................................................... 23

CHAPTER THREE ........................................................................................................ 25
RESEARCH METHODOLOGY .................................................................................... 25
  3.1 Introduction ......................................................................................................... 25
  3.2 Research Design .................................................................................................. 25
  3.3 Target Population ................................................................................................ 25
  3.4 Sample Size and Sample Selection ..................................................................... 26
  3.5 Data Collection Instruments .............................................................................. 26
     3.5.1 Piloting of the Study .................................................................................. 27
     3.5.2 Validity of the Instruments ........................................................................ 27
     3.5.3 Reliability of the Instruments ..................................................................... 27
  3.6 Data Collection Procedure .................................................................................. 28
  3.7 Data Analysis Techniques .................................................................................... 28
  3.8 Ethical Considerations .......................................................................................... 28

CHAPTER FOUR .......................................................................................................... 30
DATA ANALYSIS, PRESENTATIONS AND INTERPRETATIONS ................................. 30
  4.1 Introduction ......................................................................................................... 30
  4.2 Questionnaire Response Rate ............................................................................. 30
4.3 Demographic Characteristics of Respondents .......................................................... 30
  4.3.1 Gender of Respondents .................................................................................... 30
  4.3.2 Age of Respondents ...................................................................................... 31
  4.3.3 Education Level of the Respondents ............................................................... 32
  4.3.4 Period of Association with County Government of Nyandarua .................... 32
4.4 Project Implementation Background Information in Nyandarua County Government ...... 33
  4.4.1 Status of Quality Management System in County Government of Nyandarua ........ 34
  4.4.2 Quality Management of County Construction Project Implementation ............ 35
4.5 The Construction Projects Planning Challenges ..................................................... 36
4.6 Monitoring and Evaluation Challenges in Construction projects Implementation .......... 37
4.7 Organizational Challenges in Construction Projects Implementation ...................... 37
4.8 Training Challenges in Construction Projects Implementation ............................. 39
4.9 Suggested Ways to Introduce Quality Management System in Projects Implementation . 40
4.10 Ways to Self-Support in the Introduction of Quality Management System .............. 41
4.11 Correlational Analysis between Planning Challenges and Project Satisfaction .......... 42
4.12 A correlation between Planning Challenges and Need for Adoption ..................... 43
4.13 M&E Challenges and Satisfaction level in Projects Correlation ............................ 44
4.14 Organizational Context Challenges and Project Quality Correlation ...................... 45
4.15 Correlation between the Projects Training Challenges and the Level of Projects Quality Management Satisfaction ................................................. 46
4.16 Hypothesis Testing (One): Quality Planning Adopting to Resolve Project Implementation Challenges ......................................................................................... 46
4.17 Hypothesis Testing (Two): Adoption of Monitoring and Evaluation significance in Construction Projects Implementation ................................................................. 47
4.18 Null Hypothesis Testing (Three): Organizational Context to resolve Project Implementation Challenges ......................................................................................... 48
4.19 Null Hypothesis Testing (Four), Quality Training to resolve Project Implementation Challenges

4.20 Hypothesis Testing (Five): Quality Management System Adoption vs County Governments’ Reasons for Introducing Quality Management Systems

4.21 Hypothesis Testing (Six), Benefits of Quality Management System vs Projects Challenges

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

5.2 Summary of the Findings

5.3 Conclusions

5.4 Recommendations of the Study

5.5 Suggestions for Further Research

REFERENCE

APPENDICES

Appendix i: Letter of Transmittal

Appendix ii: Questionnaire for the County Employees and the Suppliers

Appendix iii: University Recommendation Letter

Appendix iv: NACOSTI Research Authorization Letter

Appendix v: NACOSTI Permit

Appendix vi: County Commissioner Research Authorization Letter

Appendix vii: County Director of Education Research Authorization Letter

Appendix viii: County Secretary Authorization Letter
LIST OF FIGURES

Figure 2.1: Crosby’s (1987) prevention process model………………………………………………………20

Figure 2.2: Conceptual Framework model showing the interrelationship between the variables………………………………………………………………………………………………22
LIST OF TABLES

Table 4.1: gender distribution of the respondents ................................................................. 30
Table 4.2: age of respondents .................................................................................................. 31
Table 4.3: education level ........................................................................................................ 32
Table 4.4: association with county government of nyandarua ............................................... 33
Table 4.5: status of quality management system in operation ............................................... 34
Table 4.6: the 30.9% yes respondents: sectors or areas they attributed quality management system in operation .................................................................................................................. 34
Table 4.7: the 69.1% no respondents: sectors or areas that lack quality management system ...... 34
Table 4.8: the quality management status of county construction projects implementation ........ 35
Table 4.9: construction project planning challenges .................................................................. 36
Table 4.10: correlation of planning challenges and project satisfaction .................................... 42
Table 4.11: adoption of quality management system planning descriptive statistics ................. 46
Table 4.12: one-sample test for null hypothesis testing ............................................................. 47
Table 4.13: correlations between construction projects challenges and need for adoption of quality planning ........................................................................................................................................... 43
Table 4.14: the monitoring and evaluation descriptive statistics ............................................... 37
Table 4.15: m&e challenges vs qm satisfaction in cpi correlations .......................................... 44
Table 4.16: m&e adoption descriptive statistics table .................................................................. 47
Table 4.17: m&e adoption t-test null hypothesis testing table .................................................. 48
Table 4.18: organizational context challenges in projects descriptive statistics ....................... 38
Table 4.19: organizational context and the quality of project correlations ................................. 45
Table 4.20: organization context adoption in project implementation t-test ............................... 48
Table 4.21: training challenges in construction projects implementation descriptive statistics .... 39
Table 4.22: training challenges and quality of projects correlations ........................................ 46
Table 4.23: quality training adoption and project implementation null hypothesis t-test .......... 49
Table 4.24: quality management system adoption vs county government reasons, multivariate test 50
Table 4.25: quality management system adoption vs county government reasons univariate tests . 51
Table 4.26: benefit of quality management system vs projects challenges multivariate tests ........ 52
Table 4.27: benefit of quality management system vs projects challenges univariate tests .......... 53
Table 4.28; ways to introduce quality management system in projects implementation frequency analysis........................................................................................................................................ 40
Table 4.29: self support in the introduction of quality management system frequency analysis ..... 41
LIST OF ABBREVIATIONS AND ACRONYMS

ISO - International Organization of Standardization

QMS – Quality Management System

QM – Quality Management

OC - Organizational Context

TQM – Total Quality Management

KNBS – Kenya National Bureau of Statistics

ASQ – American Society of Quality

M&E – Monitoring and Evaluation

CPS – Construction Project Scheduling

CDF – Constituency Development Fund

IT – Information Technology

ICT – Information Communication Technology

MSS – Management System Standards

BQ – Bill of Quantity

QSG – Quality Standard Group

SPSS – Statistical Package for the Social Sciences

CPI - Construction Project Implementation

QM - Quality Management
ABSTRACT

The purpose of this study was to investigate on the determinants for adoption of Quality Management System, to what extent when applied, can resolve the Projects Implementation challenges in the County construction projects. This was an investigative study based on the County Governments from the overview, there was no operational Quality Management System, though it may contain some elements of it. Quality Management System is the new phenomenon of applying quality improvement in service and product of an organization. It is geared towards greater customer satisfaction by eliminating redundant mechanism that undermines quality. In developing Countries like Kenya, Quality implementation is a challenge in the manner it is applied, intention of application and the selective application. The need to transform the public sector mostly in construction projects is ever growing influenced by both internal and external organizational factors. Therefore, there was a need to investigate the determinants for adoption of Quality Management System in project implementation, most importantly in construction projects. The study introduces the current quality development, in the County Government of Nyandarua construction challenges. Comparative studies around the world and in developing African countries reveal that, government agencies are adopting Quality Management System to meet public satisfactions. The investigation sought to validate the Quality Management System based variables of: Quality Planning, Monitoring and Evaluation, Organizational Structure and Quality Training that form the objectives of the study are. To determine, if the objects of the study can remedy the project implementation challenges experienced in the Local Government projects; and if so, can they be adopted on the county project implementation and operations? The study carried out research to accept or explain null hypothesis of the study. The literature reviewed interrogated the Quality Management System based variables how they have been applied elsewhere and the contrast and comparison in their adoption noted around the world. The literature reviewed, reveal the wider context in which Quality Management System has been applied and the statistical data generated from the previous finding. The study was founded on the Total Quality Management theories of Joseph Juran, Philip B. Crosby, and the International Organization of Standardization models for Quality Management System. Moreover, the literature reviewed revealed the knowledge gaps that exist mostly in the County Governments Quality Management System adoption that these studies seek to address. The literature reviewed enable development of conceptual framework showing the correlation between Quality Management System as the independent variable while Project implementation was the dependent variable. The study is moderated by financial resource availability and intervened by political climate and economic stability. The research methodology utilized descriptive survey research design in testing the hypothesis of the study. Research was conducted in Ol-Kalou Sub-County with a sample size of 104 respondents. The respondents were stratified into two main groups which were: County suppliers and County employees. A purposive sampling technique was utilized to reach out to the top management and key informant suppliers, while a random sampling was used on the low carder employees. The study thus utilized descriptive statistics to describe the variables by enabling correlation development between variables. Inferential statistics was used for hypothesis testing to enable us derive an inference on the study based on the parameters generated. The Questionnaire was the research instrument utilized in data collection, which was self-administered to the respondents by the researcher via face to face. The findings revealed that: Adoption of Quality Planning would significantly address the Project Implementation Challenges in the County Governments by promoting positively : Quality of projects, Cost, and Time taken to complete the projects, thus rejecting the null hypothesis at \( t(93) = -2.562, p = 0.012, 95\% CI (.0819, .6458) \). The adoption of Monitoring and Evaluation in projects implementation null hypothesis was rejected at \( t (93) = 2.624, p = .010 \) where lack of the stakeholder Involvement ranked higher with a mean of 3.8191. Null Hypothesis on ability of Organizational Context to resolve challenges in project implementation activities was tested using \( t \)-Test and reject at statically significance of .042 level of significance ( \( t (93)= -2.062, df= 93, p < .05 \)). Null hypothesis on Quality Training ability to contribute to resolving project implementation challenges with a mean of 4.0937 was statistically significant at .001 level of significance ( \( t (93) = -12.129, df= 93, p < .001 \) ) thus rejecting null hypothesis.
CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Having an integrated Quality Management system (QMS) ensures consistency and better performance of construction projects according to Ali & Rahmat (2010), improving project performance. Case studies of where QMS has been utilized have yielded positive response. According to Wan & Zeng (2013) in a study of W-Company in China, customer complaint handling declined by an average of 1.2575% annually after implementation of QMS in their operations. Moreover, it improved products and customer satisfaction from the previous average annual figure of 3.7075%. In another instance of a Metal Industry Company, Prof Witold & Dr Maruszewska (2015) noted that, efficient QMS allowed organizational control, analyses of management system, continuous monitoring and improvement of QMS. They further noted that, for smooth operations of modern companies, the organization must adapt the QMS. To emphasize the importance of QMS Khan & Afzaa (2014) in her study of education institution; she says, “Education institute can lose quality education because they fail to adopt significant opportunities to improve their education standards as per the QMS guidelines. These case studies reflect on the wide scope QMS can be utilized in the today globalized market.

Construction in developing countries are characterized by low productivity, lack of standards and poor quality; Moreover, ISO based QMS does not adequately resolve construction challenges (Bawane, 2017). In Malaysia 75% of Top Management communicated customer’s requirements to subordinates to avoid problems and not for quality improvement; where over 50% of the construction stakeholders had problems in QMS implementation due to mainly: inadequate technical expertise, ineffective communication, contractor’s substandard work, and increase in cost and time (Keng & Abdul-Rahman, 2011). To address quality problems in construction of public buildings, Rwelamila (1995) noted that, South African Development Community (SADC) Countries should pursue and implement QMS. In South Africa, Contractors failed to undertake education and training on QMS leading to high Cost of Non-Conformance (Smallwood & Rwelamila, 1999). While in Ghana they faced challenges in project quality and Construction deadlines since QMS was most prominently driven by getting more jobs and not Total Quality improvement (Agbenyega, 2014). A study in Swaziland by Mashwama, Aigbavboa, & Thwala, (2017) found out that, QMS and critical success factors in construction projects, can eliminate poor construction project quality.

In Tanzania, Project Quality Plan as part of implementation of QMS was limited to only inspection and test plans due to lack of QMS knowledge by project consultants and owners (Shengeza, 2017). This underscores the importance of QMS training for the project stakeholders. In a
case of Laboratories in Botswana, Uganda and Benin, QMS implementation was challenging to implement resulting to performance stagnation; training, motivation, stakeholder involvement, additionally, resources were recommended as the solution to ensure QMS implementation in projects (Anisimova, et al., 2015). In Ethiopia, ISO 9001 certified companies faced the following challenges in QMS implementation: resistance to change from stakeholders; inconsistency in QMS implementation; and Turnover; They lacked tangible benefits due to poor QMS adoption strategy (Kidanu, 2014).

In Kenya, the government policies like the Public Finance Act, Public Procurement and Opportunity Act, Environmental Management and Coordination Act among others, spell out the policy frameworks involved in the project implementation. Most of the Acts in the state are geared inherently towards control of project implementation process. Githenya & Ngugi (2014) underlines the importance of a good project implementation which is essential for the success of the project. According to Ngundo(2014) devolution was a strategy meant to recuperate and remedy institutional deficiencies that were being experienced in the previous centralized government: These period has been marred with various challenges and success towards delivery of the services to the public.

In the current global industrialization and capitalism, the need of having standardized products and services is ever growing and the driving force towards economic growth. International organization of Standardization (ISO) has endeavored to support innovation and provide solutions to the global challenges (Haefner, Gallagher, & Rogers, 2017). These have endeared ISO quality standards to over 1,644,357 organization certification as of the ISO Survey 2016 according to (Charlet, 2017). The ISO standards are based on management system standards (MSS). MSS as explained by American Society of Quality (2017) is what the organization does to manage the activities and processes so as to attain the objectives of the products and services. MSS principles are derived from the Deming wheel cycle which is Plan-Do-Check-Act. MSS is the bases of ISO 9000 family that addresses quality management (American Society of Quality, (ASQ) 2017). ISO 9000 entail setting product and service quality improvements, of which quality is the degree to which inherent characteristics of the product or service attain the expectation stated and general implied (Hoyle, 2001). The current ISO 9001:2015 has reinforced the quality standards in line with the Total Quality Management by putting customer focus as the goal. Unlike ISO 9001:2008 that was based on quality assurance which is a scientific method of quality improvement.

Reference, Terms and Definitions, Context of the Organization, Leadership, Planning, Support, Operation, Performance Evaluation and Improvement. The ISO 18091:2014 of Local Government certification guideline is based on the ISO 9001:2008. According to (Gadsden 2014), ISO 18091:2014 enables the local government to effectively manage available resources, processes and work as a system. It reassures the local citizens that their needs and expectations are being met in a timely and consistent manner. Thus the need to interrogate the appropriateness of the local government certification against the prevailing trend of ISO 9001:2015 that provide service and product synergy.

Nyandarua County as a devolved unit is composed of seven sub-counties. The county is predominantly rural-agriculture, thus the reason the county government of Nyandarua has a slogan of “a land of Milk and Potatoes”. In view of the county Annual Financial Plans for the last five years, 30% of the total budget, was directed towards infrastructure development. The development included: grading and graveling of roads, culvert installation, bridge constructions, Early Childhood classrooms construction, Polytechnic Classrooms construction, Hospital and dispensaries construction, County headquarters construction, water line construction among many other projects implemented.

Construction project as explained by Githenya & Ngugi(2014), are a mix of complex processes: they further advocate the notion that, construction projects are considered implemented if the work is done on schedule, on budget and achieve the set goals and accepted by the client. In the last five years of devolution Ouko (2017) report, has presented a grey picture of the county expenditure in Nyandarua and a close all the 47 counties in Kenya. Question has been leveled on lack of prudent utilization of the county resource and service delivery. Ouko (2017) in his report of Nyandarua county financial year 2015/2016 he present the following grey picture of development project which compose majority been construction projects:

Nyandarua County Development projects affected were: 18 out of 273 projects were not implemented by end of June 2016 although budgeted and funds allocated for. During Auditing, no reason was provided, for the slow progress in the implementation of the projects; Road projects implemented were not linked to budget and budget figures. Which made him to question whether the project implemented were they budgeted for; Construction of the Youth Polytechnics implementation may take several years according to auditor’s evaluation. He eludes these to the manners in which the procurement was done. Which could stall the project, take long to complete, or the money spent on the project already could go to waste. This would result to loss of value for public funds in the projects; Quality of Work at Laikipia-Huhoini-Bidii-Milangine road for road improvement was not done as per the specifications and he comment that no value for money spent in the projects. In certain
section, the Auditors observed gravel patching was done instead of complete gravelling; the substandard quality of workmanship was not observed in construction of Heni stadium wall; the construction of the Horticulture pack house, 60% work was done, yet 150% implementation period had elapsed. 50% of the funds had been paid to the supplier of Kshs 24,815,708 from the total cost of kshs 50,175,680. He goes further to question how specifications were altered from the initial Bill of Quantities (BQ) of wooden roofing to steel without proper approvals.

County Government development Plans of 2014-2015, 2015-2016, 2016-2017, of Nyandarua County, reinforces the question on quality of the plans. For instance, in the construction projects to be implemented lacked a project specification requirements bar, to justify the allocation of the cost. This can only tend to insinuate, a proper feasibility study was not carried out to justify the cost allocation. The plans also lack Evaluation Bar which affects the project control. The allocation of Monitoring and Evaluation (M&E) responsibility to the Finance docket, prompt one to question the interdepartmental synergy. This is based on the Total Quality Management principles stipulated in the ISO 9001:2015, which expound on the need to have no central quality hub, but instead have all workers understand the quality needs of the organization.

1.2 Statement of the Problem

The report released by the National Transition Authority in year 2016, significantly reveal inefficiencies leading to wastage of taxpayer’s money in key projects being implemented: The projects are either: badly implemented, abandoned, or duplicated, meaning they do not meet stakeholders’ expectations (Jamah, 2016). According to Ouko, (Report of Auditor General on Financial Statement of County Executive of Nyandarua for the year ending 30 June, 2017) report on, and of the other 46 counties, report that the quality of the projects implemented, has been problematic.

Projects management by devolved units according to (Ministry of Devolution, 2015 report), exposed five main weaknesses namely: Weak Monitoring and Evaluation system; Inability to develop quality legislation; Absence of Information System; Un-coordinated planning and, Weak collaboration between stakeholders. According to Ahmed, Aoicong, Tang, & Zheng, (2005) in their comparative study of construction projects in the USA and Hong Kong, they found out that, QMS in cases where it was applied selectively, it didn’t yield the quality project performance intended.

To cub the construction projects crisis some local building authorities in Malaysia sought to alleviate quality problem by making ISO 9000-based QMS certification mandatory for all contractors tendering for public sector projects as reported by (Ali & Rahmat, 2010). Ali & Rahmat, (2010) further report that, in Hong Kong, all consultants had to be certified on ISO 9000-based QMS as required by authorities, before they can bid for public construction projects which lead to improved projects quality and contractors improved services.
Rumane, (2011) in his study on quality management in construction projects conclude that, in construction industries, utilization of QMS concepts greatly influence the cost-effectiveness of construction projects and attaining successful project performance. To reinforce the importance of utilization of QMS in construction projects, Solomon, Bester, & Moll, (2017) argue that, it improves the industry positively, thus affecting attitudes of organization in improving processes and practices on quality culture and continuous improvement.

According to (Ethics and Anti-Corruption Commission (EACC), 2015) survey report, County Government’s procurement process was found to be 46% corrupt, while roads construction and infrastructure development were 11% corrupt: while, bribes were largest in roads and public works. Since devolution, services have declined significantly from 26% to worse of 80% unlike in the health sector (Koikai, 2015). Additionally, Korir (2013) found out that 84% of the county employees felt their were no meaningful training to empower them. IPSOS Synovate survey reported by Asamba (2018), revealed that counties priorities are 27% roads and 21% water that underscore the impotance to interrogate construction projects and their quality since in more than 51% of all respondents in county related research projects, found faults in the county management of projects; yet, the acceptance of devolution is steadily increasing in constructions projects unlike in other sectors.

Therefore, this research project sought to investigate the determinants for adoption of Quality Management System (QMS), on project implementation in Nyandarua County construction projects. The study did assess County Government determinants for adoption of QMS based elements like Quality Planning, M&E, Communication, Organization Context and Quality Training, the extent they can resolve construction project implementation challenges. That yielded result to enable the County Governments reflect on the ISO 9001:2015-based QMS on how appropriate QMS can help to resolve the many local government (County governments) challenges.

1.3 Purpose of the Study

The purpose of this study was to investigate on the determinants for adoption of Quality Management System, to what extent when applied, can resolve the Projects Implementation challenges in the County Governments construction projects.

1.4 Objectives of the Study

The Study sought to achieve the following Objectives:

1. To examine the extent to which Quality Planning adoption in projects implementation, to resolve challenges in construction projects.
2. To explore the extent to which of Monitoring and Evaluation adoption, to resolve Construction project implementation challenges.
3. To assess the extent to which Organizational Context, can resolve project implementation challenges in construction projects.
4. To examine the extent to which adoption of Quality Training, to resolve project implementation challenges in construction projects.

1.5 Research Hypotheses
The study was based on the following research hypothesis:
1. \( H_{01} \) - Adoption of Quality Planning cannot resolve project implementation challenges in construction projects.
2. \( H_{02} \) - Adoption of Monitoring and Evaluation cannot resolve construction project implementation challenges.
3. \( H_{03} \) - Innovating Organizational Context cannot resolve challenges of projects implementation in construction projects.
4. \( H_{04} \) – Adoption of Quality Training, cannot resolve project implementation challenges in construction projects.

1.6 Significance of the Study
The study is significant to the 47 county governments and any other agencies operating in public sector. It helps to inform a network of project implementers on the best practices to attain quality standards during project implementation. It explore the areas where the counties are losing in service delivery and how best the counties can adapt quality standardization. Given that most counties are neither ISO certified nor some of their processes accredited by the relevant authority. This study will provide the road map to how the issues of concern towards certification and accreditation can be qualitatively and quantitatively be addressed. Additionally, the study inform the policy makes on the importance of quality policies and frameworks, where if implemented can yield transformative change. It inform the ministry of devolution and the central government on the best approaches to ensure citizens satisfactions and expectations are met. It yield results that show the need to have QMS as the model among other management models which should influence devolution decision making and policy formulation.

The study underscores the best QMS practice as per the ISO 9001:2015 and TQM that the counties can implement so as to tap into the global market. Since most counties are seeking international funding. This research project report, further inform on the best practices to achieve international standardization, thus attracting foreign preference in funding and grants. The County Government of Nyandarua may benefit more from this study, by scientifically realizing areas of quality improvement needed to change the Auditor General reports on the county projects in progressive years ahead. The study sought to inform departmental Planning, M&E systems, Communication, County Government Organization Context and Training.
1.7 Basic Assumptions of the Study

The study was based on the assumption that, the sample population was ready to respond to the survey and the sample population was representative of the population size. By having the 95% level of significance, the study assumed the respondents represented the population size. It assumed that the two stratified sample population was available to undertake the survey. Administering the questionnaire and picking them same day, ensured the respondents level was high. Additionally, the study assumed that the respondents would respond to the question true to their opinions, perceptions and attitudes. The researcher did assist on the site in the understanding of the questions by respondents, thus ensuring the questions were well understood to gain the respondents’ opinions.

1.8 Limitations of the Study

The study was limited in accessing the public respondents given the vast geographical region the Ol-kalou Sub-County covers which has al-mostly all-weather roads and no reliable means of transport. The hiring of transport means eased the transportation challenges. The researcher was limited in accessing of County employees and County suppliers thus, the researcher requested the county secretary and the chief officers involved in the departments to assist the researcher in accessing the employee and suppliers. The understanding of the research questionnaire among the respondents was a challenge mostly to those who perceived the research to only require construction related employees. However, the utilization of face to face communication between the researcher and the respondent will ensure the questions not well understood were clarified by the researcher.

1.9 Delimitations of the Study

The study sought to target construction project in Nyandarua County in Ol-Kalou sub-county. Ol-kalou sub-county is the headquarters of the Nyandarua County, as such; most construction projects are in Ol-kalou so as to upgrade the Headquarter to town level and given the challenges the sector is experiencing per the Auditors General reports. The researcher targeted sample population of two groups that include: the 60 county government employees, and the 44 suppliers of construction services to the county government. The two groups are the project implementing entities at the County levels on the devolved projects.

The study investigated the determinants for adoption of Quality Management System by County Governments on projects implementation by looking at elements of QMS based planning, Communication, M&E, Organization Context and Training. The study was self-sponsored and conducted in the year 2018 month of July. The scope of the study was representative of the whole County Governments and the total number of suppliers involved in the County Construction Projects Implementation.
1.10 Definitions of Key Terms Used in the Study

Public - Are the citizens who are affected by the construction projects implemented by the county government and the employee of the supplier during project implementation.

Quality Management System (QMS) - is a process in which quality in management can be utilized and implemented by developing quality systems. It is a system for quality improvement for services and products.

Suppliers – are the people who offer services to the County Government on contract together with their employees. They are the actual implementing entities of construction projects.

Organizational Context: It the environment under which the County Government operates, that in influenced by the County administrative environmental factors and regulated by communication factors.

Innovation: the term is synonymous with the adoption, which represent an introduction of a new quality oriented manner of project implementation.

1.11 Organization of the Study

The study is organized in five chapters. Chapter one contain the background of the study that offers the introduction to the key concepts under study, statement of the problem, purpose of the study, objectives of the study, research question, research hypothesis, significance of the study, basic assumption of the study, limitations of the study, and delimitations of the study. Chapter two comprise of the Literature review of the study. It provides the review of the four variables under study, the theoretical review, empirical review, conceptual framework and knowledge gaps that exists in relation to the study. Chapter three discusses the research methodology of the study which includes: research design, target population, sampling procedure, research instruments, validity and reliability of the study, data analysis techniques, ethical considerations and operationalization of the variables discussed. Chapter four present the research findings of the study, interpretation and discussion of the findings. Chapter five finally, present the summary of the findings, conclusions and recommendations of the study.
CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

The chapter is based on the review of literature work of various scholars what they have contributed in the development of the QMS based variables, to consider during project implementation. It interrogates on the various elements of QMS where they have been adopted and applied. QMS based variables under study are: QMS based planning, M&E, Organizational Context, Communication and Training. The chapter further explore on the TQM theories of Juran and Crosby in addition to ISO based QMS models that can provide the scientific general understanding of the study. Consequently, the variables are diagrammatically represented in a conceptual framework to show the interrelationship of the variables under study. Finally in the chapter, the study show some of the knowledge gap realized from the literature reviewed.

2.1.1 Quality Management System

Quality Management System (QMS) under study in this research project is based on the ISO 9001:2015. The premise of the phrase QMS has three words which can be defined as: Quality according to Hoyle (2001), is the degree to which set inherent characteristics fulfill requirements. Philip Crosby views quality as conformance to requirement in his fourteen steps to quality improvement. Management on the other hand, is the organization and coordination of activities in order to attain project objectives (Business Dictionary, 2017). Management has both scientific-technical and social process that function to plan, Control, organize, direct and staff activity process of a project (Gakuu & Kidombo, 2011). These qualify QMS as both a social and scientific mechanism in project administration. Finally, a System is a detailed procedure and routine developed to administer specific activities, solve problems and perform duty. (Cambridge Dictionary 2017) Define system as a set of connected things, a structure used for a certain particular purpose. The system approach underscores the need to view QMS as an interconnection of various parts within the organization. For effectiveness and efficiency, the whole must work in synchronized coordinated manner. There has to be synergy between the standards (quality) management and the system.

Quality Management System is a formalized system, that document information of the organization in order to achieve quality policies and objectives (American Society of Quality , 2017). (British Standard Institution (BSI) 2016) explain QMS as a complete operational tool, designed to improve performance; it is flexible and agile to organization needs. Haefner, Gallagher, & Rogers(2017) in their magazine article, underscored the need of QMS for it acts as a corrective and preventive actions paradigm. The QMS paradigm is composed of various management models that
operationalize quality in management example are: six sigma, Kaizen, TQM, project management, log frames among others. Utilization of the QMS related models brings about greater effectiveness of organization system, leading to a greater productivity which enhances stakeholders’ satisfaction (Okwiri & Mbeche, 2014).

ISO 9001:2015 Quality Management System (QMS) which is a revised international standard from ISO 9001:2008, has improved the QMS to best fit in the ever changing world. According to Medic, Karlovic, & Cindric (2016) the ISO 9001:2015 has prompted the ISO 9001 to continue adapting in the ever changing world environment. The inclusion of context in the development of the ISO 9001:2015 greatly upheld the need to have scenario planning in projects. The alternative change from resource management to Planning better underscore the broadness of the factors involved in the project.

2.1.2 Project Implementation

Project implementation is a phase in the project cycle. Dillon, (2010) Explain project implementations as the process of currying out activities described in the work plan where vision and plans become reality. He further expound that, the process requires coordination of a wide range of activities involved in the project. McConnell (2011) Describe project implementation as a schedule that clarifies and describe what the project should deliver and within certain framework of time. Additionally, (Project Management Knowhow, 2017) views project implementation as synonymous with project execution, which is what is done after project planning is completed.

Project implementation can take various approaches depending on the implementing entity. (Project Management Tips, 2009) Borrowing from the works of Charvet (2002) on Project Management of Nation, stipulate three approaches to project implementation: Parallel implementation, Phased Implementation and Crush Implementation. The county construction project implementation we will investigate if they are in need of the any implementation approach in line with quality improvement.

2.2 Quality Planning and Project Implementation

Quality of construction projects have the same relationship with Quality Management Ashokkumar (2014) of which according to Shaaria, et al. (2015) quality management involve formal management function that include: quality planning, quality assurance, quality control and quality improvement. Ashokkumar (2014) further notes that, quality planning identifies which quality standards are relevant to the project and determines ways to satisfy them. Planning thus provides direction, reduces uncertainty and establishes the standards to be used Pick (2013) further, establishing a positive relationship between planning and performance (Pg 233) reflected by
organization that planned against those that don’t. Underscoring the importance of quality planning, (PMI-Certified Project Manager, 2017) validate quality planning as means of identifying and defining exact standards and quality relevant to the project; thus the execution of the projects must be founded in certain defined quality standards.

In view of success of construction project in Hong Kong, Yeung, Chan, Chan, Chiang, & Yong (2013) expressed the importance of time performance, quality performance, effective planning, environmental performance and cost performance. Additionally, while studying key performance indicator in CDF construction project in Kenya, Ngacho & Das, (2014) mainly noted time, cost, and quality as key indicators, of which they are addressed by the construction project scheduling (CPS) technique. According to Zhou, Love, Wang, Teo, & Irani, (2013) Construction Scheduling is the way of optimally sequencing activities over time and allocating resources: borrowing from the work of El-Rayes and Kandil (2005), they further point to the utilization of time-cost-quality trade-off as the new algorithmic model of project scheduling. CPS ensures you consider goals in project management that result to construction of a cost over weighed quality trade-off/waivespan against quality trade-off for optimization thus solving the CPS problems. According to Zhou, Love, Wang, Teo, & Irani (2013), and Ghoddousi, Eshtehardian, Jooybanpour, & Javanmardi (2013), there are various models to used by project planners in addressing CPS that are: Critical path Method, PERT, time-cost-quality trade-off, among others that help project planners to develop workable project schedules. When quality is made an objective in CPS, the projects are completed on time, within the stipulated budget and of quality standards (Kim, Kang, & Hwang, 2012). These examples expound on the need of project scheduling of the various activities involved in implementation. The project is bounded by certain time constraints and the project implementors must maximise the project time to ensure project timelines are upheld.

Scenario of emergent and future conditions is important in developing a robust priorities of infrastructure projects system by enabling stakeholders consensus thus reducing project environmental vulnerability (Thekdi & Lambert, 2014). Scenario planning (SP) is a constituency planning Gokhale (2013), that consistently predict the future occurrence by developing early-warning mechanisms to caution project implementation (Pg 289) against environmental challenges. Quality SP enables public organization to manage exposure and vulnerability to extreme internal and external environmental events (Zhang, Welch, & Miao, 2018). Additionally according to Peyronnin, et al. (2013) in case of construction of a marine coastal master plan in Louisiana, SP models when utilized, intensified suite for project that informed greater progress in achieving project master plan objectives by considering future environmental conditions. SP thus decreases framing bias and increases decision quality when applied in full by project managers (Meissner & Wulf, 2013) which all the above ensures quality standards are met for the project to survive the future challenges.
2.3 Monitoring and Evaluation and Project Implementation

Quality Assessment System in Construction (QLASSIC) in Malaysia, is one such tool used to evaluate building construction quality, which has a stronger correlation with ISO 9001 QMS (Ali M. C., 2014). A relationship between QLASSIC and QMS in construction, enables project manager to: evaluate performance of contractors against workmanship; compile data for statistical analysis; benchmark level of quality; and have a quality assessment system (Pg 75). Further, survey of 40 companies in Portuguese revealed time-cost-quality as key factors indicators in evaluation of project success Ribeiro, Paiva, Varajã, & Dominguez (2013), which are the elements of quality project implementation. Moreover, in promoting adoption of technologically aided monitoring Yang, Park, Vela , & Golparvar-Fard (2015) they noted timely and accurate monitoring on the construction project by use of still images, time-lapse photos and video streams, can bring an immediate awareness of project specific issues. Monitoring and Evaluation improves project timeline and deliverables as per the 63% of respondents by Gaturu & Muturi (2014) and borrowing from the works of Gauvreau (2004) and Tullet (1996), M&E provides timely feedback project success. This attributes of M&E in construction projects underscore the need of “Just in Time” philosophy of quality improvement. In cases where M&E is disfunctional, it is due to human error in case of Uganda construction project delays by clients, consultants and contractors (Muhwez, Aca, & Otim, 2014).

Clause 5.3 of ISO 9001:2015 emphansize reporting as of key importance assigned to the project stakeholder, thus M&E should be reported as part of information documentation of QMS. M&E as a integrated approach acrose all project aspect as such, it utilisises Intergrated Reporting (IR). According to Busco , Frigo, Riccaboni, & Quattrone (2013), IR is designed to support intergrrated thinking, decision making and action that ensures project sustainability during and after implementation. Additionaly, M&E utilisises systematic approach in progress report on performance Lahey (2013), case of Botswana performance measurement and reporting, capacity to provide M&E report information is attributed to skilled personnel to gather,analyze and report on projects performance (Pg 192). In kenya as a developing nation in a case of construction and utilization of Health Information System, the ability to report indicator data determines evidence-based decision-making, Kariuki, et al. (2016), this affect project performance. Therefore, M&E reporting justifies the reason to undertake M&E for quality improvement.

Stakeholders engagement is paramount in the evaluation of organization reporting. To reflect the importance of project stakeholders inolvement in M&E, Lahey, (2013, Pg 190) as a critical success factor in National M&E system development, they should be involved for M&E system development to be efective and sustainable. Contrary to the above and most scholars reports, Waithera & Wanyoike (2015) found no significance relationship between stakeholder and M&E performance.
in youth agribusiness projects though they provided multiple perspective assessment of project. However, in QMS, the multiple perspectives in assessment are as important as main attribute since we focus on total quality management by keeping defects to zero in projects implementation. Barasa (2014) support Stakeholders involvement in M&E in projects implementaions for they are the ones on the ground and their observation and reporting are likely to be precise and reliable thus supporting quality standards for just in time improvement.

2.4 Organizational Context and Project Implementation

Organizational Context (OC) as per the Clause 4 of ISO 9001:2015, offers organization opportunity to identify and comprehend factors and parties in their environment that support QMS (BSI, 2016). According to (Pojasek, 2013), OC determines the influence and stakeholders roles priorities; and how readily sustainability projects can be adopted or not. Quality Managements System (QMS) OC is composed of: understanding the OC; understanding interested parties needs and expectations; scope of QMS; and, Process aproach utilization in QMS driven projects (QualityWBT Center for Education, 2015). It is unfortunate that ISO 9001:2015 based QMS does not provide suggested analysis techniques to use in understanding project OC (Quality Support Group (QSG), 2015) therefore, utilization of mainstream OC analysis can be utilised by use of techniques like SWAT analysis, PESTEL analysis among others.

Fonseca (2014) notes that, OC interested parties are those that can or have actual or potential impact on the product or services, and in this case the project implementation performance. Additionally, the interested parties can be parties or organization that are or perceived affected or to be affected by the QMS based decisions and activities in a project (Whittington & Associates, 2017). According to ISO/TS 9002:2015, an organization need to monitor and review interested parties information and their significant requirements that directly or indirectly affect the project implementation and performance. Interested parties are thus impactful in bringing to fruition QMS implementation in an organization projects. In Nynadaru County construction projects the interested parties can be: suppliers, contractors, employees, members of the public, community organizations, among others.

The Organizational Context scope is composed of both the internal and external environmnet. According to (QSG 2015), an organization understand it’s internal and external environment by: determining relevant issues to it; assessment of issues that could undermine QMS implementation and mitigating them; and, understanding issues influence on quality change. Internal environment can be analysed by used of various techniques that include SWOT analysis according to (ISO 9001 help, 2016), identifies the following internal issues: Human resource related issues (culture, demographic factors, experience and competence) and Management related issues (organization structure,
leadership, duties and responsibilities). ISO 10018:2012 Quality Management- guidelines on Peoples involvement and Competence, justify human resource involvement in supporting QMS in an organization Frost (2012), supporting the need to understand internal issues of the organization involved in the project implementation to attain quality standards. OC External environment can be analysed by use of PESTEL model (Lloyds Register, 2018) that influence the design of project mission, objectives, vision, goals, quality policy among other organization attributes (QSG, 2015) that are all aimed in risk mitigation and project controls on projects cycles. These justifies the need to understand the OC that the project is been implemented on, for it is the overarching variable that operationalise the project activities.

Quality Management System based Communication in projects, play an interlinking critical role between project stakeholders, and as a cohesion factor providing unity of purpose and direction by: enabling communication planning; information distribution; information data gathering, analysis and utilization; and supporting established management levels (Stanciu, Condrea, & Zamfir, 2016). According to Hussen (2016), effective QMS is geared towards systematic development and communicating a customer-focused: strategy, action plans, mission and objectives, by responding and listening to customer needs and expectations. General communication can be understood as transfer and understanding of meaning Jones (2013), of the encoded information by deconding it. Therefore, to ensure quality standards, Olaniran (2015) in case of Nigeria, effective communication in construction industry is affected by: work-drawing interpretation experience by the project implementors; poor or distorted information that affected workmanship quality; disjointed, unstructured and unclear information channels that affect information authority to be followed in adhering to project quality; unspecified site meetings and lacking between contractors, consultants and all project stakeholders; instruction late dissemination and clarity; specification of medium of communication; structure of work breakdown; and lack of data reports to inform project communication decisions and motivation. To ensure quality communication, form of communication, and content of communication process are considered by managers in project implementation case of Enterprises Resource Planning project implementation (Benoit, Val, & Alexander, 2013).

ISO 9001:2015 Support on Communication stipulate that, every organization shall determine the internal and external communication relevant to QMS on: what to communicate; when to communicate; with whom to communicate; and how to communicate (Hammar, 2016). Communication within an organization is viewed in terms of internal communication involving divisional managers and external communication involving top managers that affect organization projects while harmony must be maintained among the two for quality of forms disclosures (Chen, Martin, Roychowdhury, Wang, & Billett, 2018). Contrary, in line with GOST ISO 9001:2011 and GOST RV 0015-002-2012, Internal communication is driven by Top Management, to improve
organization and provide direct employees involvement in achievement of quality objectives (Braun & Surtaeva, 2014). According to Gallemore & Labro (2015), internal information quality is valued as project communication worth under bases of: accessibility, usefulness, reliability, accuracy, quantity and signal-to-noise ration of data gathered. Examples of internal communication or information are: intranets, newsletters, notice boards, memos, letters, team briefs, internal surveys, among others. External communication involves all those parties outsider the organization; the organization can have a better quality communication plan to inform them in order to maintain project QMS, Spranger (2017), they include suppliers, interested parties, consultants, competitors, Public members, among others.

Juneja (2018) and Jones (2013, Pg440) noted that, communication flow within an organization project can be classified as: Downward communication, upward communication, lateral communication and diagonal communication, which determines communication direction affecting communication quality. Additionaly, Johnson (2017) introduces the concept of multi-directional communication, which is an integration of upward-downward-horizontal communication which can achieve more accurate feedback, promote understanding and improve employees inclusion. Communication flow is thus affected by communication networks Jones (2013, Pg 441) and (Scribd, 2018) the networks are: Chain network, Y network, wheel network and All-channel network. Effective communication flow networks are affected by: process barriers, physical barriers, semantic barriers, psychological barriers and technological barriers (Essays UK, 2015); though we cannot eliminate them, we can minimize them for effective QMS utilization in projects. Communication flow is thus of importance consideration is accessing the method of flow direction used in County Governments construction projects implementation and their effectiveness. Application of QMS based Communication flow we access the impact level it can have if applied in projects implementation.

Communication and Information Technology have a symbiotic relationship in the current global market under Information Communication and Technology (ICT) and Information Technology (IT). ICT in construction projects, support improvement of construction quality Hosseini, Chileshe, Zuo, & Baroudi (2012), and borrowing from the works of Adraanse et al., (2010), it improves information exchange and communication in projects among the various stakeholders. Dubem & Amaka (2016) in a case of construction industry in Nigeria, they found a causal relationship between ICT infrastructure use and project performance which we can peg to quality of work done, time and cost that are attributes of effective QMS in projects. ICT to justify its importance in developing nations, it was found to be a driving force for new opportunities and innovations (World Economic Forum and INSEAD, 2014): while (Pg 8) Sub-Saharan Africa there was relatively poor ICT infrastructures that are costly to access unlike in developed states like Finland, Singapore among others, which can be relatable to QMS utilisation in their development projects via gross domestic
product and ISO certification. ICT and IT in projects are utilised by use of models like: Computer Aided Desings (CAD), Computer Aided Manufacturing (CAM), Enterprise Resource Planning (ERP), Building Information Modelling (BIM) among others. BIM utilization in Malaysia construction was able to increase project efficiency and effectiveness by improving communication and collaboration among the stakeholders Aryani, Suzila, Narimah, & Mohamad (2013), which reinforces the importance of communication in construction projects. IT and ICT mediums selection like: social media (facebook, Twitter, Whatsapp, among others), websites, Email, intranet, softwares among others, are important in determining how information is filtered, decoded and received (Pritchard, 2014). Therefore, ICT and IT affect the way QMS based Communication is operationalised, implemented and sustained, which affect the manner in which projects are implemented. Moreover, communication requirement are driven by applied tools and technologies selected, Pritchard (2014, Pg7) in projects.

2.5 Quality Training and Project Implementation

According to Monika & Parthasarathy (2015) training can be defined as acquisition of skills, knowledge and competence; and borrowing form Bate & Davis (2010), training programmes importance is possible in instances where trainee has ability to practise the theoretical aspects learned and apply them in actual project environment by used of: role play, cases, simulation, mediation, computer based technologies among other aided training aids. Employees Training is a crucial aspect in human resource management Quirarte (2013, Pg 252), that result to a good quality of service and quality of management (Monika & Parthasarathy, 2015). Analysis by Shengeza (2017) in a case of Project Quality Plan role in Tanzania Government via construction bodies, Training is able to resolve issues of: change of order by clients and occassional revisions; changes in design; and inadequances of QMS knlwedge in attaining quality in construction industry. Additionaly, QMS based training courses are important given the: increasing relevance of QMS, complexity of activities and challenges of implementing standards applicable in a project (Hecquet, 2015). Andersson (2015) note that, training in QMS in organizations that resisted change, improved efficiency significantly unlike in those organizations that lacked QMS training because, it enabled effective use of metadata generated by the project thus increasing production efficiency. In other instance, employees trained on QMS at Strathmore university were able in a timely manner respond to customer needs and provide reliable services promptly and accurately (Correia, 2014). Which justifies the need for QMS training for when staff are trained, they adhere to compliance Ndumbi & Okello (2015); since training influence operational performance and QMS implementation (Njenga, 2017). Khalonyere (2013) in his research found out that, training employees on QMS enabled mitigation of negative-perception on project context by motivating a quality mind-set among employees. These analysis underscore the need to have QMS based training in a project and organization that aims to improve on quality.
According to Elgharib & Al-mijrab (2017), QMS implementation in Arabic countries experienced challenges in project implementation like: lack of government support on quality activities; lack of education and training; lack of understanding and importance of the QMS; lack of awareness and, lack of qualified personnel, which could be addressed if the government agency concerned could train the parties involved. Some of the parties concerned in project implementation are the suppliers or the contractors, who form key component in government projects. Mukwakungu, Nkoagatse, & Mbohwa (2017) found out that, 85% of companies inclusive of government agencies, outsource their services to contractors and suppliers, for they have the technology and know-how, moreover, negative project impact occurs when the outsourcing entity neglect it control responsibility over outsourced contractors and suppliers. The negative impact can be controled if the supplier are trained on the required standards by having a Supplier Quality Development Programs (SQDPs). The SQDPs are strategic of quality development initiatives for improving realibility and efficiency and increasing quality of suppliers which improves their capabilities and performance (Khosrow, 2013). Training is one such development initiative for according to Al-Rifai & Amoudi (2016), it enhances skills of construction workers who are in suppliers organization and management.

Further input from Keng & Kamal (2016) stipulate that, enhanced training is able to overcome implementation problems borrowing from Tan (2011) show lack of training as problematic in quality management and implementation. Therefore, Suppliers training support quality improvement by enhancing effective supplier selection criterion and ranking where we avoid the 75% of those lacking training as reported by Arunmozhi, Suguna, & Raghunath (2015) by increasing frequency of training and awareness for suppliers or contractors.

On-site training provide evidence of challenges encountered in comprehending quality concepts and development on a QMS intergrated system in projects (Hecquet, 2015). Most construction companies are scattered geographically as acknowledged by Kidanu (2014), and he find fault in onsite training due to scatteredness. In support of onsite training, it facilitate transfer of new knowledge and skills as denoted by Mduma, et al. (2015), under which we can classify QMS as a necessary new knowledge and skills in African project implementation and development. QMS knowledge and skills transfers are possible via onsite training because it is comprehensive, cost-effective and time saving as noted by (Business & Legal Resource (BLR), 2016). Moreover, onsite training is flexible to project unique needs giving opportunity to focus on key challenges and topic concerns of the project team as highlighted by (National Seminars Training (NST), 2018). Onsite training provides certain forms of organization learning models that include industrial application scenario for learning and remote learning scenarios according to (Abele, et al., 2015). Additionally, Abele, et al. (2015) expound on industrial application scenario learning as a situation where project stakeholders or workers, discover lean principles and methods and apply them to solve challenges in
real production or construction environment without risk of failure or cost. This represent the importance of QMS based onsite training, where it ensures quality improvement is immediate and a collective responsibility by all those involved in project implementation.

2.6 Theoretical Framework

Quality adoration and utilization in project or project implementation is guided by certain preconceived theories. The QMS is an approach that operationalised quality in projects. In order to understand the general application of the approach, there are various theories and models that support our study. The study will be guided by the Total Quality Management (TQM) theory models by Joseph M. Juran and Philip B. Crosby and ISO based QMS models in understanding the variables relations.

2.6.1 Joseph M. Juran Theory

According to (ASQ, 2018) Juran is credited with the development of the concept of controlling quality and managerial breakthrough where the product or services are evaluated on quality worthness by ‘fitness of use’ to customers expectations. Additionally, anyone affected by the product or service is a customer who demand his or her expectation to be meet by the project (Suarez, 1992). To understand how the customer expectation are meet by the project been implemented, Juran developed Trilogy which is: Quality Planning which according to Nanda (2015) is the ability of the organization to develop products, system and processes that meet customer expectation; Quality control according to (ASQ, 2018) is part of quality management geared towards fulfilling requirements of quality via inspection process of the products and services; and Quality improvement is a systematic, formalised approach that helps in the analysis of performance practise and improvement performance efforts applied in the project (American Academy of Family Physicians (AAFP), 2018). Juran Trilogy is affected by:

1. The spiral of Progress in Quality it provide a systemic approach to quality improvement; An organization produced and distributes its services and products via a series of specialised activities undertaken by specialised departments and individuals creating a spiral of activities. In the County Governments, the project implementation is a spiral case involving various stakeholder and departments that when improved on quality it leads to higher public satisfaction and expectation. The some of the units involved in county projects are: Procurement department, accounts and finance department, public works department, M&E department, County Assembly, Governor’s office among others. Undertaking of spiral of progress quality enables: use, figure those to be involved, constrains and success factors expected when QMS is adopted.

2. Project by Project approach is a steering and diagnostic approach in team building. It views a project implementation as an activity involving various teams and sub-teams that when coordinated
is able to deliver the desired quality. By enhancing team-work and team communication quality is improved in a project. Use of graphics and statistics qualify this approach as a scientific since the decisions are guided by facts and data. Therefore, this is an important approach in comprehending how QMS can affect the employees and the willingness of adoption by stakeholders.

3. Breakthrough sequence that stipulate that organizations are confronted by decisive moments by new phenomenon that can proper its performance to higher level of performance. The problem solving and removal of the problem causes is a decisive moment that act as prevention mechanism in an organization. Adoption of an approach or organization system in project implementation should thus be guided by the ability of the said approach or system to solve problem and remove the problem on-site. This the foundation of Kaizen approach that, when the defect is noted, the whole process should stop until the defective process is collected. Thus we should not progress with defective project activities when a defect is noted, covering it up only affect the whole when the project is completed affecting the durability and sustainability of the public projects.

Juran’s theory application in projects has three main basic steps towards continuous improvement according to Goetsch & Davis (2015), namely: to achieve structured improvement continuously via dedication and sense of urgency in a project; establishing an extensive QMS based training programs; and to establish commitment and leadership from the top management. Which underscore the importance of Juran’s Theory in broader general understanding how we can integrate QMS in the county construction projects implementation.

2.6.2 Philip B. Crosby Theory

Philip Crosby defines quality as the conformity to specification or requirements set by project managers; this is the notion behind the Crosby’s concepts like ‘zero defects’, ‘getting it right first time’, and ‘conformance to requirements’. According to Suarez (1992), ‘zero defects’ concept paved way for quality improvement of products and services. The benefits of application of Crosby’s concepts is reduction in wastage of resources and time spent (Sky Mark, 2017), in addition of quality improvement benefits, in which the concepts uphold the importance of QMS in project activities. The Crosby theory of quality management involves various elements that expound on the journey of project quality improvement. Prevention process is an element in the Crosby Theory that act as a control proactive style of ensuring continuous improvement. Prevention process involves: Planning, Analyzing, and Taking Action represented by the following Crosby (1987) diagram:
The prevention process model provides a cycle of the activities involved in quality improvement. The variables under study in this paper can as while be relatable to this process.

Quality vaccine is an element of the Crosby theory that is anchored on three main components: Determination of the standards requirement of the project; Education via the Six ‘C’ as explained by (Laxmi, 2017) which include, comprehension, commitment, competence, communication, correction and continuance; and Implementation of the remedies that ensures prevention of products or service defects. Quality vaccine enables our study to access the preventive mechanisms that can be applied in adoption of QMS in project implementation.

Crosby’s quality management maturity grid of (1979) according to Wang (2015) borrowing from the works of Crosby (1979), is designed to assist project managers in understanding the standpoint of the organization quality development and realization of the need gap of a logical QMS implementation. The grid involves five stages namely; Uncertainty, Awakening, Enlightenment, Wisdom, and certainty. It also entails six categories as per the Crosby’s (1979) namely: Management understanding and attitude; Quality Organization status; Problem handling; Cost of quality; Quality improvement actions; and Summation of the organization project quality posture.

Philip Crosby Theory finally, it is understood under four absolutes, namely: Quality as conformance to requirements; System of assuring quality is prevention; Performance standards must be zero defects; and, Measurement of quality is the price of non-conformance. According to (Suarez, 1992) the cost of quality = Price of conformance + Price of non-conformance, this determines the degree in which quality in project is present or not present. The four absolutes set the bases of the 14 steps of quality improvement by Crosby that informs the context in which QMS should follow in its adoption in projects. The Crosby Theory thus provides a theoretical framework in understanding the interrelationship between the independent and the dependent variables. The elements and models in the Crosby theory inform the various methods and mechanism QMS can be utilized in providing solutions to the challenges of project implementation.
2.6.3 International Organization of Standardization based Models

International Organization of standardization (ISO) provides various approaches towards quality. The ISO models helps an organization to, “improve performance through repeatable specific steps that organization implement to: attain goals and objectives; and create organizational culture that is involved in a continuous cycle of organization self-evaluation, correction and improvement of operations and processes via employee awareness, management leadership and commitment,” (ISO, 2018). The ISO models according to Muraguri (2009) include various series namely; ISO 9000 spell out the fundamentals of Quality Management principles and related terminologies; ISO 9001, entail the requirements for developing QMS; ISO 9004 stipulate the guidelines that bring about performance improvement.

The ISO 9001 that is widely utilized in the study provides alignment of activities that when implemented, they lead towards customer satisfaction based on the principles involved (El-Morsy, Shafeek, Alshehri, & Gutub, 2014). The ISO 9001 principles according to (ISO, 2015), (ASQ 2018) and (El-Morsy, Shafeek, Alshehri, & Gutub, 2014) are: Customer focus, leadership, involvement of the project stakeholders, Process Approach, Evidence based decision making, Continuous Improvement, system approach to management and Mutually beneficial realtionship with suppliers. The informs the various variables under study where we understand the various phenomenon to be controlled within the project implementation environment to arrive at the desired outcomes. ISO 9001 based QMS standard are widely utilised world wide where empirical analysis by (Piskar & Dolinsek, 2006) yeilded positive effect in different Business activities where motivation of introducing ISO 9001 QMS was found to be demand and request by customers. It thus serves the purpose of: improving processes; reducing waste; cost reduction; facilitate and identify QMS based training opportunities; Staff engagement; and setting organization broad direction (ASQ, 2018). These leads to benefits like meeting both customers and organization project requirements. ISO models thus forms a key general attributes that support QMS adoption in organization projects by providing mechanisms of control through certification, accreditation and implementation guidelines provision. The recent ISO 9001:2015 is one such model that supports QMS application in projects to ensure Customer satisfaction.

2.7 Conceptual Framework

The dependent variable in this study is Project Implementation that is dependent on the independent variables on readiness for adoption of QMS based: Planning, M&E, Organizational Context, Communication and Training. The relationship between the dependent and independent variables is moderated by availability of financial resources. The intervening variables are Political
climate and Economic stability. The following Figure 2, show the diagrammatic representation of the relationship between the various variables:

Independent Variables

- Quality Planning
  - Quality Planning
  - Scheduling
  - Scenario Planning

- M&E
  - Timely feedback
  - Reporting
  - Stakeholders’ engagement

- Organization
  - Interested Parties
  - Scope
  - Communication Flow

- Quality Training
  - Employees Training
  - Suppliers Training
  - On-site Training

Moderating Variable

- Financial Resource Availability

Intervening Variables

- Quality Planning
- Scheduling
- Scenario Planning

Dependent Variable

- Project Implementation
  - Cost effective
  - Timeliness
  - Compliance to Specification
  - Public Expectations

- Political Climate Economic Stability

Figure 2: Conceptual Framework model showing the interrelationship between the variables

The figure above shows that, for us to have effective Project implemented that: adhere to set specifications in the bill of Quantities; Completed in timely manner; able to utilize the budgeted cost without ballooning the project cost underway in implementation; and able to meeting public expectations, we need to adopt QMS based methods. These can only happened when factors like political climate and economic stability are kept constant while the whole processes in heavily dependent on the availability of financial resources.

2.8 Knowledge Gap

According to Goetsch & Davis (2015), the future characteristics of QMS will be dertemined by: total commitment; customer satisfaction, leadership, cost, effective human resource, market, improvements, and suppliers intergration. These are facts that will prescribe scholars to want to generate new QMS based knowledge in understanding them, unlike in the general aplication of this concepts. The current ISO 9001:2015 though close to the ideals of TQM, they provide a new
dimension to start viewing quality application in projects. The last ISO based local government guidelines were as per the ISO 9001:2008, meaning there exist a gap in the application of the new ISO based QMS in local governments that needs scholarly input.

There also exist no developing nations based scholarly materials on the investigation on readiness of adoption of any QMS models. Much of what developing economies are doing is copying the developed nations QMS bases models and applying them, without interrogation the readiness and prudence of the said models. These can explain the challenges in the adoption of QMS bases models in developing nations given the comparison data between the QMS based certification and accreditation of organization in developed states against those in the developing states. Can the corruption levels which are always all time high in states like Kenya and Counties explain the need of having to rethink the project implementation and management strategies utilised? And if so, the need to have QMS based development variables is an area that need to be explored to help overcome the challenges which goes against the past beuracratic ways of doing things.

The QMS dased variables under study in the paper, are some of the areas where less schoraly work has been carried out. The general variables materials are in existence, but to shifting to QMS based thinking is a new area that calls for more inputs. In as far as the benefits of QMS are desired and appreciated by various project implementors, the way to implements, intergrate and monitor QMS progress mostly in service industries, is an area lacking in content. Since, most of the QMS scholarly material are on influence unlike on need to have QMS as part of the organization systems which justifies the question of need to shift from Quality Control and Quality Assurance levels of quality, to TQM level in projects so as to remain relevant in the future globalised market environment.

2.9 Summary of the Literature Reviewed

QMS based variables are important elements that gives the perspective on how projects implementation can be improved in the local government functionality. The literature reviewed on the QMS based Planning, shows how in instances where it has been utilized, the project implementation has improved on cost, time and quality. The key aspects of planning which are: Quality planning, Scheduling of project activities and Scenario planning are areas that improve on project planning quality. The utilization of QMS based M&E, improves on the decision making based on actual data from reports, and stakeholders which support quality improvement in a project to be timely or ‘Just in Time’.

Organization context is a factor that determines the environment which the project is implemented. The internal and external factors of the organization context coupled with interested groups, determines implementation of QMS in projects by either reducing or escalating barriers of quality improvement. Additionally, the projects stakeholders’ interaction is moderated by the level
of communication in and outside the project organization. Communication flow influence the quality of decision by either eliminating of enhancing noise via distortion of messages, which can be improved if the projects has capacity to utilize Information Technology. Internal and external communication are critical factors to consider while on the journey of quality improvement for they shape and motivate attitudes and perceptions of the project stakeholders. Moreover, to ensure that all the above variables are understood by employees and suppliers we require training whether on-site or of either form. Training does impact both the theoretical and practical understanding of QMS guidelines to the project implementers. The Theoretical framework offers the general explanation of the variables by providing other interacting factors to consider while adopting QMS in project implementation. The theories provide the broader application of the QMS towards project quality improvement and tools to use.
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter contains the research method used in the investigation on determinants for adoption of QMS in project implementation. It is organized by addressing: the research design used in the study; the Target population of the study; the Sample size and Sampling technique; Data collection instruments; Data collection procedures; Data analysis techniques and the Ethical consideration in the study.

3.2 Research Design

Research Design according to (University of Southern California (USC), 2018) is a strategy chosen to integrate different components under study in a logical and coherent manner, thus ensuring the study effectively handles the research problem. It is a blueprint or a plan for data collection Myers, Well, & Lorch (2010), measurement and data analysis. The study utilized Descriptive survey research design for deriving descriptive correlation and hypothesis testing. Descriptive design provided answers to ‘who, what, when and how’ by providing data like measurement of central tendencies (mean, median, mode, deviance from the mean, variation, percentages and correlation of variables) and measurement of spread (The Association for Educational Communications and Technology (AECT), 2001). While, inferential research design allowed the study to make inferences or predictions from the sample data gathered and analyzed, (Stephanie, 2018). The inferential statistics helped in estimating parameters and hypothesis testing thus eliminating biases, identifying causes and enabling the study to be replicable elsewhere.

3.3 Target Population

Target population in a survey include of the whole set of units in which the survey data generated, is to be utilized in making inference and arriving at generalized conclusions, (Encyclopedia of Survey Research Methods, 2008). The target population enables the study to construct and define the sampling frame by looking at all elements in the target population to draw the sample, with the assumption that the population will be accessible by the researcher. In this instance, the target population was 2000 among the County Government of Nyandarua employees, and 150 County Suppliers to the County Government of Nyandarua, specifically at Ol-Kalou Sub-County as per the approximation of projects implemented since year 2013-2018.
3.4 Sample Size and Sample Selection

A sample in research is a group in which information informs of data is gathered from. It is part of the target population that has been systematically and carefully selected. It is representative of the population in which the findings from the research can be generalized to represent the whole population.

The research sample size is determined by statistical factors and non-statistical factors. In this study, the non-statistical factors may include: financial resources, geographical terrain, sampling frame. The statistical factors did mathematically influence the sample size needed in determining the readiness for adoption of QMS in addressing challenges of project implementation. The sample size was determined by use of Cochran’s and Yamane’s formula:

\[ n = \frac{Z^2 \times \pi \times (1-\pi)}{e^2} \]

Where:
- \( n \) is the sample size
- \( Z \) is the Z-value in the Z table, level of confidence = 1.96
- \( e \) is the desired level of precision (i.e. margin of error) = 12%
- \( P \) is the estimate proportion of the population which has the attributes under study
- \( Q \) is \((1-P)\)

The two Strata sample size distribution was: County Employees out of the total population (P) of 2000, the sample size (n) was to be 60 employees; Supplier who were determined by the number of construction projects undertaken in Ol-Kalou Sub-County since inception of devolution year 2013-2017, the total population (P) was 150 and the sample size (n) was 44; The total sample size was 104 respondents.

Sample selection is the sampling technique used in getting the desired sample that contain the parameters being investigated. Stratified sampling technique was employed in creating two strata’s of Employees and Suppliers given the heterogeneity characteristics each group has towards quality expectations and satisfaction levels. The research used purposive random sampling for top management in the County Government departments and random sampling for the low cadre employees. Stratified sampling and purposive sampling will be used on the suppliers since they form part of key informants for the study to make pro-founded inferences.

3.5 Data Collection Instruments

The research utilized questionnaires to collect data on opinion, knowledge, and attitudes of respondents in investigating the readiness for adoption of QMS on project implementation. The questionnaire were grouped into sections, each section addressing specific objective of the study. The
questions were: opened ended for respondents to provide sufficient information; and closed ended questions, for ease of quantifying the qualitative data generated by the study. The questionnaires were self-administered by the researcher by: Giving the questionnaire to the literate sample size; interview guided questionnaire administration to the illiterate sample and in clarifying questions not fully comprehended by the respondents.

3.5.1 Piloting of the Study

A preliminary test was carried out on the data collection instrument and procedures to identify the likelihood of problems occurring and therefore addressing the problems to ensure the instrument is suitable to record research information. The piloting was carried out at Ol-joro-orok Sub-County in Nyandarua County, given the similarities it shares with Ol-Kalou Sub-County in terms of: a proximity geographical location, formerly in the same larger Ol-Kalou constituency, approximate equal population size, and both served by the same County Government. These ensured the questionnaire was comprehensive and consistent.

3.5.2 Validity of the Instruments

Validity according to Gakuu & Kidombo (2011) borrowing from the works of Joppe (2000), it is the degree to which the research instrument measure what it claims to measure; how truthful the research result are. Content validity of the instrument will be improved by use of expert judgement. In this instance the use of the research supervisor who is an expert in research will validate the instrument. Construct validity was carried out to ensure the questions in the questionnaire were clear to be comprehended by respondents and are not vague.

3.5.3 Reliability of the Instruments

Reliability is a way of assessing quality of the research instrument used in data collection to find out if it produces stable and consistent results. There are various reliability techniques to use in assessing for reliability. According to Phelan & Wren (2006), the split-half reliability was used where the researcher randomly split in half all questionnaire items of similar knowledge. The entire test is administered to the sample and the total score for each ‘split set’ is computed to obtain a split-half reliability via determination of correlation between the two ‘split set’ scores. The spearman coefficient of correlation was used to compute for the reliability because the split half utilizes dichotomous variables where the incorrect scores of the instrument is 0 and for the correct score is 1. The formula below was used:

\[
RELIABILITY \ OF \ SCORE \ ON \ TOTAL \ TEST = \frac{2 \ast RELIABILITY \ FOR_{\frac{1}{2}} \ TEST}{1 \ast RELIABILITY \ OF_{\frac{1}{2}} \ TEST}
\]
Internal consistency was also determined by grouping the question in the instrument that measure same concept (Gakuu & Kidombo, 2011). SPSS was used to calculate Piloted instrument internal reliability by use of Cronbach alpha since the instrument was an attitude instrument using Likert Scale. Equivalent-Form method was used by developing two sets of instrument that measure the same variables. The instruments (Questionnaire) were administered to the Pilot respondents at the same time and completed at the same time. The two instruments were correlated to calculate consistency using Spearman correlation formula.

3.6 Data Collection Procedure

The collection was carried out by self-administration of the structured questionnaire by the researcher to the various levels of the county employees, and suppliers. These generated primary data that was paramount to progress of the study. The use of key informant interview guided questionnaire administration was utilized in accessing the top management of the county and suppliers who had implemented construction projects in Ol-Kalou sub-county. The proposal research sought to acquire permit from the relevant government agencies, and the University of Nairobi. Appointments were done in order to access the key informants to the study. After acquiring the permit and the authorization letter, the researcher first administered the questionnaire to: the county employees mostly those at Ol-Kalou Sub-County; and finally the suppliers who undertook construction projects implementation at the Ol-Kalou Sub-County.

3.7 Data Analysis Techniques

Data analysis was done by use of both descriptive and inferential statistics. The Descriptive statistics yielded measure of central tendencies like mean, median, mode, standard deviation, variance, frequency, percentages and coefficient of correlation. While, inferential statistics measured the parameters, and tested the hypothesis by use of t-Test, MANOVA and ANOVA to show causation in order to develop variables inferences. Use of the Statistical Package for Social Scientist (SPSS) computer aided programme was used to aid in the data analysis. The primary data was edited and coded for accuracy and completeness thus providing ease of data analysis and SPSS data entry.

3.8 Ethical Considerations

The research sought authorization permission from the County Government of Nyandarua, the Ministry of Education Nyandarua County, the University of Nairobi and the National Commission of Science, Technology and Innovation, in order to ensure the purpose of the research is only academic. The research also worked with the relevant county departments in contacting the suppliers who provide services to the county government and were critical sample to the study. The research maintained high level of confidentiality by first ensuring the respondents were not coerced to provide
information to the researcher. While the researcher aimed to remain ethically neutral in all matters pertaining to the research and avoided any biases while conducting the study. To reassure respondents’ confidentiality and cooperation, the questionnaire did not require them to write their names. The researcher also abided by the research code of conduct while conducting the research. The study ensured that the county officials unwilling to support the research did so voluntarily.
CHAPTER FOUR
DATA ANALYSIS, PRESENTATIONS AND INTERPRETATIONS

4.1 Introduction

The study was based on the need to investigate on the determinants for adoption of Quality Management System, to what extent when applied; it can resolve the Project Implementation Challenges at the County Government Construction Projects. The research finding were guided by the QMS variable of Quality Planning, Monitoring and Evaluation, Organizational Context and Quality Training where the variable formed the objectives of the these study. The research was based on testing the null hypothesis and the finding presented in this chapter. SPSS 22 is used to present the Data analysis. The chapter further provided the discussions of the results analyzed relating it with how significance they are to the individual level, county level, country and the world.

4.2 Questionnaire Response Rate

The questionnaires were self-administered to 104 Respondents who included 60 County Employees and 44 County Suppliers. 94 Respondents returned the questionnaire answered, who included 54 County Employees and 40 County Suppliers. This is a 90.4% return rate of questionnaires answered that was a high return rate in this study.

4.3 Demographic Characteristics of Respondents

The study sought to find out the demographic composition of the respondents in terms of Gender, Age, Levels of Education and the period of association with the County Government of Nyandarua.

4.3.1 Gender of Respondents

The study established the following gender distribution of the respondents in the study, as shown in the table 1

Table 4.1: Gender Distribution of the Respondents

<table>
<thead>
<tr>
<th>Gender distribution of Respondents</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Male</td>
<td>66</td>
<td>70.2</td>
<td>70.2</td>
<td>70.2</td>
</tr>
<tr>
<td>Female</td>
<td>28</td>
<td>29.8</td>
<td>29.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>94</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

The Male Respondents were high at 70.2% than the female respondents at 29.8% in the study. Which is the indication of more men are involved in Projects Implementation than their female counterparts, thus the rule of 1/3 gender rule we can observe it was observed in the study.
4.3.2 Age of Respondents

As shown in the Table 2, below:

Table 4.2: Age of Respondents

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-35</td>
<td>61</td>
<td>64.9</td>
<td>64.9</td>
<td>64.9</td>
</tr>
<tr>
<td>36-50</td>
<td>25</td>
<td>26.6</td>
<td>26.6</td>
<td>91.5</td>
</tr>
<tr>
<td>51-60</td>
<td>7</td>
<td>7.4</td>
<td>7.4</td>
<td>98.9</td>
</tr>
<tr>
<td>60- Above</td>
<td>1</td>
<td>1.1</td>
<td>1.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>94</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 2, show that most of the respondents were between the ages of 20-35 years representing a 64.9% of the total respondents, followed by the 36-50 respondents at 26.6%. This translate to most of the County project implementers in the study are middle aged the highest population been the youth. The respondent’s age can be attributed to refusal of the illiterate population refusal to answer nor pick the questionnaire. In some instances, the Suppliers Head of Companies, relegated the questionnaire response to the sun-ordinates who were the youth and fresh graduate. The age distribution show that, the County Governments have tried to employee youthful population though comparison it with the staff data shows the number is too low. Consequently, the older project implementers, show they lack comprehension skills of challenging task and some are involved in management level. The presence of youthful willing population informs that Government need to tailor make organizational orientation skills to young generation, since they are willing to engage in tasks. The low number of older citizens in the study, though they own the companies, shows they lack the literal skills to comprehend new technologies and system. QMS adoption in projects can only then happen if it is geared towards incorporating the youthful population.
4.3.3 Education Level of the Respondents

The study sought to find out the education level of the respondents as per the Table 3 below:

Table 4.3: Education Level

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masters</td>
<td>15</td>
<td>16.0</td>
<td>16.0</td>
</tr>
<tr>
<td>Bachelors</td>
<td>50</td>
<td>53.2</td>
<td>53.2</td>
</tr>
<tr>
<td>Diploma</td>
<td>23</td>
<td>24.5</td>
<td>24.5</td>
</tr>
<tr>
<td>Certificate</td>
<td>4</td>
<td>4.3</td>
<td>4.3</td>
</tr>
<tr>
<td>None</td>
<td>2</td>
<td>2.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Total</td>
<td>94</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The study from the table above shows that there were more respondents with Bachelor’s Degree at 53.2% while those with Diploma level of education were at 24.5% in the study. This is a relative reflection of the moderately high education levels in Nyandarua County Project Implementation. While those without education were at 2.1% meaning, thus not a significant number to influence the study on adoption but can be influential on project performance and utilization. The education level of the respondents being Bachelor’s degree, shows the development of workforce in Kenya and the Counties is becoming more literate, mostly of the new recruits. It is also reflective of the elitism trend among the project implementers, yet the county literate index is low. This reflect a very big variance between the project implementers and the end users of the projects. It then affect project workforce who are the illiterate mass and project sustainability. We then need to interrogate the end user utilization of the projects which leads to vandalism, destruction, and misuse. In general, we can see that the project implementers in Kenya and the County levels are becoming more educated unlike if the same statistics study was conducted in the past. These is then a ready ground to start introducing QMS so as to comply with international standardization of goods and services. These also informs the critical mass in the country is growing, thus able to question the quality standards of leadership and projects managements that affect the public utilization of funds.

4.3.4 Period of Association with County Government of Nyandarua

The study sought to find out how long the respondents have associated with the County Government of Nyandarua as per the Table 4 below:
Table 4.4 Association with County Government of Nyandarua

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6 Months</td>
<td>7</td>
<td>7.4</td>
<td>7.4</td>
<td>7.4</td>
</tr>
<tr>
<td>6 months - 1 yr</td>
<td>7</td>
<td>7.4</td>
<td>7.4</td>
<td>14.9</td>
</tr>
<tr>
<td>1yr - 2 yrs</td>
<td>16</td>
<td>17.0</td>
<td>17.0</td>
<td>31.9</td>
</tr>
<tr>
<td>2 yrs - 3 yrs</td>
<td>18</td>
<td>19.1</td>
<td>19.1</td>
<td>51.1</td>
</tr>
<tr>
<td>3 yrs- 6yrs</td>
<td>37</td>
<td>39.4</td>
<td>39.4</td>
<td>90.4</td>
</tr>
<tr>
<td>6 yrs -Above</td>
<td>9</td>
<td>9.6</td>
<td>9.6</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>94</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

The study show that most of the respondents have associated with the County Government of Nyandarua for a period of between 3 years to 6 year at 39.4%. Given the County governments are now 6 years Old since inception in the year 2013, this a high rate to have conceptualized the county Operations. 49% of the respondents who are almost half of the project implementers have engaged with the county half way. These shows the effect the population of project implementers may have in county decision making since as many who support it, majority do not have conceptualization ability of county functions. These affect the county organizational memory and that affect the manners in which daily policies are designed and implemented. It then influence the political decisions where the affected many understand not, the county operations, yet they make emotive changes like electing and sponsoring new leadership. These compromise on the Quality plans, and project being implemented.

Relating these with the education levels, show County are having a youthful population that is not well capacity built on the county government operation. It then affect the manners in which the decisions made are not well founded and grounded and lack historical justifications. Since they are the literate mass, without corporation with the older citizens, the decisions are rushed and lack quality in their implementation case of youthful elected leaders in the County Assemblies and the Un Educated ones in comparison with the bills presented in the County Assembly, drafted, debated and enacted as By-Law examples of the County Integrated Development Plan (1 &2) and the County Budgets.

4.4 Project Implementation Background Information in Nyandarua County Government

The study sought to find out the status of the project implementation in the County Government of Nyandarua.
4.4.1 Status of Quality Management System in County Government of Nyandarua

The study aimed to establish what is the status of operation of the Quality Management System in County Government of Nyandarua? As shown in the table 4.5 below:

Table 4.5: Status of Quality Management System in Operation

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid YES</td>
<td>29</td>
<td>30.9</td>
<td>30.9</td>
</tr>
<tr>
<td>NO</td>
<td>65</td>
<td>69.1</td>
<td>69.1</td>
</tr>
<tr>
<td>Total</td>
<td>94</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The 69.1% of the respondents felt there was no Quality Management System in operation at the County Government of Nyandarua. While only 30.9% of the respondents had a contrary opinion.

Table 4.6: The 30.9% Yes respondents: Sectors or Areas they attributed Quality Management System in Operation

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Construction</td>
<td>5</td>
<td>5.3</td>
</tr>
<tr>
<td>Service Sector</td>
<td>18</td>
<td>19.1</td>
<td>19.1</td>
</tr>
<tr>
<td>None</td>
<td>69</td>
<td>73.4</td>
<td>97.9</td>
</tr>
<tr>
<td>All</td>
<td>2</td>
<td>2.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>94</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The 30.9% Yes Respondents noted that the QMS is present in the Service Sector at 19.1% in areas like the Health services and Finance department attributed to IFMIS system. Unlike the 5.3% who attributed the Construction sector as having QMS in operation.

Table 4.7: The 69.1% No Respondents: Sectors or Areas that Lack Quality Management System

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>None</td>
<td>35</td>
<td>37.2</td>
</tr>
<tr>
<td>Construction Sector</td>
<td>21</td>
<td>22.3</td>
<td>22.3</td>
</tr>
<tr>
<td>Service Sector</td>
<td>18</td>
<td>19.1</td>
<td>19.1</td>
</tr>
<tr>
<td>All</td>
<td>20</td>
<td>21.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>94</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

For those who opined that there was no QMS in operation noted that 22.3% of the lack is in construction sector where the main areas were in road works and building works. QMS lack in Service sector at 19.1% was mostly in the procurement and payment of the projects works. There was also
the variance between those who never responded to the question and those with Yes. (NONE 37.2-YES 30.9)=6.3%, which translate to those who never responded to the question even having noted there is lack of QMS in operation. The same is reflected in the Yes 30.9% sector with QMS in operation which is: (NONE 73.4 – NO 69.1) = 4% did not indicate their response. Where by 6.3%+4%=10.3% that show the percentage of the respondents who did don’t either: understand the question; have no ability to conceptualize what is Quality Management System; or assumed the question. 

The status of the QMS present is what Auditor General report has always questioned a close all the counties. With the absence of QMS the projects are poorly done which affect he political climate in most counties, which translate to very few leaders are reelected back to leadership in the Counties. For those who acknowledged the presence of QMS, they were well informed of the duties, functions and responsibilities of various departments in public works and health department. These results imply, the counties have had no quality standards, thus effect on meeting citizenly satisfaction in a more efficient and effective manners. It is then a call for introduction of QMS in the counties.

4.4.2 . Quality Management of County Construction Project Implementation

The study sought to understand the satisfaction rates of the respondents with the way the construction projects have been implemented and the quality of the projects.

Table 4.8: The Quality Management status of County Construction Projects implementation

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Percent</td>
<td>Percent</td>
</tr>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very Satisfied</td>
<td>2</td>
<td>2.1</td>
<td>2.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Satisfied</td>
<td>36</td>
<td>38.3</td>
<td>38.3</td>
<td>40.4</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>51</td>
<td>54.3</td>
<td>54.3</td>
<td>94.7</td>
</tr>
<tr>
<td>Very Dissatisfied</td>
<td>5</td>
<td>5.3</td>
<td>5.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>94</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

The study shows that 59.65% of the respondents were dissatisfied with the manner in which the projects have been managed and the quality of the said projects. While 40.4% of the respondents were satisfied with the manner in which the Construction projects have been managed and the quality of implementation works. In the 40.4% they felt they would not underrate their work performance thus not been honest. The 59.65% were dissatisfied by the manner in which projects have been implemented in Nyandarua County. It then justifies the recurrent public demonstrations over poor quality of projects and services a close all counties and lack of strategic solutions to resolve the never ending wars like introduction of QMS in projects and county operations. The Kenya national government should then aim to ensure citizens satisfaction is meet at the counties by providing legislation on the adoption of QMS. Dissatisfaction leads to anarchy that results to frequent
leadership changes due to corruption allegation which undermine consistency thus affecting quality of projects done in terms of project quality, time, plans, leadership and cost.

4.5 The Construction Projects Planning Challenges

The study sought to establish if there was a Construction Projects Planning Challenges that affect Project implementation:

Table 4.9: Construction Project Planning Challenges

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean Statistic</th>
<th>Std. Deviation Statistic</th>
<th>Variance Statistic</th>
<th>Skewness Statistic</th>
<th>Std. Error Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long Time To Complete Projects</td>
<td>94</td>
<td>4.0106</td>
<td>.10314</td>
<td>.99994</td>
<td>1.000</td>
<td>-1.208</td>
</tr>
<tr>
<td>Increased Cost</td>
<td>94</td>
<td>3.7447</td>
<td>.11413</td>
<td>1.10654</td>
<td>1.224</td>
<td>-.886</td>
</tr>
<tr>
<td>Duplication Of Project Plans</td>
<td>94</td>
<td>3.5106</td>
<td>.12812</td>
<td>1.24213</td>
<td>1.543</td>
<td>-.541</td>
</tr>
<tr>
<td>Lack Scenario Analysis</td>
<td>94</td>
<td>3.3830</td>
<td>.11126</td>
<td>1.07869</td>
<td>1.164</td>
<td>-.452</td>
</tr>
<tr>
<td>Lack Of Quality Projects</td>
<td>94</td>
<td>3.3511</td>
<td>.10876</td>
<td>1.05451</td>
<td>1.112</td>
<td>-.243</td>
</tr>
<tr>
<td>Lack Of Quality Plan Experts</td>
<td>94</td>
<td>3.3085</td>
<td>.13361</td>
<td>1.29537</td>
<td>1.678</td>
<td>-.203</td>
</tr>
</tbody>
</table>

Valid N (list wise) 94

The study show that the planning Challenges affect construction projects implementation greatly in the time duration taken to complete the project. Which is mean for Time Duration score ($M=4.0106$, $SD=.99994$) with a variance of 1.00 shows Planning challenges affect cost of the project since the mean of increased cost is ($M=3.7447$, $SD=1.10654$). The asymmetry is a normal univariate distribution between (-2 and +2) which is negatively skewed at (-1.208, -.886, -.541, -.452, - .243, -.203) meaning in all the variables outcomes, the means are less than the medians.

These is a realization of the counties and the countries projects implementations challenges that have recently made the president of Kenya to demand that no new projects should be started before the old ones are completed. The planning challenges have greatly influenced the presence of ghost projects that are always started and never completed or poorly done. The case of Nyandarua Pack House, the County Assembly chambers, the ministry of lands offices at Ol-Kalou, Vatican Bridge, roads among others can be attributed to poor planning. The usual payment period of most construction projects that are started in December and Paid in June shows presence of poor planning. The report on the high rate of pending Billings supplementary Budgets and high Financial Balance Carried forward are results of challenges in Planning in the Counties and the National Government.
4.6 Monitoring and Evaluation Challenges in Construction projects Implementation

The study sought to establish the extent in which Monitoring and Evaluation Challenges are experienced in the County Construction Projects Implementation.

Table 4.10: The Monitoring and Evaluation Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Skewness</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholders Are Not Involved In M&amp;E</td>
<td>94</td>
<td>3.8191</td>
<td>1.04689</td>
<td>-.662</td>
<td>.249</td>
</tr>
<tr>
<td>Projects Not Properly Monitored</td>
<td>94</td>
<td>3.6596</td>
<td>1.12214</td>
<td>-.876</td>
<td>.249</td>
</tr>
<tr>
<td>Lack Of M&amp;E Quality Expert</td>
<td>94</td>
<td>3.5106</td>
<td>1.19807</td>
<td>-.505</td>
<td>.249</td>
</tr>
<tr>
<td>Lack Of M&amp;E Reports</td>
<td>94</td>
<td>3.4362</td>
<td>1.14120</td>
<td>-.261</td>
<td>.249</td>
</tr>
</tbody>
</table>

Valid N (list wise) 94

The Monitoring and Evaluation is mostly challenging in the stakeholders not being Involved with a score ($M=3.8191, S.D=1.04689$), followed by realization that most projects are not properly monitored with a score ($M=3.6596, S.D=1.12214$), and the lack of M&E expert with a score ($M=3.5106, S.D=1.19807$). The asymmetry is a normal univariate distribution which is negatively skewed ($-.662, -.876, -.505, -.261$) meaning in all the variables outcomes the means are less than the medians. This shows County Governments, have poor or lack M&E system while still having M&E departments and allocating substantial funds on the same. It then translate to the reoccurring CPI problems in all the Auditors General’s reports since 2013 to date. Thus, Decision Making is not founded on facts developed deductively by use of documented information in M&E reports of various indicators and how the imaging indicator challenges were addressed. These consequently, affect the quality of oversight and budget design and implementation, which is evident by lack of substantial developments in most of the Counties after 6 years since inception. These shows M&E is a need conquering with the Ministry of Devolution report, even though their exist a National government M&E system that has not been implemented in the Counties.

4.7 Organizational Challenges in Construction Projects Implementation

Descriptive Statics was utilized to assess the variability of means between the assumed variable of organizational context challenges in Nyandarua County Government Construction Projects Implementation activities. The table below shows the results:
Table 4.11: Organizational Context Challenges in Projects Descriptive Statistics

<table>
<thead>
<tr>
<th>Issue</th>
<th>N</th>
<th>Mean Statistic</th>
<th>Std. Error</th>
<th>Std. Deviation Statistic</th>
<th>Skewness Statistic</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ineffective Communication In Projects</td>
<td>94</td>
<td>3.6702</td>
<td>.12690</td>
<td>1.23034</td>
<td>-.722</td>
<td>.249</td>
</tr>
<tr>
<td>Difficult To Adopt It In CPI</td>
<td>94</td>
<td>3.6702</td>
<td>.11558</td>
<td>1.12056</td>
<td>-.625</td>
<td>.249</td>
</tr>
<tr>
<td>Lack External Support For QMS Adoption</td>
<td>94</td>
<td>3.6170</td>
<td>.09698</td>
<td>.94022</td>
<td>-.823</td>
<td>.249</td>
</tr>
<tr>
<td>Lack Internal Support For QMS Adoption</td>
<td>94</td>
<td>3.5000</td>
<td>.10005</td>
<td>.96998</td>
<td>-1.011</td>
<td>.249</td>
</tr>
<tr>
<td>Lack County Interested Parties Analysis</td>
<td>94</td>
<td>3.2021</td>
<td>.10323</td>
<td>1.00086</td>
<td>-.354</td>
<td>.249</td>
</tr>
</tbody>
</table>

He respondents were N=94 in the descriptive statistical analysis. The mean of ineffective communication score was (M=3.6702, SD=1.23034) this a greater hindrance towards building organizational synergy and chain of command. The mean for Difficulty in Utilizing Information Technology mean score was (M=3.6702, SD=1.12056) it can well be related by the underdeveloped IT infrastructure in the County. It further can be relatable to the manner in which IT application are utilized in the county, where only two major Enterprise System are used example: IFMIS for procurement and payment of suppliers and PPD for employees salary payments. The mean for Lack of external support in innovation organizational context mean score (M=3.6170, SD=.94022) which include the National government, donor organization the political class and lobbyist are not supporting Counties towards establishing QMS. While the mean score for Lack of internal environment support in the adoption of OC was (M=3.5000, SD=.96998) translate to the level in which the internal factors like human resource, operation systems and procedures are challenges towards quality OC. And the mean score of lack of the county interested parties analysis was (M=3.2021, SD=1.00086). The asymmetry is a normal univariate distribution which is negatively skewed (-.722, -.625, -.823, -1.011, -.354) translated that in all the variables outcomes the means are less than the medians, which show that more respondents agreed to the presence of the challenges than those who did not. The organization context vary in various County Government though as per the Kenya County Governments Act of 2012, they have same organizational structure. Understanding OC, provide the unique generic problem given County Government faces. The results reflect the challenges in Nyandarua County Government OC.
4.8 Training Challenges in Construction Projects Implementation

A Descriptive statics was used to assess opines of the respondents on the challenges assumed to be facing Training in Construction projects implementation.

Table 4.12: Training Challenges in Construction projects implementation Descriptive Statistics

<table>
<thead>
<tr>
<th>Training Challenges</th>
<th>N</th>
<th>Mean Statistic</th>
<th>Std. Error</th>
<th>Std. Deviation Statistic</th>
<th>Skewness Statistic</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training On Project Quality</td>
<td>94</td>
<td>2.1277</td>
<td>.11036</td>
<td>3.06996</td>
<td>.655</td>
<td>.249</td>
</tr>
<tr>
<td>Employees Training On Quality</td>
<td>94</td>
<td>2.0745</td>
<td>.09230</td>
<td>.89490</td>
<td>.495</td>
<td>.249</td>
</tr>
<tr>
<td>On Site Quality Training</td>
<td>94</td>
<td>2.0532</td>
<td>.10627</td>
<td>1.03037</td>
<td>.615</td>
<td>.249</td>
</tr>
<tr>
<td>Suppliers Quality Training</td>
<td>94</td>
<td>1.7872</td>
<td>.09904</td>
<td>.96020</td>
<td>1.187</td>
<td>.249</td>
</tr>
<tr>
<td>Valid N (list wise)</td>
<td>94</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the Descriptive statistics table with respondents \(N=94\) above; The Training on Projects Quality was (\(M=2.1277, SD=3.06996\)) show the quality is fairly done. The mean score of Employees Training was (\(M=2.0745, SD=.89490\)) that is fairly done. The mean for On-site Training was (\(M=2.0532, SD=1.03037\)) and the mean for Suppliers Quality Training was the lowest at (\(M=1.7872, SD=.96020\)). The asymmetry is a normal univariate distribution which is positively skewed (.655, .495, .615, 1.187) meaning in all the variables outcomes the means are more than the medians, thus the variables score more poorly. With the range between poor and fair reflect the need for capacity building initiatives. It is then not prudent then to have expected change of tactics and exponential growth since the human development towards quality has been neglected for the last five years in the Counties. These also bears the burden on the quality of material Kenya School of Government (KSG) has been training the county Workforce. Yet, the training budget a close all counties is always high and the World Bank has committed a significant funds to train County Employees Nyandarua County being a pioneer in that program. However, if the training is not reviewed towards quality improvement in projects, we may be recycling same generic problems over time. For seamless operations, counties need to rethink the training on quality and funding for the same, while KSG needs to review its syllabus and content. On suppliers training that is all level poor, the institutions like National Construction Authority (NCA) should be reviewed on their mandate. If we desire to be developed and improve projects quality, these institutions of certifications need to reengineer the manner in which certification are done and also have mandatory training for suppliers employees a close all counties.
4.9 Suggested Ways to Introduce Quality Management System in Projects Implementation

The study sought to find out the respondents' opinion of the ways they would prefer County to Use in the Introduction and adoption of Quality Management System in Projects Implementation.

Table 4.13: Ways to Introduce Quality Management System in Projects Implementation Frequency Analysis

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Valid</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>Percent</td>
<td>Percent</td>
</tr>
<tr>
<td>Parallel Approach</td>
<td>10</td>
<td>10.6</td>
</tr>
<tr>
<td>Complete Face-Out of Old System</td>
<td>12</td>
<td>12.8</td>
</tr>
<tr>
<td>Gradual in Phases</td>
<td>52</td>
<td>55.3</td>
</tr>
<tr>
<td>Diffusion</td>
<td>12</td>
<td>12.8</td>
</tr>
<tr>
<td>I Don't Know</td>
<td>8</td>
<td>8.5</td>
</tr>
<tr>
<td>Total</td>
<td>94</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The frequency table shows that out of the $N=94$ sampled respondents, 55.3% of the respondents felt that the gradual process of introducing Quality Management System would be the most preferred. These most common gradual process been training on the QMS developments. Within the next few years we would experience changes if we aim to transform and adopt QMS in Public projects and private ones. While Diffusion of the QMS with the ongoing process was at 12.8% together with the need to completely face-out the old system and introduce the QMS management system in totality. These means in cooperating elements of QMS in the current system. In other instance, we can nullify the old ways of things and demand all the project implementers to comply with certain procedure for better project implementation. The use of having QMS parallel to the other ongoing processes was 10.6%, is a difficult process but can be utilize where we use certain departments as controlled group vs test group so as to develop unique QMS as per the given County OC.
4.10 Ways to Self-Support in the Introduction of Quality Management System

The study in this section, explored the manner in which the sample respondents would be willing to support the introduction of Quality Management System in Project Implementation.

**Table 4.14: Self Support in the Introduction of Quality Management System Frequency Analysis**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Getting Retrained</td>
<td>25</td>
<td>26.6</td>
<td>26.6</td>
<td>26.6</td>
<td></td>
</tr>
<tr>
<td>Ethical Operation</td>
<td>12</td>
<td>12.8</td>
<td>12.8</td>
<td>39.4</td>
<td></td>
</tr>
<tr>
<td>Quality Services</td>
<td>34</td>
<td>36.2</td>
<td>36.2</td>
<td>75.5</td>
<td></td>
</tr>
<tr>
<td>Quality Products</td>
<td>7</td>
<td>7.4</td>
<td>7.4</td>
<td>83.0</td>
<td></td>
</tr>
<tr>
<td>I Don't Know</td>
<td>16</td>
<td>17.0</td>
<td>17.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>94</strong></td>
<td><strong>100.0</strong></td>
<td></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

The frequency table of N=94 sampled respondents, show that, 36.2% of the respondents felt that to ensure quality in adhered to in County Government project implementation, they would offer quality services towards project being implemented. Adherence to this, would ensure corruption and poor quality or works is reduced or completely eliminated. While 26.6% willing to and want to get retrained on the Quality Management System. These further shows the QMS basic need in its introduction would be to first train the stakeholders to ensure compliance to quality. 12.8% opined on the need to uphold ethical operation standards and 7.4% were of the opinion to ensure they receive or deliver and request quality products. 17% of the respondents had no opinion on the question given either the questionnaire was too long or they were reluctant to answer or did not understood the question. Which further show the need to inform the stakeholders the meaning and conceptualization of QMS. The Gospel of QMS benefits and procedures need to be advocated where the Counties should be ISO certified and Quality Policy to be internalized by all stakeholders.
4.11 Correlational Analysis between Planning Challenges and Project Satisfaction

The study seeks to find out if construction projects being implemented have a correlation between the project satisfaction and the planning challenges.

Table 4.15: Correlation of Planning Challenges and Project Satisfaction

<table>
<thead>
<tr>
<th></th>
<th>CPI Planning Challenges</th>
<th>QM Satisfaction In CPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPI Planning Challenges Pearson Correlation</td>
<td>1</td>
<td>.254*</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.014</td>
</tr>
<tr>
<td>N</td>
<td>94</td>
<td>94</td>
</tr>
<tr>
<td>QM Satisfaction In CPI Pearson Correlation</td>
<td>.254*</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.014</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>94</td>
<td>94</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).

The correlation between Construction project Implementation Planning challenges ($M=3.5514$, $SD=.79239$) and the Quality Management satisfaction in Construction Project implementation ($M=2.6277$, $SD=.62190$). Pearson $r$ data analysis yielded a positive weak correlation at $r = .254$, and statistically Significant at $p=.014$ when $\alpha \leq .05$ in a case where $N=94$ respondents were surveyed. This shows that, the implementer’s satisfactions levels can be explained by looking at planning challenges. When counties have not planned their operations well, the customers are more dissatisfied. The crisis in the lack of proper planning has seen suppliers issue legal orders to the counties to pay the pending bills of work done and goods delivered, which cost the County Governments in terms of penalties and accumulating interests. It has also resulted to Suppliers Demonstration, and go slow which affect the Time duration taken to complete a project case of Nyandarua Pack House, Pedestrians Sidewalks, County government offices, Ol-Kalou Stadium among others.
4.12 A correlation between Planning Challenges and Need for Adoption

These section seek to establish if a relationship is present between the construction projects Challenges and the respondents perceived need to have QMS introduced for Quality Planning:

Table 4.106: Correlations between Construction projects Planning Challenges and Need for Adoption of Quality Planning

<table>
<thead>
<tr>
<th>CPI Planning Challenges</th>
<th>Pearson Correlation</th>
<th>1</th>
<th>.242*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td></td>
<td>.019</td>
</tr>
<tr>
<td>N</td>
<td>94</td>
<td></td>
<td>94</td>
</tr>
<tr>
<td>QMS Planning Adoption</td>
<td>Pearson Correlation</td>
<td>.242*</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.019</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>94</td>
<td></td>
<td>94</td>
</tr>
</tbody>
</table>

*. Correlation is significant at the 0.05 level (2-tailed).

In a survey of N=94 respondents, using Pearson r Data analysis found out that there was a weak positive correlation $r = 0.242$ between the CPI Planning challenges ($M = 3.5514, SD = .79237$) and QMS planning for adoption in Construction Projects Implementation ($M = 4.3638, SD = 1.37660$) at a statistical significance of $p = 0.019$ which is lower than $\alpha < .05$. It then show that the need to have Quality Planning adopted may be explained by the presence of Planning Challenges currently being experienced. These in one among the many factors influencing county project implementer to desire QMS introduction in the county planning. It implies that the challenges in Planning contribute to the majority of the people in Nyandarua to desire a more superior efficient system in which QMS is one such system. Quality planning is the demission of undertaking planning where no gaps are not addressed. These would ensure project success and better governance in the County Governments with ripple effect to the country greater governance. In cases where government parastatals are ISO certified, the issue of quality planning infusion with mainstream planning mostly in budget making is still a challenge. As such, the ISO certification should not be only for audit and compliance purposes, but geared towards citizenly satisfaction exemplified by what is happening in European states and international organizations.
4.13 M&E Challenges and Satisfaction level in Projects Correlation

The section seeks to establish if the satisfaction levels have a relationship with the challenges in Monitoring and Evaluation during project implementation:

Table 4.17: M&E challenges vs QM Satisfaction in CPI Correlations

<table>
<thead>
<tr>
<th>M&amp;E Challenges In CPI</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
<th>QM Satisfaction In CPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>M&amp;E Challenges In CPI</td>
<td>1</td>
<td>.315**</td>
<td>94</td>
<td>94</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.002</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>94</td>
<td></td>
<td></td>
<td>94</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.315**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.002</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>94</td>
<td></td>
<td></td>
<td>94</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

Ninety Four respondents were surveyed, on the Construction project Implementation Monitoring and Evaluation challenges \((M=3.6064, SD=.90287)\) and the Quality Management satisfaction in Construction Project implementation \((M=2.6277, SD=.62190)\). Pearson r data analysis was used for correlation, a positive moderate correlation at \(r=.315\) was realized and a Statistical Significance of \(p=.002\) which is lower than the correlation significance when \(\alpha \leq .01\). This shows that M&E challenges affect the project implementers’ satisfaction negatively as the challenges in M&E increases, the dissatisfaction levels increases. The project stakeholders’ lack of involvement means the end users cannot fully own and utilize the projects, affecting project performance and sustainability. The culminating effect is, project alienation of stakeholders yielding public disapproval of the government of the day.
4.14 Organizational Context Challenges and Project Quality Correlation

A correlation analysis was carried out to ascertain the respondents’ opinions on projects management quality in Nyandarua County Government, has a relationship with the County Organizational Context.

Table 4.18: Organizational Context and the Quality Satisfaction of Project Correlations

<table>
<thead>
<tr>
<th>Organizational Context CPI Challenges</th>
<th>Pearson Correlation</th>
<th>Organizational Context CPI</th>
<th>Mean QM Satisfaction In CPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenges</td>
<td>Sig. (2-tailed)</td>
<td>1</td>
<td>.170</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>94</td>
<td>94</td>
</tr>
<tr>
<td>QM Satisfaction In CPI</td>
<td>Pearson Correlation</td>
<td>.170</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.101</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>94</td>
<td>94</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.05 level (2-tailed).

The correlation between Construction projects Organizational Context challenges \((M=3.5319, SD=.65158)\) and the Quality Management satisfaction in Construction Project implementation \((M=2.6277, SD=.62190)\). Pearson \(r\) data analysis yielded a positive weak correlation at \(r = .170\), not statistically Significant at \(p=.101\) when \(\alpha\leq.05\) in a case where \(N=94\) respondents were surveyed. These show a relationship that as the OC challenges increases, the dissatisfaction levels increases and opposite is true. To improve on satisfaction levels, the County Governments needs to reengineer the OC for Individual County and for specific projects to derive maximum customs satisfaction in projects cycle.
4.15 Correlation between the Projects Training Challenges and the Level of Projects Quality Management Satisfaction

The table below was used to correlate between the two variables to establish if there exist any relationship between the Quality Management of Construction Projects and the Training challenges in the project implementation.

**Table 4.1911: Training Challenges and Quality of Projects Correlations**

<table>
<thead>
<tr>
<th>Training Challenges</th>
<th>QM Satisfaction In CPI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>94</td>
</tr>
<tr>
<td>QM Satisfaction In CPI</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>94</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

Ninety Four respondents were surveyed, on the Construction project Implementation Training challenges ($M=2.0106, SD=.83434$) and the Quality Management satisfaction in Construction Project implementation ($M=2.6277, SD=.62190$). Pearson r data analysis was used for correlation, a negative moderate correlation at $r = -.448$ was realized and a Statistical Significance of $p = .001$ which is lower than the correlation significance when $\alpha \leq .01$. These depict the lack of civic education, suppliers’ county training engagement, customer service desks and employees who have low conceptual understanding of county operations. The satisfaction levels can improve if stakeholders are informed and understand through training, facilitation and public participation initiatives.

4.16 Hypothesis Testing (One): Quality Planning Adopting to Resolve Project Implementation Challenges

The study sought to accept or reject the null hypothesis: Adoption of Quality Planning cannot resolve project implementation challenges in construction projects.

**Table 4.20: Adoption of Quality Management System Planning Descriptive Statistics**

<table>
<thead>
<tr>
<th>QMS Planning Adoption</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>94</td>
<td>4.3638</td>
<td>1.37660</td>
<td>.14199</td>
</tr>
</tbody>
</table>

Mean of Quality Management System Planning score ($M=4.3638, SD= 1.3766$) was higher than the population normal Quality Management System Planning assumed score of 4.0.
Most of the respondents at \((M=4.3638)\) felt that the adoption of the Quality Planning will resolve the challenges in the project implementation.

**Table 4.21: One-Sample Test for Hull Hypothesis Testing**

<table>
<thead>
<tr>
<th>Test Value = 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Difference</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>t</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>QMS Planning Adoption</td>
</tr>
</tbody>
</table>

Using the significance level of 0.05, the adoption of QMS Planning was found to be statically significant, lower than the normal adoption of QMS planning score in project implementation, \(t(93)=2.562, p=0.012\). There was then the statistical significance between mean at \((p<0.05)\), Thus we reject the null hypothesis \((H_0=\text{Adoption of Quality Planning, cannot resolve project implementation challenges in construction projects})\) and accept the alternative hypothesis \((H_1=\text{Quality Planning can resolve the project implementation challenges in construction projects})\). When projects are well planned in cases of institutions like International Organizations and Multinationals, the projects are implemented on time, at that cost and of quality, without duplication using quality trained experts. These would remedy the counties current challenges and improve on service delivery to the voters as well ensure the elected leaders manifestos are attained.

**4.17 Hypothesis Testing (Two): Adoption of Monitoring and Evaluation significance in Construction Projects Implementation**

The study sought to accept or reject the null hypothesis: Adoption of Monitoring and Evaluation cannot resolve construction project implementation challenges.

**Table 4.22: M&E Adoption Descriptive Statistics Table**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>QMS M&amp;E If Adopted</td>
<td>94</td>
<td>4.3378</td>
<td>1.24796</td>
<td>.12872</td>
</tr>
</tbody>
</table>

The of Monitoring and Evaluation readiness for Adoption in CPI score \((M=4.3378, SD=1.24796 n=94)\) was higher than the assumed Normal M&E adoption population mean of 4.0.
Using the significance level of .05, the adoption of QMS M&E if adopted was found to be statically significant, lower than the normal adoption of QMS M&E score in project implementation, \(t(93)=2.624, p=.010\). These was statistical significance between mean at \((p<.05)\), Thus we reject the null hypothesis \((H_0=\text{Adoption of Monitoring and Evaluation has no significance in construction projects implementation})\) and accept the alternative hypothesis \((H_1=\text{Adoption of Monitoring and Evaluation in Construction projects implementation will be significant})\). The results shows M&E can be the solution to CPI challenges. As the Kenyan Government calls for more accountability and transparency in the public funds utilization and tendering process; M&E is one such tool that can drive that agenda. This mitigate on project risks acting as project control mechanism. Providing better measure of project indicators against the project milestone that inform on midterm, short term and strategic developments. Thus providing tracking of County Government’s project cycle which is a challenge in Kenyan Public projects.

### 4.18 Null Hypothesis Testing (Three): Organizational Context to resolve Project Implementation Challenges

The survey was used to test the Null hypothesis which stated that: Innovating Organizational Context, cannot resolve challenges of project implementation activities in construction projects, as shown below:

<table>
<thead>
<tr>
<th>Table 4.24: Organization Context Adoption in Project Implementation t-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>[\text{Test Value} = 4]</td>
</tr>
</tbody>
</table>
| \[\begin{array}{cccc}
| \text{QMS OC If Adopted} & \text{t} & \text{df} & \text{Sig. (2-tailed)} & \text{Mean Difference} & \text{95% Confidence Interval of the Difference} \\
| \text{QMS M&E If Adopted} & -2.062 & 93 & .042 & -.23191 & -.4553 & -.0086 \\
| \end{array}\] |

The independent sample t-test, show that the mean of Innovating Organizational Context for adoption in Construction Projects Implementation activities with a mean \((M=3.7681, SD=1.09045, n=94)\) is statistically significant at .042 level of significance \((t(93) = -2.062, df=93, p<.05)\) from...
(test value = 4). The (Mean difference = -.23191, 95% CI (-.4553, -.0086). The null hypothesis that suggested Innovating Organizational Context cannot resolve project implementation activities in Construction Projects is rejected. These is a true reflection of the need to have Individual County to begin to start innovating their specific environment to suit their specific quality project’s needs. In as far Benchmarking is an important endeavor, the County from this results can only attain quality standards if they individually reengineer the manner into which their context operate and function towards quality for maximum benefits culminating to county public satisfaction. It would be improper to assume they all have similar outfits while even the economic production, social composition and political environments vary a close all counties.

4.19 Null Hypothesis Testing (Four), Quality Training to resolve Project Implementation Challenges

The study was used to test the Null Hypothesis that, the adoption of Quality Training, cannot resolve project implementation challenges in construction projects. The below table represent the results:

Table 4.25: Quality Training Adoption and Project Implementation Null Hypothesis t-Test

<table>
<thead>
<tr>
<th>Test Value = 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

The independent sample t-test, show that the mean of Adopting Quality Training to resolve construction project implementation challenges with a mean ($M=4.0931$, $SD=.72492$, $n=94$) is statistically significant at .001 level of significance ($t (93) = -12.129, df =93, p< .001$) from (Test value = 5). The (Mean difference = -.90691, 95% CI (-1.0554, -.7584). The null hypothesis that proposed that Adoption of Quality Training, cannot resolve project implementation challenges in Construction projects is rejected. These been the variable with highest score set the precedence that, if we desire to introduce QMS in the counties, we require to first train the stakeholders. With the external support form World Bank and KSG we need more quality oriented training. In other instances, we can legislate on Quality requirements for suppliers to reduce the rate of failed and substandard public and private projects been experienced in the developing states. The results shows that, we are in need of quality training in as far we envision to promote drastic development and transformation of quality county projects. These will address the human variable in projects to ensure compliance to the set standards of all projects.
4.20 Hypothesis Testing (Five): Quality Management System Adoption vs County Governments’ Reasons for Introducing Quality Management Systems

H05: No Significant between adoption of Quality Management System in Project Implementation and the reasons for County Governments’ willingness to introduce Quality Management System.

Table 4.26: Quality Management System Adoption vs County Government reasons, Multivariate Test

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>F</th>
<th>Hypothesis df</th>
<th>Error df</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillai's trace</td>
<td>.284</td>
<td>1.701</td>
<td>16.000</td>
<td>356.000</td>
<td>.045</td>
<td>.071</td>
</tr>
<tr>
<td>Wilks' lambda</td>
<td>.735</td>
<td>1.742</td>
<td>16.000</td>
<td>263.372</td>
<td>.039</td>
<td>.074</td>
</tr>
<tr>
<td>Hotelling's trace</td>
<td>.334</td>
<td>1.763</td>
<td>16.000</td>
<td>338.000</td>
<td>.035</td>
<td>.077</td>
</tr>
<tr>
<td>Roy's largest root</td>
<td>.237</td>
<td>5.282a</td>
<td>4.000</td>
<td>89.000</td>
<td>.001</td>
<td>.192</td>
</tr>
</tbody>
</table>

Each F tests the multivariate effect of County Government Reasons to Introduce Quality Management System. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. The statistic is an upper bound on F that yields a lower bound on the significance level.

Analysis of MANOVA shows, There was no statistically significance between The County Government need to introduce QMS for Quality improvement, Process System Benefits, Financial Benefits, and Public Benefits in projects implementation when considered jointly with the variables of the QMS adoption variables of Quality Planning, Monitoring and Evaluation, Organizational Context and Quality Training, Wilk’s λ = .735, F (16,263.372), p = .039, partial η² = .074. In this case we will commit a Type I errors and reject the null Hypothesis given the result of the Projects Quality Management satisfaction levels, the QMS in operation where NO response were majority and the Need for Quality Training with the highest mean. Thus, the respondents could not objectively conceptualize the QMS reasons to be introduced and adopted having not interacted and conceptualized the scientific application meaning of QMS.
Table 4.27: Quality Management System Adoption vs County Government reasons Univariate Tests

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality Planning Adoption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contrast</td>
<td>5.055</td>
<td>4</td>
<td>1.264</td>
<td>.657</td>
<td>.623</td>
<td>.029</td>
</tr>
<tr>
<td>Error</td>
<td>171.182</td>
<td>89</td>
<td>1.923</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QMS M&amp;E If Adopted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contrast</td>
<td>5.025</td>
<td>4</td>
<td>1.256</td>
<td>.800</td>
<td>.529</td>
<td>.035</td>
</tr>
<tr>
<td>Error</td>
<td>139.814</td>
<td>89</td>
<td>1.571</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QMS OC If Adopted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contrast</td>
<td>13.106</td>
<td>4</td>
<td>3.276</td>
<td>2.991</td>
<td>.023</td>
<td>.119</td>
</tr>
<tr>
<td>Error</td>
<td>97.478</td>
<td>89</td>
<td>1.095</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Training If Adopted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contrast</td>
<td>3.604</td>
<td>4</td>
<td>.901</td>
<td>1.772</td>
<td>.142</td>
<td>.074</td>
</tr>
<tr>
<td>Error</td>
<td>45.269</td>
<td>89</td>
<td>.509</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The F tests the effect of REASON TO INTRODUCE QMS. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

ANOVA was used separately on each dependent variable, with a significant level of $\alpha < .025$. There was a statistical significance between the QMS Organizational Context and County Government reasons for introducing QMS in Projects Implementation, $F (4,89) = 2.991, p = .023$, partial $\eta^2 = .119$. While there was no statistical significance between the reasons for QMS introduction and the other three variables of Quality Planning $F (4,89) = .623, p = .623$, partial $\eta^2 = .029$, Monitoring and Evaluation $F (4,89) = .800, p = .529$, partial $\eta^2 = .035$ and Quality Training $F (4,89) = 1.772, p = .142$, partial $\eta^2 = .074$. It is then proper to conclude that the reasons of need to introduce QMS in County Government projects implementation, can be explained by the variable county organizational context.
4.21 Hypothesis Testing (Six), Benefits of Quality Management System vs Projects Challenges

H_06: Benefits of introducing Quality Management System in Construction Projects are not significant to the challenges experienced in the County Construction Projects Implementation.

Table 4.128: Benefit of Quality Management System vs Projects Challenges Multivariate Tests

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Value</th>
<th>F</th>
<th>df</th>
<th>Error df</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillai's trace</td>
<td>.187</td>
<td>.865</td>
<td>20.000</td>
<td>352.000</td>
<td>.633</td>
<td>.047</td>
</tr>
<tr>
<td>Wilks' lambda</td>
<td>.823</td>
<td>.855</td>
<td>20.000</td>
<td>282.863</td>
<td>.645</td>
<td>.047</td>
</tr>
<tr>
<td>Hotelling's trace</td>
<td>.202</td>
<td>.845</td>
<td>20.000</td>
<td>334.000</td>
<td>.658</td>
<td>.048</td>
</tr>
<tr>
<td>Roy's largest root</td>
<td>.103</td>
<td>1.809a</td>
<td>5.000</td>
<td>88.000</td>
<td>.119</td>
<td>.093</td>
</tr>
</tbody>
</table>

Each F tests the multivariate effect of QMS BENEFITS IN CPI WHEN ADOPTED. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. The statistic is an upper bound on F that yields a lower bound on the significance level.

Using MANOVA, there was no statistically significant difference between the benefits of quality management system which included quality, time, bill of quantity specifications, service improvement and control in Projects implementation when considered jointly with the variables for challenges experienced in projects planning, monitoring & evaluation, organizational context and training. Wilk’s λ = .823, F(20, 282.863), p = .645, partial ƞ² = .047. We accept the Null hypothesis given that, the perceived benefits are not as a result of the project implementation challenges but maybe, can be attributed to other factors like: The 85.1% above one year of interaction with the County Government, making it possible to have realized the need to have Quality Management System. Additionally, the result can also be attributed to the 55.3% of respondents who felt the questionnaire was insight as well as the 31.9% who felt it was a good guide towards QMS introduction in the County Government. This is well elaborated by learning a Spearman’s Non-parametric correlation analysis were the two factors were significant at α < .05. Results are: Non Correlation between the benefits and period of engagement with the county Government of Nyandarua, statistically significant at p = .057 while Spearman’s correlation coefficient rₛ = .197 which suggests a positive weak correlation. Moreover, the quality management Projects benefit and the respondents exercise general opinion non-parametric correlation yielded a statistical significance of p = .049 while Spearman’s correlation coefficient rₛ = .203 which suggest a positive weak correlation on the sample used.
Table 4.29: Benefit of Quality Management System vs Projects Challenges Univariate Tests

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning CPI Challenges</td>
<td>Contrast</td>
<td>3.642</td>
<td>5</td>
<td>.728</td>
<td>1.171</td>
<td>.330</td>
</tr>
<tr>
<td>M&amp;E Challenges In CPI</td>
<td>Contrast</td>
<td>5.678</td>
<td>5</td>
<td>1.136</td>
<td>1.425</td>
<td>.223</td>
</tr>
<tr>
<td>Organizational Context CPI Challenges</td>
<td>Contrast</td>
<td>2.221</td>
<td>5</td>
<td>.444</td>
<td>1.049</td>
<td>.394</td>
</tr>
<tr>
<td>Training In CPI Challenges</td>
<td>Contrast</td>
<td>1.738</td>
<td>5</td>
<td>.348</td>
<td>.485</td>
<td>.786</td>
</tr>
</tbody>
</table>

The F tests the effect of QMS BENEFITS IN CPI WHEN ADOPTED. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

ANOVA was used separately on each dependent variable, with a significant level of $\alpha < .025$. There was no significance between the Benefits of QMS in Construction Projects Implementation and the Projects Planning Challenges. There was no significance between the QMS benefits if adopted and the projects planning challenges, $F(5,88) = 1.171, p = .330$, partial $\eta^2 = .062$. There was also no significance between the other three challenges variables and QMS benefits associated with QMS when introduced in projects. Monitoring and Evaluation with partial $\eta^2 = .075$ had the strongest effect count on the dependent variable than the other three variables.
CHAPTER FIVE
SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapters contain the summary of the findings as analyzed in the chapter four. Additionally, the conclusion is made on the bases of the summary of the findings relating them with literature reviewed. The recommendations provided for as per the objectives researched on. The study finally provides suggestion on areas for further research in relation with Quality Management System.

5.2 Summary of the Findings

The study was based on an investigation on the determinants for adoption of Quality Management System in Project Implementation: a case of County Government of Nyandarua Construction Projects. The following findings were reported in a study comprising of 94 respondents:

The first objective on examination on the extent to which Quality Planning adoption in project implantation can resolve construction projects challenges. The study first looked at the present planning challenges where Planning Challenges affected the time duration taken to complete the project with a mean of 4.0104, followed by cost increase mean of 3.7447 and presence of duplication of project plans at a mean of 3.5106 with the variables showing most of the respondents agreed. When the planning challenges were correlated with project satisfaction levels on the manner in which Projects Quality Management has been implemented, there was a significance positive weak correlation of $r = .254$ and $p = .014$. Therefore the satisfaction levels are marginally affected by the levels of planning in the County Government projects implantation. Using t-Test Null hypothesis was rejected at $t(93) = -2.562, p = 0.012, 95\% CI (.0819, .6458)$ concluding that for Quality Planning has effect on project implementation and when correlated with the planning challenges $r = .242$ which is a weak correlation. Thus the Adoption of Quality Planning would significantly address the Project Implementation Challenges in the County Governments by ensuring: Quality of projects, Cost, Time taken to complete the projects, Unique Plans per project, Presence of scenario analysis and availability of more quality based experts in projects plan design and implementation.

The second objective on significance of Monitoring and Evaluation in construction project implementation: The study looked at the Monitoring and Evaluation Challenges where Lack of the stakeholder Involvement ranked higher with a mean of 3.8191, followed by, Project not being properly monitored mean 3.6596, Lack of M&E quality Expert mean of 3.5106 and finally lack of M&E expert mean of 3.4362. The M&E challenges mean 3.6064 were correlated with the Project Quality Management Satisfaction mean 2.6277 and found to be statistically significant with Pearson’s $r = .315$ which was a positive moderate correlation with significance of $p = .002$. The adoption of M&E
in projects implementation null hypothesis was rejected at $t(93) = 2.624, p = .010$ since the p value was lower than significance level of $p < .05$.

The third objective was to assess the innovation levels of organizational context to resolve project implementation challenges in construction projects. The study did look at first the challenges of organizational context in project implementation where communication challenges was rated highly with a mean of 3.6702, followed by Difficulty in adopting Information Technology in CPI mean of 3.6702, then lack of external support in QMS adoption mean of 3.6170, Lack of internal support mean 3.500 and finally lack of interested parties analysis mean 3.2021. When organizational Context challenges mean 3.5319 were correlated with Project Quality Management satisfaction mean 2.6277 Pearson $r = .170$ which was a positive weal correlation but not statistically significant at $p = .101$. Null Hypothesis between ability of Organizational context to resolve challenges project implementation activities was tested using $t$-Test and reject at statically significance of .042 level of significance ($t(93) = -2.062, df = 93, p < .05$).

The fourth objective sought to scrutinize the magnitude to which adoption of Quality Training can resolve project implementation challenges in construction projects. The study aimed to understand the training challenges in project implementation before offering remedies. On the training challenges: Training on projects quality was fair with mean of 2.1277; While employees training was 2.0745; On-site training mean was 2.0532; and the one that was poorly been done was Suppliers training with a mean score of 1.7872. Training challenges mean of 2.0106 when correlated with Project Quality Management satisfaction mean of 2.6277, the Pearson’s yielded $r = -.448$ which was a negative moderate correlation and statistically significant at $p = .001$. The $t$-Test was used to test the null hypothesis between quality training ability to contribute to resolving project implementation challenges with a mean of 4.0937 was statistically significant at .001 level of significance ($t(93) = -12.129, df = 93, p < .001$) thus rejecting the null hypothesis.

Quality Management System Adoption level was evaluated against the County Government reasons for willingness to introduce quality management system using MANOVA to test for the combined means as the dependent variable. The study found no statistical significance at Wilk’s $\lambda = .735, F(16,263.372), p = .039$, partial $\eta^2 = .074$. ANOVA test was carried out at significant level of .025 and found no significance in each variable against the reasons for need to introduce QMS. The MANOVA combined mean analysis between the benefits for adoption as the fixed variable against the Adoption of Quality Management System in project implementation at Wilk’s $\lambda = .823, F(20,282.863), p = .645$, partial $\eta^2 = .047$; found no significance. The ANOVA analysis of each variable against QMS benefits if adopted found also no significance, the Type I error was committed.
5.3 Conclusions

On the first objective, with planning challenges mean of 3.7447, is a true reflection that the County projects implementation are not properly planned where they take longer duration to be completed than projected time. Consequently, the cost of project increases than budgeted for, which justifies Ouko (Report of Auditor General on Financial Statement of County Executive of Nyandarua for the year ending 30 June, 2017) of the effectes of the poor county planning, and financial prudency. While still justifying the Ngacho & Das (2014), the projects need to overcome challenges of quality, time, cost as necessary to projects. The Correlational findings show how poor planning affect project Quality Management by decreasing satisfaction levels, thus reinforcing Pick (2013) linear relationship between planing and project performance how they affect stakeholders attitudes. The need to adopt or introduce Quality Planning for better quality project implementation support Kim, Kang & Hwang (2012) the need to have quality as an objective in CPI and support the need to have QMS for future survival (Meissner & Wulf, 2013).

Monitoring and Evaluation challenges underscore the (Ministry of Devolution 2015 report) counties weaknesses in Kenya where projects are not properly monitored. While dimissifying Waithera &Wanyoike (2015) relationship between Stakeholders and M&E where in this study Stakeholders lack of involvement affected M&E more with a mean of 3.8191. With a moderate positive correlation between the M&E and the Project Quality Management, show that when the projects implementation is well conducted, the stakeholders satisfaction levels increases. The testing of relevance of introducing or adopting M&E in project implementation where it was found to be necessary in support of Tullet (1996) importance of M&E reporting , and Kariuki, et al. (2016) importance of M&E reporting for better decision making. The results show that the county projects implementation is in need of Quality driven M&E to compliment the other similar efforts like projects audity and oversight by county assembly. To ensure ensure projects quality, financial benefits, public projects benefits and project controls, we need to undertake proper projects implementation M&E as noted by this study and (Gaturu & Muturi, 2014).

The understanding of Organizational Context in these study was key in understanding the generic challenges County Government go through in their unique environment. Communication Challenges in Projects with a mean of 3.6702 was the biggest barrier when it comes to Construction project implementation. Thourthe need for adopting Quality communication was highly in support of Hussen (2016) on QMS based communication ensures customer focused startegy, action plans, missions and Project goals. Information Technology was also a challenges mean of 3.6702 while the adoption need was also higher thus reinforcing Adraanse et.al , (2010) on the need of IT to improve information exchange in project communication. Coomunication and IT needs in County Government if adopted would improve projects performance as notd by (Dubem & Amaka, 2016). While the
Internal and External environment challenges are still there, both environment are also the drive that the County Governments need to support QMS adoption. It thus means the need to redevelop strategy to relate with internal supports like Human resources, and undertaking market intelligence survey to understand, global trends, suppliers' needs and country development agendas supporting (QSG, 2015) analysis and (Foster, 2012).

Training challenges were below the standards with Project Quality training needs been fairly done, while the lack of suppliers training with mean of 1.787 was poor. This affected the project quality which when related with the ways to support QMS adoption most respondents felt the need for gradual process which included training on quality standards towards customers satisfaction. At the same time 26.6% of the respondents felt their was need to get retrained on Quality, thus showing the Quality training needs as a main challenge to be addressed in the County Governments. The need to adopt Quality Training with a mean of 4.0931 which was a higher mean than all the other QMS variables, reflect the need-gaps to be addressed in introducing QMS in county Projects Implementation. The study support Njenga, (2017) results that Quality training will support operational performance in service sector and construction sectors, at the same time reducing negative perceptions in projects (Khalonyere, 2013). The Quality training adoption is in correlation with Al-Rifai & Amoudi (2016) that, it will enhance suppliers skills. The need for On-site training reinforce Maduma, et al. (2015) to ensure the suppliers employees gain new quality driven skills on the project sites, given the geographical vast areas various projects are implemented in the County Governments.

The determinants for Adoption of Quality Management System in Project Implementation were found to be relevant new system to be introduced by the County Governments. The challenges of Quality projects can be addressed by the variable of Quality Planning, M&E, Innovating Organizational Context and Quality Training to change the current status of things. The need for Quality Training was rated higher than all the other QMS variables. The County Government need to then start retraining their employees on the new quality phenomenon. The suppliers need also to be trained and given most of them are youthful or have youthful population as employees, it would be prudent to train or demand to get trained and certified on QMS before they bid for County Government tenders. The study need a comparison review and found out that, the project implementation challenges can only be addressed by introducing gradually a superior system than the current status of operation. QMS adoption would then ensure Quality services close all sectors where the key benefits would be having quality projects been implemented by County Government implementers who are employees and suppliers.
5.4 **Recommendations of the Study**

Based on the findings from the respondents and the analysis the following recommendations would be:

There is need for County Government to introduce Quality Planning to ensure they save on project cost, time and quality; have defined project timelines, stop duplicating project plans even if the projects are similar in characteristics and have an elaborate scenario analysis to ensure suppliers are protected and the projects is in properly done without cost contains. Those involved in the project design planning, should be trained on the need to uphold quality standards.

Monitoring and Evaluation should be properly be conducted where those involved should be capacity built towards ensuring quality standards are upheld. The Audit team and projects oversight teams should base their findings on the need for project quality that meets the customers’ satisfaction and the international standards of operation procedures. M&E report should be prepared as a way to document information of various projects been implemented to inform decision making and as a sign of measuring projects performance. Stakeholders should also be involved in all the process of the projects cycle to avoid projects alienation. The County Government can gain a lot if they ensure the projects implementing teams are able implement M&E thus mitigating audit challenges on the county projects.

The County Governments operate in various organizational contexts, but these should act as unique factors to tap into the diversity on that environment they operate in. Under-taking the environmental analysis on their areas of operation should be the key for any strategic project implementation. Communication and Information Technology should be adopted to advance on the monitoring and evaluations of projects with ease and prudent manner. County Governments should aim to deal with their unique challenges by having a comprehensive context analysis thus cautioning on the future challenges and risks.

Quality training should be upheld by all project implementers. The County employees should be retrained on the need for quality standards. While the suppliers to get trained or the County to demand QMS certification having undergone QMS training before they bid for local government tenders. On-site Quality Training should also be enforced by empowering the field officers towards quality standards a close all projects. The staff frequent trainings should be quality driven while the suppliers training should be conducted more often to update them on the developments of new technology and quality advancements.

5.5 **Suggestions for Further Research**

Quality Management System is a phenomenon that has been applied within the international organizations, multinational and government parastatals to improve their operations we experience today. The same should be translated to the County Government as part of the national government
semi-autonomous entities. Given that Quality Management System is wider area, the other study should aim to look at:

1. How the other elements of QMS can be adopted in the Projects implementation in a case of County Governments. These would ensure QMS statically greater significance in the projects implementation.

2. Additionally, more study can be conducted on the how the variable under study that is Quality Planning, M&E, Organizational Context and Quality Planning can be adopted in the service projects like in the education sectors, health, revenue collection among other County Governments service oriented sectors.

3. Finally the Study can be replicated in other counties, find out the effect and do a correlation study of adoption of QMS a close county Governments.
REFERENCE


67


68


APPENDICES

Appendix i: Letter of Transmittal

NJUGUNA GERALD NDERITU,
P.O BOX 48 – 20303,
OL-KALOU.

12TH JULY, 2018.

Dear Sir / Madam,

Hello, I hope you are fine and well.

I am a student at the University of Nairobi, pursuing my Masters of Arts Degree in Project Planning, and Management. As a requirement, I am undertaking my research project work to satisfy the University requirements. The research project is titled: Determinants for adoption of Quality Management System in Project Implementation: a case of Nyandarua County Government construction projects, Kenya.

I am writing to request permission to conduct research among: the county employees and the county suppliers to the Nyandarua County Government. The survey will utilize research questionnaires for data gathering. After completing the study, I will commit to sharing the findings with your office.

I look forward to a favorable response and support.

Yours Faithfully,

Gerald Nderitu Njuguna
Appendix ii: Questionnaire for the County Employees and the Suppliers

Introduction
I am a student at the University of Nairobi pursuing a Master’s degree in Project Planning and Management and conducting a study on Determinants for adoption of Quality Management System in Project Implementation: a case of Nyandarua County Government construction projects. The purpose of my study is to identify the levels and attitudes towards determinants for adopting Quality Management System in Project Implementation in a case of County Construction Projects. This being a requirement for completing my Masters of Arts Degree at the University, I am therefore requesting you to participate in the study. The participation is voluntary and any information obtained from you will be used for academic purposes only and will be strictly confidential. Questionnaire will be issued to the County Employees and County Suppliers to the Nyandarua County Government.

SECTION 1: DEMOGRAPHIC INFORMATION ON THE RESPONDENTS
This section is intended to collect data on your personality as my respondent. This data will assist in ensuring that all intended respondents are incorporated in my research. Kindly put a tick (✓) in the box provided.

1. What is your gender?
   - Male
   - Female

2. What is your age?
   - 20 - 35 yrs
   - 36 - 50 yrs
   - 51 - 60 yrs
   - 61 yrs and above

3. What is your level of Education?
   - Master’s Degree
   - Bachelors’ Degree
   - Diploma
   - Certificate
   - None of the above

4. What is your association with the County Government of Nyandarua?
   - County Employee
   - Supplier/Constructor

5. How long have you associated with the County Government of Nyandarua?
   - 0 - 6 months
   - 6 months - 1 year
   - 1 year - 2 years
   - 2 years - 3 years
   - 3 years - 6 years
   - 6 years and above

6. Does the County Government of Nyandarua have Quality Management System in operation?
   - YES
   - NO

7. If YES, in which Sectors or Areas at the County Government of Nyandarua?
8. If NO, in which Sectors or Areas at the County Government of Nyandarua that lack Quality Management System?

9. How would you rate your satisfaction for Quality Management in County Construction Project Implementation?
   
<table>
<thead>
<tr>
<th>Very satisfied</th>
<th>Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissatisfied</td>
<td>Very Dissatisfied</td>
</tr>
</tbody>
</table>

10. What is the County Government of Nyandarua Status on introduction of Quality Management System in Construction projects implementation?

11. Which are some of the Nyandarua County Construction Projects areas which require Quality Management System?

12. What are the benefits would you think County Government of Nyandarua would gain by introducing Quality Management System in County Construction Projects Implementation?

SECTION 2: QUALITY MANAGEMENT SYSTEM BASED PLANNING AND MONITORING AND EVALUATION

The section contains two questions. Kindly answer the following questions using the scale of 1-5 (5- strongly agree…..1- strongly Disagree) by putting a tick (√) to represent your opinion

13. Is the County Government of Nyandarua experiencing challenges in Planning for construction project implementation in the following areas?

<table>
<thead>
<tr>
<th>Construction Projects Planning challenges</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Quality driven projects been implemented</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prolonged Time duration taken to complete a project</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase in Cost of the implementation in ongoing projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of scenario analysis of the projects to be implemented</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duplication of project plans among similar projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of Quality based experts in projects plans design and development.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14. Readiness for Adoption: Kindly answer the following questions using the scale of 1-5 (5- strongly agree…..1- strongly Disagree) by putting a tick (√) to represent your opinion
15. Is the County Government of Nyandarua experiencing challenges in Monitoring and Evaluation of construction project been implemented?

<table>
<thead>
<tr>
<th>Monitoring and Evaluation (M&amp;E) Challenges in Construction project</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project are not properly monitored</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Project lack M&amp;E reports for review</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project stakeholders are not fully involved in M&amp;E process.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department involved in Construction lack Quality based M&amp;E experts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16. Readiness for Adoption: Kindly answer the following questions using the scale of 1-5 (5-Strongly agree….1-Strongly Disagree) by putting a tick (✓) to represent your opinion

<table>
<thead>
<tr>
<th>Quality Management System (QMS) based Monitoring and Evaluation (M&amp;E) if adopted:</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring of project implementation provides timely feedback.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M&amp;E reports when produced will improve construction project quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stakeholders total involvement in projects, support M&amp;E in projects.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M&amp;E ensure compliance to Bill of Quantity specification</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION 3: QUALITY MANAGEMENT SYSTEM BASED ORGANIZATIONAL CONTEXT

The section contains one question. Kindly answer the following questions using the scale of 1-5 (5-strongly agree….1-strongly Disagree) by putting a tick (✓) to represent your opinion.

17. Is the County Government of Nyandarua experiencing Organizational Context challenges in construction project been implemented?

<table>
<thead>
<tr>
<th>Organizational Context Challenges in Construction project implementation</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of a county Interested Party analysis</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>County Internal environment support towards quality Management system adoption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>County external environment support towards Quality Management system adoption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication is effective in projects implementation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>County has difficult in adoption of information technology in Project implementation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

18. Readiness for adoption: Kindly answer the following questions using the scale of 1-5 (5-strongly agree….1-strongly Disagree) by putting a tick (✓) to represent your opinion.

<table>
<thead>
<tr>
<th>Quality Organizational Context adoption:</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The interested parties are willing to support QMS introduction in project implementation</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>County internal environment has capacity to adopt QMS in project implementation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>County External environment is the drive towards QMS adoption in project implementation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>County is willing to adopt quality communication in project</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>County willing to adopt Information Technology for quality construction projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION 4: QUALITY MANAGEMENT SYSTEM BASED TRAINING

19. Is the County Government of Nyandarua experiencing Training challenges in construction project been implemented?

<table>
<thead>
<tr>
<th>Training Challenges in Construction project implementation</th>
<th>Poor</th>
<th>Fair</th>
<th>Good</th>
<th>Very Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>County employees Training on Quality is?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplier’s quality training is?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On-Site training on quality improvement is?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training on Construction project implementation quality is?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

20. Readiness for Adoption: Kindly answer the following questions using the scale of 1-5 (5-strongly agree….1-strongly Disagree) by putting a tick (✓) to represent your opinion.
<table>
<thead>
<tr>
<th>Quality Management System (QMS) based Training adoption:</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality driven employees training improves project implementation quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality trained suppliers, implement quality projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On-site training improves project implementation quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>County willing to introduce quality training for suppliers and employees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Other Comments**

1. Why would the County Government of Nyandarua be willing to adopt and introduce Quality Management System in Project Implementation?

2. What are the ways would you suggest County Government of Nyandarua to use in adopting Quality Management System in Project Implementation?

3. In what ways, would you support County Government of Nyandarua in adoption and introduction of Quality Management System in Project Implementation?

4. What is your general comment about the exercise

THANK YOU, FOR YOUR PARTICIPATION
UNIVERSITY OF NAIROBI
Open, Distance & e-Learning Campus
SCHOOL OF OPEN AND DISTANCE LEARNING
DEPARTMENT OF OPEN AND DISTANCE LEARNING
NAKURU LEARNING CENTRE

Tel 051 – 2210863
Our Ref: UoN/ODeL/NKRLC/1/12

To whom it may concern:

RE: NJUGUNA GERALD NDERITU L50/82431/2015

The above named is a student of the University of Nairobi at Nakuru Extra-Mural Centre
Pursuing a Masters of arts Degree in Project planning and management.

Part of the course requirement is that students must undertake a research project during their
course of study. He has now been released to undertake the same and has identified your
institution for the purpose of data collection on “Determinants for Adoption of Quality
Management System in Project Implementation: A Case of Nyandarua County
Government Construction Projects, Kenya

For that reason, I am writing this, requesting you to assist her.

Yours Faithfully,

DR. OURU JOHN NYAEGAH (PH.D)
LECTURER: ODeL CAMPUS
UNIVERSITY OF NAIROBI
Appendix iv: NACOSTI Research Authorization Letter

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471, 2241349,3310571,2219420
Fax: +254-20-318245,318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

Ref. No. NACOSTI/P/18/11937/22719

Date: 25th June, 2018

Gerald Nderitu Njuguna
University of Nairobi
P.O. Box 30197-00100
NAIROBI

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Determinants for adoption of quality management system in project implementation: A case of Nyandarua County Government Construction Projects” I am pleased to inform you that you have been authorized to undertake research in Nyandarua County for the period ending 22nd June, 2019.

You are advised to report to the County Commissioner and the County Director of Education, Nyandarua County before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a copy of the final research report to the Commission within one year of completion. The soft copy of the same should be submitted through the Online Research Information System.

DR. MOSES RUGUTI, PhD, OGW
DIRECTOR GENERAL/CEO

Copy to:

The County Commissioner
Nyandarua County.

The County Director of Education
Nyandarua County.
Appendix v: NACOSTI Permit

CONDITIONS

1. The License is valid for the proposed research, research site specified period.
2. Both the Licence and any rights thereunder are non-transferable.
3. Upon request of the Commission, the Licensee shall submit a progress report.
4. The Licensee shall report to the County Director of Education and County Governor in the area of research before commencement of the research.
5. Excavation, filming, and collection of specimens are subject to further permissions from relevant Government agencies.
6. This Licence does not give authority to transfer research materials.
7. The Licensee shall submit two (2) hard copies and upload a soft copy of their final report.
8. The Commission reserves the right to modify the conditions of this Licence including its cancellation without prior notice.

THIS IS TO CERTIFY THAT:
MR. GERALD NDERITU NJUGUNA of UNIVERSITY OF NAIROBI, 48-203031 OL-Kalou, has been permitted to conduct research in Nyandarua County
on the topic: DETERMINANTS FOR ADOPTION OF QUALITY MANAGEMENT SYSTEM IN PROJECT IMPLEMENTATION: A CASE OF NYANDARUA COUNTY GOVERNMENT CONSTRUCTION PROJECTS
for the period ending: 22nd June, 2019

Applicant's Signature

Permit No: NACOSTI/P/18/11937/22719
Date Of Issue: 25th June, 2018
Fee Received: Ksh 1000

Director General

National Commission for Science, Technology and Innovation

Serial No. A 19121

CONDITIONS: see back page
THE PRESIDENCY
MINISTRY OF INTERIOR AND COORDINATION
OF NATIONAL GOVERNMENT

COUNTY COMMISSIONER
NYANDARUA COUNTY
P.O. BOX 3
OL KALOU

Telegrams: ............................
Fax No. 020-2196509
Email. cc.nyandarua@interior.go.ke

When replying please quote

CTY/CORR.3/3 VOL.1/201 12th July, 2018

Gerald Nderitu Njuguna
University of Nairobi
P.O. Box 30197 – 00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Determinants for adoption of quality management system in project implementation: A case of Nyandarua County Government Construction Projects” I am pleased to inform you that you have been authorized to undertake research in Nyandarua County for the period ending 22nd June, 2019.

You are advised to report to the Deputy County Commissioner in each Sub County, Nyandarua County before embarking on the research project.

ANNE MITEMA
FOR: COUNTY COMMISSIONER
NYANDARUA COUNTY

cc
Deputy County Commissioners
NYANDARUA COUNTY
Appendix vi: County Director of Education Research Authorization Letter

MINISTRY OF EDUCATION
STATE DEPARTMENT OF EDUCATION

Email: edenypadcounty@yahoo.com
Cellphone: 0722887223
When replying please quote

REPUBLIC OF KENYA

OUR REF:CDE/NYA/GEN/19/VOL 1/99 12th July, 2018

Gerald Nderitu Njuguna
University of Nairobi
P.O. Box 30197 -01000
NAIROBI

RE: RESEARCH AUTHORIZATION

Following your request to carry out research on “Determinants for adoption of quality management system in project implementation.” I am pleased to inform you that you are hereby granted permission to carry out your research for the period ending 22nd June, 2019.

After completion of your project, you will be required to remit a copy of your finding to this office.

We wish you all the best.

[Signature]

HELEN NYANG’AU (Mrs)
COUNTY DIRECTOR OF EDUCATION
NYANDARUA COUNTY

COUNTY DIRECTOR OF EDUCATION,
NYANDARUA COUNTY,
P.O. BOX 197 - 20303
OL KALOU.
Appendix viii: County Secretary Authorization Letter

REPUBLIC OF KENYA

COUNTY GOVERNMENT OF NYANDARUA
OFFICE OF THE COUNTY SECRETARY AND
HEAD OF PUBLIC SERVICE

Telephone: 0202660859
Fax: 0202660859
Website: www.nyandarua.go.ke
Email: cs@nyandarua.go.ke

P.O. Box 701-20303
Ol Kalou
Kenya

When replying please quote

REF: NYA/CNT.GOV/ADM/1/4/1 17th July, 2018

NJUGUNA GERALD NDERITU

PERMISSION TO CONDUCT RESEARCH

Your unreferenced letter dated 12th July, 2018 on the above subject refers.
This office has no objection for you to carry out the research as long as the
information gathered in the course of the research will be for research purposes
only as outlined in your request letter

KAMAU NGUGI

For: COUNTY SECRETARY AND HEAD OF PUBLIC SERVICE