RELATIONSHIP BETWEEN OPEN CONTRACTING AND PERFORMANCE OF PUBLIC PROCUREMENT SYSTEM IN MAKUENI COUNTY

CAROLYNE MUKONYO NGAA

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DECLARATION AND APPROVAL

Declaration by Student

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

15/04/2024

Signature …….. Date ……..…….

CAROLYNE MUKONYO NGAA

REG. NO. MPSM/2022/46798

Approval by Supervisor

I confirm that the work presented in this project report was carried out by the candidate under my supervision.

15/04/2024

Signature …….. Date ……..….

Dr. Jackson Ndolo,

Senior Lecturer,

School of Business and Economics,

Mount Kenya University.

DEDICATION

I dedicate this research to supplychain management practitioners.

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I do acknowledge my supervisor Dr Jackson Ndolo for his guidance and insights without which this work could not be possible. I thank my family for their support and encouragement during the study. The greatest of all thanks goes to the Almighty God who gave me strength, health and means to carry out this work.

ABSTRACT

Open contracting is globally believed to improve procurement performance. Despite open contracting being cited for savings and greater efficiency in service delivery, it is not clear what aspects of open contracting relates to the good procurement performance. There has not been established a clear relationship between factors such as ICT infrastructure, capacity, data, process visibility, public participation and procurement performance in at both national and sub-national levels. Most research efforts on open contracting focus on compliance with standards but do not the relationship of its variables with those of procurement performance. This research aimed to study the contribution of open contracting to the promotion of procurement performance in Kenya with a specific focus on Makueni County. Specifically, it examined the relationship between capacity for open contracting, open contracting data, process and public participation and procurement performance. The research was based on transaction cost economics (TCE) theory. Target population was 150 county staff, 1,000 local leaders and 20,000 members of public drawn from across the county. A stratified random sample consisted of 110 county staff, 374 members of public and 19 local leaders drawn across the wards of Makueni County. Descriptive research design with structured questionnaire was used in the current research. Data was mainly quantitative and some qualitative. Descriptive statistics with mean and standard deviations was used to analyze quantitative data together with inferential statistics based on multiple linear regression in SPSS version 27. Qualitative data analysis methods such as sorting, coding, clustering, grouping, query the data based on coding, summarizing and interpreting were used. Results indicate that open contracting variables have positive and significant relationship with procurement performance. Specifically, capacity for open contracting, open contracting data, process visibility and public participation were found to have significant and positive relationship with procurement performance. It was concluded that improving the studied open contracting variable can significantly enhance procurement performance. It was recommended that capacity for open contracting should be enhanced through training programs on critical variables of procurement performance such as data accuracy, completeness, and sufficiency. Service providers should prioritize the improvement of their operational leagility and that public participation in the procurement process should be encouraged. Future research should compare open contracting across different counties to highlight differences in relationship between independent variables and procurement performance.

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CDF Constituency Development Fund

CRD Corruption Risk Dashboard

DMADV Define, Measure, Analyze, Design, Verify

G20 Group of 20 big economies comprising 19 countries and the European Union (EU).

G7 The Group of Seven (G7) big economies consisting of Canada, France, Germany, Italy, Japan, the United Kingdom and the United States

ICJ International Commission of Jurists

KEMSA Kenya Medical Supplies Agency

NOCOPO Nigeria Open Contracting Portal

OECD Organization for Economic Cooperation and Development

OGP Open Government Partnership

PPIP Public Procurement Information Portal

RBV Resource Based View

SFTAS States Fisca Transparency, Accountability, and Sustainability

SME Small and Micro-enterprises

LIST OF ABBREVIATIONS AND ACRONYMS

CHAPTER ONE

INTRODUCTION

1.1. Introduction

This chapter introduces the study on procurement performance and open contracting. It presents background of the research from global, regional and local perspectives. It also states the problem of the study and objectives. The questions the research is intended to answer are also presented. Significance of the study and its scope are detailed in this chapter.

1.2. Background of the Study

Organizations globally are moving away from one-time performance reviews to continuous performance monitoring and evaluation in order to spot and address challenges and problems fast. Performance is key to productivity and proper resource utilization for sustainability (Sueyoshi & Goto, 2018). Performance is defined as quantified level of efficiency and effectiveness (Anane & Kwarteng, 2019). It refers to quantity and quality of achievements in a particular task or process (Nas, 2021). Managers focus on promotion of performance to help in ensuring competitive advantage and to avoid losses (Altamimi, 2022). This focus on promotion of performance is multi-sectoral and includes performance of procurement functions.

Procurement performance is understood as the quantified level of efficiency and effectiveness in acquiring items, works or services (Anane & Kwarteng, 2019).

According to Anane and Kwarteng (2019), procurement performance provides the basis for examining the effectiveness of organizations in achieving their goals and objectives and in deciding on initiatives that help to promote performance. Procurement can only meet its performance objectives if it is done in a strategic way with accountability, transparency and participation which guarantees openness and sustainability (Adam & Zellmann, 2021). One aspect of procurement that has been acknowledged to promote procurement performance and achieve objectives is open contracting (Ozor & Nyambane, 2020a).

Open contracting, also known as open public procurement, refers to standards, practices and methods for improved transparency and monitoring in public procurement contracts (Pruyn, 2013). It is a priority area in open governments and anti-corruption reform processes in nations. Open contracting involves publishing and use of open, accessible, and timely information and data on government contracts to engage citizens and firms to identify and fix problems. Open contracting supports sustainable procurement and is aimed at transforming culture and practices to promote procurement performance.

Open contracting is recognized as a new norm for promoting public procurement globally. The countries that have recognized this include the G7 including Canada, France, Germany, Italy, Japan, the United Kingdom and the United States, the G20, the OECD and the European Union (Adam & Fazekas, 2021; Adam & Zellmann, 2021; Lansana et al., 2020). Countries have created open contracting where national and sub-national entities publish their open contracting

data (Bertocchi et al., 2022). They have created vibrant and growing networks of national and local open contracting professionals and advocates across the globe. Progress of open contracting can be determined based on extent of data disclosure and public participation in the process (Adam & Zellmann, 2021; Bertocchi et al., 2022). Currently, governments around the world are under pressure to reform outdated, paper-based procurement systems that failed to perform during the COVID-19 pandemic (Adam & Fazekas, 2021). There are greater trends to engaging citizens in utilizing contracting data for greater impact through open contracting information disclosure in the areas of data usage, citizen feedback loops, quality data and standardization of procurement practices (Bertocchi et al., 2022).

In Europe countries such as Ukraine, Georgia and the UK are key examples that have embraced open contracting in promoting procurement (Adam & Zellmann, 2021). It has been shown that Ukraine has wide-range and comprehensive procurement reforms based on open contracting and has achieved savings of USD 1 billion, created new businesses in government procurement markets in small and micro-enterprises (SMEs) and reduced corruption incidences (Adam & Zellmann, 2021; Depo, 2021). Europe has achieved a lot of benefits of open contracting including effective competition, value-for-money and anti-corruption and Euro 4.5–10.9 billion savings annually (Adam & Zellmann, 2021; Mackey & Cuomo, 2020). The governments in Europe have invested in

infrastructure and databases to ensure that data for open contracting is secured and shared across partners.

In Colombia there were cases of corruption related to procurement of school food. The government of Colombia embraced open procurement and published information on the full procurement cycle of school feeding program in Bogota in 2015–2017 procurement action plan (Keefer & Roseth, 2022). This helped the government to reach small-scale suppliers, set minimum and maximum prices, and implemented principles of open contracting. This helped to achieve savings of 10–15% and more than four times the number of suppliers who participated in the process (Gilbert, 2019). The open contracting process helped to bring down a suspected USD 22 million price-fixing scheme (Fjeldstad & Raballand, 2020).

In Albania it was found that women-owned enterprises received 5% of local municipal contracts that accounted for 3.2% of municipal procurement (Ferrand, 2019). Though contracts awarded to women-owned enterprises are more cost-effective, large municipalities awarded lower-value contracts to women-owned businesses (Fazekas & Blum, 2021). The government adopted open contracting where data on women-owned businesses was used to gauge the procurement performance of each government institutions in terms of percentage contracts awarded to women-owned enterprises (Fazekas & Blum, 2021; Ferrand, 2019). In this respect, open contracting can be used to address gender inequalities in participation in public procurement.

Nigeria joined Open Government Partnership (OGP) in 2016 and made a commitment to adopt open contracting in public procurement. It prioritized

reforms main ministries to disclose information and to establish procurement council with stakeholders from various sectors (Afolabi et al., 2022; Ozor & Nyambane, 2020a; Schöberlein, 2019). It also committed to train civil society bodies and private sectors on how to use the Nigeria Open Contracting Portal (NOCOPO) to improve citizen engagement in the process (Open Contracting

Partnership, 2021). Since the year 2018, 36 state governments across Nigeria have been given support to start open contracting and to improve their procurement laws through a World Bank funded project, the States Fiscal Transparency, Accountability, and Sustainability (SFTAS) (Open Contracting Partnership, 2021). This is aimed to enhance accountability, transparency and sustainability in public procurement. Kaduna and Edo States had implemented open contracting portal. Many states are currently publishing accessible and usable procurement information and data for the first time (Open Contracting Partnership, 2021).

In South Africa, the need to tackle corruption and improve governance led to government and stakeholders to identify opportunities for procurement reforms and to collaborate in implementing them (Carolyne, 2021). The need for reform led to formation of the Procurement Reform Working Group to review the government's procurement and suggest areas of improvement (Carolyne, 2021; Naidoo et al., 2018). The group has demonstrated the value of publishing procurement data in open contracting. Platforms like PSAM and Open Up were created to help in procurement monitoring (Carolyne, 2021). The open source platform helps the media and citizens to search through procurement materials.

However, corruption remains a big impediment to the progressive development of open contracting in South Africa (Naidoo et al., 2018).

In Kenya, there are commitments by both national and county governments to implement open contracting public procurement processes (Ozor & Nyambane, 2020a). The country also has in place Public Procurement Information Portal (PPIP) to help promote procurement (Nyambane & Ozor, 2020). Mapping done by International Commission of Jurists (ICJ) found that some crucial information public procurement is still not disclosed (Ozor & Nyambane, 2020a; Yasmin, 2021). In some cases, information is availed after procurement is completed, posing difficulties in monitoring the process and raising queries in a real-time.

Kenya faces outrage on misappropriation of funds including COVID-19 pandemic response funds and at Kenya Medical Supplies Agency (KEMSA) where procurement processes were suspected to have been mismanaged (Lugulu, 2022).

Given that open contracting is done in Kenya at both national and county levels, counties are now taking steps to implement it. Makueni County is one example of commitment to adopt open contracting to address the problem of corruption in procurement (Datta et al., 2021). The county aims to have a

sustainable approach to promote procurement performance through open data and public disclosure of tenders and contracts. In 2019, Makueni County launched open contracting portal to allow the public to access useful procurement information as well as interact with Corruption Risk Dashboard (CRD) that flags tenders and awards on basis of defined metrics that relate to corruption (Macbeth, 2021). Between 2019 and 2020, it was found that the number of published public procurement processes almost tripled and savings of KShs 30 million were realized (Macbeth, 2021).

Despite Kenya having embraced open contracting, rampant corruption remains endemic in procurement in the country (Ochieng' & Odhiambo, 2022). Government offices charged with responsibility of procurement repeatedly violate the procurement laws and regulations thereby generating low public trust (Kwambai, 2021). Public procurement often results in the ballooning of costs and creation of new costs through adverse court actions (Macbeth, 2021). Progresses in promoting procurement performance through open contracting as made in Makueni County need to be examined to determine the extent to which the approach has addressed challenges in procurement. Specifically, it is important to establish the extent to which open contracting has reduced corrupt practices in procurement, amounts of savings realized as well as challenges of

its implementation. The current research seeks to examine the aspects of open contracting implemented in Makueni County, establish the extent to which they promote procurement performance and establish the challenges facing its implementation.

1.3. Statement of the Problem

Though open contracting has been linked to enhanced efficiencies and transparency in government procurement at both national and sub-national levels(Adam & Zellmann, 2021) , there is need for understanding of the relationships that exist between its constructs and procurement performance. In some countries there are multiple e-procurement systems, others such as Kyrgyz Republic, Philippines and Chile have a single platform shared by all Government agencies (Asian Development Bank, 2018). In case of multiple systems, there is need for inter-operability of the system at data and process levels to be able to realize the full performance of procurement . There is need for documents generated in a

system within open contracting network to be acceptable across systems used within the framework.

One of the problems in open contracting is related to enabling of real-time visibility of processes such as those handling pending contracts. In Kenya, bidders with pending contracts often win new ones due to ignorance or corruption, necessitating transparent open contracting. Open contracting is hindered by non-uniform e-Catalogues, complicating supplier uploads and necessitating a standardized, government-aligned e-Catalogue for local and global marketplaces.

Apart from problems related to the open contracting systems, databases and operations, there still exists corrupt practices (Ngigi & Busolo, 2019). Despite open data and public disclosure of tenders and contracts in Kenya, some information and data are availed in open contracting portals after they have been awarded. Cases of grand corruption in procurement still exist in counties yet tenders are deemed to be open to public (Kivoi et al., 2022; Ngigi & Busolo, 2019). Though counties like Makueni report improvement in participation by citizens as well as reasonable savings after adoption of open contracting, there are not substantive reports that link open contracting to improved procurement performance.

Various studies such as Safarov (2020), Mackey (2020), Adam and Fazekas (2021) and Afolabi, et al. (2020) identify ICT infrastructure, capacity, data and process visibility as important in improving procurement performance, little has been done in determining the relationship between the factors and performance.

Reports on implementation and benefits of open contracting in Kenya such as Macbeth (2021) and Datta (2021) are done by organizations with conflicting interests or by government and may not give independent perspective. Makueni County is cited as sub-national best practice while the other two include Datta (2021) and Nzuma (2022) who focused on Constituency Development Fund (CDF) in Kitui. Open contracting in Makueni County lacks research on its relationship with procurement performance, despite noted savings and efficiency. There has not been established in literature a clear relationship between factors such as ICT infrastructure, capacity, data and process visibility and procurement performance in the County. Efforts in literature such as Lansana, et al. (2020) data, visibility and ICT infrastructure as critical to success of open contracting in Africa, there is no evidence of studies that have assessed or measured the relationship between the factors and procurement performance. Some existing studies such as Ngugi and Oduor (2015), Moses (2017) and Mutuku (2020) link successes and challenges of open contracting in Makueni to the factors but fail to establish the extent of relationship between the factors and procurement performances. There is need to establish the relationship of open contracting variables and procurement performance in Makueni.

1.4. Purpose of the Study

The purpose of the study was to relate open contracting variables in a bid to improve procurement performance in Makueni County. This study discussed relationship between capacity for open contracting, data, process visibility and public participation and their relationship with procurement performance. The study sought to offer great insight on the effects of open contracting on indicators

of performance such as compliance rate, cost per purchase order or invoice, customer satisfaction and procurement cycle time.

1.5. Objectives of the Study

The objectives of this study are classified as general and specific objectives as outlined below.

1.4.1. General Objective

To study the relationship between open contracting and performance of procurement system in Makueni County.

1.4.2. Specific Objectives of the Study

i. To examine the relationship between capacity for open contracting and procurement performance in Makueni County;

ii. To determine the relationship between open contracting data and procurement performance in Makueni County;

iii. To determine the relationship between open contracting process visibility and procurement performance in Makueni County

iv. To assess the relationship between public participation in open contracting and procurement performance in Makueni County

1.6. Research Questions

i. What is the relationship between capacity for open contracting and procurement performance in Makueni County?

ii. How does open contracting data affect procurement performance in Makueni County?

iii. How does open contracting process visibility affect procurement performance in Makueni County?

iv. What is the relationship between public participation in open contracting and procurement performance in Makueni County?

1.7. Significance of the Study

This research sought tolprovide new insights into contribution of open contracting to promotion of procurement performance. Specifically, it aimed to highlight the visibility of data and procurement process improves participation, public trust and integrity of the procurement process. Moreover, the analysis in the study conveys valuable information for future research that will explore the various benefits of open contracting in procurement. The government at both national and sub-national level can uselthe findings of the research in shaping public procurement policies aimed at eliminating corruption and encouraging public participation.

1.8. Scope of the Study

Content Scope

Whilst the immediate benefits related to open contracting have been well documented, their contribution to procurement performance is poorly understood. The aim of the study was to examine the contribution of open contracting to the promotion of procurement performance in Kenya. Specific independent variables of the study were open contracting partnership, data and process visibility while dependent variable was procurement performance.

Geographical Scope

The study was carried out in Makueni County, in Kenya. It was limited to recruiting 50 volunteers who were procurement staff and 50 who were members of public of Makueni County and have recently been involved in procurement with county.

Time Scope

The study captured the period of 2015 to date. The respondent recruitment period lasted forlone month and ended when the target numbers are reached. Each volunteer to the study was asked to complete a research questionnaire. The questionnaires created in Google Forms were disseminated via emails, WhatsApp and SMS.

1.9. Limitations of the Study

The study faced some limitations such as data availability, reliability, and validity, as well as ethical and logistical challenges. The main limitation of the current research was that it studied one county. The limitations were addressed through adherence to research methodology and by use of research assistants conversant with the public and the county staff.

1.10. Delimitations of the Study

This study focused on the relationship between open contracting and the procurement performance in Makueni county, Kenya. The study was delimited to the period between 2015 and 2022, when the county government enhanced transparency and

accountability in public procurement. The study also limited its scope to the procurement contracts funded by the county government and executed by various the county departments such as health, road and agriculture. The study didl not cover the projects funded by the national government or other external donors. It did not examine the procurement processes of other county departments or agencies. The study mainly used both quantitative methods to collect and analyze data from primary and secondary sources.

1.11. Assumptions of the Study

The study assumed that respondents drawn from procurement departments of the county and members of the public gave reliable and accurate information on open contracting and procurement performance in the county.

1.12. Operational Definitions of Key Terms

Open contracting	:	It is the publishing and using open, accessible, and timely information on government procurement contracts to engage citizens and businesses in identifying and fixing problems. It also refers to standards, practices and methods for improved transparency and monitoring in public procurement contracts.
Openness	:	Not hiding information or data concerning procurement
Procurement	:	Process of acquiring items, works or services
Procurement performance	:	Quantified level of efficiency and effectiveness in

		acquiring items, works or services
Public procurement	:	Acquisition process of items, works or services by a public entity
Sustainability	:	Ability to maintain or support a procurement process continuously over time to achieve good performance

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter presents the previous work of different academicians, researchers and scholars on open contracting and procurement performance.

2.2. Empirical Literature

In this section, indicators of open contracting and procurement performance are reviewed. The indicators include capacity for open contracting, open contracting data, open contracting process visibility and public participation in open contracting.

2.2.1. Relationship between Capacity for Open Contracting and Procurement Performance

Capacity refers to the ability for an organization to manage its resources such as human and financial resources, physical infrastructure and information to achieve the highest level of desired outcome (Takdir et al., 2021).

Verma (2021) meticulously examined the procurement strategies employed by various Indian states during the Phase III of India's COVID vaccination campaign, providing a comprehensive analysis of over seven global tenders. The participation of Indian manufacturers was studied as well as the inclusion of WHO-EUL/PQ listed vaccine candidates, and the financial intricacies such as advance payments, penalties, liquidated damages, as well as differential pricing and exchange rate risk allocation. This critical evaluation was encapsulated in the law and public policy brief, which represents the culmination of an iterative process involving key stakeholders, with

the final version being an advancement over the initial draft dated May 31, 2021. The study underscored its significance as a resource for the ongoing education of senior civil servants in Rajasthan, India. It serves as a testament to the evolving nature of procurement capacity, ICT infrastructure, and information, all within the bounds of the prevailing policy, legal framework, and operational conditions. This document stands as a pivotal reference for understanding the dynamics of procurement capacity, especially in the face of unprecedented challenges posed by the global health crisis. Verma's work is instrumental in highlighting the critical role of procurement capacity in crisis situations, where the agility and responsiveness of procurement processes can mean the difference between an effective or inadequate response. The study's comparative approach sheds light on the varied responses across different states, offering valuable insights into the factors that contribute to successful procurement outcomes. The inclusion of international vaccine candidates and the consideration of global standards, such as those set by the WHO, reflect a commitment to quality and efficacy in procurement decisions. Furthermore, the analysis of financial terms and conditions associated with the tenders reveals the complexity of contractual arrangements in crisis procurement. The allocation of risks, such as those related to exchange rates, and the stipulation of penalties for nonperformance are indicative of the proactive measures taken to safeguard the interests

of the contracting parties and ensure the delivery of vaccinesl(Verma, 2021).

Manu et al (2018) used survey that operationalized 30 procurement capacity challenges identified in the literature, garnered 288 responses. These responses were subjected to rigorous analysis using descriptive statistics, one-sample t-tests, and independent-samples t-tests to distill the critical challenges impeding procurement effectiveness. The analysis revealed that issues pertaining to transparency, integrity, and accountability rank as the most significant challenges undermining the effectiveness of public infrastructure procurement. Interestingly, the study found minimal variance in the impact of these challenges across different tiers of public agencies within Nigeria. This suggests a pervasive issue that transcends administrative levels, pointing to systemic obstacles within the national procurement environment. Furthermore, the review underscores the importance of evaluating the influence of procurement capacity challenges on procurement effectiveness. Such an assessment can yield critical insights into the state of public infrastructure procurement, particularly in nations like Nigeria, where infrastructure deficits are pronounced. The implications of these findings are especially relevant for countries in Sub-Saharan Africa and other developing regions grappling with similar challenges. Manu et al. (2018) contributes to the body of knowledge by highlighting the intricate interplay between procurement capacity challenges and their effects on

procurement effectiveness. It calls for a nuanced understanding of the procurement landscape and the need for targeted interventions to enhance the capacity for open contracting, thereby improving the delivery of public infrastructure projects.

According lto lManu, et al. l(2018) lprocurement lcapacity lis lcomposed lof lindividuals, lorganizational land lan lenabling lnational lenvironment lthat lconstitute llegislations, lpolicies land linstitutional larrangements lthat linfluence lthe lprocurement lperformance (Manu et al., 2018). It revealed that a critical examination of public procurement as a pivotal element of governmental operations. Public procurement serves as the commercial interface through which governments acquire goods and services necessary for public sector service delivery. Despite its significance, there is a notable scarcity of research within mainstream operations and supply chain management journals focusing on government supply chains, public procurement practices, and the integration of small businesses into these processes.

Harland et al. (2019) contributed to open contracting by employing policy feedback theory alongside an international coproduction study encompassing thirteen case studies that scrutinized the dyadic relationships between public procurement entities and small business agencies. Their research underscored the dual importance of public procurement and small business involvement as vital areas of policy and supply chain management research. By introducing policy feedback theory, they

offered a framework to comprehend the intricate relationships within public procurement capacity and performance. This theoretical approach was instrumental in understanding how these relationships can inform and potentially reform policymaking processes in open contracting. The study applied policy feedback theory to the realm of supply chain management research, particularly in the context of public procurement. It illuminated the potential of such research to not only elucidate the complexities of policy and supply chain interactions but also to instigate policy changes that could enhance the capacity for open contracting. The inclusion of small businesses in government supply chains is highlighted as a significant factor that can influence policy outcomes and the overall efficacy of public procurement. In synthesizing the findings of Harland et al. (2019), it was evident that the capacity for open contracting is contingent upon a multifaceted understanding of the

policies governing public open contracting and the operational realities of small businesses. It advocated for a more inclusive approach to public procurement, one that recognizes the value of small businesses and seeks to foster their participation in government supply chains. Such an approach could lead to more resilient and responsive supply chains that are better equipped to meet the demands of public sector service provision. Procurement capacity has also been found to relate to the extent to which leadership and governance of the organization can implement procurement policies and practices to achieve better performance (Harland et al., 2019; Nyambane & Ozor, 2020).

Nyambane and Ozor (2020) provided a comprehensive examination of the current state of open contracting within various African nations and institutions. The research aimed to chronicle the existing degree of transparency in public procurement processes, evaluate the systems and data sources employed by governments for the collection, analysis, and dissemination of procurement information, and measure the extent of openness and accountability throughout the different phases of public procurement. It also sought to pinpoint the principal stakeholders, assess their capabilities and eagerness to promote open contracting, and suggest feasible objectives and applications for the implementation of open contracting in the future. Utilizing a cross-sectional research design, the study employed a variety of data collection methods tailored to the specific requirements of each country involved in the research. Techniques such as snowball, cluster, and purposive sampling were instrumental in gathering data. The collection of quantitative

data was executed through the use of both open-ended and structured questionnaires, while qualitative insights were derived from focus group discussions, providing a depth of understanding from the participants' perspectives. The quantitative data underwent analysis via the Statistical Package for the Social Sciences (SPSS), and the qualitative data were organized into categories, from which themes were extracted and subsequently analyzed through manual content analysis. According lto lNyambane land lOzor l(2020), lopen contracting capacitylencompasses1 1the nature of organizational structures and systems to support sound open contracting. This requires human resources, proper financial management, planning, monitoring and evaluation, knowledge management, as well as partnerships that help to sustain implementation of open contracting (Allal-Chérif et al., 2021). The findings of the study indicate that numerous African countries are progressively moving towards the adoption of open contracting practices. This progression is evidenced by the enactment of procurement policies that align with the core principles and methodologies of open contracting. These nations are increasingly establishing institutional frameworks designed to introduce legislation and regulate procurement operations within their jurisdictions. Despite these advancements, the study notes a gap in the full integration of diverse stakeholders into the entirety of the procurement cycle, suggesting an area for further development in the pursuit of comprehensive open contracting practices. This research contributes significantly to the understanding of open contracting's capacity and highlights the strides made as well as the challenges that remain.

2.2.2. Relationship between Open Contracting Data and Procurement Perfomance

Researchers have found that data is very critical and affects procurement. According to Bhise (2017), data is the connerstone of all digitatl transformations. Open contracting data include spend data, purchase order data, contracts data, catalogue data, vendor and material master data, cost centre and account information, organization structure data, vendor performance data, accounts payable and receivable data. Bhise (2017) found that the rapidly evolving landscape of open contracting, data emerges as a pivotal element, underpinning the transformative processes that drive the field forward. The acceleration of technological advancements has necessitated a paradigm shift in the maturity curves of businesses and products, compelling a reduction in innovation cycles. This shift is not merely a trend but a new standard that demands continuous adaptation and improvement. The discourse on transformation within Sourcing and Procurement is multifaceted, with the term 'transformation' serving as a linchpin. It is regarded as a concept that adapts to various contexts, evidenced by its association with diverse prefixes such as 'Digital,' 'Analytics,' 'Portfolio,' and 'Process.' These terms, while distinct, often share common ground or are interconnected, reflecting the complex nature of the industry's evolution. Currently, 'Digital' stands out as the prevailing theme, signifying a comprehensive change that has infiltrated virtually every facet of our professional and personal spheres. Specifically, in open contracting, digital transformation heralds a revolution, reshaping every aspect through both existing and emergent technologies. This revolution is championed by innovations like Artificial

Intelligence, Machine Learning, Robotic Process Automation, and Blockchain. At the core of this seismic shift is Data, the foundational component that enables and

empowers digital transformation. They argue that criticality of data in open contracting transformation is not merely operational but strategic, serving as the lifeblood of innovation and efficiency. It is the lens through which we can understand and navigate the complexities of Open Contracting. The essence of transformation in this domain is intrinsically linked to the effective harnessing of data (Bhise, 2020). It is the catalyst that propels the industry towards a future where informed decision-making and strategic foresight are paramount. Data quality s critical to open contracting and encompasses data accuracy, data sufficiency, data reasonableness, data completeness and data validity (Njoroge, 2020).

Data accuracy in open contracting has been found to be highly dependent on the processes in the organization and other fields e.g. finance and accounts or human resources (Bhise, 2017; Sanchez-Graells, 2022). Dirty and inaccurate data leads to bad predictions and wrong plans (Hsieh et al., 2002). Data accuracy, integrity and security should be guarded during the entire lifecycle of its use in procurement. Procurement performance is highly correlated with data accuracy.

Data sufficiency has also been identified in literature as a critical factor to open contracting (Aulia & Isvara, 2021; Sanchez-Graells, 2022). In the realm of open contracting, data sufficiency emerges as a pivotal factor influencing the efficacy of digital procurement governance (Sanchez-Graells, 2022). A meticulous examination of the underlying technologies reveals the extent to which they can contribute to the enhancement of procurement processes. These technologies, while promising, are bound by limitations that must be acknowledged beyond the initial

enthusiasm often accompanying technological advancements. It is imperative to recalibrate policy frameworks to support a sustainable digital transition, ensuring that the foundational elements are robust and conducive to long-term adaptation. The empirical evidence underscores the critical role of data accessibility and integrity across various technological applications (Sanchez-Graells, 2022). However, the creation of a supportive big data infrastructure presents significant challenges, despite concerted efforts by entities such as the European Commission and the Open Contracting Partnership. The establishment of such an infrastructure is crucial, yet it remains a persistent bottleneck in the deployment of digital solutions within the field of procurement. Looking ahead, it is essential to recognize that the integration of digital technologies may shift rather than eliminate governance risks. These risks require further exploration and understanding to develop effective mitigation strategies. The discourse concludes by delineating the practical limits within which digital procurement governance can operate effectively (Sanchez-Graells, 2022). The usual volume of procurement at any organization, data sufficiency is very important to help in transformation and performance improvement (Aulia & Isvara, 2021). Data reasonableness refers to conformity of data to specific criteria of use (Wang et al., 2020). This is the final quality control check that ensures that are homogeneous with previous results (Brajković et al., 2020). Unreasonable data gives unreliable results and can negatively impact crime prevention (Iofinova et al., 2021).

Data completeness refers to availability of al members in the data set (Njoroge, 2020). Whereas complete data fosters accuracy, incomplete, distorted or

missing data can ead to bad decisions (Rumisha et al., 2020). Such incompleteness leads to approximations that introduce error in prediction and therefore negatively impact procurement performance (Shabani-Naeeni & Ghasemy Yaghin, 2021).

Data validity refers to appropriateness of inferences made from data (McCoach et al., 2020). It is the adequacy of data relative to a given set of hypotheses (McCoach et al., 2020). Data validity is correlated with procurement performance in open contracting system (Addy et al., 2022).

2.2.3. Relationship between Open Contracting Process Visibility and Procurement Performance

According to Nikander (2017), visibility is the traceability and transparency of all processes in supply chains. Visibility of open contracting processes helps the citizen to better understand how the flow process begins, how it develops, who is involved, how long it lasts and when it ends (Nikander, 2017; Zefaj, 2021). The transparency allowed by the visibility of the process guarantees satisfaction for the citizens (Sciortino et al., 2019; Zefaj, 2021).

Zefaj (2021) used la case study to explore the application of Lean Six Sigma (LSS) methodologies to enhance procedural transparency within public sector institutions. The study underscored the pivotal role of process visibility in fostering an understanding of procurement among citizens, thereby ensuring their satisfaction and security. By scrutinizing local-level public institutions, including municipalities and social service centers, the study identified the current state of process visibility, catalogs and measures defects, discerns the root causes of these defects, and

proposes an action plan to ameliorate the situation. The adoption of the DMADV (Define, Measure, Analyze, Design, Verify) framework, a cornerstone of LSS, facilitated the development of practical solutions that augment the clarity of municipal administrative processes. He advocates for the public sector's procurement methodologies as a means to stimulate creativity and ensure the efficient, clear, and cost-effective open contracting. The study's findings suggest that the implementation of LSS methods, particularly the DMADV technique, can lead to substantial improvements in the way public institutions carry out their procurement. It provides a blueprint for public administrations eager to enhance process visibility, which is instrumental in building trust and ensuring the transparent functioning of open contracting. The study contributes to a growing body of literature that emphasizes the need for transparency and citizen engagement in procurement. The detailed analysis of the application of LSS methods within the public sector not only demonstrates the practical benefits of such approaches but also aligns with the global movement towards open governance and the democratization of information. As public institutions worldwide strive for greater accountability and efficiency, the insights provided by the case study offer valuable guidance on the implementation of process visibility initiatives that can serve the dual purpose of enhancing operational excellence and fostering public trust in the procurement process.

According to Zefaj (2021), process visibility ¡s closely associated with the monitoring phase of processes and targeted towards the creation of end-to-end visibility during process execution. It helps to mprove efficiency and mproving efficiency and sustainability of the processes (Maslaric et al., 2020; Sciortino et al., 2019).

A number of researchers have identified attributes of process visibility in contracting (Berner & Jegadeesan, 2014; Bruce et al., 2004; Coleman et al., 2019; Sciortino et al., 2019; Xie et al., 2020). According lto lBerner and Jegadeesan l(2014), process visibility in procurement includes visibility of order to cash, procure to pay and plan to inventory that need to be real-time. They provided a detailed examination of how real-time process visibility could be achieved and the subsequent benefits for line-of-business workers. They explained how SAP's solution integrates data from various sources, offering a unified and actionable view of procurement processes. The integration allowed for immediate responses to critical business situations, thereby enhancing decision-making and operational efficiency. Furthermore, the work underscored the importance of end-toend process visibility in generating business value and ensuring customer success. By focusing on the management of work and budget around end-to-end business processes rather than functional units, organizations can achieve significant improvements in cost, quality, speed, and profitability. They showed that in processoriented enterprises, real-time process information is crucial for operationally managing and continuously improving business processes. They also addressed the challenges posed by the increasing volume of operational data generated from diverse sources and noted that the explosion of data within enterprises, often referred to as the big data phenomenon, necessitated a new approach to process visibility.

Coleman et al. (2019) showed that process visibility is anchored on meaningful collaboration and end-to-end visibility of process between budget, procurement and program players. A similar position was held by Sciortino et al. (2019)

who noted that with end-to-end visibility of budget, procurement and players, efficiency can be improved and bottlenecks identified.

Other researchers found that process visibility includes ogistics tracking visibility, eagility which contain aspects of agility, ean-logistics and flexibility (Xie et al., 2020). eagility takes advantage of ean and agile processes as quick reaction to demand with effective utilization of imited resources (Bruce et al., 2004).

2.2.4. Relationship between Public Participation and Procurement Performance

Public participation in government is a provision in Article 118 of the Constitution of Kenya. It is profoundly captured in Article 1 that states that sovereign power belongs to the people and Article 10(2) (a) and the Fourth Schedule Part 2 (14) of the Constitution of Kenya. It is also stipulated as a function of the County Governments in Sections 87 to 92 and 115 of the County Governments Act, 2012 that outline the principles of public participation and the imperative for facilitating public participation in the work of the County government.

Public participation encourages the public to have meaningful input into the decision-making processes (Marzuki, 2015). It provides the opportunity for communication between decision-making agencies and the public (Arwati & Latif, 2019; Zhou et al., 2019). Forms of public participation includes provision of information, consultations, public involvement in decision-making, collaboration in development of decision criteria and alternatives and public empowerment (Makueni County, 2017).

Marzuki (2015) underscores the significance of public involvement, asserting that it fosters meaningful contributions from citizens in governmental decisions. This sentiment is echoed by Arwati and Latif (2019), who highlight the communicative bridge that public participation constructs between decision-making bodies and the populace. Zhou et al. (2019) further elaborate on this concept, presenting a comparative analysis that underscores the necessity of public input in the decisionmaking framework of Chinese public projects. The forms of public participation are multifaceted, ranging from the dissemination of information to more engaged roles such as direct involvement in decision-making and the co-creation of decision criteria and alternatives. Makueni County (2017) provides a comprehensive categorization of these forms, emphasizing the spectrum from passive information provision to active public empowerment. This gradation of involvement is crucial for the development of a transparent and accountable contracting process, which is the cornerstone of open contracting. Moreover, the literature suggests that public participation is not without its challenges. Marzuki (2015) delves into the complexities inherent in the public participation process, identifying potential obstacles that can hinder effective engagement. Similarly, Arwati and Latif (2019) investigate the factors that impede public participation in corruption prevention in Indonesia, particularly through e-government platforms. These studies contribute to a nuanced understanding of the dynamics at play in public participation and its impact on open contracting.

Provision of information to the public helps them understand the issues, options and solutions available in open contracting (Makueni County, 2017). Consultations with the public to obtain their feedback on open contracting

alternatives or decisions and public involvement ensures their concerns are considered throughout the decision-making process particularly in the development of decision criteria and options (Steiner et al., 2018; Wiatrak, 2010). Collaboration with the public aims to develop decision criteria and alternatives and identify the preferred open contractiong solutions while public empowerment is done by placing final contracting decision-making authority in their hands (Bevir, 2010; Makueni County, 2017; Mendoza Jiménez et al., 2019). Consultative processes, as highlighted by Steiner et al. (2018) and Wiatrak (2010), serve as a conduit for public feedback on open contracting, ensuring that citizen concerns are integrated into the decision-making framework, particularly in the formulation of decision criteria and alternatives. These processes are not merely tokenistic; they are integral to the development of a responsive and inclusive contracting environment where public opinion shapes policy and practice. Collaboration with the public goes beyond consultation, aiming to co-create decision criteria and alternatives, as well as to pinpoint the preferred solutions in open contracting. This collaborative approach is rooted in the principles of participatory governance, where stakeholders are not just passive recipients of information but active contributors to the contracting process. Bevir (2010) and Makueni County (2017) emphasize the transformative potential of such collaboration, which can lead to more equitable and effective contracting outcomes.

Empowerment of the public in open contracting is the zenith of participation, where citizens are entrusted with the ultimate authority over contracting decisions. This paradigm shift, from government-led to citizen-led decision-making, is a bold move towards democratizing the contracting process. Mendoza Jiménez et al. (2019)

advocate for this level of public empowerment, suggesting that when citizens are given the reins of decision-making authority, the resulting contracting solutions are more likely to align with public interest and sustainable practices.

The literature collectively suggests that public participation in open contracting is not a linear process but a dynamic interaction that evolves from passive reception of information to active decision-making. Each stage of participation—information provision, consultation, collaboration, and empowerment—builds upon the other, culminating in a robust framework that not only values public input but also hinges on it for the legitimacy and success of open contracting initiatives. This evolution reflects a growing recognition of the public's role in governance and the potential of participatory approaches to enhance the transparency, accountability, and effectiveness of public contracting.

2.3. Theoretica Literature

This section presents theoretical illiterature on open contracting and procurement performance.

2.3.1. Open Contracting

Open contracting refers to standards and practices that help to increase disclosure of public procurement processes globally (Williams-Elegbe, 2018). It is a collection of complementary policies that foster transparency, public participation and accountability in government procurement process (Adam & Zellmann, 2021). It fosters monitoring the implementation of the procurement contracts (Afolabi et al., 2022). It also seeks to make government contracts open, transparent and easily understood by all so that public resources can be protected and correctly used to deliver services (Fazekas & Blum, 2021).

Open contracting is aligned with the principles of Transaction Cost Economics Theory, which emphasizes the importance of reducing transaction costs and information asymmetry in procurement processes (Williamson, 1981). It embodies a set of policies that resonate with the Agency Theory, advocating for transparency and accountability to mitigate the principal-agent problem in government procurement (Jensen & Meckling, 1976). This approach supports the Resource-Based View by ensuring efficient monitoring of contract implementation to leverage the government's resources effectively (Barney, 1991). Moreover, it echoes the Public Choice Theory that calls for openness and clarity in government contracts, safeguarding public assets and ensuring their optimal utilization for service delivery (Buchanan & Tullock, 1962).

Open contracting practices are capable of being implemented both national and sub-national levels of government. It is applicable to any type of public contracts including basic procurement contracts, complex contracts, joint ventures, licensing and production sharing covenants (Zoriana, 2014). According to Zoriana (2014), open contracting ensures transparency in tendering whether it involves one or a combination of fund sources. Disclosure of documents and information linked to public contracts assists in understanding, monitoring performance, and greater accountability in accordancy with Information Asymmetry Theory.

The basis of Open Contracting was to address the problems of waste, mismanagement, corrupt practices and inefficiencies and in public procurement (Messick, 2011). Inadequate information on the manner in which government contracts are formed, the contents and contexts of the agreements, performance and knowledge mechanisms of oversight support the mentioned negative incidences (Beth, 2007). According to Davies, et al. (2019), Open Contracting

Partnership advances and encourages the implementation of global principles of Open Contracting and open data standards for disclosure of contracting information. For a government, national or sub-national to engage in Open Contracting, it is not a must for it to become a member of Open Contracting Partnership (Ozor & Nyambane, 2020a). The government entity can just adopt pro-active publication of contracts and related information (Gätjen, 2014).

Open Contracting Partnership is steered by the World Bank Institute (WBI) and members of the steering group are diverse including Colombia's Compra Eficiente and the Philippines Government Procurement Policy Board (GPPB), among others (Huss & Keudel, 2020). Other members of the partnership are non-governmental organizations such as Oxfam, Integrity Action, and Transparency International (Gätjen, 2014). Open Contracting is an effort of Collaborative Governance. In Colombia Compra Eficiente (CCC) is an initiative by the government of Colombia aimed at enhancing efficiency public contracting in the country. In Philippines, GPPB was established to serve as an independent entity that is charged with responsibility of policy formulation and the implementation and monitoring the public procurement reforms. The GPPB aims to promote and achieve good governance in terms equity, transparency, effectiveness, accountability, efficiency and to improve economy (Gätjen, 2014). The steering group is supported by countries and government bodies that practice Open Contracting.

2.3.2. Procurement Performance

Procurement performance is level of the effectiveness, efficiency and spend of

procurement teams with the continuous ambition of improving the value of procurement to business (Radell & Schannon, 2019). Indicators of procurement performance are based on organizational strategy, structure, size, location and budget (Radell & Schannon, 2019). Performance indicators of procurement include cost savings, operational performance indicators, management expenditures, supplier performance, employee deliverables and costs (Elrod et al., 2013; Sharahi & Abedian, 2009). According to Sharahi and Abedian (2009), procurement performance indicators include procurement cycle time, compliance rate, material defect rate, material availability, rate of emergency orders, procurement service level, customer satisfaction, purchase order or invoice accuracy, and cost per purchase order or invoice.

Procurement performance is important because of the role of procurement in the financial performance, quality, resilience, and risk management in organizations (Roberta Pereira et al., 2014). By measuring the efficiency of their processes, organizations can establish to what extent there are fulfilling their mandate. The Resource-Based View supports the measurement of process efficiency as a means for organizations to gauge their success in fulfilling their strategic objectives. Enhancements in procurement performance, as advocated by the Theory of

Constraints, can lead to optimized team management, judicious resource distribution, amplified strategic sourcing effects, quantifiable communication of outcomes, and the substantiation of procurement's organizational value (Anane & Kwarteng, 2019; Khan K & Pillania, 2008).

Improving procurement performance through open contracting can allow products and services can be made available sooner (alongside savings) with less time spent on processing invoices, executing sourcing, or signing contracts (Anane &

Kwarteng, 2019). Minimizing transaction time also means cost reduction and mitigated time spent on manual activities, such as purchase orders, purchase requisitions, and invoice management, frees up team resources to focus on strategic sourcing and development (Helo & Shamsuzzoha, 2020). The Procure-toPay (P2P) cycle consists of many steps, some of which are definite bottlenecks. For example, purchase order cycle time can be effectively reduced to address the main bottlenecks that delay in approving purchase requisitions (Lane, 2019). Delays may occur due to category-specific approvers' unavailability, e.g., during unexpected leaves or overlapping responsibilities.

Invoice cycle time can be reduced through automation where clients can issue invoices electronically for e-approval in open contracting system (Hamledari & Fischer, 2021). Purchase order coverage can be improved through automation to address the problem of frustration and delays in payment in cases where the process is opaque, manual and without pre-approved budget to cover the invoice (Haapamäki, 2019). The implications of slow invoice payment include missing out on discounts for prompt payments, incurring penalties for late payments, additional costs of manual handling activities, and unhappy supplier relationships (Walker & Hyndman, 2022). By interrogating the payment process, a procurement organization can reduce processing time. Automating the purchase-to-pay process reduces opportunities for fraud and ensures that suppliers are paid on time with the correct price. Paper invoices should be eliminated or at least reduced to the very minimum in order to fully embrace open contracting (Feng et al., 2020).

Procurement performance can also be evaluated in terms of the difference between the first bid price and the actual price contracted. Organizations are increasingly implementing performance measures for sourcing value add in that is a shift from the traditional indicators of procurement performance (Guarnieri & Gomes, 2019). Procurement value delivery in sourcing depends on tender project objectives and business (Paldanius, 2023). Sourcing value-related measures could be related to customer experience, quality, reliability, or sustainability.

Procurement performance can also be determined in terms of return on investment (ROI) that estimates the profitability and cost-effectiveness of the money spent on operating a procurement function. However, procurement value delivery is more than just cost savings. Additional procurement value is generated in strategic sourcing, category development, and supplier relationships. One interesting perspective is the view of seeing procurement as the driver for possible new revenue streams through supplier collaboration, innovations, and transformation of existing business models.

2.4. Theoretical Framework

The research will be based on transaction cost economics (TCE) theory, Resource Based View and Agency Theory.

2.4.1. Transaction Cost Economics Theory

Transaction Cost Economics Theory was postulated in 1979 by Oliver Williamson of the University of Pennsylvania (Williamson, 1979). The theory aims to organize transactions of governance structures such as procurement functions in order to minimize transaction costs (Williamson 1979). Transaction cost economics theory

posits that the optimum organizational structure is one that achieves economic efficiency by minimizing the costs of exchange (Williamson, 1988). The theory suggests that each type of transaction produces coordination costs of monitoring, controlling, and managing transactions (Williamson, 1988). Williamson has defined transaction costs broadly as the costs of running the economic system of firms. He has argued that such costs are to be distinguished from production costs and that a decision-maker can make a choice to use a firm structure or source from the market by comparing transaction costs with internal production costs (Williamson, 1989). Thus, cost is the primary determinant of such a decision.

The theory is applicable in open contracting and procurement performance in the sense that both aim at efficiency and cost minimization. Open contracting is also concerned with governance structures that achieve functional requirements and aim to coordinate monitoring, control, and management of transactions. According to Wiliamson (1988), technology is neither fully determinative of nor irrelevant to economic organization. Transaction cost economizing occupies a prominent position in any effort to assess the efficacy of alternative forms of economic organization. Open contracting is also concerned with technology that helps to achieve the openness of contracting.

2.4.2. Resource Based View

The Resource-Based View (RBV) of the firm is a strategic framework that posits that the internal resources of an organization, if unique and non-substitutable, can provide a source of sustained competitive advantage. The origins of RBV can be traced back to the work of Penrose (1959). It was

later expanded upon by Wernerfelt (1984), and became widely recognized through the influential work of Barney (1991). The primary aim of RBV is to identify and leverage unique resources and capabilities to achieve and maintain a competitive edge over rivals. This perspective shifts the focus from external competitive forces to the firm's internal strengths, emphasizing the strategic management of resources as a critical driver of performance (J. B. Barney, 2000; Penrose, 1959a).

Critiques of RBV have highlighted several limitations, such as the indeterminate nature of the concepts of 'resource' and 'value', and the theory's reliance on static analysis that may not account for the dynamic nature of competitive advantage (Kraaijenbrink et al., 2010). Despite these critiques, RBV remains a robust theoretical lens for examining strategic management practices. In the context of procurement performance, particularly open contracting, RBV suggests that the unique resources and capabilities of a firm, such as advanced procurement systems, skilled personnel, and proprietary knowledge, can significantly influence the outcomes of procurement activities. Open contracting, aligns with the RBV by potentially enhancing the strategic value of procurement-related resources and capabilities.

The applicability of RBV is evident in its emphasis on the strategic management of resources, which can lead to more informed decision-making and improved procurement performance. For instance, an organization with a well-developed open contracting system may leverage its transparent processes as a unique resource, thereby improving supplier relationships and reducing the risks associated with procurement activities. This strategic approach to resource management, as suggested by RBV, can ultimately contribute to overall performance and competitive positioning in the market. Resource-Based View offers a valuable perspective for understanding the relationship between open contracting and procurement performance. By focusing on the strategic management

of unique internal resources and capabilities, firms can enhance their open contracting processes and achieve better procurement performance

2.4.3. Agency Theory

Agency Theory was initially postulated by Jensen and Meckling (1976) as a framework that examines conflicts between principals (owners) and agents (managers) within a company. The origin of Agency Theory lies in the recognition of the separation of ownership and control in modern corporations, and the potential for agents to act opportunistically. The aims of the theory are to explain and resolve the conflicts that arise from this separation, particularly through the design of mechanisms that align the interests of the principal and agent (Jensen & Meckling, 1979). The theory posits that agents, tasked with operating a business on behalf of the principals, may not always act in the best interest of the owners due to differing goals and risk preferences (Eisenhardt, 1989). This divergence can lead to agency costs such as monitoring and incentive systems. In the context of open contracting and procurement performance, Agency Theory provides a lens through which the complexities of principal-agent relationships in public procurement can be analyzed. Open contracting can mitigate information asymmetry by ensuring that the actions of the agent (contractor) align with the goals of the principal (county government).

Critiques of Agency Theory often focus on its assumptions of human behavior, suggesting that it may overemphasize the self-interest of agents and underappreciate the complexity of human motivations and organizational dynamics (Panda & Leepsa, 2017; Yusof, 2016). Limitations of the theory include its narrow focus on financial incentives and monitoring, potentially overlooking other forms of motivation and control (Bosse & Phillips, 2016; Erturk et al., 2007; Panda & Leepsa, 2017; Yusof, 2016).

In terms of applicability, Agency Theory is highly relevant in explaining the relationship between open contracting and procurement performance. It suggests that transparent procurement processes can serve as a control mechanism to reduce agency costs by aligning the contractor's actions with the public interest. This alignment is achieved through the establishment of clear contracts, performance metrics, and accountability measures. Furthermore, open contracting can address the critique of Agency Theory by incorporating a broader set of incentives and controls beyond financial ones, such as reputational considerations and the intrinsic motivation to serve the public good.

Agency Theory remains a vital tool for understanding and improving procurement performance in the context of open contracting. By applying its principles, policymakers and procurement professionals can design more effective governance structures that promote efficiency, transparency, and accountability in public spending. As open contracting continues to evolve, it will be essential to consider both the insights of Agency Theory and its critiques to develop a more nuanced approach to managing principal-agent relationships in the public sector. For a comprehensive understanding of Agency Theory.

2.5. Conceptual Framework

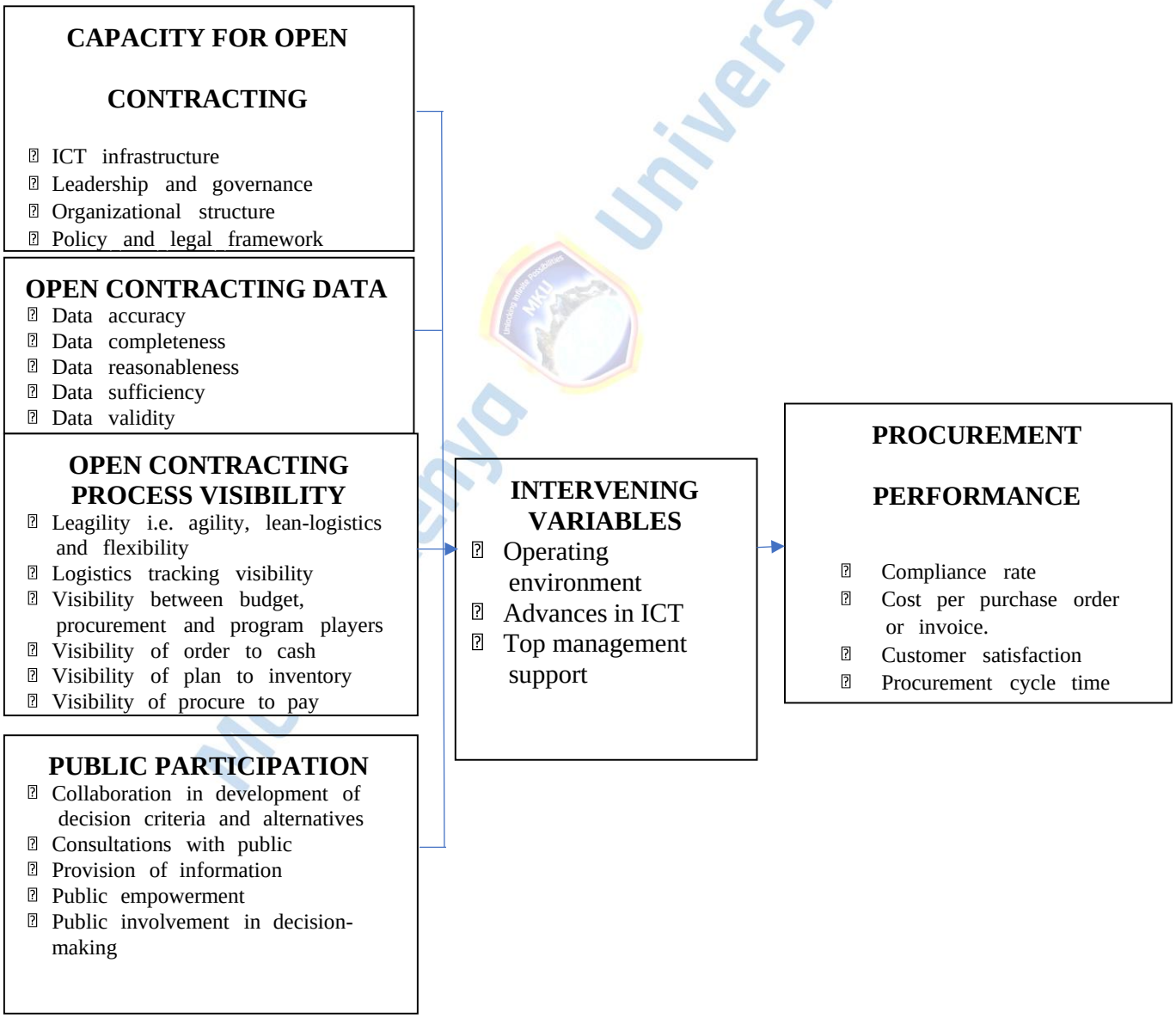

Figure 1: Conceptual framework (*Source:* Carolyne Ngaa, 2024)

The independent variables are capacity, data, process visibility and public participation in open contracting. The intervening variables will be operating environment, price fluctuations and management support. The dependent variable is procurement performance which include compliance rate, customer satisfaction e.g. customer experience, quality, reliability, or sustainability, procurement cycle time and return on investment (ROI).

2.6. Recap of Literature Review

Previous research has identified variables of open contracting. Some researchers identified capacity as the main pillar of open contracting (Allal-Chérif et al., 2021; Nyambane & Ozor, 2020; Takdir et al., 2021). Other researchers identified data quality variables such as accuracy, sufficiency, reasonableness, completeness and validity (Addy et al., 2022; Bhise, 2017; Brajković et al., 2020; Sanchez-Graells, 2022). Another key aspect identified in literature include process visibility (Maslaric et al., 2020; Nikander, 2017; Sciortino et al., 2019; Xie et al., 2020) and public participation (Bevir, 2010; Makueni County, 2017; Mendoza Jiménez et al., 2019; Steiner et al., 2018). The research, however, considered the wider procurement and is not specific to open contracting. Further, the previous work only mention that they affect performance of procurement but did not test the relationships.

Research on procurement performance has identified indicators of performance as cost savings, operational performance indicators, management expenditures, supplier

performance, employee deliverables and cost reduction (Elrod et al., 2013; Sharahi & Abedian, 2009). Sharahi and Abedian (2009) found out that procurement performance indicators include reduced procurement cycle time, compliance rate, material defect rate, increased material availability, rate of emergency orders, customer satisfaction, purchase order or invoice accuracy and reduced cost per purchase order or invoice. Though the studies identified indicators of procurement performance, they did not relate it to open procurement.

Naido et al. (2018) used a sample size of 248 respondents to study conformity of South African legal framework and policies to the global principles of open contracting. They employed a descriptive survey research design using questionnaires and targeted members of the Chartered Institute of Procurement and Supply Chain (CIPS) the public service. They found that although government institutions have policy statements for open contracting, the principles are not fully implemented. A single coherent, comprehensive and overarching procurement law to standardize and clarify the procurement process in South Africa was recommended. Though the study was concerned with implementation of open contracting, it was rather more inclined to determining extent of compliance with open contracting standards than in determining relationship between variables of open contracting and performance.

Adam et al. (2020) used public procurement databases of Slovakia, Paraguay

and Mexico to compare performance of very similar contracts across the countries awarded before and after the transparency interventions in open contracting. They found that open contracting has opportunity to improve public procurement performance by ensuring open and fair competition among bidders (Adam et al., 2020). They noted that transparency interventions that they selected for each country predominantly led to publication of more data by the government for the general public and government agencies themselves (Adam et al., 2020). The research followed OCDS format on open contracting and was not academic by nature. It did not test the variables identified but was concerned with level of compliance with the standard, taking a government perspective at national level.

Ozor and Nyambane (2020) used policy brief approach to study open contracting in ten African countries being Kenya, Tanzania, Uganda, Malawi, Zambia, South Africa, Ghana, Nigeria, Senegal and Cote d'Ivoire. They found out that procurement entities need to liaise with procurement authorities to ensure that there is enough capacity in the utilization of open contracting systems and mechanisms for enforcement (Ozor & Nyambane, 2020b). They recommended that public participation stakeholders should be encouraged throughout the open contracting processes by timely and proactively disclosing data (Ozor & Nyambane, 2020b). Other recommendations included capacity building and strengthening of relevant actors across the open contracting value

chain, increased investments in open contracting infrastructure, inclusivity and stakeholder engagements. The research, however, did not test how these factors influence procurement performance but left the testing of the degree of relationship to future research.

The gaps identified in literature can be summarized as: relationship between open contracting and procurement performance has not been determined in

reviewed literature. Previous works did not test the variables of open contracting in relation to those of procurement performance but were mainly concerned with level of compliance with open contracting standard. The research also focused on national level and did not detail the nature of open contracting at sub-national levels.

The chapter presented theoretical and empirical literature on open contracting and procurement performance. It identified attributes of the independent and dependent variables. Critical review and research gaps were also presented. This was followed by theoretical and conceptual frameworks. The next chapter will present research methodology.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This chapter presents the methodology that was used to conduct the research. It explains the research design, the study location, the target population, sampling technique and sample size, data collection instruments and procedures, reliability and validity of the instruments, data collection, analysis and presentation, as well as ethical procedures that were taken into consideration in the course of the study.

3.2. Research Design

The research design offers the researcher a clear framework of research which helps in guiding the methods and decisions as well as setting the ground for interpretation. It is the organization of circumstances necessary for collection and analysis of data in a way that connects relevance to the objectives of the research (Clark et al., 2021). This study used descriptive research design.

Descriptive research design aims at portraying accurately the characteristics of a particular group or situation, and are usually conducted in their natural settings. In other words, it describes a phenomenon or the state of affairs as it exists at present (Harris et al., 2019). This design is found suitable because it will describe contribution of open contracting to the promotion of procurement performance in Kenya (Liamputtong, 2020).

3.3. Location of the Study

This study was carried out within Makueni County. The study site was selected because it is county that has demonstrated positive transformations in open contracting. With all the transformation, open contracting is deemed necessary for the county to meet its roles and mandate in accountability, cost-saving and service delivery. Another reason behind the selection of the study location is the fact that the primary data was easily obtained since the respondents were within easy reach of the researcher.

3.4. Target Population

Target population is the entire group of objects that the researcher is interested in and from whom they seek information relevant to the study (Bougie & Sekaran, 2019). The target population for this studylcomprised of management of the County, procurement and ICT staff , local leaders and members of the public who are served through open contracting. According to county population and human resource data in Table 1, the number of persons in top and middle management of the County were 100, procurement and ICT staff were 50, local leaders were 1,000 and members of the public who have been served through open contracting were 20,000.

Category	**Frequency**	**Percentage**
Top and middle management	100	0.48%

Procurement and ICT staff	50	0.24%	Table 1: Target population
Local leaders	1,000	4.75%	

Members of the public	20,000	95.01%
Total	**21,050**	**100%**

(*Source*: Makueni County Population and Human Resource Data, 2022)

3.5. Sampling Procedures and Techniques

Sampling is the process of selection of a unit of individuals or items to represent the larger population (McEwan, 2020). This study used bothlpurposive sampling and stratified random sampling techniques. According to McEwan (2020), stratified sampling requires that the population is divided into homogenous groups or classes called strata. From each group, a sample is then taken through simple random methods resulting in a stratified sample. This study used purposive sampling to select the study location and to identify the number and categories of target population. The stratified random sample was used because it provided greater precision than a simple random sample of the same size. It also ensured that each group or category of the population was not left out of the study to guard against using unrepresentative sample. Also it often required a smaller sample which made it cost effective (Bhardwaj, 2019).

3.6. Sample Population

Sample population refers to the number of items to be collected from the universe to constitute a sample (Etikan, 2017). It is a portion from whom information that the study needs is obtained and generalizations or inferences about the population are made. In research, selecting the optimal sample size is important to ensure the reliability, integrity, validity, flexibility, efficiency and representativeness (Etikan, 2017). The sample size was determined using the Yamane (1967) sampling formula.

Where:

n is the sample size

e is the margin of error (0.05)

N = Target population

For County management and staff we have

$$n = 109.09$$

$$= n = 110$$

For local lleaders and members of public we have

$$n = 393$$

Therefore, the studylused a sample size, (n) of 110 County management and non management staff in procurement and ICT and 393 for local leaders and members of public. The distribution of the sample size for the proposal study was as shown in Table 2.

Table 2: Sample size

County management and staff	**Target Population**	**Sample**

Top management	14 14/150*110=10	10
Middle management	24 24/150*110=18	18
Low management	33 33/150*110=24	24
Non management staff	79 79/150*110=58	58
Sub total		110
Local Leaders and Members of Public	**Target Population**	**Sample**
Local leaders	1,603 1,603/21000*393=30	30
Members of the public	19,397 19,397/21000*393=36 3	363
Sub total	21,000	393

Tota	**21,150**	**503**

(*Source*: lMakueni lCounty lData, l2023)

3.7. Construction of Research Instruments

Questionnaires were constructed for collecting the primary data. The questionnaires were preferred as they are unobtrusive and inexpensive data collection tools. Questionnaires were considered advantageous in the sense that they were less costly and could ask more sensitive information due to rapport that develops between the respondent and the survey instrument (Crowe et al., 2011).

Two sets of questionnaires were used, county management/staff questionnaire and local leaders/members of public questionnaire. The questionnaires were divided into three (3) parts A, B, and C. Part A had items related to the respondent's demographics, part B to F had questions on attributes of open contracting.

A Likert scale with a range of 1 to 5, was used to rate the statements describing the open contracting variables where, 1= Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree, 5 = Strongly Agree. At the end of each section, a few open-ended questions were included whose intent was to capture any additional information relevant to the study that the respondent may want to provide.

3.8. Testing for Validity and Reliability

A pilot study is a research study conducted before the intended study. Pilot

studies are usually executed as planned for the intended study, but on a smaller scale. A pilot study is crucial lwhen research is based on self-completed questionnaires to ensure that the fina survey questions operate well and the survey as a whole, functions well. A pilot study enables the researcher to determine the adequacy of instructions and how we lthey flow (Lowe, 2019).

A pilot study was done by the researcher and twenty (15) county staff and 40 local leaders/members of public participated to find out if the questionnaire for each category of respondents is appropriate to elicit the required information. This conformed to Mugenda and Mugenda (2003) who stated that a tenth of the total sample with homogenous characteristics is suitable for a pilot study. The results obtained from the pilot study were used to modify the questionnaires which were used by the selected sample (Mugenda & Mugenda, 2003).

3.8.1 Reliability of the Research Instruments

Reliability is the extent to which results are consistent over time and an accurate representation of the tota lpopulation under study (Mugenda & Mugenda, 2003). If the results of a study can be reproduced under a similar methodology, then the research instrument is considered reliable. The use of Cronbach's alpha in assessing the reliability of research instruments is a well-established practice in the field of social sciences. This statistical tool measures the internal consistency of a test or scale; that is, it assesses how closely related a set of items are as a group. A Cronbach's alpha value of 0.7 or above is generally considered acceptable, indicating that the items measure an underlying construct consistently. In the

context of Likert scales, which are often used to understand attitudes or behaviors in survey research, Cronbach's alpha is particularly useful. It provides a single measure of reliability for a multi-item scale, making it easier for researchers to substantiate the validity of their instrument. The Likert scale, due to its ordinal nature, benefits from Cronbach's alpha as it can handle data that may not be normally distributed, which is often the case with attitudinal surveys. The reliability confirmed by a Cronbach's alpha of greater than 0.7 in this study implies that the responses on the Likert scale are consistent across the items and that the scale is a reliable tool for measuring the construct of interest.

Furthermore, the reliability of an instrument is crucial for ensuring that any conclusions drawn from the data are based on consistent patterns rather than random occurrences. By achieving a Cronbach's alpha greater than 0.7, the researcher has laid a strong foundation for the subsequent phases of the study. It allows for a degree of confidence in the stability of the instrument over time and within different samples of the population. This reliability is essential for the instrument's future application and for the generalizability of the study's findings (Mugenda & Mugenda, 2003).

The results of the reliability test confirmed that the study instruments were effective in measuring their intended metrics. This conclusion was drawn from the Cronbach's Alpha reliability coefficient, that were at value of r=0.865 for questionnaire for officers and 0.784 for questionnaire for members of the public. Both exceeded the acceptable threshold of 0.7. Consequently, the tools were deemed suitable for the actual data collection phase of the research.

3.8.2. Validity of the Research Instruments

Validity is the extent to which a test measures what it is supposed to measure or the meaningfulness and accuracy of inferences, as per the research outcome (Lowe, 2019; Mugenda & Mugenda, 2003). To determine the validity

of test of the instrument used, a pilot study was done to pretest them. The instruments were confirmed valid and approved by the supervisor and subject matter experts. The research confirmed the content validity of the data gathering tool. To measure the appropriateness of the questions, the study employed both the Item-Level Content Validity Index (I-CVI) and the Scale-Level Content Validity Index (S-CVI). I-CVI was calculated by dividing the number of responses with a Likert scale rating of 3 or 4 by the total number of responses. Equation 1 illustrates the formula for calculating I-CVI.

S-CVI was determined by averaging the I-CVI scores across each subsection pertaining to the independent variables. Equation 2 illustrates S-CVI.

Where,

= I-CVI for each scale or sub-section; and

= Number of metrics

For the I-CVI threshold was 0.8 and above for acceptable content validity level. For S-CVI of 0.90 or higher was used.

3.9. Data Collection Methods and Procedures

The researcher sought authorization from Mount Kenya University and then applied for a license from the National Commission for Science Technology and Innovation, (NACOSTI). Additionally, the researcher obtained an authorization from administration of Makueni County to enable her administer the questionnaires to the sampled staff members.

The participants were then be given a consent letters sent with the online questionnare. Research assistants helped the researcher to disseminate the questionnaires via email, WhatsApp and Facebook to respondents in the offices of the sampled County staff participants and request them to fill. local eaders and members of the public werelalso be given questionnaire across their wards. Those who could not access online questionnaires were given printed copies to fill. The distribution across wards was: Wote Ward (56 respondents across sub-locations), Muvau/Kikumini Ward (56 respondents across sub-locations), Mavindini Ward (56 respondents across sublocations), Kitise/Kithuki Ward (56 respondents across sub-locations), Kathonzweni Ward (56 respondents across sub-locations), Nzaui/Kalamba (56 respondents across sub-locations) and Mbitini (56 respondents across sub-locations). ocal eaders included the following:

i. Minority and marginalized group leader

ii. Teachers association leader

iii. Women group leader

iv. Youth leader

v. Community Based Organization (CBO) leader vi. Hawkers representative vii. Business community leader viii.Faith Based Organization (FBO) leader ix. Farmers groups representatives

x. Boda boda groups xi. Most affected persons (MAPS) leader

xii. Professionals in the diaspora leader xiii.People with specia

lneeds (PWSN) leader xiv.Children representative xv. Parents

Teachers Association (PTA) leader xvi.Town committee leader

xvii. Project Management Committee (PMC) representatives

Adequate time was given to the participants to respond, ideally a maximum of upto two weeks after which the survey was closed. Link to online questionnaire was sent to the contacts of the respondents. The research assistants were undergraduates and the researcher took themlthrough the questionnaires in case the respondents required some clarifications.

3.10. Proposed Data Analysis Techniques and Procedures

According to Ott and Longnecker (2015), the objectives of data analysis are getting a feel of the data, testing the goodness of the data, and answering the research questions. The collected data was pre-processed before analysis to detect and correct errors and omissions that may be identified in the raw data (Ott & Longnecker, 2015). This entailed eliminating unusable questionnaires and interpretation of ambiguous answers.

Editing was done to ensure that the data is consistent with other gathered facts, accurate, as complete as possible, uniformly entered, well tabulated and arranged to facilitate coding (Sallis et al., 2021). A coding scheme that assigned alpha-numerical codes to particular responses were developed, and coded. A ikert scale of 1 to 5 was used. Descriptive statistics enabled the researcher to describe a distribution of measurements and summarize data (Mugenda & Mugenda, 2003). It described sample characteristics, addressing specific objectives of the study and exploring and examining the basic features of the data.

3.10.1. Qualitative Data Analysis Methods

The research utilized content analysis to examine data from textual responses to open-ended questions. The researcher conducted physical and conceptual reduction of data by identifying commonalities to categorize data, which enabled the making of contrasts and comparisons (Braun & Clarke, 2021). By reading and reflecting on the data, the researcher was able to recognize biases and standpoints. Subsequently, the researcher engaged in both deductive and iterative inductive coding, focusing on themes indicated by literature and depicted in the conceptual framework (Neale, 2016). The researcher established connections between the codes, starting with descriptive themes using sub-categories, relationships, and cause-effects (Xu & Zammit, 2020). A matrix of codes and themes was developed by the researcher, aligned with the conceptual framework.

The qualitative data analysis process was augmented using computer-assisted qualitative data analysis methods (Dalkin et al., 2021), which enhanced the efficiency of analysis and facilitated the exploration of issues (Jackson & Bazeley, 2019). NVivo software version 7 was utilized for its capability to uncover connections that manual data analysis methods could not reveal.

3.10.2. Quantitative Data Analysis Methods

Quantitative data analysis methods used included descriptive and inferential statistics.

Descriptive statistics was used in this study to provide a description of the data using means and standard deviations. Descriptors had been utilized to assess the means and standard deviations for both independent and dependent variables, which included Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree. These were denoted as 1, 2, 3, 4, and 5 respectively in the SPSS input spreadsheet. The scores' interpretation, where $1<\mu<1.5$ signified strong disagreement, $1.5<\mu<2.5$ indicated disagreement, $2.5<\mu<3.5$ suggested neutrality, $3.5<\mu<4.5$ denoted agreement, and $4.5<\mu\leq5$ equated to strong agreement on average among the respondents

concerning the specified metric. Conversely, the standard deviation was interpreted such that scores between $0<\sigma X<0.5$ indicated a high consensus with responses clustered around the mean, $0.5<\sigma X<1$ represented a moderate distribution of responses, and $\sigma X \geq 1$ denoted a lack of consensus regarding the metric in question.

Multiple linear regression analysis was used to establish relationship between variables. Specifically, it was used to determine relationship between open contracting and procurement performance. The investigation into effects of each independent variable on the dependent variable was conducted through multiple linear regression analysis. The coefficient of determination, R-squared, along with beta coefficients, served to elucidate the cumulative strength of association between the independent variables and the dependent variable. For hypothesis testing, the specific metrics of the independent variables were regressed against the dependent variable. Subsequently, the ANOVA statistics that were garnered were analyzed, leading to the rejection of the null hypothesis when p-values fell below 0.05. The equation for multiple linear regression used was as shown in Equation 3.

Where,

= Procurement performance;

= Capacity for open contracting;

= Open contracting data;

= Open contracting process visibility;

= Public participation;

= Regression constant;

= Beta coefficient for capacity for open contracting;

= Beta coefficient for open contracting data;

= Beta coefficient for open contracting process visibility;

= Beta coefficient for public participation; and

= Error term.

Pearson correlation coefficient was used for testing strength of associations between among variables. Correlation usually refers to the degree to which a linear predictive relationship exists between variables, as measured by correlation coefficient (Onwuegbuzie & Daniel, 1999). Correlation coefficients between independent variables and the dependent variable were computed using SPSS version 27, to explore possible strengths and direction of relationships. There are two elements that properly define a correlation coefficient (r) which include; direction and strength which fall lin the range, $-1 \leq r \leq +1$. When $r = -1$ it means a perfect negative correlation exist between the variables. When $r = +1$ then a perfect positive correlation exists between the variables and when $r = 0$ then there exist no correlation between the variables, that is the variables are uncorrelated (Onwuegbuzie & Daniel, 1999).

3.11. Ethical Considerations

Ethics refers to moral issues and choices, norms or standards about behavior and relationships, about protecting the rights of participants or subjects (Pietilä et al., 2020). In this regard, the researcher followed all the ethical guidelines. Authorization from Mount Kenya University was sought, license from NACOSTI was obtained. Also, authorization from Makueni County administration was sought.

The researcher ensured that data collected was used solely for research purposes. The participants were not subjected to harm in any way whatsoever. Respect for the dignity of research participants was prioritized. The researcher sought full informed consent of the participants prior to the study and protected their privacy and confidentiality. Participants had rights to withdraw from participating in the study any time if they so wish. The anonymity of participants and their organizations waslensured and aims and objectives of the research were not exaggerated. Communication related to the research was carried out with honesty and utmost transparency. Offensive, discriminatory and other unacceptable language were avoided in the research instruments.

All the guide principles concerning data collection, processing, storage and dissemination were adhered to in accordance with The Kenya Data Protection act 2019 regarding data subjects (Data Protection Act 2019). The respondents were assured of anonymity and confidentiality by requiring them not to indicate their names, or personal numbers in the questionnaires.

Results of plagiarism and similarity index were included in the appendix. Moreover, the researcher avoided biasness by not letting their opinions and experiences determine

the direction of the research during data collection. The researcher avoided any misleading information andlrepresented primary data findings in a way that eliminates biasness.

CHAPTER FOUR

RESEARCH FINDINGS, ANALYSIS AND PRESENTATION

4.1. Introduction

This Chapter presents research findings, analysis and discussions. Findings on response rate and demographic factors are included to enhance understanding of the studied phenomenon. Results and discussions on each of the specific objectives are also presented.

4.2. Research Presentation, Interpretation and Discussions

Results in Table 4.1 illustrates that the response rate was 45.52% for all the participants. Response rate for County staff was 60.91% while that for members of the public and their leaders was 41.22%. The low response rate of members of the public was attributed to reluctance of people to participate in surveys. The response rate of 45.52% was considered to be sufficient since indicated a reasonable engagement and representativeness from the target population. A good response rate for online surveys ranges from 10% to 15% for external surveys, and from 30% to 40% for internal surveys (Segal, 2014). Therefore, a response rate of 45.52% was above the average and suggests that the questionnaire has a good quality and validity.

Table 3: Response rate

County management and staff	**Sample**	**Participants**	**Response Rate (%)**
Top management	10	4	40
Middle management	18	9	50
Low management	24	16	66.67
Non-management staff	58	38	65.52
Sub ltotal	110	67	60.91
Local Leaders and Members of Public	**Sample**	**Participants**	**Response Rate (%)**
Local leaders	30	20	66.67
Members of the public	363	142	39.12
Sub total	393	162	41.22
Total	**503**	**229**	**45.52**

Distribution of county staff participants with respect to age is presented in Figure 2. The majority of respondents were in the ae of 31-35 years followed by staff who

were in the range of between 36-50 years. Participants aged 56-60 years represented 6% of the respondents while those in the age bracket of 18-25 represeted 7%.

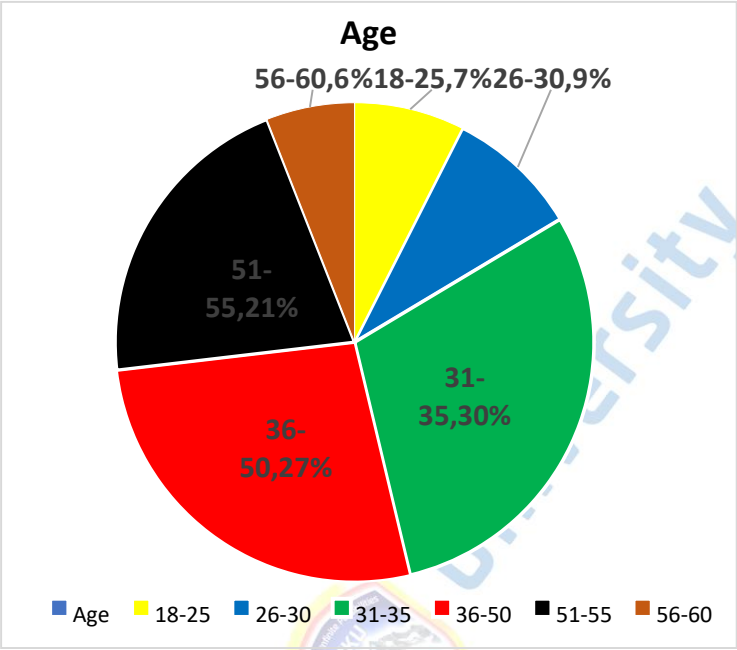

Figure 2: Age distribution of county staff participants

Figure 3 illustrates age distribution of particiopants in the category of members of the public and their leaders. Members of the public participants in the age bracket of 31-35 years were 39% of the respondents in that category. Those in age bracket of 36-50 years were 31% followed by 51-55 years at 14% and 26-30 years at 12%. Respondents in the age brackets of 56-60 years and 61 and above formed 1% of the members of the public respondents. Participants in the age bracket of 18-25 years were 2%.

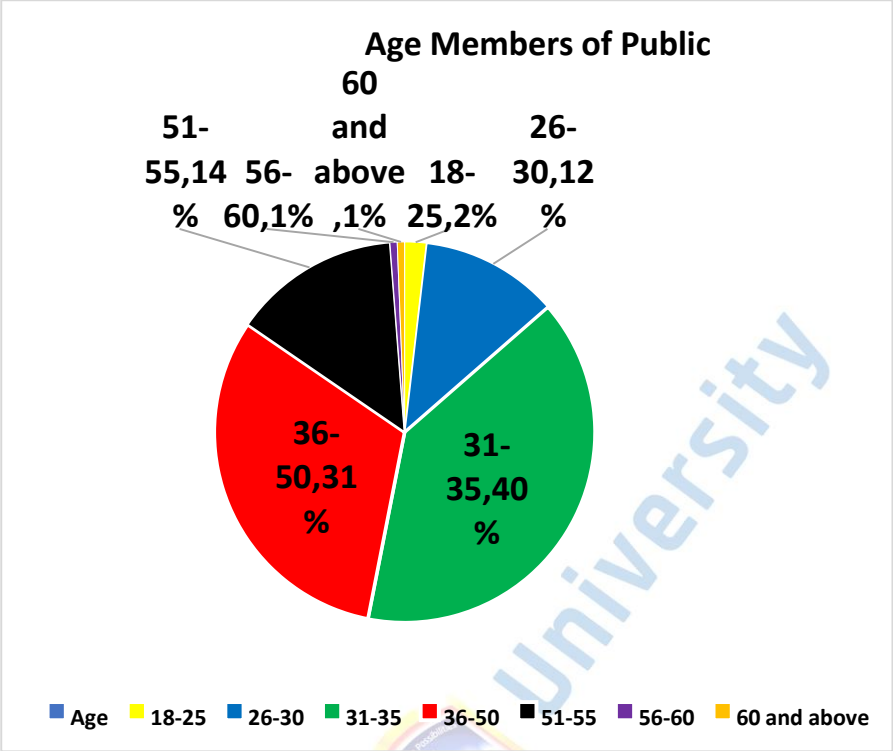

Figure 3: Distribution of members of the public participants by age

Figure 4 illustrates distribution of county staff participants by gender. The results show that 58% of the participants were female, the rest were male. Results in Figure 5 illustrates distribution of members of public by gender. Male participants in the category of members of public was 52%, the rest were female participants.

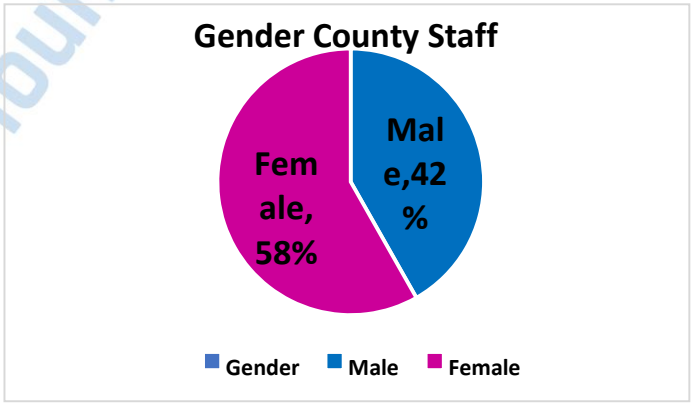

Figure 4: Distribution of staff participants by gender

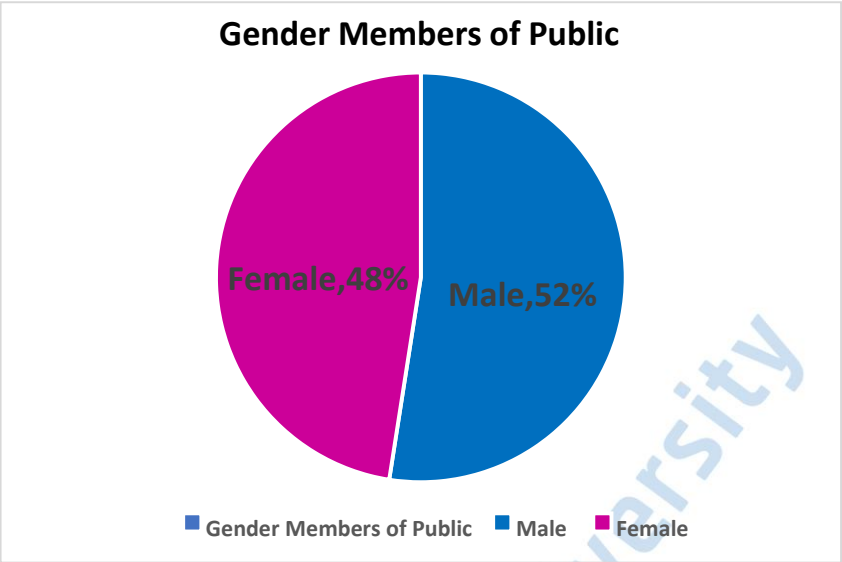

Figure 5: Distribution of members of public by gender

Results in Figure 6 illustrates distribution of participants by their level of education and respondent categories. About 54.32% of participants in the category of members of public had college certificates while 38.81% of county staff participants had the same. 34.57% of participants in the category of members of public and 40.30% of county staff participants had bachelor degrees. 14.93% of county staff participants had masters degrees while only 0.62% of members of public who participated in this study had the qualification.

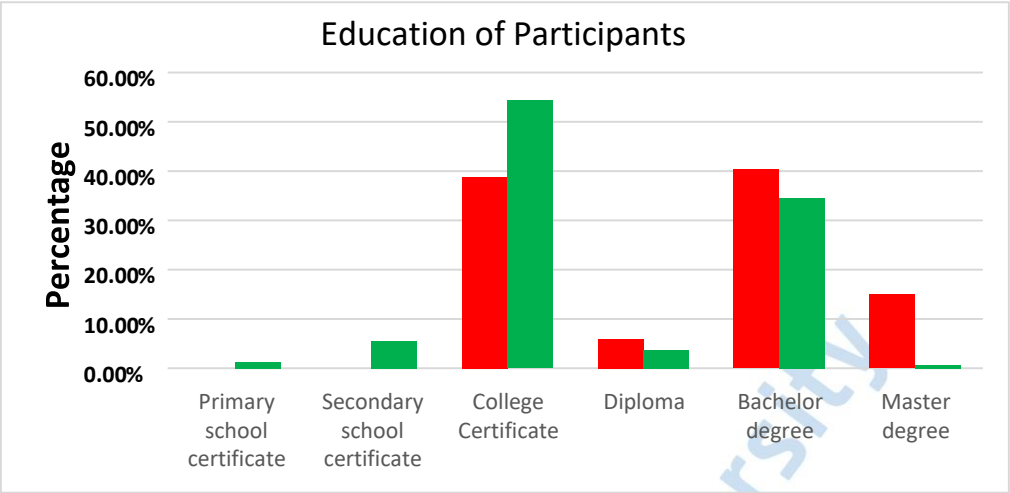

Figure 6: Education of participants

4.3. Relationship between Capacity for Open Contracting and Performance

Figure 7 illustrates that 7% of county staff respondents strongly agreed that capacity for open contracting has a relationship with procurement performance. 54% of the county staff agreed on the same while 28% were neutral.Only 6% disagreed and 5% strongly disgreed about the relationship.

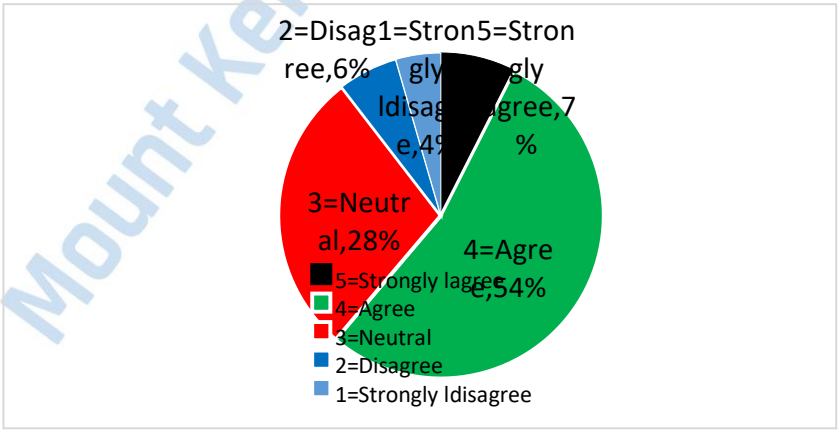

Figure 7: County staff agreement on relationship between capacity and performance

Figure 8 illustrates that 16% of participant county members of public strongly agreed that capacity for open contracting has a relationship with procurement performance. About 69% of the of participant county members of public agreed on the same while 13% were neutral.Only 1% disagreed and another 1% strongly disgreed about the relationship.

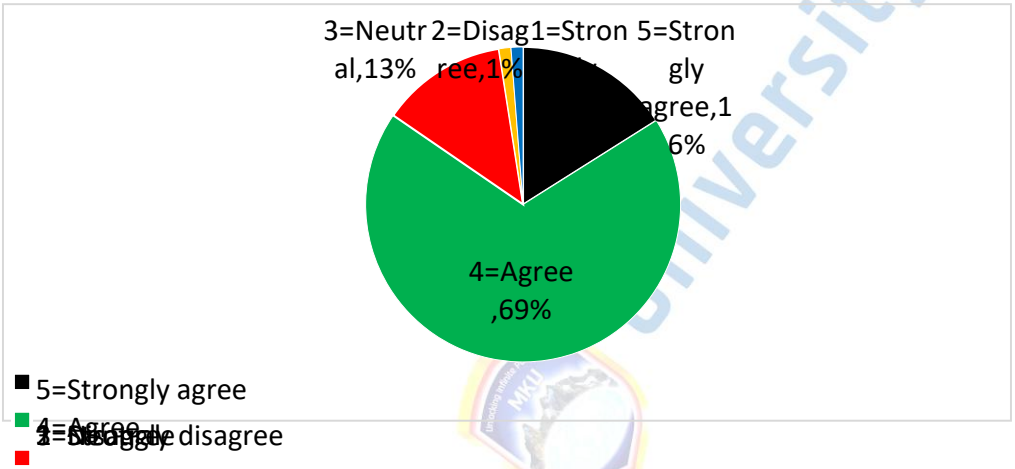

Figure 8: County members of public agreement on relationship between capacity and performance

Results in Table 4 illustrates mean and standard deviations of responses of county staff and members of public on relationship between capacity for open contracting and procurement performance. Results show that there was general agreement that capacity has a relationship with procurement performance in the county. It is noteworthy that while the county staff participants rated resources with highest mean, the members of public rated leadership and governance with highest mean. ICT infrastructure had the lowest mean rating. Generally, standard deviations for ratings by county members of public was lower than that of county staff. This

means that there was lower variability of responses and higher convergence for county members of public compared to county staff members. This can be possibly attributed to the trust and confidence the members of public have in the county procurement processes.

Table 4: Descriptive statistics of relationship between capacity and performance

	County staff		County members of public	
Capacity for open contracting	Mean	Std deviation	Mean	Std deviation
ICT infrastructure (CAP1)	3.493	1.211	3.574	0.676
Leadership and governance (CAP2)	3.761	1.169	4.290	0.868
Organizational structure (CAP3)	3.836	0.994	4.148	0.623
Policy and legal framework (CAP4)	3.851	1.048	4.130	0.697
Resources e.g. human, financial, assets (CAP5)	3.925	1.078	4.130	0.749

Results of correlation analysis of ratings by county staff in Table 5 show that all the variables of capacity for open contracting had strong positive correlation with procurement performance (PERF) except organizational structure (CAP3) that had medium positive correlation with performance.

Table 5: Pearson correlation of capacity variables rated by county staff

	CAP1	CAP2	CAP3	CAP4	CAP5	PERF
CAP1	1					
CAP2	0.748	1				
CAP3	0.610	0.696	1			
CAP4	0.644	0.688	0.631	1		
CAP5	0.598	0.707	0.752	0.741	1	
PERF	0.741	0.757	0.622	0.706	0.751	1

Results of correlation analysis of ratings by members of the public in Table 6 show

that all the variables of capacity for open contracting had weak positive correlation with procurement performance (PERF). This means that an improvement of the variables is related with an improvement in procurment performance, and vice versa.

Table 6: Pearson correlation of capacity variables rated by members of public

	CAP1	*CAP2*	*CAP3*	*CAP4*	*CAP5*	*PERF*
CAP1	1					
CAP2	0.0954	1				
CAP3	0.2393	-0.1259	1			
CAP4	0.2496	0.2248	0.0127	1		
CAP5	0.1956	0.1711	0.2116	-0.0086	1	
PERF	0.5026	0.4294	0.2818	0.3165	0.3075	1

Table 7 illustrates results of multiple linear regression analysis using ratings by county staff. Adjusted R^2 illustrate that 70.1% of the data points were predicted by the model. Results also show that ICT infrastructure (CAP1), Leadership and governance (CAP2) and Resources e.g. human, financial, assets (CAP5) had significant positive relationship with procurement performance while organizational structure (CAP3) and Policy and legal framework (CAP4) had no significant relationship at . This means that an improvement of the significant variables is associated with an improvement in procurement performance and vice versa as illustrated by the beta coefficients. The regression intercept was also significant and positive, meaning that there were some externnal factors also significantly and positively relating with procurment performance but were left out of the analysis.

Table 7: Regression results of capacity ratings by county staff

ANOVA						SUMMARY OUTPUT	
						Regression Statistics	
	df	SS	MS	F	Significance F	Multiple R	0.851

Regression	5	33.546	6.709	31.907	7.98916E16	R Square	0.723
Residual	61	12.827	0.210			Adjusted R Square	0.701
Total	66	46.373				Standard Error	0.459
						Observations	67

	Coefficients	Standard Error	t Stat	Pvalue	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	1.205	0.243	4.956	0.000	0.719	1.691	0.719	1.691
CAP1	0.224	0.074	3.042	0.003	0.077	0.371	0.077	0.371
CAP2	0.169	0.087	1.943	0.050	-0.005	0.342	-0.005	0.342
CAP3	-0.080	0.093	-0.865	0.390	-0.266	0.105	-0.266	0.105
CAP4	0.094	0.088	1.069	0.289	-0.082	0.269	-0.082	0.269
CAP5	0.293	0.095	3.070	0.003	0.102	0.483	0.102	0.483

Table 8 illustrates results of multiple linear regression analysis using ratings by members of the public. Adjusted R^2 illustrate that 46.6% of the data points were predicted by the model. Results also show that all the variables of capacity for open contracting had significant positive relationship with procurement performance at . This means that an improvement of the variables is associated with an

Residual	156	3.904	0.025	Adjusted R Square	0.466
Total	161	7.542		Standard Error	0.158

improvement in procurement performance and vice versa as illustrated by the beta coefficients. The regression intercept was also significant and positive, meaning that, based on the data by members of public, there were some externnal factors also significantly and positively relating with procurment performance but were left out of this study.

Table 8: Regression results of capacity ratings by members of the public

ANOVA						SUMMARY OUTPUT *Regression Statistics*	
	df	*SS*	*MS*	*F*	*Significance F*	Multiple R	0.694
Regression	5	3.637	0.727	29.067	9.05E-21	R Square	0.482

	Coefficients	*Standard Error*	*t Stat*	*Pvalue*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	2.648	0.133	19.849	0.000	2.385	2.912	2.385	2.912
CAP1	0.114	0.020	5.705	0.000	0.074	0.153	0.074	0.153
CAP2	0.092	0.015	6.019	0.000	0.062	0.122	0.062	0.122
CAP3	0.074	0.021	3.483	0.001	0.032	0.116	0.032	0.116
CAP4	0.045	0.019	2.351	0.020	0.007	0.082	0.007	0.082
CAP5	0.038	0.018	2.151	0.033	0.003	0.073	0.003	0.073
						Observations		

These results by both county staff and members of public show that there was general agreement concerning relationship between capacity for open contracting and procurement performance. They also illustrate that all the studied variables of capacity for open contracting had positive relationship with procurement performance. The results corroborate findings in literature by Harland et al. (2019) and Nyambane and Ozor (2020) who found that capacity for procurement in terms of resources, infrastructure, organizational structure and leadership have positive relationship with procurement performance.

4.4. Relationship between Open Contracting Data and Performance

Figure 9 illustrates that 6% of county staff respondents strongly agreed that open contracting data has a relationship with procurement performance. About 67% of the county staff agreed on the same while 18% were neutral.Only 6% disagreed and 3% strongly disgreed about the relationship.

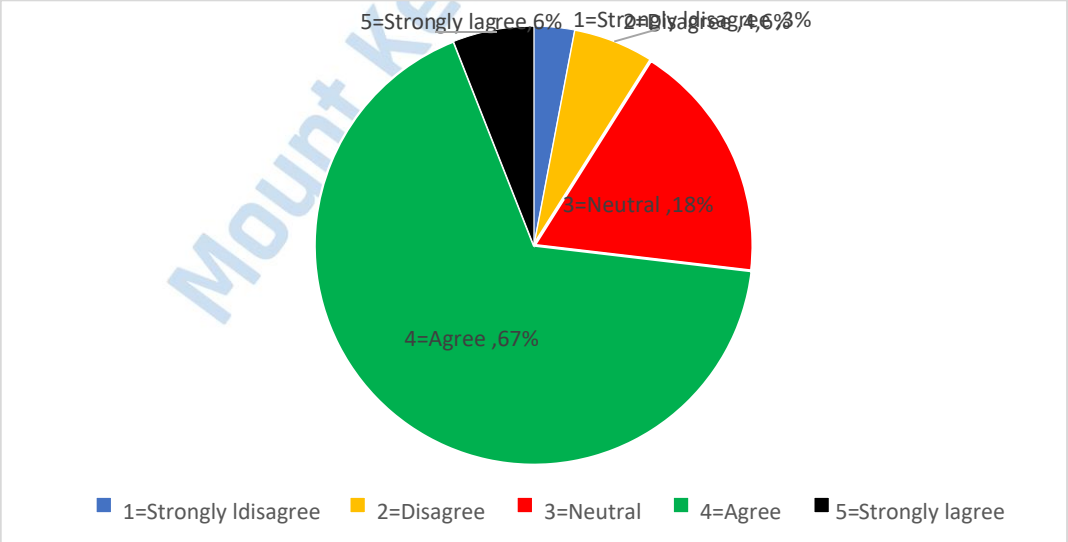

Figure 9: County staff agreement on relationship between data and performance

Figure 10 illustrates that 26% of participant county members of public strongly agreed that open contracting data has a relationship with procurement performance. About 64% of the of participant county members of public agreed on the same while 6% were neutral.Only 2% disagreed and another 2% strongly disgreed about the relationship.

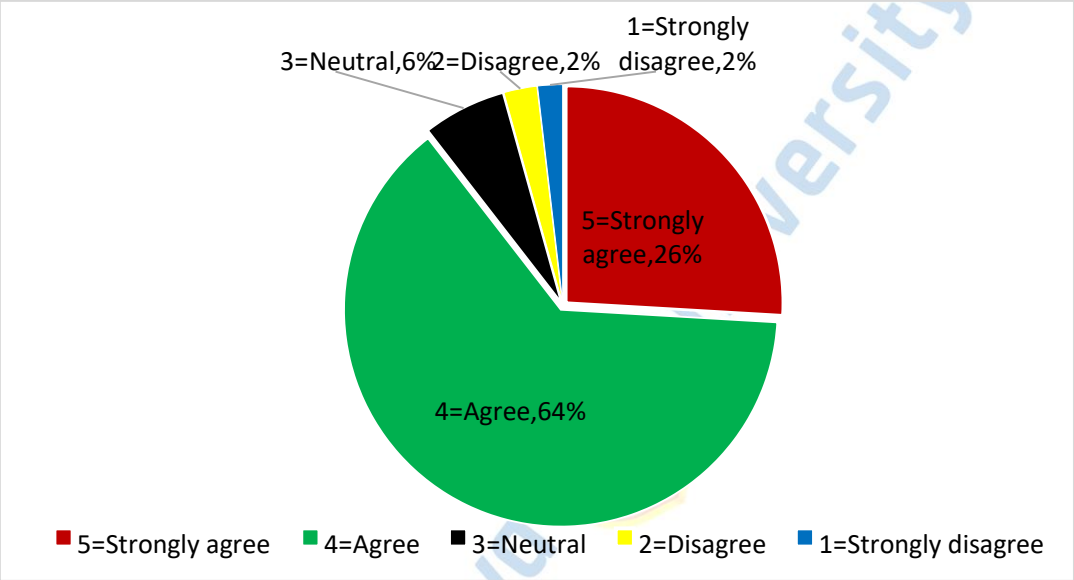

Figure 10: County members of public agreement on relationship between data and performance

Results in Table 9 illustrates mean and standard deviations of responses of county staff and members of public on relationship between open contracting data and procurement performance. Results show that there was general agreement thatopen contracting data has a relationship with procurement performance in Makueni County. Both groups of participants rated data validity (DAT5) with highest mean, followed by data completeness (DAT2) and data sufficiency (DAT4).. Data accuracy (DAT1) had the lowest mean rating of 3.685 and 3.627 by conty staff and members of public, respectivelu. Generally, standard deviations for ratings by county staff was lower than that of county members of public.

Table 9: Descriptive statistics of relationship between data and performance

Open contrating data	County staff Mean	standard deviation	County members of public Mean	standard deviation
Data accuracy (DAT1)	3.685	0.743	3.627	1.112
Data completeness (DAT2)	4.315	0.830	3.910	1.097
Data reasonableness (DAT3)	4.080	0.678	3.866	1.013
Data sufficiency (DAT4)	4.154	0.665	4.000	0.888
Data validity (DAT5)	4.327	0.763	4.090	0.949

Results of correlation analysis of ratings by county staff in Table 10 show that all the variables of open contracting data had strong positive correlation with procurement performance (PERF).

Table 10: Pearson correlation of data variables rated by county staff

	CAP1	*CAP2*	*CAP3*	*CAP4*	*CAP5*	*PERF*
DAT1	1					
DAT2	0.8163	1				
DAT3	0.6940	0.6975	1			
DAT4	0.6905	0.6534	0.7074	1		
DAT5	0.6348	0.6625	0.6900	0.7193	1	
PERF	0.8079	0.8070	0.7750	0.7774	0.7619	1

Results of correlation analysis of ratings by members of public in Table 11 show that all the variables of open contracting data had weak positive correlation with procurement performance (PERF).

Table 11: Pearson correlation of data variables rated by members of public

	DAT1	*DAT2*	*DAT3*	*DAT4*	*DAT5*	*PERF*
DAT1	1					

DAT2	0.0207	1			
DAT3	0.2354	-0.0121	1		
DAT4	0.2498	0.2378	0.0137	1	
DAT5	0.2705	0.1699	0.2252	0.1326	1
PERF	0.4638	0.2317	0.2111	0.2948	0.2019	1

Table 12 illustrates results of multiple linear regression analysis using ratings by county staff. Adjusted R^2 illustrate that 80.2% of the data points were predicted by the model. Results also show that all the variables of open contracting data had significant positive relationship with procurement performance except data reasonableness (DAT3), that was not significant at . This means that an improvement of the variables is associated with an improvement in procurement performance and vice versa as illustrated by the beta coefficients. The regression intercept was also significant and positive, meaning that there were some externnal factors also significantly and positively relating with procurment performance but were left out of the analysis.

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5	37.876	7.575	54.381	3.34E-21
Residual	61	8.497	0.139		
Total	66	46.373			

	Coefficients	*Standard Error*	*t Stat*	*Pvalue*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.469	0.226	2.079	0.042	0.018	0.920	0.018	0.920
DAT1	0.176	0.078	2.270	0.027	0.021	0.332	0.021	0.332

Multiple R	0.904
R Square	0.817
Adjusted R Square	0.802
Standard Error	0.373
Observations	

DAT2	0.181	0.078	2.315	0.024	0.025	0.337	0.025	0.337
DAT3	0.143	0.075	1.910	0.061	-0.007	0.292	-0.007	0.292
DAT4	0.189	0.086	2.190	0.032	0.016	0.361	0.016	0.361
DAT5	0.171	0.077	2.216	0.030	0.017	0.326	0.017	0.326

Table 12: Regression results of data ratings by county staff

67

SUMMARY OUTPUT

Regression Statistics

ANOVA

Table 13 illustrates results of multiple linear regression analysis using ratings by members of public. Adjusted R^2 illustrate that 27.4% of the data points were predicted by the model. The results illustrate that data accuracy (DAT1), data completeness (DAT2) and data sufficiency (DAT4) had significant positive relationship with procurement performance. The rest had no significant relationship with procurement performance.

SUMMARY OUTPUT

Regression Statistics

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5	2.235	0.447	13.137	1.12E-10
Residual	156	5.307	0.034		
Total	161	7.542			

Table 13: Regression results of data ratings by members of public

Multiple R	0.544
R Square	0.296
Adjusted R Square	0.274
Standard Error	0.184

	Coefficients	*Standard Error*	*t Stat*	*Pvalue*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	3.093	0.148	20.970	0.000	2.802	3.385	2.802	3.385
DAT1	0.114	0.021	5.338	0.000	0.072	0.156	0.072	0.156
DAT2	0.049	0.018	2.657	0.009	0.012	0.085	0.012	0.085
DAT3	0.037	0.022	1.636	0.104	-0.008	0.081	-0.008	0.081
DAT4	0.048	0.023	2.079	0.039	0.002	0.094	0.002	0.094
DAT5	0.005	0.020	0.264	0.792	-0.035	0.046	-0.035	0.046
							Observations	162

Both county staff and members of public generally agreed that open contracting data has a relationship with procurement performance. Results of correlation analysis of data by both groups also illustrate that all open contracting data variables had positive correlation with procurement performance. Regression results of data from both groups of participants illustrate that data accuracy (DAT1), data completeness (DAT2) and data sufficiency (DAT4) had significant positive relationship with procurement performance and that Data reasonableness (DAT3) had no significant relationship. The reason for the finding on data reasonableness was probably due to lack of indepth understanding of what it means to both categories of participants.

These findings corroborate those of Sanchez-Graells (2022) and Njoroge (2020) on relationship between performance and data accuracy, sufficiency and completeness. The findings on data reasonableness was contrary to those of Brajković let lal. (2020) and Iofinova let lal., (2021).

4.5. Relationship between Open Contracting Process Visibility and Performance

Figure 11 illustrates that 15% of county staff respondents strongly agreed that open contracting process visibility has a relationship with procurement performance. About 58% of the county staff agreed on the same while 21% were neutral.Only 2% disagreed and 4% strongly disgreed about the relationship.

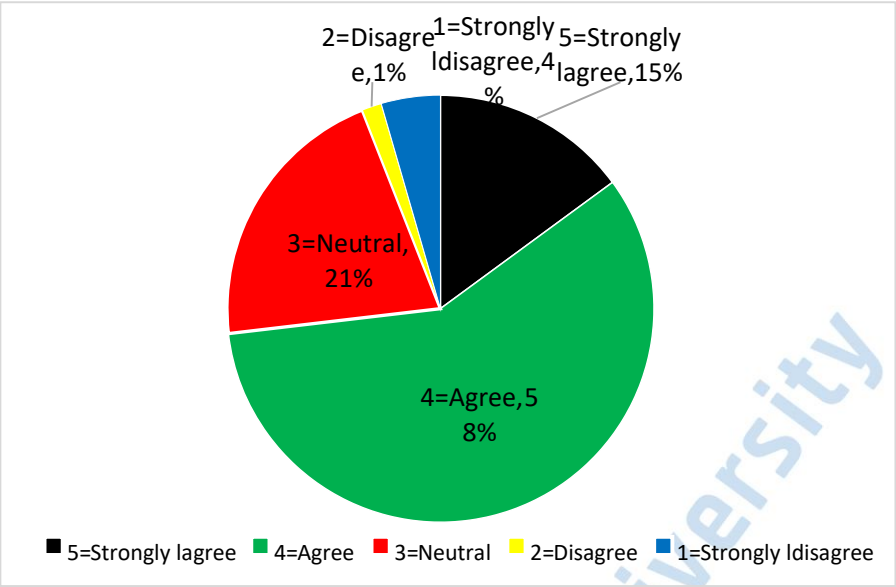

Figure 11: County staff agreement on relationship between data and performance

Figure 12 illustrates that 30% of participant county members of public strongly agreed that open contracting process visibility has a relationship with procurement performance. About 65% of the of participant county members of public agreed on the same while 3% were neutral.Only 1% disagreed and another 1% strongly disgreed about the relationship.

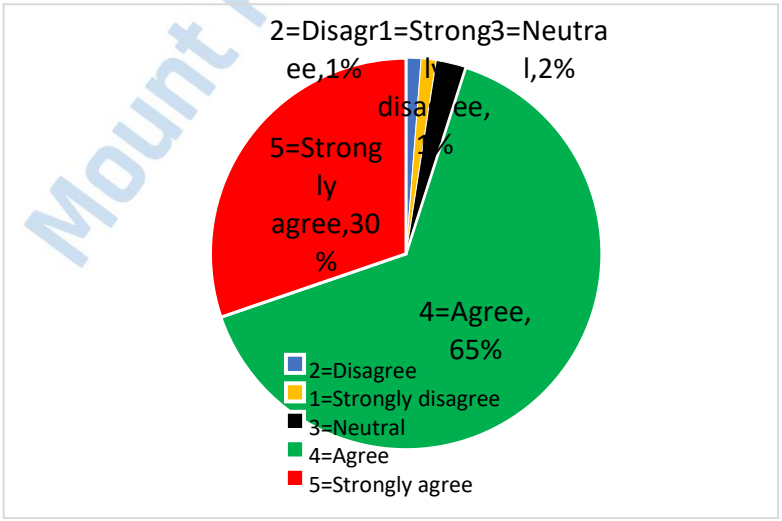

Figure 12: County members of public agreement on relationship between process visibility and

performance

Results in Table 14 illustrates mean and standard deviations of responses of county staff and members of public on relationship between open contracting process visibility and procurement performance. Results show that there was general agreement thatopen contracting process visibility has a relationship with procurement performance in Makueni County. Generally, standard deviations for ratings by county staff members of public was lower than that of county staff.

Table 14: Descriptive statistics of relationship between process visibility and performance

	County staff		County members of public	
Open contrating process visibility	Mean	standard deviation	Mean	standard deviation
Leagility i.e. agility, lean-logistics and flexibility (VIS1)	3.593	1.260	3.525	0.661
Logistics tracking visibility (VIS2)	3.866	1.113	4.346	0.791
Visibility between budget, procurement and program players (VIS3)	3.881	0.993	4.191	0.595
Visibility of order to cash (VIS4)	3.836	0.994	4.148	0.680
Visibility of plan to inventory (VIS5)	3.791	1.067	4.179	0.900
Visibility of procure to pay (VIS6)	4.000	1.044	4.204	0.642

Results of correlation analysis of ratings by county staff in Table 15 show that all the variables of open contracting process visibility had strong positive correlation with procurement performance (PERF).

Table 15: Pearson correlation of process visibility variables rated by county staff

	VIS1	VIS2	VIS3	VIS4	VIS5	VIS6	PERF
VIS1	1						
VIS2	0.7826	1					

VIS3	0.6293	0.6022	1				
VIS4	0.7674	0.6645	0.6094	1			
VIS5	0.6416	0.6396	0.5628	0.7390	1		
VIS6	0.6679	0.5603	0.6722	0.7444	0.7073	1	
PERF	0.8271	0.7906	0.7891	0.7731	0.7353	0.7625	1

Results of correlation analysis of ratings by members of public in Table 16 show that all the variables of open contracting process visibility had weak positive correlation with procurement performance (PERF).

Table 16: Pearson correlation of process visibility variables rated by members of public

	VIS1	VIS2	VIS3	VIS4	VIS5	VIS6	PERF
VIS1	1						
VIS2	-0.0639	1					
VIS3	0.0747	-0.3393	1				
VIS4	-0.1049	0.0428	-0.1625	1			
VIS5	0.1592	0.1918	0.0068	-0.1221	1		
VIS6	0.1271	0.2032	0.1087	0.0301	-0.1101	1	
PERF	0.3759	0.1860	0.1888	0.2500	0.3446	0.2602	1

Table 17 illustrates results of multiple linear regression analysis using ratings by county staff. Adjusted R^2 illustrate that 84.5% of the data points were predicted by the model. Results also show that Leagility i.e. agility, lean-logistics and flexibility (VIS1), Logistics tracking visibility (VIS2) and Visibility between budget, procurement and program players (VIS3) had positive and significant relationship with procurement performance. The rest were not significant at . This means that an improvement of the variables is associated with an improvement in procurement performance and vice versa as illustrated by the beta coefficients. The regression

intercept was also significant and positive, meaning that there were some externnal factors also significantly and positively relating with procurment performance but were left out of the analysis.

Table 17: Regression results of process visibility ratings by county staff

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	6	39.847	6.641	61.050	0.000
Residual	60	6.527	0.109		
Total	66	46.373			

SUMMARY OUTPUT

Regression Statistics

Multiple R	0.927
R Square	0.859
Adjusted R Square	0.845
Standard Error	0.330
Observations	67

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.614	0.195	3.144	0.003	0.223	1.005	0.223	1.005
VIS1	0.167	0.063	2.660	0.010	0.041	0.292	0.041	0.292
VIS2	0.163	0.063	2.606	0.012	0.038	0.289	0.038	0.289
VIS3	0.255	0.060	4.260	0.000	0.135	0.375	0.135	0.375
VIS4	0.046	0.078	0.597	0.552	-0.109	0.202	-0.109	0.202
VIS5	0.099	0.063	1.575	0.120	-0.027	0.224	-0.027	0.224
VIS6	0.113	0.068	1.667	0.101	-0.023	0.249	-0.023	0.249

Table 18 illustrates results of multiple linear regression analysis using ratings by members of public. Adjusted R^2 illustrate that 43.1% of the data points were predicted by the model. The results illustrate that all the variables of process visibility had significant positive relationship with procurement performance.

	df	*SS*	*MS*	*F*	*Significance F*		
Regressio						Multiple R	0.672

n	6	3.410	0.568	21.325	0.000	R Square	0.452
Residual	155	4.131	0.027			Adjusted R Square	0.431
Total	161	7.542				Standard Error	0.163
						Observations	162

Table 18: : Regression results of process visibility ratings by members of public

ANOVA							SUMMARY OUTPUT *Regression Statistics*		
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower*	*95.0%*	*Upper 95.0%*
Intercept	1.965	0.201	9.799	0.000	1.569	2.361		1.569	2.361
VIS1	0.109	0.020	5.388	0.000	0.069	0.149		0.069	0.149
VIS2	0.051	0.019	2.717	0.007	0.014	0.087		0.014	0.087
VIS3	0.095	0.024	4.006	0.000	0.048	0.143		0.048	0.143
VIS4	0.112	0.019	5.792	0.000	0.074	0.151		0.074	0.151
VIS5	0.099	0.020	5.010	0.000	0.060	0.138		0.060	0.138
VIS6	0.059	0.022	2.760	0.006	0.017	0.102		0.017	0.102

Both county staff and members of public generally agreed that open contracting process visibility has a relationship with procurement performance. Results of correlation analysis ofprocess visibility variables and performace by both groups also illustrate that all the variables had positive correlation with procurement performance. Regression results from both groups of participants illustrate that Leagility i.e. agility, lean-logistics and flexibility (VIS1), Logistics tracking visibility (VIS2) and Visibility between budget, procurement and program players (VIS3) had significant positive relationship with procurement performance. Though the other variables were found to have positive relationships, ratings by members of public show that they were not significant in influencing performance. The possible reason for this disparity was that the processes involved are purely internal to the county management and not open to public knowledge.

These findings corroborate those of Berner (2014), Coleman et al. (2019) and Sciortino et al. (2019) that visibility has a relatuionship with performance. The results show thatlvisibility of order to cash, procure to pay and plan to inventory has poistive relationship with performance (Berner, 2014). The findings of Coleman et al. (2019) are confirmed in this research that end-to-end visibility of process between budget, procurement and program players is essential for procurement performance.

4.6. Relationship between Public Participation and Performance

Figure 13 illustrates that 10% of county staff respondents strongly agreed that public participation in open contracting has a relationship with procurement performance. About 67% of the county staff agreed on the same while 13% were neutral.Only 5% disagreed and 5% strongly disgreed about the relationship.

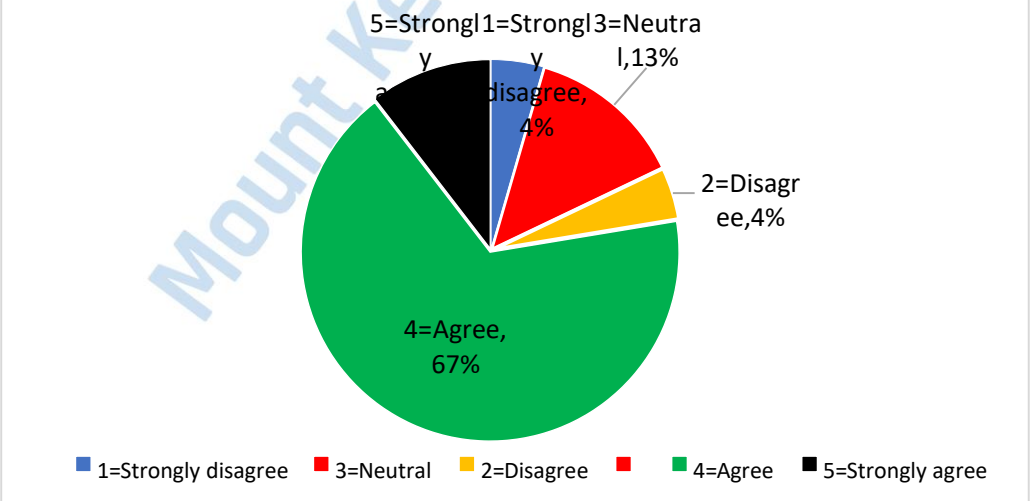

Figure 13: County staff agreement on relationship between public participation and performance

Figure 14 illustrates that 19% of participant county members of public strongly agreed that public participation in open contracting has a relationship with procurement performance. About 73% of the of participant county members of public agreed on the same while 2% were neutral.Only 4% disagreed and another 2% strongly disgreed about the relationship.

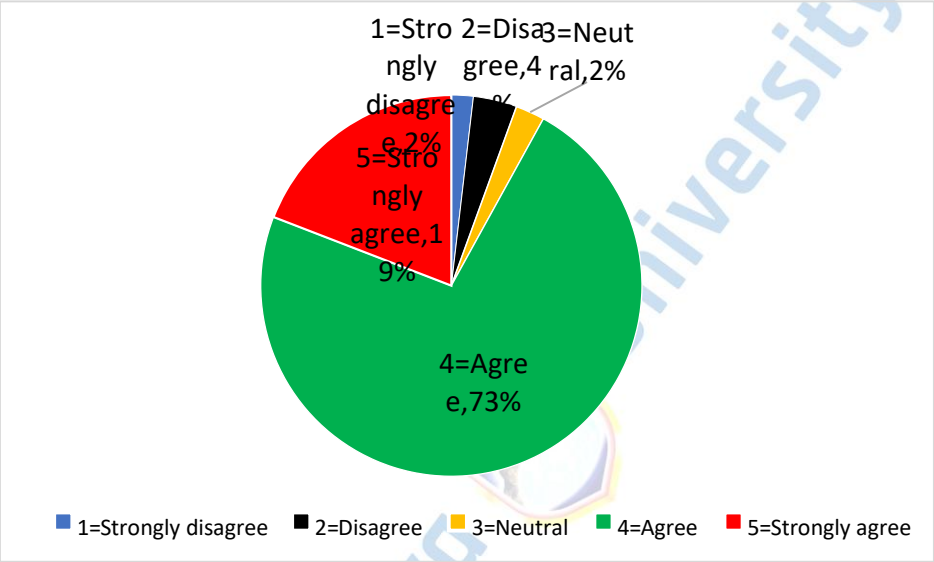

Figure 14: County members of public agreement on relationship between public participation and performance

Results in Table 19 illustrates mean and standard deviations of responses of county staff and members of public on relationship between public participation in open contracting and procurement performance. Results show that there was general agreement that public participation in open contracting has a relationship with procurement performance in Makueni County. Generally, standard deviations for ratings by county members of public was lower than that of county staff.

Table 19: Descriptive statistics of relationship between public participation and performance

Open contrating process visibility	County staff		County members of public	
	Mean	standard deviation	Mean	standard deviation
Collaboration in development of decision criteria and alternatives (PUB1)	3.5627	1.2350	3.6852	0.6823
Consultations with public (PUB2)	3.8657	1.2047	4.4877	0.7157
Visibility between budget, procurement and program players (PUB3)	3.7910	1.0806	4.1296	0.6607
Provision of information (PUB4)	3.7910	1.0946	4.1914	0.6550
Public empowerment (PUB5)	3.9254	1.1324	4.2037	0.7488
Public involvement in decision-making (PUB6)	3.7761	0.9664	4.2284	0.6525

Results of correlation analysis of ratings by county staff in Table 20 show that all the variables of public participation in open contracting had strong positive correlation with procurement performance (PERF).

Table 20: Pearson correlation of public participation variables rated by county staff

	PUB1	PUB2	PUB3	PUB4	PUB5	PUB6	PERF
PUB1	1						
PUB2	0.7451	1					
PUB3	0.7320	0.7113	1				
PUB4	0.7227	0.7138	0.7695	1			
PUB5	0.6427	0.6034	0.6928	0.7818	1		
PUB6	0.6467	0.5984	0.7525	0.7429	0.7598	1	
PERF	0.8187	0.7738	0.8172	0.8039	0.7426	0.6882	1

Results of correlation analysis of ratings by members of public in Table 21 show that all the variables of public participation in open contracting had weak positive correlation with procurement performance (PERF).

Table 21: Pearson correlation of public participation variables rated by members of public

	PUB1	PUB2	PUB3	PUB4	PUB5	PUB6	PERF
PUB1	1						
PUB2	-0.2560	1					
PUB3	0.1324	-0.2659	1				
PUB4	0.1912	0.2369	-0.0146	1			
PUB5	0.0898	0.0801	0.0342	-0.0040	1		
PUB6	0.0369	0.0792	0.1614	0.1878	0.0059	1	
PERF	0.3390	0.2636	0.1954	0.4094	0.3307	0.2766	1

Table 22 illustrates results of multiple linear regression analysis using ratings by county staff. Adjusted R^2 illustrate that 80.4% of the data points were predicted by the model. Results also show that Collaboration in development of decision criteria and alternatives (PUB1) and visibility between budget, procurement and program players (PUB3) had positive and significant relationship with procurement performance. The rest were not significant at . This means that an improvement of the two variables is associated with an improvement in procurement performance and vice versa as illustrated by the beta coefficients. The regression intercept was also significant and positive, meaning that there were some externnal factors also significantly and positively relating with procurment performance but were left out of the analysis.

	df	*SS*	*MS*	*F*	*Significance F*		
Regression	6	38.106	6.351	46.093	0.000	Multiple R	0.906
						R Square	0.822

					Adjusted R Square	
Residual	60	8.267	0.138			0.804
Total	66	46.373			Standard Error	0.371
					Observations	67

Table 22: Regression results of publuc participation ratings by county staff

SUMMARY OUTPUT

ANOVA

Regression Statistics

Table 23 illustrates results of multiple linear regression analysis using ratings by

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.084	0.194	5.586	0.000	0.696	1.472	0.696	1.472
PUB1	0.205	0.064	3.214	0.002	0.077	0.332	0.077	0.332
PUB2	0.116	0.063	1.840	0.071	-0.010	0.242	-0.010	0.242
PUB3	0.223	0.080	2.802	0.007	0.064	0.382	0.064	0.382
PUB4	0.126	0.084	1.508	0.137	-0.041	0.293	-0.041	0.293
PUB5	0.138	0.072	1.916	0.060	-0.006	0.282	-0.006	0.282
PUB6	-0.075	0.084	-0.890	0.377	-0.244	0.094	-0.244	0.094

members of public. Adjusted R^2 illustrate that 44.2% of the data points were predicted by the model. The results illustrate that all the variables of public participation had significant positive relationship with procurement performance.

Table 23: Regression results of public participation ratings by members of public

SUMMARY OUTPUT

ANOVA

Regression Statistics

	df	*SS*	*MS*	*F*	*Significance F*		
Regression	6	3.487	0.581	22.214	0.000	Multiple R	0.680
Residual	155	4.055	0.026			R Square	0.462
Total	161	7.542				Adjusted R Square	0.442

							Standard Error		0.162
							Observations		162
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower*	*95.0%*	*Upper 95.0%*
Intercept	2.143	0.177	12.102	0.000	1.793	2.493		1.793	2.493
PUB1	0.099	0.020	4.875	0.000	0.059	0.139		0.059	0.139
PUB2	0.092	0.020	4.552	0.000	0.052	0.131		0.052	0.131
PUB3	0.067	0.020	3.260	0.001	0.026	0.107		0.026	0.107
PUB4	0.083	0.021	3.947	0.000	0.042	0.125		0.042	0.125
PUB5	0.078	0.017	4.552	0.000	0.044	0.113		0.044	0.113
PUB6	0.053	0.020	2.609	0.010	0.013	0.093		0.013	0.093

Both county staff and members of public generally agreed that public participation in open contracting has a relationship with procurement performance. Results of correlation analysis ofpublic participation variables and performace by both groups also illustrate that all the variables had positive correlation with procurement performance. Regression results from both groups of participants illustrate collaboration in development of decision criteria and alternatives (PUB1) and visibility between budget, procurement and program players (PUB3) had significant positive relationship with procurement performance. Though the other variables were found to have positive relationships, ratings by members of county staff show that they were not significant in influencing performance. County staff rating also show that public involvement in decision-making (PUB6) had negative relationship with procurement performance. The possible reason for this disparity was that the county staff felt that too much public involvement in decision-making can delay procurement processes, lead to litigations, encourage unnecessary interferences and lower efficiency.

These findings corroborate those of Marzuki (2015), Arwati and Latif (2019), Zhou et al. (2019).The results confirm that public participation in open contracting

provides the opportunity for communication county and the public in procurement matters (Arwati & Latif, 2019; Zhou et al., 2019). The findings show that provision of information, consultations, public involvement in decision-making, collaboration in development of decision criteria and alternatives and public empowerment have a significant positive relationship with procurement performancel(Makueni County, l2017).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter presents summary of research findings, conclusions and recommendations. Summary was organized in terms of research objectives. Recommendations were specific to authorities, service providers and other stakeholders.

5.2. Summary of Research Findings

In this section, summary of findings of the research are presented in accordance to the objectives.

5.2.1. Relationship between Capacity for Open Contracting and Performance

There was general agreement concerning relationship between capacity for open contracting and procurement performance. All the studied variables of capacity for open contracting had positive relationship with procurement performance. Regression results for members of the public were: ICT infrastructure, CAP1 (β=0.114, t=5.705, p=0.000); leadership and governance, CAP2 (β=0.092, t=6.019, p=0.000); organizational structure, CAP3 (β=0.074, t=3.483, p=0.001); policy and legal framework, CAP4 (β=0.045, t=2.351, p=0.020); and resources, CAP5

(β=0.038, t=2.151, p=0.033). The results corroborate findings in literature by Harland et al. (2019) and Nyambane and Ozor (2020) who found that capacity for procurement in terms of resources, infrastructure, organizational structure and leadership have positive relationship with procurement performance. Regression results for county staff ratings differed from those of members of public only in two items organizational structure CAP3 (β=-0.080, t=-0.865, p=0.390) and policy and legal framework CAP4 (β=0.094, t=-1.069, p=0.289). The two were found to have no significant relationship with procurement performance.

5.2.2. Relationship between Open Contracting Data and Performance

The respondents generally agreed that open contracting data has a relationship with procurement performance. Results of correlation analysis of data by both groups of respondents illustrate that all open contracting data variables had positive correlation with procurement performance. Regression results of data from both groups of participants illustrate that data accuracy (DAT1), data completeness (DAT2) and data sufficiency (DAT4) had significant positive relationship with procurement performance and that Data reasonableness (DAT3) had no significant relationship. Regression results from ratings by members of public for DAT1 (β=0.114, t=5.338, p=0.000) and by county staff (β=0.176, t=2.270, p=0.027) show significant positive relationship. Similar results were found for DAT2 by members of public (β=0.049, t=2.657, p=0.009) and by county staff (β=0.181, t=2.315, p=0.024); and DAT4 by members of public (β=0.048, t=2.079, p=0.039) and by county staff (β=0.189, t=2.190, p=0.032).

Lack of indepth understanding of what data reasonableness means to both categories of participants was cited as a possible reason for the non-significant relationship

between it and procurement performance. The findings corroborate those of lSanchezGraells (2022) and Njoroge (2020) on relationship between performance and data accuracy, sufficiency and completeness. The findings on data reasonableness was contrary to those of Brajković let lal. (2020) and Iofinova let lal., (2021).

5.2.3. Relationship between Open Contracting Process Visibility and Performance

The respondents generally agreed that open contracting process visibility has a relationship with procurement performance. Results of correlation analysis of process visibility variables and performace by both groups of respondents illustrate that all the variables had positive correlation with procurement performance. Regression results from both groups of participants illustrate that Leagility i.e. agility, leanlogistics and flexibility (VIS1), Logistics tracking visibility (VIS2) and Visibility between budget, procurement and program players (VIS3) had significant positive relationship with procurement performance. Regression results from ratings by members of public for VIS1 (β=0.109, t=5.388, p=0.000) and by county staff (β=0.167, t=2.660, p=0.010) show significant positive relationship. Similar results were found for VIS2 by members of public (β=0.051, t=2.717, p=0.007) and by county staff (β=0.163, t=2.606, p=0.012); and VIS3 by members of public (β=0.095, t=4.006, p=0.000) and by county staff (β=0.255, t=4.260, p=0.000).

Though the other variables were found to have positive relationships, ratings by members of public show that they were not significant in influencing performance. The disparity was possibly caused by the fact that the processes involved were purely internal to the county management and not open to public knowledge.

These findings confirm those of Berner (2014), Coleman et al. (2019) and Sciortino et al. (2019) that visibility has a relatuionship with performance. The results also

show that visibility of order to cash, procure to pay and plan to inventory have positive relationship with performance (Berner, 2014).

5.2.4. Relationship between Public Participation and Performance

The respondents generally agreed that public participation in open contracting has a relationship with procurement performance. Results of correlation analysis ofpublic

participation variables and performace by both groups also illustrate that all the variables had positive correlation with procurement performance. Regression results from both groups of participants illustrate collaboration in development of decision criteria and alternatives (PUB1) and visibility between budget, procurement and program players (PUB3) had significant positive relationship with procurement performance. Regression results from ratings by members of public for PUB1 (β=0.099, t=4.875, p=0.000) and by county staff (β=0.205, t=3.214, p=0.002) show significant positive relationship. Similar results were found for PUB3 by members of public (β=0.067, t=3.260, p=0.001) and by county staff (β=0.223, t=2.802, p=0.007).

Though the other variables were found to have positive relationships from ratings of members of the public, ratings by members of county staff show that they were not significant in influencing performance. County staff rating also show that public involvement in decision-making (PUB6) had negative relationship with procurement performance (β=-0.075, t=-0.890, p=0.377). The possible reason for this disparity was that the county staff felt that too much public involvement in decision-making can delay procurement processes, lead to litigations, encourage unnecessary interferences and lower efficiency.

The findings corroborate those of Marzuki (2015), Arwati and Latif (2019), Zhou et al. (2019).The results confirm that public participation in open contracting provides the opportunity for communication county and the public in procurement matters (Arwati & Latif, 2019; Zhou et al., 2019). The findings show that provision of information,

consultations, public involvement in decision-making, collaboration in development of decision criteria and alternatives and public empowerment have a significant positive relationship with procurement performance (Makueni County, 2017).

5.3. Conclusions

It is concluded that all the studied variables of capacity for open contracting had positive relationship with procurement performance. This means that improvement of the variables is associated with better procurement performance and vice versa. Moreover, all open contracting data variables had positive correlation with procurement performance. This means that data is critical for open contracting and relates to procurement performance. Data accuracy, data completeness and data sufficiency were found to have significant positive relationship with procurement performance. Data reasonableness had no significant relationship.

All the studied variables of open contracting process visibility had positive correlation with procurement performance. Leagility i.e. agility, lean-logistics and flexibility, logistics tracking visibility and visibility between budget, procurement and program players had significant positive relationship with procurement performance. A focus on improvement of these variables can help in boosting procurement performance.

All studied ofpublic participation variables had positive correlation with procurement performance. Collaboration in development of decision criteria and alternatives and visibility between budget, procurement and program players had significant positive relationship with procurement performance.

5.4. Recommendations for Practice

The collective effort of improving open contracting capacity, process visibility, and public participation is essential for boosting procurement performance. Each group of stakeholders has a unique role to play in this ecosystem, and their concerted actions can lead to significant advancements in procurement practices. Continuous research and adaptation to emerging trends and technologies will further enhance the effectiveness of these recommendations. Specific recommendations are presented in the following sub-sections.

5.4.1. Policy Recommendations

There should be policies that mandate the establishment of comprehensive training programs aimed at enhancing the proficiency of personnel in procurement and open contracting processes. These programs should cover aspects such as data accuracy, completeness, and sufficiency, ensuring that all stakeholders are well-versed in the nuances of procurement performance.

There should also be a policy to develop and implement a robust, transparent monitoring system. This system would serve to verify the reasonableness and reliability of procurement data, thereby promoting accountability and transparency in contracting processes. Such a system could include regular audits, public reporting of procurement outcomes, and feedback mechanisms for continuous improvement.

For service providers, including logistics and transport companies, as well as local suppliers, policies should encourage the adoption of agile and lean-logistics practices. This could involve incentivizing the use of advanced tracking systems that enhance logistics visibility and flexibility in

operations. Policies might also support the development of partnerships between service providers and technology firms to foster innovation in logistics and supply chain management.

Furthermore, policies that create a collaborative platform where service providers can share best practices and challenges and that facilitate a collective approach to improving operational agility should be put in place. The platform could also serve as a conduit for service providers to voice their needs and suggestions to policymakers, ensuring that the policies formulated are responsive to the realities of the market.

Policies should aim to streamline regulatory requirements to reduce administrative burdens on service providers, enabling them to focus on core operational improvements. This could include simplifying licensing procedures, reducing unnecessary paperwork, and providing clear guidelines on compliance requirements.

Sustainability of the policies should be ensured. There should be a mechanism for regular review and adaptation in response to evolving procurement conditions and technological advancements. This would help maintain the relevance and effectiveness of policies in promoting open contracting and operational agility among service providers, ultimately leading to enhanced procurement performance and increased customer satisfaction.

5.4.2. The Authorities for Implementation

For authorities responsible for implementation, such as county and national governments, private sector entities, and local community leaders, it is recommended to enhance the capacity for open contracting. This can be achieved by investing in training programs that focus on the critical variables of procurement performance,

such as data accuracy, completeness, and sufficiency. Additionally, establishing a transparent monitoring system to ensure the reasonableness of data could further improve procurement outcomes.

5.4.3. Service Providers

Service providers, including logistics service providers, transport companies, and local suppliers, should prioritize the improvement of their operational leagility. This entails adopting more agile and lean-logistics practices, enhancing flexibility in operations, and implementing advanced tracking systems for better logistics visibility. Such measures are likely to result in improved procurement performance and customer satisfaction.

5.4.4. Other Stakeholders

Other stakeholders, like the local community, ICT stakeholders, and procurement bodies, should focus on fostering public participation in the procurement process. This involves creating platforms for collaboration in the development of decision criteria and alternatives, as well as ensuring visibility between budgeting, procurement, and program execution. By doing so, these stakeholders can contribute to a more transparent and effective procurement system that benefits all parties involved.

5.4.5. Contributions to Body of Knowledge

The research findings contribute significant new knowledge to the field of procurement, particularly in the context of open contracting. The positive relationship between the capacity for open contracting and procurement performance underscores the importance of enhancing the variables within this capacity to achieve better outcomes. The study's revelation that data accuracy,

completeness, and sufficiency are significantly related to procurement performance emphasizes the critical role of high-quality data in the procurement process. However, the lack of a significant relationship with data reasonableness suggests that while the quality of data is important, the logic or common sense applied to the data may not have a direct impact on performance.

The research also highlights the positive impact of open contracting process visibility on procurement performance. The concept of 'leagility', which combines agility, lean logistics, and flexibility, along with logistics tracking visibility and the interaction between budget, procurement, and program players, are identified as key factors that can be improved to enhance procurement outcomes. This suggests that a transparent and responsive procurement process can lead to better performance and should be a focus for organizations looking to optimize their contracting procedures.

The study also sheds light on the role of public participation in procurement, revealing that collaboration in the development of decision criteria and alternatives, as well as visibility between budget, procurement, and program players, are positively correlated with procurement performance. This indicates that involving the public in the procurement process not only fosters transparency but also contributes to better performance outcomes.

In terms of transferability and reproducibility, these findings suggest that organizations can adopt similar approaches to open contracting and expect to see improvements in their procurement performance. By focusing on the improvement of data quality, process visibility, and public participation, organizations can create a more effective and efficient procurement environment. This research provides a valuable framework for other entities to replicate and adapt in their own

contexts, potentially leading to widespread enhancements in procurement practices globally. The transferability of these findings is particularly relevant for countries and organizations looking to reform their procurement systems and increase their contracting transparency and efficiency. The

new knowledge brought forth by this research has the potential to significantly impact the field of procurement and open contracting.

5.4.6. Further Research

Future research should compare open contracting across different counties to highlight differences in relationship between independent variables and procurement performance. Further research can augment respondent opinions with actual data of procurement performance, capacity, process visibility and public participation.

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APPENDIX I: RESEARCH INSTRUMENTS

Appendix IA: Questionnaire for County Staff

Dear respondent,

My name is Carolyne Mukonyo Ngaa, a student at Mount Kenya University undertaking research on "Open contracting and performance of public procurement in procurement departments: a case of Makuen County". I urge you to fill the questionnaire with honesty and confidentiality, the responses received will only be used for academic needs.

SECTION A: BACKGROUND INFORMATION

Please tick (√) where appropriate

1. Your Age

18-25 [ ]

26-30 [ ]

31-35 [ ]

36-50 [ ]

51-55 [ ]

56-60 [ ]

60 and above [ ]

2. Your Gender

Male [ ]

Female [ ]

3. Level of job position

Top [ ]

Middle management [ ]

Low management [ ]

Non-management staff [ ]

4. Area of work

Procurement staff [ ]

ICT staff [ ]

Other (specify) ……..

5. Education level

No formal education [ ]

Primary certificate [ ]

Secondary school certificate [ ]

College Certificate [ ]

Bachelor degree [ ]

Master degree [ ]

Others (specify) ……

6. Experience

0-2 years [ ]

3-5 years [ ]

6-8 years [ ]

9 years and above [ ]

SECTION B: RELATIONSHIP BETWEEN CAPACITY FOR OPEN CONTRACTING AND PROCUREMENT PERFORMANCE

1. To what extent do you agree that capacity for open contracting significantly influences procurement performance in Makueni County?

   1=Strongly disagree [ ]

   2=Disagree [ ]

   3=Neutral [ ]

   4=Agree [ ]

   5=Strongly agree [ ]

2. To what extent do you agree that the following attributes of capacity for open contracting significantly influences procurement performance in Makueni County? Answer in terms of 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly agree.

S/No.	Attributes of the variable	1	2	3	4	5
1.	ICT infrastructure					
2.	Leadership and governance					
3.	Organizational structure					
4.	Policy and legal framework					
5.	Resources e.g. human, financial, assets					

3. List any other attribute of capacity for open contracting that in your opinion influences procurement performance in Makuen lCounty.

……

……

……

SECTION C: RELATIONSHIP BETWEEN OPEN CONTRACTING DATA AND PROCUREMENT PERFORMANCE

4. To what extent do you agree that data for open contracting significantly influences procurement performance in Makueni County?

1=Strongly disagree [ ]

2=Disagree [ ]

3=Neutral [ ]

4=Agree [ ]

5=Strongly agree [ ]

5. To what extent do you agree that the following attributes of data for open contracting significantly influences procurement performance in Makueni County? Answer in terms of 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly agree.

S/No.	Attributes of the variable	1	2	3	4	5
1.	Data laccuracy					
2.	Data lcompleteness					
3.	Data lreasonableness					
4.	Data lsufficiency					
5.	Data lvalidity					

6. List any other attribute of open contracting data that in your opinion influences procurement performance in Makuen County.

……

……

……

SECTION D: RELATIONSHIP BETWEEN OPEN CONTRACTING PROCESS VISIBILITY AND PROCUREMENT PERFORMANCE

7. To lwhat extent do you agree that process visibility in open contracting significantly influences procurement performance in Makueni County?

1=Strongly disagree [ ]

2=Disagree [ ]

3=Neutral [ ]

4=Agree [ ]

5=Strongly agree [ ]

8. To what extent do you agree that the following attributes of process visibility in open contracting significantly influences procurement performance in Makueni County? Answer in terms of 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly agree.

S/No.	Attributes lof lthe lvariable	1	2	3	4	5
1.	Leagility i.e. agility, lean-logistics and flexibility					
2.	Logistics tracking visibility					
3.	Visibility between budget, procurement and program players					
4.	Visibility of order to cash					
5.	Visibility of plan to inventory					
	Visibility of procure to pay					

9. List any other attribute of process visibility in open contracting that in your opinion influences procurement performance in Makueni County.

……

……

……

SECTION lE: lRELATIONSHIP lBETWEEN lPUBLIC lPARTICIPATION lOPEN lCONTRACTING lAND lPROCUREMENT lPERFORMANCE l

10. To what extent do you agree that public participation in open contracting significantly influences procurement performance in Makueni County?

1=Strongly disagree [ ]

2=Disagree [ ]

3=Neutral [ ]

4=Agree [ ]

5=Strongly agree [ ]

11. To what extent do you agree that the following attributes of public participation in open contracting significantly influences procurement performance in Makueni County? Answer in terms of 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly agree.

S/No.	Attributes of the variable	1	2	3	4	5
1.	Collaboration in development of decision criteria and alternatives					
2.	Consultations with public					
3.	Visibility between budget, procurement and program players					
4.	Provision of information					
5.	Public empowerment					
6.	Public involvement in decision-making					

12. List any other attribute of public participation in open contracting

that in your opinion influences procurement performance in Makueni County.

……

……

……

THE END

Appendix B: Questionnaire for the Members of the Public in Makueni County

Dear respondent,

My name is Carolyne Mukonyo Ngaa, a student at Mount Kenya University undertaking research on ": a case of Makueni County". I urge you to fill the questionnaire with honesty and confidentiality, the responses received will only be used for academic needs.

SECTION A: BACKGROUND INFORMATION

Please tick (√) where appropriate

1. Your Age

18-25 [ ]

26-30 [ ]

31-35 [ ]

36-50 [ ]

51-55 [ ]

56-60 [ ]

60 and above [ ]

2. Your Gender

Male [ ]

Female [ ]

3. Your Ward

Wote [ ]

Muvau/Kikumini [ ]

Mavindini [ ]

Kitise/Kithuki [ ]

Kathonzweni [ ]

Nzaui/Kalamba [ ]

Mbitini [ ]

4. Your sublocation

……

5. Your community leadership position

Not a community leader [ ]

Minority and marginalized group leader [ ]

Teachers association leader [ ]

Women group leader [ ]

Youth leader [ ]

Community Based Organization (CBO) leader [ ]

Hawkers representative [ ]

Business community leader [ ]

Faith Based Organization (FBO) leader [ ]

Farmers groups representatives [ ]

Boda boda groups [ ]

Most affected persons (MAPS) leader [ ]

Professionals in the diaspora leader [ ]

People with special needs (PWSN) leader [ ]

Children representative [ ]

Parents Teachers Association (PTA) leader [ ]

Town committee leader [ ]

Project Management Committee (PMC) representatives [ ] Other (specify) ……..

6. Education level

No formal education [ ]

Primary certificate [ ]

Secondary school certificate [ ]

College Certificate [ ]

Bachelor degree [ ]

Master degree [ ]

Others (specify) ……

7. Number of times you participated in tenders with Makueni County through open Contracting System

1-2 times [ ]

3-4 times [ ]

5-6 times [ ]

7 times and above [ ]

No time [ ]

SECTION B: RELATIONSHIP BETWEEN CAPACITY FOR OPEN CONTRACTING AND PROCUREMENT PERFORMANCE

13. To what extent do you agree that capacity for open contracting significantly influences procurement performance in Makueni County?

1=Strongly disagree [ ]

2=Disagree [ ]

3=Neutral [ ]

4=Agree [ ]

5=Strongly agree [ ]

14. To what extent do you agree that the following attributes of capacity for open contracting significantly influences procurement performance in Makueni County? Answer in terms of 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly agree.

S/No.	Attributes of the variable	1	2	3	4	5
6.	ICT infrastructure					
7.	Leadership and governance					
8.	Organizational structure					
9.	Policy and legal framework					
10.	Resources e.g. human, financial, assets					

15. List any other attribute of capacity for open contracting that in your opinion influences procurement performance in Makueni County.

……

……

……

SECTION C: RELATIONSHIP BETWEEN OPEN CONTRACTING DATA AND PROCUREMENT PERFORMANCE

16. To what extent do you agree that data for open contracting significantly influences procurement performance in Makueni County?

1=Strongly disagree [ ]

2=Disagree [ ]

3=Neutral [ ]

4=Agree [ ]

5=Strongly agree [ ]

17. To what extent do you agree that the following attributes of data for open contracting significantly influences procurement performance in Makueni County? Answer in terms of 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly agree.

S/No.	Attributes of the variable	1	2	3	4	5
6.	Data accuracy					
7.	Data completeness					
8.	Data reasonableness					
9.	Data sufficiency					
10.	Data validity					

18. List any other attribute of open contracting data that in your opinion influences procurement performance in Makueni County.

……

……

……

SECTION D: RELATIONSHIP BETWEEN OPEN CONTRACTING

PROCESS VISIBILITY AND PROCUREMENT PERFORMANCE

19. To what extent do you agree that process visibility in open contracting significantly influences procurement performance in Makueni County?

1=Strongly disagree [ ]

2=Disagree [ ]

3=Neutral [ ]

4=Agree [ ]

5=Strongly agree [ ]

20. To what extent do you agree that the following attributes of process visibility in open contracting significantly influences procurement performance in Makueni County? Answer in terms of 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly agree.

S/No.	Attributes of the variable	1	2	3	4	5
7.	Leagility i.e. agility, lean-logistics and flexibility					
8.	Logistics tracking visibility					
9.	Visibility between budget, procurement and program players					

10.	Visibility of order to cash					
11.	Visibility of plan to inventory					
12.	Visibility of procure to pay					

21. List any other attribute of process visibility in open contracting that in your opinion influences procurement performance in Makueni County.
……
……

SECTION E: RELATIONSHIP BETWEEN PUBLIC PARTICIPATION OPEN CONTRACTING AND PROCUREMENT PERFORMANCE

22. To what extent do you agree that public participation in open contracting significantly influences procurement performance in Makueni County?

1=Strongly disagree [ ]

2=Disagree [ ]

3=Neutral [ ]

4=Agree [ ]

5=Strongly agree [ ]

23. To what extent do you agree that the following attributes of public participation in open contracting significantly influences procurement performance in Makueni County? Answer in terms of 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly agree.

S/No.	Attributes of the variable	1	2	3	4	5
	Collaboration in development of decision criteria and alternatives					
8.	Consultations with public					
9.	Visibility between budget, procurement and program players					
10.	Provision of information					
11.	Public empowerment					
12.	Public involvement in decision-making					

24. List any other attribute of public participation in open contracting

that in your opinion influences procurement performance in Makueni County.

……

……

……

THE END

APPENDIX II: LETTER OF INTRODUCTION/AUTHORIZATION

Mount Kenya University

DIRECTORATE OF GRADUATE STUDIES

MPSM/2022/46798

25th January, 2024

National Commission for Science Technology & Innovation (NACOSTI)
Off Waiyaki Way, Upper Kabete,
P.O Box 30623- 00100
NAIROBI, KENYA

Dear Sir/Madam,

RE: CAROLYNE MUKONYO NGAA– REGISTRATION NO. MPSM/2022/46798

The purpose of this letter is to introduce the above named student who is pursuing **Master of Science in Procurement and Supplies Management** in the **Department of Management** in the school of **Business and Economics**

The title of the research is **"Open Contracting and Performance of Public Procurement in Procurement Departments: A Case of Makueni County.** It has been cleared by the University's Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data between **January, 2024 and March, 2024.**

Any assistance accorded to the student will be highly appreciated.

Thank you.

Mount Kenya University
P.O. Box 342-01000, THIKA
Office of the Director
Graduate Studies

Dr. Samuel M. Karanga, Ph.D
Director, Graduate Studies
Enc.

Page 1 / 4

APPENDIX III: RESEARCH PERMIT FROM NACOSTI

NATIONAL COMMISSION FOR
SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 284487

Date of Issue: 08/February/2024

RESEARCH LICENSE

This is to Certify that Ms. Caralyne Mukanya Ngua of Mount Kenya University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev 2014) in Makueni on the topic: OPEN CONTRACTING AND PERFORMANCE OF PUBLIC PROCUREMENT IN PROCUREMENT DEPARTMENT: A CASE OF MAKUENI COUNTY for the period ending : 08/February/2025.

License No: NACOSTI/P/24/22978

284487

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR
SCIENCE,TECHNOLOGY &
INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document,
Scan the QR Code using QR scanner application.

See overleaf for conditions

APPENDIX IV: CLEARANCE CERTIFICATE

Mount Kenya University

REF: **MKU/ISERC/3381**
TO: **CAROLYNE MUKONYO NGAA**

Date: 06 December 2023

REG: **MPSM/2022/46798**

Dear Sir/Madam,

RE: OPEN CONTRACTING AND PERFORMANCE OF PUBLIC PROCUREMENT IN PROCUREMENT DEPARTMENTS: A CASE OF MAKUENI COUNTY

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **2425**. The approval period is **06/12/2023 - 05/12/2024**.

This approval is subject to compliance with the following requirements:

i. Only approved documents including informed consents, study instruments, MTA will be used
ii. All changes including amendments, deviations and violations are submitted for review and approval by **Mount Kenya University**
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **Mount Kenya University** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affect the safety or welfare of study participants and others or affect the integrity of the research must be reported to **Mount Kenya University** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
vii. Submission of an executive summary report within 90 days upon completion of the study to **Mount Kenya University**

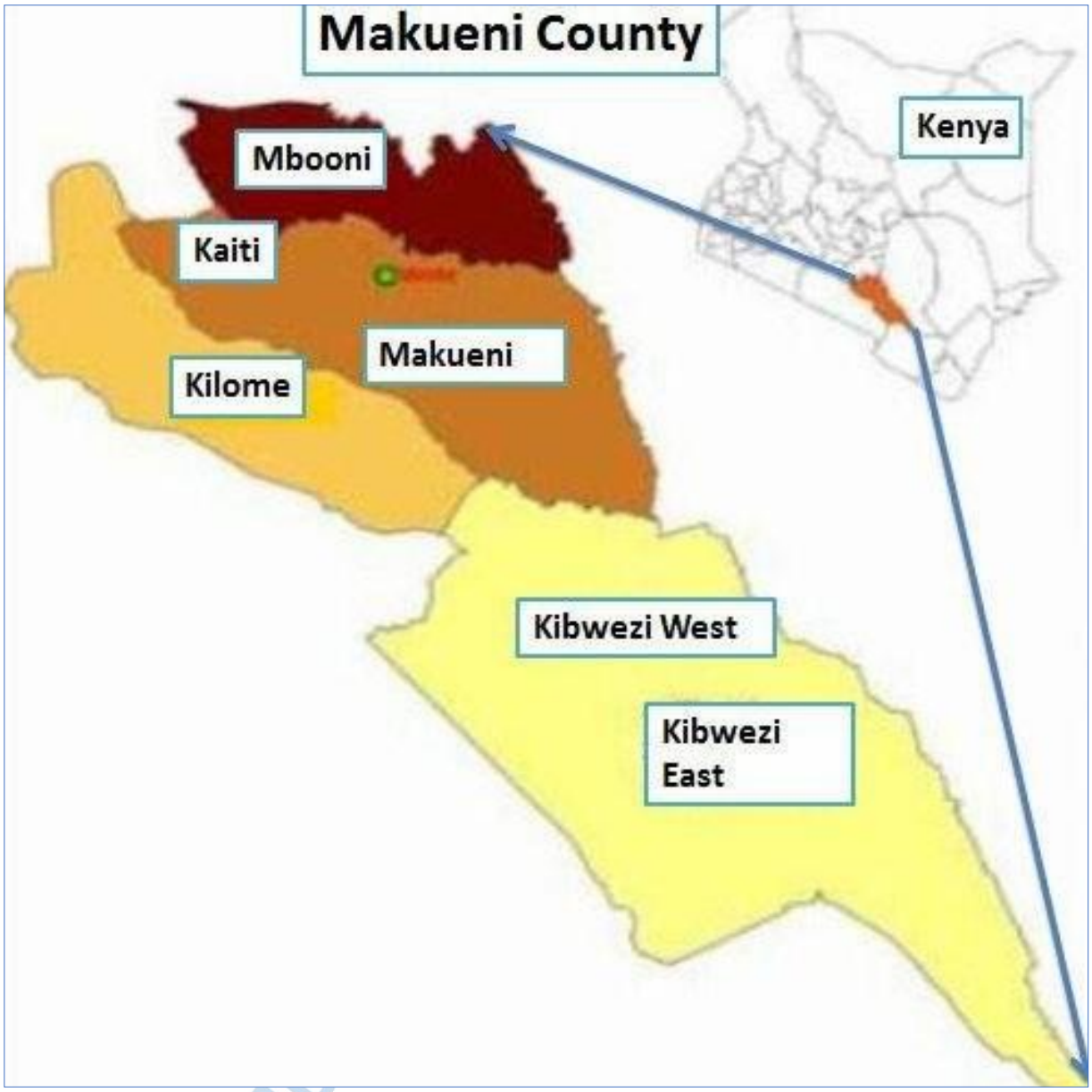
Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

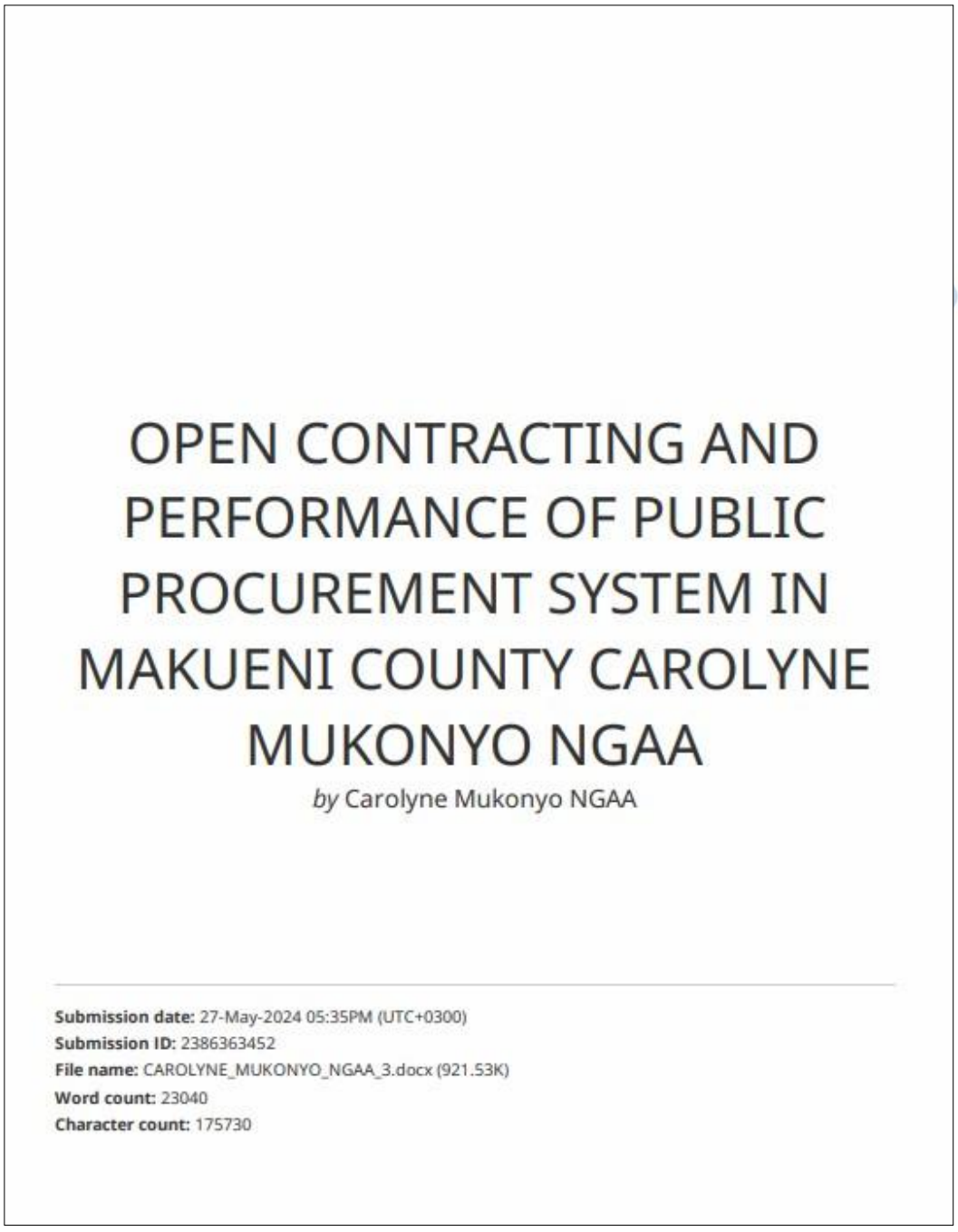
The Chairman
Mount Kenya University
Ethics Review Committee
P. O. Box 342 - 01000, Thika

Dr. Alfred Owino, PhD
Chairman, Mount Kenya University ISERC

APPENDIX V: MAP OF STUDY LOCATION



APPENDIX VI: SIMILARITY INDEX REPORT



OPEN CONTRACTING AND PERFORMANCE OF PUBLIC PROCUREMENT SYSTEM IN MAKUENI COUNTY CAROLYNE MUKONYO NGAA

by Carolyne Mukonyo NGAA

Submission date: 27-May-2024 05:35PM (UTC+0300)
Submission ID: 2386363452
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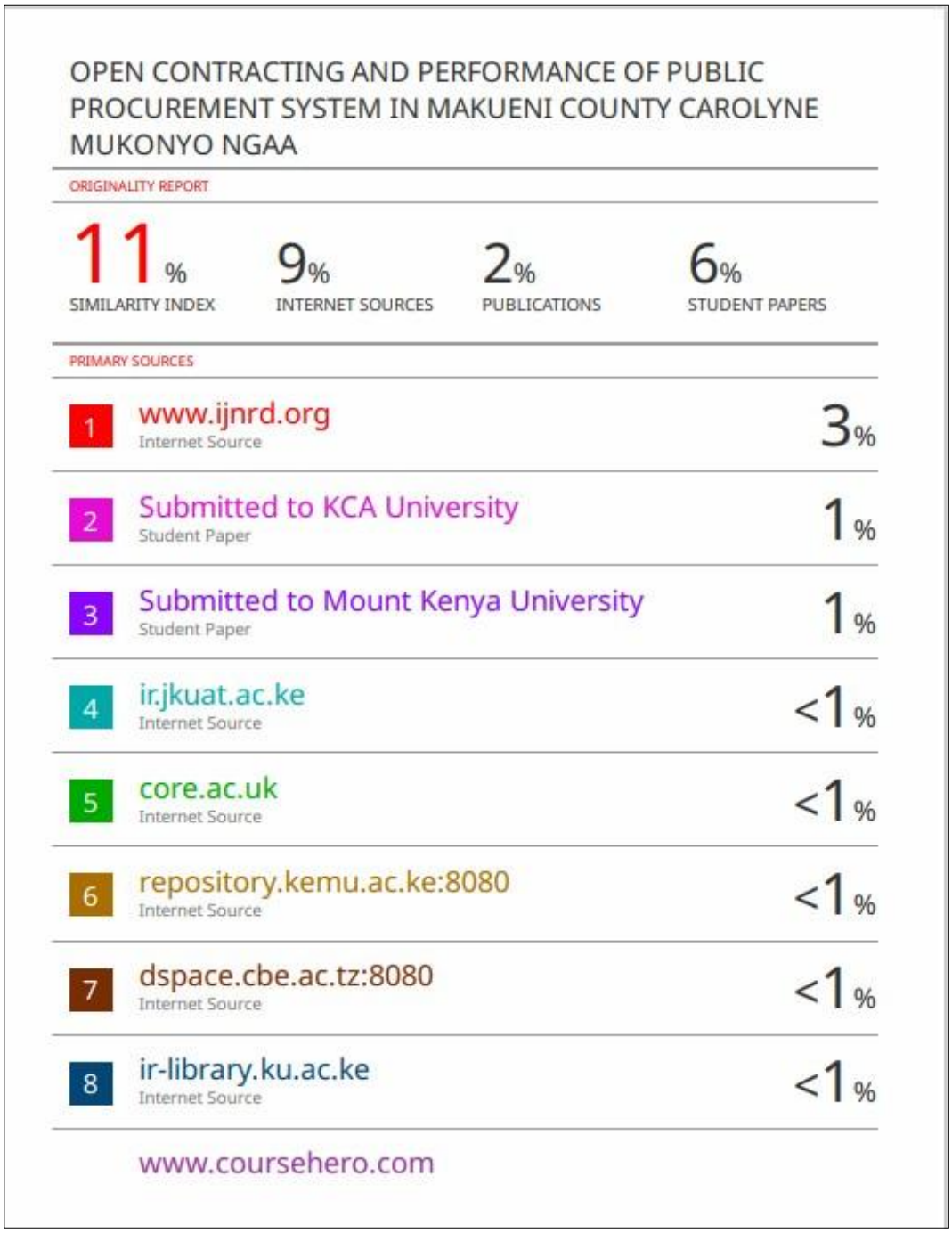
Word count: 23040
Character count: 175730



OPEN CONTRACTING AND PERFORMANCE OF PUBLIC PROCUREMENT SYSTEM IN MAKUENI COUNTY CAROLYNE MUKONYO NGAA

ORIGINALITY REPORT

11%	9%	2%	6%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.ijnrd.org Internet Source	3%
2	Submitted to KCA University Student Paper	1%
3	Submitted to Mount Kenya University Student Paper	1%
4	ir.jkuat.ac.ke Internet Source	<1%
5	core.ac.uk Internet Source	<1%
6	repository.kemu.ac.ke:8080 Internet Source	<1%
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