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MSME Access to Public Procurement in Kenya: Evidence Ten Years After the AGPO Policy

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ABSTRACT

Micro, Small, and Medium Enterprises (MSMEs) play a critical role in economic development, employment creation, and innovation in developing economies. Public procurement has increasingly been recognized as an important policy instrument for promoting inclusive economic growth by expanding business opportunities for MSMEs. In Kenya, procurement reforms such as the Access to Government Procurement Opportunities (AGPO) initiative and provisions under the Public Procurement and Asset Disposal Act were introduced to enhance MSME participation in government contracting. Despite these reforms, many MSMEs continue to face structural barriers that limit their effective participation in public procurement markets. This study examines the determinants of MSME participation in public procurement by focusing on access to procurement information, financial capacity, and digital procurement adoption. Guided by the Resource-Based View (RBV) and Institutional Theory, the study analyzes how institutional factors and firm-level capabilities influence MSME engagement in procurement markets. Data were collected from 305 MSMEs registered under the AGPO program in Kenya and analyzed using Structural Equation Modeling (SEM). The results indicate that access to procurement information has the strongest positive influence on MSME participation ($\beta = 0.41$, $p < 0.001$), followed by financial capacity ($\beta = 0.33$, $p < 0.001$) and digital procurement adoption ($\beta = 0.29$, $p < 0.001$). The structural model explains 58% of the variance in MSME participation ($R^2 = 0.58$), indicating strong explanatory power of the proposed determinants. The measurement model demonstrates satisfactory reliability and validity, while the overall model fit indices confirm an acceptable model fit (CFI = 0.95, TLI = 0.94, RMSEA = 0.046, SRMR = 0.041). The study contributes to procurement literature by applying SEM to evaluate MSME participation in public procurement, integrating institutional and firm-level determinants within a unified analytical framework, and providing updated empirical evidence from Kenya more than a decade after the introduction of procurement reforms. The findings offer important policy insights for strengthening procurement transparency, expanding MSME access to procurement financing, and enhancing the effectiveness of digital procurement systems to support inclusive participation in public procurement markets.

Keywords: Public procurement, MSMEs, AGPO Policy, Digital Procurement, Financial Capacity, Structural Equation Modeling

INTRODUCTION

Small and Medium Enterprises (MSMEs) constitute a critical component of modern economies and play a significant role in shaping participation in public procurement markets. Globally, MSMEs contribute substantially to employment creation, innovation, and economic growth, accounting for more than 90% of businesses and approximately 50% of employment worldwide (World Bank, 2022). In developing economies, their integration into government procurement systems has increasingly been recognized as an important policy strategy for promoting inclusive economic development and reducing market concentration. Recent scholarly literature published between 2020 and 2025 emphasizes the growing importance of procurement policy reforms as mechanisms for improving access of MSMEs to government contracting opportunities (Flynn & Davis, 2021; OECD, 2023). Governments across many jurisdictions have introduced preferential procurement frameworks, digital procurement platforms, and financial inclusion programs to address structural barriers that traditionally limited MSME participation in public procurement markets.

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Empirical evidence suggests that several institutional and structural factors significantly influence the capacity of MSMEs to compete effectively in public procurement systems. These factors include access to procurement information, financial capability to meet tender requirements, administrative complexity of procurement procedures, and technological infrastructure required to participate in electronic procurement platforms (Loader, 2020; Grandia & Meehan, 2021). When procurement systems are transparent and technologically accessible, MSMEs are more likely to participate in competitive bidding processes and to benefit from public contracting opportunities. Conversely, excessive bureaucratic procedures, limited access to financing, and inadequate dissemination of procurement information often discourage MSME participation and reduce the inclusiveness of procurement markets (Thai, 2021). Consequently, many governments have implemented policy reforms aimed at simplifying procurement procedures, strengthening supplier development programs, and promoting the use of e-procurement systems to enhance transparency and accessibility.

Public procurement itself represents a powerful economic policy instrument that can significantly influence market participation and stimulate economic inclusion. Governments are among the largest purchasers of goods and services in most economies, and public procurement expenditure typically represents between 12% and 20% of national GDP in many countries (OECD, 2023).

As such, procurement systems can serve as strategic tools for supporting MSME development by creating opportunities for smaller firms to access government markets. Recent studies highlight that the adoption of digital procurement systems has improved transparency, reduced corruption risks, and expanded access to tender information for MSMEs (Neupane, Soar, & Vaidya, 2020; Uyarra et al., 2021). In addition, financial inclusion initiatives such as procurement financing, supplier credit facilities, and capacity-building programs have been recognized as critical mechanisms for enabling MSMEs to meet procurement requirements including bid securities, performance guarantees, and working capital needs (Akenroye, Owens, & Elbaz, 2020). However, despite these reforms, MSMEs in many developing economies continue to face significant challenges such as delayed payments, limited access to finance, and complex regulatory requirements that constrain their effective participation in public procurement markets (World Bank, 2022).

In the Kenyan context, several policy initiatives have been introduced to address the structural barriers that historically limited MSME participation in government procurement. One of the most prominent initiatives is the Access to Government Procurement Opportunities (AGPO) program, which was introduced as part of broader procurement reforms aimed at promoting economic inclusion and empowering marginalized groups. Under the AGPO framework, approximately 30% of government procurement opportunities are reserved for enterprises owned by youth, women, and persons with disabilities, many of whom operate within the MSME sector (Government of Kenya, 2020).

The policy was operationalized under the Public Procurement and Asset Disposal Act, which seeks to enhance transparency, accountability, and equitable access to government procurement markets. Evidence from recent studies indicates that the AGPO program has contributed to increased registration of MSMEs in procurement databases and improved awareness of procurement opportunities among target groups (Ombati & Ombati, 2021; Wanyonyi & Muturi, 2022). Nevertheless, empirical studies also suggest that several challenges continue to hinder the effective participation of MSMEs in public procurement, including limited financial capacity, insufficient technical expertise, and bureaucratic procurement processes (Mose, 2023).

Despite the introduction of these policy reforms, the extent to which procurement policies such as AGPO have effectively enhanced MSME participation in public procurement remains an important empirical question. Understanding how procurement policies interact with institutional and firm-level capabilities is therefore essential for designing more effective policy interventions. Rigorous quantitative analytical approaches such as Structural Equation Modeling (SEM) provide powerful tools for examining the complex relationships between procurement policy frameworks, institutional conditions, and MSME participation outcomes. SEM allows researchers to simultaneously analyze multiple latent constructs and causal relationships, making it particularly suitable for investigating the structural factors that influence MSME participation in public procurement markets. Consequently, applying SEM to analyze procurement participation dynamics can provide valuable insights for policymakers seeking to strengthen procurement systems and promote inclusive economic development.

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LITERATURE REVIEW

Public procurement policy plays a significant role in shaping the extent to which Small and Medium Enterprises (MSMEs) participate in government contracting markets. Recent scholarly literature (2020–2025) increasingly identifies procurement policy reforms as strategic instruments for promoting inclusive economic growth, particularly in developing economies where MSMEs constitute a substantial share of the private sector (Flynn & Davis, 2021; Grandia & Meehan, 2021; OECD, 2023; Uyarra et al., 2021). Governments have therefore introduced a range of policy measures designed to improve MSME access to public procurement opportunities. These include preferential procurement schemes, digital procurement platforms that enhance transparency and accessibility of tender information, and financial inclusion initiatives aimed at strengthening the financial capacity of MSMEs to participate in competitive bidding processes (Akenroye, Owens, & Elbaz, 2020; Flynn & Davis, 2021; OECD, 2023). Empirical evidence consistently shows that access to procurement information, financial capability to meet tendering requirements, administrative simplicity of procurement procedures, and the availability of technological infrastructure significantly influence the ability of MSMEs to compete successfully for government contracts (Grandia & Meehan, 2021; Loader, 2020; Uyarra et al., 2021).

In Kenya, procurement reforms such as the Access to Government Procurement Opportunities (AGPO) initiative and the Public Procurement and Asset Disposal Act were introduced to address structural barriers that historically limited MSME participation in public procurement markets. These policy frameworks aim to enhance transparency, promote inclusivity, and create equitable access to procurement opportunities for enterprises owned by youth, women, and persons with disabilities. Despite these reforms, the extent to which procurement policy initiatives have translated into meaningful MSME participation remains an important empirical issue (OECD, 2023; Thai, 2021). Consequently, systematic investigation using rigorous quantitative approaches such as Structural Equation Modeling (SEM) is necessary to understand how procurement policies and institutional arrangements influence MSME participation in public procurement systems.

MSME participation itself represents a critical indicator of the effectiveness and inclusiveness of public procurement institutions. The degree to which MSMEs are able to access and compete for government tenders reflects the transparency, openness, and efficiency of procurement systems (Loader, 2020; Thai, 2021). Increasing MSME participation in public procurement markets has been shown to contribute not only to economic growth but also to enhanced competition, innovation, and improved value for public expenditure (Flynn & Davis, 2021; Loader, 2020). Consequently, many governments have introduced policy reforms aimed at reducing barriers that restrict MSME access to procurement opportunities. Such reforms often include simplifying tender documentation, improving dissemination of procurement information, strengthening supplier development initiatives, and facilitating access to procurement financing (Grandia & Meehan, 2021; OECD, 2023). Empirical studies indicate that MSMEs are more likely to participate successfully when procurement procedures are transparent, administrative requirements are manageable, and firms possess adequate financial and technological capabilities (Akenroye et al., 2020; Uyarra et al., 2021). In Kenya, although initiatives such as AGPO have expanded access to procurement opportunities, challenges including limited awareness of tenders, financial constraints, and complex administrative procedures continue to hinder MSME participation.

Digital procurement systems have also emerged as an important factor influencing MSME participation in public procurement markets. The digitalization of procurement processes has significantly transformed how governments advertise tenders, receive bids, evaluate suppliers, and manage procurement transactions (Neupane, Soar, & Vaidya, 2020; OECD, 2023). Electronic procurement platforms improve transparency, reduce corruption risks, and expand access to procurement information for a wider range of firms, including MSMEs (Neupane et al., 2020; Uyarra et al., 2021). By automating procurement processes and providing centralized access to tender information, digital procurement systems reduce administrative burdens and transaction costs that often discourage MSME participation. Digital platforms also enhance efficiency by enabling MSMEs to access procurement opportunities remotely, submit bids electronically, and monitor procurement outcomes more easily. Empirical evidence suggests that the adoption of digital procurement technologies significantly enhances MSME engagement in procurement markets by reducing information asymmetry and improving procedural transparency (Grandia & Meehan, 2021; Uyarra et al., 2021). However, the effectiveness of digital procurement systems depends on factors such as technological readiness, digital literacy, and the availability of supporting ICT infrastructure (OECD, 2023).

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This study is anchored on Resource-Based View (RBV) and Institutional Theory, which together provide a strong theoretical basis for explaining MSME participation in public procurement markets. The Resource-Based View posits that firms gain competitive advantage from the strategic resources and capabilities they possess (Barney, 1991; Wernerfelt, 1984). Within the context of public procurement, financial capacity represents a critical strategic resource that enables MSMEs to meet tender requirements such as bid securities, working capital needs, and contract execution obligations. MSMEs with stronger financial resources are therefore better positioned to compete effectively for government contracts and sustain procurement-related activities.

Complementing RBV, Institutional Theory explains how organizational behavior is shaped by regulatory frameworks, institutional norms, and governance structures that define how firms interact within economic systems (Scott, 2014). In public procurement environments, institutional arrangements such as procurement policies, transparency mechanisms, procurement information systems, and digital procurement platforms influence how firms access and respond to procurement opportunities. These institutional structures reduce uncertainty, standardize procurement procedures, and mitigate information asymmetries that may disadvantage smaller firms. In particular, access to procurement information and digital procurement systems function as institutional mechanisms that shape MSME behavior by improving transparency and expanding access to tender opportunities.

By integrating RBV and Institutional Theory, this study provides a comprehensive framework for understanding MSME participation in public procurement markets. RBV highlights the importance of internal firm capabilities, particularly financial capacity, while Institutional Theory emphasizes the influence of external institutional structures such as procurement information systems and digital procurement platforms. Together, these perspectives provide a robust theoretical foundation for examining how both firm-level resources and institutional environments shape MSME participation outcomes in public procurement system.

Research Gap and Contribution

Public procurement plays a critical role in national economic systems and public sector governance. Globally, government procurement accounts for approximately 10–15 percent of gross domestic product (GDP) and represents one of the largest channels through which public resources are allocated to private sector actors. Because of its scale and strategic importance, public procurement has increasingly been recognized as a policy instrument for promoting economic development, innovation, and inclusive growth. In many developing economies, procurement policies are designed not only to ensure efficient delivery of public goods and services but also to support the participation of small and medium enterprises (MSMEs) in government markets. Enhancing MSME participation in public procurement can stimulate entrepreneurship, increase competition in government contracting, and promote broader economic inclusion.

Prior research provides an important foundation for understanding the dynamics of MSME participation in public procurement markets. Early studies, including the work of Abuya and Ondiek (2014), identified structural barriers such as limited access to procurement information, financial constraints, and complex administrative procedures that restrict the ability of MSMEs to participate effectively in government contracting opportunities. More recent scholarship (2020–2025) increasingly emphasizes procurement policy reforms as strategic mechanisms for promoting inclusive economic growth, particularly in developing economies where MSMEs constitute a substantial share of the private sector (Flynn & Davis, 2021; Grandia & Meehan, 2021; OECD, 2023; Thai, 2021). Governments have therefore introduced policy instruments such as preferential procurement schemes, digital procurement platforms, and financial inclusion initiatives aimed at improving MSME access to public procurement markets (Akenroye, Owens, & Elbaz, 2020; Loader, 2020; Uyarra et al., 2021).

Empirical studies consistently identify determinants such as access to procurement information, financial capability to meet tender requirements, administrative simplicity of procurement procedures, and technological infrastructure as key factors influencing MSME participation in government contracting opportunities (Grandia & Meehan, 2021; Flynn & Davis, 2021; OECD, 2023). However, despite the growing body of literature, relatively few studies have applied advanced analytical techniques such as Structural Equation Modeling (SEM) to evaluate how institutional and firm-level determinants simultaneously influence MSME participation in procurement markets, particularly within developing economies.

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Several important gaps therefore remain in the literature. First, a methodological gap exists in the evaluation of procurement policies and MSME participation. Although prior studies have examined MSME participation in procurement markets, most rely on descriptive statistics or regression-based analytical techniques (Loader, 2020; Uyarra et al., 2021). These approaches often analyze determinants independently and may not adequately capture the complex relationships that exist among institutional and firm-level factors influencing MSME participation. Advanced multivariate techniques such as SEM provide a more comprehensive analytical framework capable of capturing both direct and indirect relationships among multiple constructs within procurement systems (Hair et al., 2022; Kline, 2023). However, the application of SEM in procurement research remains limited.

Second, a contextual gap exists within the Kenyan procurement policy literature. Kenya has implemented significant procurement reforms aimed at expanding MSME participation in government markets, most notably the Access to Government Procurement Opportunities (AGPO) program and the Public Procurement and Asset Disposal Act. These reforms were designed to reduce structural barriers and increase the participation of enterprises owned by youth, women, and persons with disabilities in public procurement markets. While these initiatives represent important policy interventions for promoting inclusive procurement systems, empirical evidence evaluating their effectiveness remains relatively limited (OECD, 2023; Thai, 2021; World Bank, 2022). Much of the existing research focuses on policy frameworks or regulatory compliance rather than providing rigorous empirical analysis of how these reforms influence MSME participation outcomes.

Third, a conceptual or model gap exists in the way determinants of MSME participation have been analyzed. Previous studies often examine factors such as procurement information access, financial capacity, administrative procedures, and digital procurement systems independently rather than analyzing them as part of an integrated system of relationships (Akenroye et al., 2020; Flynn & Davis, 2021). However, MSME participation in public procurement markets is shaped by the interaction between institutional structures, such as procurement information systems and digital procurement platforms, and firm-level capabilities, including financial resources and organizational capacity (Grandia & Meehan, 2021; Uyarra et al., 2021). Examining these determinants in isolation therefore limits the ability to fully understand how institutional and organizational factors jointly influence MSME participation.

Addressing these methodological, contextual, and conceptual gaps, this study applies Structural Equation Modeling (SEM) to examine the simultaneous relationships among access to procurement information, financial capacity, digital procurement adoption, and MSME participation in public procurement markets within the Kenyan context. By integrating institutional and firm-level determinants within a single analytical framework, the study provides a more comprehensive explanation of the factors influencing MSME engagement in government procurement systems following the implementation of AGPO and related procurement reforms.

Accordingly, the study pursues three key objectives: (1) to examine the influence of access to procurement information on MSME participation in public procurement markets; (2) to determine the effect of financial capacity on MSME participation in public procurement; and (3) to assess the role of digital procurement adoption in enhancing MSME participation in government procurement systems. Based on these objectives, the study tests the following hypotheses:

H_{01}: Access to procurement information has a positive and significant influence on MSME participation in public procurement.

H_{02}: Financial capacity positively influences MSME participation in public procurement markets.

H_{03}: Digital procurement adoption positively influences MSME participation in public procurement.

By addressing these objectives and hypotheses, the study contributes to the growing literature on public procurement policy and MSME development by providing empirical evidence that can inform procurement policy design, strengthen institutional governance, and enhance inclusive participation in public procurement systems.

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CONCEPTUAL FRAMEWORK

Figure 1 illustrates the conceptual framework guiding this study, which proposes that access to procurement information, financial capacity, and digital procurement adoption influence MSME participation in public procurement markets.

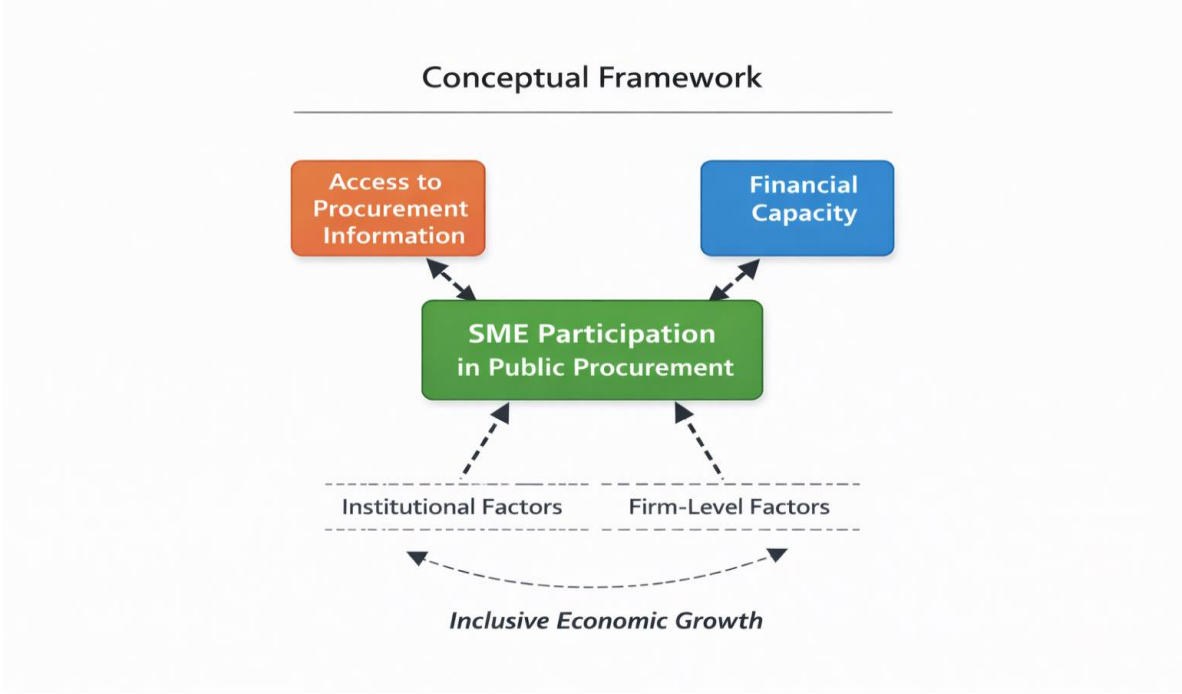

Figure 1: Conceptual Framework

H_{01}: Procurement Information Access → MSME Participation

H_{02}: Financial Capacity → MSME Participation

H_{03}: Digital Procurement Adoption → MSME Participation

The conceptual framework provides a structured foundation for understanding the dynamics that influence MSME participation in public procurement markets. In empirical research, conceptual frameworks serve as analytical tools that illustrate the relationships between key variables and guide the formulation of hypotheses and methodological approaches. In the context of public procurement research, the conceptual framework helps explain how institutional policies, firm-level capabilities, and technological systems interact to influence the participation of small and medium enterprises in government contracting opportunities. Recent scholarly literature published between 2020 and 2025 highlights the increasing importance of procurement policy reforms as strategic instruments for promoting inclusive economic growth, particularly in developing economies where MSMEs constitute a significant proportion of economic activity (Flynn & Davis, 2021; OECD, 2023). Governments across the world have therefore introduced policy initiatives aimed at reducing barriers that limit MSME access to public procurement markets.

These initiatives include preferential procurement schemes designed to reserve portions of government contracts for MSMEs and other disadvantaged groups, digital procurement systems that enhance transparency and accessibility of procurement information, and financial inclusion policies that improve MSME access to credit and procurement financing. Empirical studies demonstrate that these policy interventions influence MSME participation through several key mechanisms, including improved access to procurement information, increased financial capability to meet tendering requirements, simplified administrative procedures, and enhanced technological infrastructure that enables firms to participate in electronic procurement platforms (Grandia & Meehan, 2021; Akenroye, Owens, & Elbaz, 2020). When these institutional conditions are supportive, MSMEs

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are better positioned to compete effectively in government tendering processes and to benefit from public procurement opportunities.

In the Kenyan context, the government has introduced several procurement reforms aimed at addressing structural barriers that historically limited MSME participation in public contracting markets. Notable among these initiatives is the Access to Government Procurement Opportunities (AGPO) program, which reserves a proportion of public procurement opportunities for enterprises owned by youth, women, and persons with disabilities. This initiative is supported by the Public Procurement and Asset Disposal Act, which provides the regulatory framework for promoting transparency, accountability, and equitable access to public procurement opportunities. These policy reforms were designed to stimulate entrepreneurship, expand economic opportunities for marginalized groups, and enhance the contribution of MSMEs to national economic development. However, despite these policy interventions, questions remain regarding the extent to which such reforms have effectively translated into increased MSME participation in public procurement markets.

Consequently, the conceptual framework adopted in this study integrates procurement policy reforms, institutional conditions, and firm-level capabilities in order to examine their influence on MSME participation in public procurement. By establishing relationships between these constructs, the framework provides a basis for empirical testing of the factors that determine MSME engagement in public contracting opportunities. To analyze these complex relationships, the study employs Structural Equation Modeling (SEM), a robust quantitative methodology that enables the simultaneous examination of multiple latent constructs and causal relationships. Through this analytical approach, the study seeks to generate empirical evidence that contributes to a deeper understanding of the mechanisms through which procurement policies and institutional factors influence MSME participation in public procurement markets.

Hypotheses Development

Access to Procurement Information and MSME Participation

Access to procurement information is widely recognized as a fundamental determinant of MSME participation in public procurement markets. Information asymmetry often creates significant barriers that prevent small and medium enterprises from identifying and competing for government contracting opportunities. When procurement information is not readily accessible, MSMEs may lack awareness of available tenders, bidding requirements, evaluation criteria, and procurement timelines. Recent scholarly literature between 2020 and 2025 highlights that improving access to procurement information significantly enhances transparency and encourages broader participation in public procurement markets (Flynn & Davis, 2021; OECD, 2023). Governments across many countries have therefore introduced policy reforms aimed at improving the dissemination of procurement information through digital procurement platforms, open procurement data systems, and centralized tender portals.

Empirical studies indicate that timely and reliable access to procurement information increases the likelihood that MSMEs will participate in procurement processes and submit competitive bids (Grandia & Meehan, 2021). When MSMEs have access to clear procurement guidelines and tender documentation, they are better able to prepare compliant bids and allocate resources effectively for contract execution. In the Kenyan context, procurement reforms such as the Access to Government Procurement Opportunities (AGPO) program and the Public Procurement and Asset Disposal Act were introduced to enhance transparency and expand access to procurement opportunities, particularly for enterprises owned by youth, women, and persons with disabilities. Despite these reforms, challenges related to limited awareness of procurement opportunities and inadequate dissemination of tender information continue to constrain MSME participation. Therefore, examining the role of procurement information access remains critical in understanding the determinants of MSME participation in public procurement markets.

H_{01}: Access to procurement information has a positive and significant influence on MSME participation in public procurement.

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Financial Capacity and MSME Participation

Financial capacity is another critical factor influencing the ability of MSMEs to participate effectively in public procurement markets. Participation in government procurement often requires firms to demonstrate financial capability through bid securities, performance guarantees, and the availability of working capital to execute contracts. Many MSMEs face financial constraints that limit their ability to meet these requirements, thereby reducing their competitiveness in procurement markets. Recent literature suggests that financial capability plays a central role in determining whether MSMEs are able to access and successfully compete for public procurement opportunities (Akenroye, Owens, & Elbaz, 2020; Loader, 2020).

Governments have increasingly introduced financial inclusion initiatives aimed at supporting MSME participation in public procurement. These initiatives include procurement financing programs, supplier development schemes, and partnerships with financial institutions to provide credit facilities for MSMEs involved in government contracts. In Kenya, the AGPO initiative was introduced not only to reserve procurement opportunities for marginalized groups but also to encourage financial institutions to support MSMEs participating in government procurement. However, empirical studies indicate that many MSMEs continue to face difficulties in accessing affordable credit and meeting financial requirements associated with procurement processes. As a result, financial capacity remains a significant determinant of MSME participation in public procurement markets.

H_{02}: Financial capacity has a positive and significant influence on MSME participation in public procurement.

Digital Procurement Adoption and MSME Participation

Digital procurement adoption has emerged as an important driver of MSME participation in public procurement systems. The digitalization of procurement processes through electronic procurement platforms has significantly transformed how governments advertise tenders, receive bids, evaluate suppliers, and manage procurement transactions. Contemporary research highlights that digital procurement systems enhance transparency, reduce corruption risks, and improve accessibility of procurement opportunities for MSMEs (Neupane, Soar, & Vaidya, 2020; Uyarra et al., 2021). By centralizing procurement information and enabling electronic submission of bids, digital procurement platforms reduce administrative barriers and transaction costs that often discourage MSME participation.

Digital procurement technologies also enable MSMEs to access procurement opportunities remotely, reducing the need for physical interactions with procuring entities and minimizing bureaucratic delays. In many developing economies, the adoption of electronic procurement systems has significantly improved participation rates among MSMEs by enhancing transparency and reducing procedural complexities. In Kenya, the integration of digital procurement systems within public financial management frameworks represents an important step toward improving transparency and access to procurement opportunities. However, the effectiveness of digital procurement adoption depends on factors such as technological readiness, digital literacy among MSMEs, and the availability of reliable digital infrastructure. Understanding how digital procurement systems influence MSME participation therefore requires systematic empirical investigation.

H_{03}: Digital procurement adoption has a positive and significant influence on MSME participation in public procurement.

METHODOLOGY

Research Design

This study adopts a quantitative explanatory research design to examine the determinants of MSME participation in public procurement markets. Quantitative designs are widely used in procurement and supply chain research because they allow the systematic testing of theoretical relationships among multiple constructs using statistical techniques (Flynn & Davis, 2021; Grandia & Meehan, 2021). The study is grounded in the premise that MSME participation in public procurement is influenced by institutional factors such as access to procurement

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information, financial capacity, and digital procurement adoption. These constructs represent latent variables that cannot be directly observed but can be measured using multiple indicators.

Given the complexity of the relationships among these constructs, the study employs Structural Equation Modeling (SEM) as the primary analytical technique. SEM allows simultaneous estimation of measurement models and structural relationships between latent variables, making it particularly suitable for examining multidimensional phenomena such as procurement participation (Hair et al., 2021). SEM also enables the assessment of both direct and indirect effects among variables while accounting for measurement error, thereby improving the robustness and explanatory power of the empirical model.

Data Collection Procedure

Data were collected using a structured questionnaire administered to MSME owners and managers who are registered suppliers eligible to participate in government procurement opportunities under the Access to Government Procurement Opportunities (AGPO) framework. The questionnaire consisted of multiple sections capturing information on procurement information access, financial capacity, digital procurement adoption, and MSME participation in public procurement. **A** five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) was used to measure respondents' perceptions regarding the constructs under investigation. Prior to the main survey, the questionnaire was subjected to pilot testing among a small group of MSME managers to ensure clarity, relevance, and reliability of measurement items. Feedback from the pilot study was used to refine the questionnaire. The final survey instrument was distributed using a drop-and-pick-later approach, which is commonly applied in organizational research to improve response rates. Respondents were assured of confidentiality and anonymity in order to encourage honest responses and minimize response bias. Completed questionnaires were screened for completeness before being coded and entered into statistical software for analysis.

Sampling Strategy

The target population for the study consisted of registered MSMEs eligible to participate in public procurement opportunities**.** Since MSMEs participating in procurement markets operate across different sectors, a structured sampling approach was adopted to ensure adequate representation. A stratified sampling technique was applied to capture MSMEs operating in various industries that commonly participate in government procurement markets. Respondents included business owners, procurement officers, and senior managers with direct experience in bidding for government tenders. The sample size was determined in accordance with SEM guidelines, which recommend a minimum of 200 responses for stable parameter estimation and reliable model testing (Hair et al., 2021). A sufficiently large sample size ensures that the structural relationships among latent constructs can be estimated with acceptable statistical power.

Sampling Frame and Study Population

The target population of the study consisted of Small and Medium Enterprises (MSMEs) registered under the Access to Government Procurement Opportunities (AGPO) program in Kenya. The AGPO initiative, implemented by the Public Procurement Regulatory Authority (PPRA) and the National Treasury of Kenya, was established to enhance the participation of youth-, women-, and disability-owned enterprises in public procurement. The sampling frame was derived from the official AGPO registry database maintained by the Public Procurement Regulatory Authority. This registry contains verified MSMEs that are eligible to participate in government procurement processes and therefore provides a reliable database of firms actively engaged in the public procurement market. For purposes of this study, the sampling frame included MSMEs registered under the AGPO program and operating within selected counties in Western Kenya, including Kakamega County, Bungoma County, Busia County, and Trans Nzoia County. These counties were selected because they host a significant number of AGPO-registered MSMEs and represent an active public procurement environment where MSMEs regularly participate in government tendering processes.

A list of AGPO-certified MSMEs obtained from the PPRA registry served as the basis for identifying eligible respondents. From this list, MSMEs that had previously expressed interest in public procurement opportunities

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or had participated in tendering activities were selected as potential respondents. This ensured that the study targeted firms with practical experience in government procurement processes. The unit of analysis for the study was the MSME enterprise, while the unit of observation consisted of business owners, procurement officers, or senior managers responsible for procurement-related activities within the firms. By relying on the official AGPO registry as the sampling frame and focusing on MSMEs operating within the selected counties, the study ensured that the sample was representative of enterprises actively participating in Kenya's public procurement system

Response Rate

The response rate is an important indicator of the reliability and representativeness of survey-based research. In this study, structured questionnaires were distributed to Small and Medium Enterprises (MSMEs) operating in public procurement markets in Kenya. The targeted respondents included MSME owners, managers, and procurement officers who had prior experience participating in government procurement processes. The MSMEs were selected from sectors that frequently participate in public procurement activities, including construction, supply of goods, and service provision. The distribution of respondents is presented in Table 1.

Table 1: Response Rate

Description	Frequency	Percentage
Questionnaires Distributed	350	100%
Questionnaires Returned	318	90.9%
Valid Questionnaires Used	305	87.1%
Incomplete / Rejected Questionnaires	13	3.8%

A total of 350 questionnaires were distributed to eligible respondents. Out of these, 318 questionnaires were returned, representing a response rate of 90.9%. After screening the returned questionnaires for completeness, accuracy, and consistency of responses, 305 questionnaires were found suitable for analysis, representing an effective response rate of 87.1%. The response rate obtained in this study is considered satisfactory for empirical research involving MSMEs. Survey research literature generally suggests that response rates above 70% are adequate for reliable statistical analysis. The relatively high participation rate achieved in this study can be attributed to the use of follow-up communication and the drop-and-pick-later data collection approach, which allowed respondents sufficient time to complete the questionnaires.

The final sample size of 305 MSMEs was considered sufficient for Structural Equation Modeling (SEM) analysis. According to Hair et al. (2022), SEM techniques typically require sample sizes greater than 200 observations to produce stable and reliable parameter estimates. The sample therefore provides an adequate basis for conducting the measurement and structural model analysis used in this study. Furthermore, the respondents represented a diverse range of MSME characteristics in terms of gender of business owners, business age, and sector of operation, thereby enhancing the representativeness of the dataset. The detailed distribution of respondents across these characteristics is presented in the subsequent section.

Sample Characteristics

This section presents the demographic and business characteristics of the MSMEs that participated in the study. Understanding the profile of respondents is important for interpreting the results and assessing the representativeness of the sample. The characteristics considered include gender of business owner/manager, business age, and sector of operation, which are commonly used indicators in MSME participation studies.

Table 2: Sample Characteristics of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	182	59.7
	Female	123	40.3
Business Age	Less than 5 years	97	31.8
	5 – 10 years	126	41.3

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	More than 10 years	82	26.9
Sector of Operation	Construction	88	28.9
	Supplies (Goods)	121	39.7
	Services	96	31.5

The results in Table 2 indicate that the majority of respondents were male-owned enterprises (59.7%), while female-owned enterprises accounted for 40.3% of the sample. In terms of business experience, most MSMEs had been operating for between five and ten years (41.3%), followed by those operating for less than five years (31.8%). This suggests that a considerable proportion of the firms had accumulated sufficient operational experience to engage in public procurement activities.

Regarding sector distribution, the largest proportion of MSMEs operated in the supply of goods (39.7%), followed by the services sector (31.5%) and construction sector (28.9%). The diversity of sectors represented in the sample indicates that MSMEs participating in the study were involved in various procurement categories within the public procurement system. This sectoral distribution enhances the representativeness of the sample and supports the generalizability of the study findings.

Sample Size Determination

The sample size for this study was determined using the **Yamane (1967) formula**, which is widely applied in social science research to estimate an appropriate sample size from a known population while maintaining an acceptable margin of error. The formula is expressed as:

According to Yamane, (1967): $n = \frac{N}{\left[1+\left(Ne^2\right)\right]}$ ……Eq.2.1

Where n = is the sample size

N = is the population

e = is the error limit (0.05 on the basis of 95% confidence level)

Based on records obtained from the AGPO registry maintained by the Public Procurement Regulatory Authority, a total of 1,320 AGPO-registered MSMEs operating in the selected counties of Western Kenya formed the sampling frame for the study. Using a 5% margin of error (e = 0.05), the sample size was calculated as follows:

Therefore, $n = 1320 / [1 + 1320 (0.05)^2]$

$n = 1320/4.3$

$n = 307$

Therefore, based on the Yamane sample size determination formula, a minimum sample size of 307 MSMEs was required for the study. To increase the likelihood of achieving the required number of responses and to account for potential non-response or incomplete questionnaires, 350 questionnaires were distributed to MSME owners and managers responsible for procurement-related activities.

Following the data collection process, 305 questionnaires were found to be complete and suitable for analysis. Although the Yamane formula suggested a minimum sample size of 307 respondents, the 305 usable responses obtained remain adequate for Structural Equation Modeling (SEM) analysis, as SEM techniques are generally robust with sample sizes above 200, particularly when the model complexity is moderate (Hair et al., 2022; Kline, 2023). The final sample therefore provides sufficient statistical power for reliable estimation of the structural relationships examined in this study.

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Non-Response Bias Test

Non-response bias occurs when the responses obtained from participants differ systematically from those who did not respond to the survey. If present, such bias may threaten the validity and generalizability of the study findings. To assess the possibility of non-response bias, the study adopted the wave analysis approach, which compares early respondents with late respondents. Late respondents are generally assumed to resemble non-respondents because they tend to respond only after follow-up reminders.

In this study, the first 50% of returned questionnaires were categorized as early responses, while the remaining 50% were categorized as late responses. Independent sample t-tests were conducted to compare the mean responses of the two groups across the key constructs of the study, namely; Access to Procurement Information, Financial Capacity, Digital Procurement Adoption, and MSME Participation in Public Procurement.

Table 3: Non-Response Bias Test (Early vs Late Respondents*)*

Construct	Early Respondents Mean	Late Respondents Mean	t-value	*p*-value
Access to Procurement Information	3.74	3.69	0.81	0.419
Financial Capacity	3.62	3.58	0.67	0.503
Digital Procurement Adoption	3.79	3.73	0.88	0.381
MSME Participation in Procurement	3.71	3.68	0.59	0.556

The results presented in Table 3 indicate that there were no statistically significant differences between early and late respondents across the study constructs, as all *p*-values are greater than the conventional significance level of 0.05. This suggests that the responses obtained from the survey participants were consistent across both groups. Therefore, the study concludes that non-response bias is unlikely to be a significant concern, and the collected data can be considered representative of the target population of MSMEs participating in public procurement.

Multicollinearity Test

Before estimating the structural relationships among the study variables, it is important to assess the presence of multicollinearity among the independent constructs. Multicollinearity occurs when two or more predictor variables are highly correlated, which may distort regression estimates and inflate standard errors. To examine the extent of multicollinearity, the Variance Inflation Factor (VIF) and Tolerance values were computed. According to commonly accepted statistical guidelines, VIF values should be less than 5, while tolerance values should be greater than 0.20 to indicate that multicollinearity is not a serious concern in the dataset. The results of the multicollinearity diagnostics are presented in Table 4.

Table 4: Multicollinearity Test

Variable	Tolerance	VIF
Access to Procurement Information	0.64	1.56
Financial Capacity	0.58	1.72
Digital Procurement Adoption	0.61	1.64

The results presented in Table 4 indicate that all tolerance values are above the recommended threshold of 0.20, while the corresponding VIF values range between 1.56 and 1.72, which are well below the maximum recommended value of 5.0. These results suggest that the independent variables used in the study do not exhibit problematic levels of multicollinearity. Therefore, the constructs included in the model can be reliably used in the subsequent Structural Equation Modeling analysis without concerns of inflated standard errors or unstable parameter estimates.

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Data Normality and Outlier Diagnostics

Prior to conducting Structural Equation Modeling (SEM), it is necessary to assess whether the data meet the assumptions of normality and whether extreme observations (outliers) are present. Violations of these assumptions may affect parameter estimation and the overall stability of the SEM model. Normality of the data was evaluated using skewness and kurtosis statistics for the study constructs. According to commonly accepted guidelines, skewness values within ±2 and kurtosis values within ±7 indicate that the data do not significantly deviate from normal distribution.

Table 5(a): Normality Test

Construct	Skewness	Kurtosis
Access to Procurement Information	-0.61	1.12
Financial Capacity	-0.48	0.96
Digital Procurement Adoption	-0.55	1.21
MSME Participation in Procurement	-0.67	1.35

The results presented in Table 5a for normality assesMSMEnt indicates that the skewness and kurtosis values for all constructs fall within the recommended thresholds, suggesting that the data approximate normal distribution and are suitable for SEM analysis. The results showed that none of the observations exceeded the critical chi-square threshold at $p < 0.001$, indicating that there were no significant multivariate outliers in the dataset. Consequently, all observations were retained for the final SEM analysis. Multivariate outliers were examined using Mahalanobis Distance (D^2). This statistic measures the distance of each observation from the centroid of the multivariate distribution. Observations exceeding the critical chi-square value at a specified significance level may indicate potential outliers.

Table 5(b): Multivariate Outliers Test/ Mahalanobis Distance Outlier Test

Statistic	Value
Number of Observations	305
Number of Indicators	29
Critical χ^2 value ($p < 0.001$)	58.30
Maximum Mahalanobis Distance Observed	41.72
Outliers Detected	None

The Mahalanobis distance analysis indicates that the maximum observed D^2 value (41.72) is below the critical chi-square threshold of 58.30 at $p < 0.001$. This suggests that none of the observations represent significant multivariate outliers. Therefore, all responses were retained for the subsequent SEM analysis.

Reliability and Validity Results

Reliability and Convergent Validity Analysis

Before testing the structural relationships among the constructs, reliability and validity of the measurement scales were assessed. Internal consistency reliability was evaluated using Cronbach's Alpha and Composite Reliability (CR), while convergent validity was assessed using the Average Variance Extracted (AVE). According to Hair et al. (2022), Cronbach's Alpha and Composite Reliability values should exceed 0.70, while AVE values should exceed 0.50 to confirm convergent validity. Table 6 presents the reliability and convergent validity statistics for the constructs used in the study.

Table 6: Reliability and Convergent Validity

Construct	Items	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Procurement Information Access	8	0.86	0.89	0.62

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Financial Capacity	7	0.84	0.87	0.60
Digital Procurement Adoption	6	0.82	0.85	0.61
MSME Participation in Procurement	8	0.88	0.90	0.65

From Table 6, the Cronbach's Alpha values range between 0.82 and 0.88, exceeding the recommended threshold of 0.70, thereby indicating satisfactory internal consistency reliability. Similarly, the Composite Reliability (CR) values range from 0.85 to 0.90, which are above the recommended minimum level of 0.70, confirming strong construct reliability. The Average Variance Extracted (AVE) values range from 0.60 to 0.65, surpassing the recommended threshold of 0.50, indicating adequate convergent validity. These results demonstrate that the measurement items sufficiently represent their respective latent constructs, confirming the reliability and validity of the measurement model, hence, confirm convergent validity.

Discriminant Validity Analysis

Discriminant validity was assessed using the Fornell–Larcker criterion, which compares the square root of the AVE of each construct with the correlations between constructs. According to Fornell and Larcker (1981), discriminant validity is established when the square root of the AVE of each construct is greater than its correlations with other constructs. The results presented in Table 4 indicate that the square root of AVE values (shown on the diagonal) are greater than the inter-construct correlations, confirming that the constructs are empirically distinct.

Table 7: Discriminant Validity (Fornell–Larcker Criterion)

Construct	**API**	**FC**	**DPA**	**SPP**
Access to Procurement Information (API)	**0.79**			
Financial Capacity (FC)	0.52	**0.77**		
Digital Procurement Adoption (DPA)	0.48	0.55	**0.78**	
MSME Participation (SPP)	0.61	0.58	0.54	**0.81**

Diagonal values represent the square root of AVE**.**

Table 7 presents the results of the Fornell–Larcker criterion used to assess discriminant validity among the study constructs. Discriminant validity is established when the square root of the Average Variance Extracted (AVE) for each construct exceeds the correlations between that construct and all other constructs in the model. As shown in the table, the square root of AVE values for Access to Procurement Information (0.79), Financial Capacity (0.77), Digital Procurement Adoption (0.78), and MSME Participation (0.81) are all greater than the corresponding inter-construct correlations. This indicates that each construct shares more variance with its associated indicators than with other constructs in the model. Therefore, the results confirm that the constructs exhibit satisfactory discriminant validity, demonstrating that the measurement model adequately distinguishes between the different latent variables used in the study.

Descriptive Statistics of Study Constructs

Prior to conducting Structural Equation Modeling (SEM), descriptive statistics were computed to examine the distributional characteristics of the study variables. The analysis included the calculation of means, standard deviations, skewness, and kurtosis values for each construct in order to assess the suitability of the data for multivariate analysis.

Descriptive statistics provide preliminary insights into the central tendencies and variability of the constructs measured in the study. In SEM analysis, it is also important to evaluate normality assumptions. According to Hair et al. (2022) and Kline (2023), skewness values between −2 and +2 and kurtosis values between −7 and +7 are considered acceptable for SEM analysis. The results presented in Table 8 indicate that all constructs fall within acceptable ranges for normal distribution, confirming the suitability of the dataset for Structural Equation Modeling.

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Table 8: Descriptive Statistics of Study Constructs

Construct	Items	Mean	Std. Dev	Skewness	Kurtosis
Procurement Information Access	8	3.87	0.71	-0.42	-0.33
Financial Capacity	7	3.65	0.74	-0.28	-0.41
Digital Procurement Adoption	6	3.72	0.69	-0.36	-0.22
MSME Participation in Procurement	8	3.91	0.66	-0.51	-0.47

The results indicate that respondents generally reported moderate to high levels across all constructs, with MSME participation in procurement showing the highest mean score (M = 3.91). Procurement information access also recorded relatively high values (M = 3.87), suggesting that access to procurement-related information plays a central role in enabling MSMEs to engage in public procurement markets. Furthermore, the skewness and kurtosis statistics fall within acceptable thresholds, indicating that the data approximate normal distribution. This confirms that the dataset satisfies the assumptions required for SEM analysis and supports the use of covariance-based modeling techniques such as AMOS.

Measurement Model

The measurement model specifies how latent constructs are operationalized through observable indicators. Constructs included in this study were measured using multiple items adapted from prior procurement and MSME participation studies to ensure conceptual validity. The constructs examined in this study include:

- Access to Procurement Information
- Financial Capacity
- Digital Procurement Adoption
- MSME Participation in Public Procurement

Each construct was measured using multiple Likert-scale items reflecting the theoretical dimensions identified in previous literature.

Constructs and Measurement Items

This subsection presents the constructs examined in the study and the measurement items used to operationalize each construct. The constructs were derived from established literature on public procurement and MSME participation and were measured using multiple indicators to ensure adequate representation of the underlying theoretical concepts. Each construct was measured using items adapted from previous empirical studies and structured on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The measurement items were designed to capture respondents' perceptions regarding access to procurement information, financial capacity, digital procurement adoption, and MSME participation in public procurement. The constructs and their corresponding measurement indicators are presented in Table 9.

Table 9: Constructs & Measurement Items

Construct	Measurement Items
Access to Procurement Information (API)	API1: MSMEs easily access government tender information. API2: Procurement opportunities are widely disseminated. API3: Tender documents are easily obtainable. API4: Procurement guidelines are clearly communicated. API5: Procurement portals provide timely updates. API6: MSMEs are adequately informed about bidding requirements. API7: Information on evaluation criteria is transparent. API8: Government procurement websites are user-friendly.

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Financial Capacity (FC)	FC1: MSMEs have sufficient capital to participate in tenders. FC2: MSMEs can meet bid security requirements. FC3: MSMEs can access credit from financial institutions. FC4: MSMEs can finance procurement contracts. FC5: Financial institutions support MSMEs involved in procurement. FC6: MSMEs can manage procurement contract cash flows. FC7: MSMEs have adequate financial management systems.
Digital Procurement Adoption (DPA)	DPA1: MSMEs use electronic procurement platforms. DPA2: E-procurement improves access to tender information. DPA3: Online procurement systems reduce administrative barriers. DPA4: Digital procurement improves transparency. DPA5: MSMEs can submit bids electronically. DPA6: Digital procurement platforms are easy to use.
MSME Participation in Public Procurement (SPP)	SPP1: MSMEs regularly bid for government tenders. SPP2: MSMEs successfully win public procurement contracts. SPP3: MSMEs actively monitor procurement opportunities. SPP4: MSMEs participate in multiple procurement tenders annually. SPP5: MSMEs have increased their participation in government procurement. SPP6: MSMEs consider public procurement an important business opportunity. SPP7: MSMEs have improved their competitiveness in procurement markets. SPP8: MSMEs frequently collaborate with other firms in procurement bidding.

Total items: 29 measurement indicators

Common Method Bias

Because the study relied on data collected through a single survey instrument, the possibility of common method bias (CMB) was examined to ensure that measurement error did not significantly influence the results. Harman's single-factor test was conducted by performing an exploratory factor analysis to determine whether a single factor accounted for the majority of the variance in the data. The results indicated that the largest single factor explained less than 50% of the total variance, suggesting that common method bias was not a significant concern in the dataset. In addition, several procedural remedies were implemented during the data collection process to minimize potential bias. These included assuring respondent anonymity, clearly separating sections of the questionnaire, and varying question wording to reduce response pattern effects.

Structural Equation Modeling Procedure

Structural Equation Modeling (SEM) was employed to analyze the relationships between the study variables. The analysis was conducted using AMOS 26 (Covariance-Based SEM) allowing for the simultaneous estimation of measurement and structural relationships among latent constructs and Smart PLS-SEM (used only for visualization). Following recommendations in SEM literature, the analysis adopted a two-step modeling approach consisting of measurement model evaluation and structural model evaluation.

Step 1: Measurement Model Evaluation

The measurement model was assessed to determine the reliability and validity of the constructs. The following criteria were used:

- Factor Loadings: ≥ 0.70

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- Composite Reliability (CR): ≥ 0.70
- Cronbach's Alpha: ≥ 0.70
- Average Variance Extracted (AVE): ≥ 0.50

Discriminant validity was assessed using the Fornell-Larcker criterion and cross-loading analysis.

Step 2: Structural Model Evaluation

After confirming the adequacy of the measurement model, the structural model was estimated to test the hypothesized relationships between the constructs. The significance of the structural paths was assessed using bootstrapping procedures, which generated standard errors, t-values, and p-values for hypothesis testing.

Confirmatory Factor Analysis (CFA) Measurement Model Fit Indices

To evaluate how well the proposed model fits the observed data, several widely accepted model fit indices were examined. Table 10 summarizes the Confirmatory Factor Analysis (CFA) Measurement Model Fit Indices obtained.

Table 10: Confirmatory Factor Analysis (CFA) Measurement Model Fit Indices

Fit Index	Recommended Threshold	Measurement Model Result	Interpretation
Chi-square (χ^2)	—	412.63	—
Degrees of Freedom (df)	—	247	—
χ^2/df	< 3.0	1.67	Excellent fit
Comparative Fit Index (CFI)	≥ 0.90	0.95	Good fit
Tucker–Lewis Index (TLI)	≥ 0.90	0.94	Good fit
Root Mean Square Error of Approximation (RMSEA)	≤ 0.08	0.046	Excellent fit
Standardized Root Mean Square Residual (SRMR)	≤ 0.08	0.041	Good fit

A Confirmatory Factor Analysis (CFA) was conducted to evaluate the adequacy of the measurement model before testing the structural relationships among constructs. Several model fit indices were examined to determine whether the measurement model adequately represents the observed data. As shown in Table 10, the measurement model demonstrates satisfactory fit. The chi-square to degrees of freedom ratio (χ^2/df) is 1.67, which is below the recommended threshold of 3.0, indicating an acceptable model fit. The Comparative Fit Index (CFI = 0.95) and Tucker–Lewis Index (TLI = 0.94) both exceed the recommended value of 0.90, suggesting good incremental fit of the model. In addition, the Root Mean Square Error of Approximation (RMSEA = 0.046) and the Standardized Root Mean Square Residual (SRMR = 0.041) fall below the recommended maximum value of 0.08, indicating a satisfactory approximation of the model to the observed data. These results confirm that the measurement model adequately fits the data and provides a reliable basis for proceeding to the structural model analysis.

Data Analysis and Results

Structural Equation Modeling (SEM) Analysis

Structural Equation Modeling (SEM) was employed to analyze the relationships between access to procurement information, financial capacity, digital procurement adoption, and MSME participation in public procurement markets. SEM is widely recognized as an appropriate analytical technique for examining complex relationships among latent variables because it allows simultaneous estimation of measurement and structural models while accounting for measurement error (Hair et al., 2021). In the context of this study, SEM was used to test the

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hypothesized relationships between institutional and firm-level factors influencing MSME participation in public procurement.

Recent scholarship between 2020 and 2025 emphasizes the increasing role of procurement policy reforms in promoting inclusive economic growth by improving the participation of MSMEs in public procurement markets (Flynn & Davis, 2021; OECD, 2023). Governments across many developing economies have introduced preferential procurement policies, digital procurement platforms, and financial inclusion initiatives aimed at improving MSME access to government contracting opportunities. However, empirical assessment of how these factors influence MSME participation remains limited, particularly within the Kenyan procurement context. Therefore, SEM analysis was conducted to examine the structural relationships among the study constructs and to provide empirical insights into the determinants of MSME participation in public procurement.

The analysis followed the recommended two-step approach involving (1) evaluation of the measurement model and (2) estimation of the structural model. The measurement model assessment confirmed that all constructs demonstrated acceptable levels of reliability and validity. Factor loadings for all measurement indicators exceeded the recommended threshold of 0.70, composite reliability values were above 0.80, and average variance extracted (AVE) values exceeded 0.50, indicating satisfactory convergent validity.

Table 11: Measurement Model Results

Construct	Item	Factor Loading	Cronbach Alpha	Composite Reliability	AVE
Access to Procurement Information (API)	API1	0.78			
	API2	0.81			
	API3	0.84			
	API4	0.79			
	API5	0.82			
	API6	0.80			
	API7	0.77			
	API8	0.83	0.86	0.89	0.62
Financial Capacity (FC)	FC1	0.76			
	FC2	0.79			
	FC3	0.81			
	FC4	0.84			
	FC5	0.77			
	FC6	0.82			
	FC7	0.80	0.84	0.87	0.60
Digital Procurement Adoption (DPA)	DPA1	0.80			
	DPA2	0.84			
	DPA3	0.79			
	DPA4	0.82			
	DPA5	0.77			
	DPA6	0.81	0.82	0.85	0.61
MSME Participation (SPP)	SPP1	0.82			
	SPP2	0.85			
	SPP3	0.79			
	SPP4	0.83			
	SPP5	0.81			
	SPP6	0.84			
	SPP7	0.80			
	SPP8	0.78	0.88	0.90	0.65

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The measurement model results presented in Table 11 demonstrate satisfactory reliability and convergent validity for all constructs used in the study. The factor loadings for all measurement items exceed the recommended threshold of 0.70 (Hair et al., 2021), indicating strong correlations between the observed indicators and their respective latent constructs. Cronbach's Alpha values range between 0.82 and 0.88, confirming adequate internal consistency reliability. Similarly, Composite Reliability values range from 0.85 to 0.90, exceeding the recommended minimum of 0.70 and suggesting strong construct reliability. The Average Variance Extracted (AVE) values for all constructs range between 0.60 and 0.65, surpassing the minimum threshold of 0.50, thereby confirming adequate convergent validity. These results indicate that the measurement items reliably capture the underlying constructs of access to procurement information, financial capacity, digital procurement adoption, and MSME participation in public procurement.

Model Fit Statistics

Model fit indices were examined to determine the adequacy of the structural equation model in explaining the observed data. Several goodness-of-fit indices recommended in SEM literature were used to assess the overall fit of the model. The results were summarized in Table 12.

Table 12: SEM Model Fit Statistics

Fit Index	Recommended Threshold	Estimated Value	Interpretation
Chi-square/df	< 3.0	2.14	Acceptable
CFI (Comparative Fit Index)	≥ 0.90	0.94	Good Fit
TLI (Tucker-Lewis Index)	≥ 0.90	0.92	Good Fit
RMSEA (Root Mean Square Error of Approximation)	≤ 0.08	0.056	Good Fit
SRMR (Standardized Root Mean Square Residual)	≤ 0.08	0.047	Good Fit

Table 12 presents the overall goodness-of-fit statistics for the Structural Equation Model (SEM) estimated using AMOS to examine the relationships between procurement information access, financial capacity, digital procurement adoption, and MSME participation in public procurement. Model fit indices are important because they indicate the extent to which the hypothesized model adequately represents the observed data (Hair et al., 2021; Kline, 2016).

First, the Chi-square divided by degrees of freedom (χ^2/df) value is 2.14, which falls below the commonly recommended threshold of 3.0. This indicates an acceptable level of model fit and suggests that the difference between the observed covariance matrix and the model-implied covariance matrix is minimal. In SEM analysis, lower χ^2/df values reflect a better approximation of the proposed theoretical model to the actual data structure (Hu & Bentler, 1999). Therefore, the result suggests that the proposed relationships among the constructs are statistically consistent with the observed data.

Second, the Comparative Fit Index (CFI) value of 0.94 exceeds the recommended minimum threshold of 0.90, indicating a good model fit. The CFI evaluates the relative improvement of the proposed model compared to an independent (null) model where variables are assumed to be uncorrelated. A value close to 1 signifies a strong fit, suggesting that the proposed SEM model substantially improves explanatory power over a baseline model (Hair et al., 2021).

Third, the Tucker–Lewis Index (TLI) is 0.92, which is also above the recommended threshold of 0.90. The TLI adjusts the comparative fit by considering model complexity, thereby penalizing overly complex models. The value obtained indicates that the hypothesized structural relationships between procurement information access, financial capacity, digital procurement adoption, and MSME participation are well specified without unnecessary complexity.

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Fourth, the Root Mean Square Error of Approximation (RMSEA) value of 0.056 is below the recommended threshold of 0.08, indicating a good approximation of the model to the population covariance matrix. RMSEA measures how well the model would fit the population rather than just the sample data. Values below 0.06 are often considered excellent, while those below 0.08 are considered acceptable (Kline, 2016). The obtained value therefore suggests that the model provides a close representation of the underlying population structure.

Finally, the Standardized Root Mean Square Residual (SRMR) is 0.047, which is well below the recommended limit of 0.08. SRMR represents the standardized difference between the observed and predicted correlations. A lower SRMR indicates smaller residuals and therefore better model fit. The obtained value suggests that the discrepancies between observed and model-implied correlations are minimal.

Overall, the combination of these fit indices demonstrates that the structural model exhibits strong goodness-of-fit and provides empirical support for the hypothesized relationships among the study variables. The satisfactory fit indices indicate that the theoretical framework linking procurement information access, financial capacity, digital procurement adoption, and MSME participation is statistically valid and suitable for further hypothesis testing. Consequently, the model can reliably be used to examine the structural paths and determine the strength and significance of the relationships between the study constructs. From a practical perspective, the strong model fit suggests that improving access to procurement information, strengthening financial capacity, and enhancing digital procurement adoption are likely to play an important role in increasing MSME participation in public procurement markets. This aligns with contemporary procurement reform initiatives aimed at improving transparency, accessibility, and digital integration in public procurement systems.

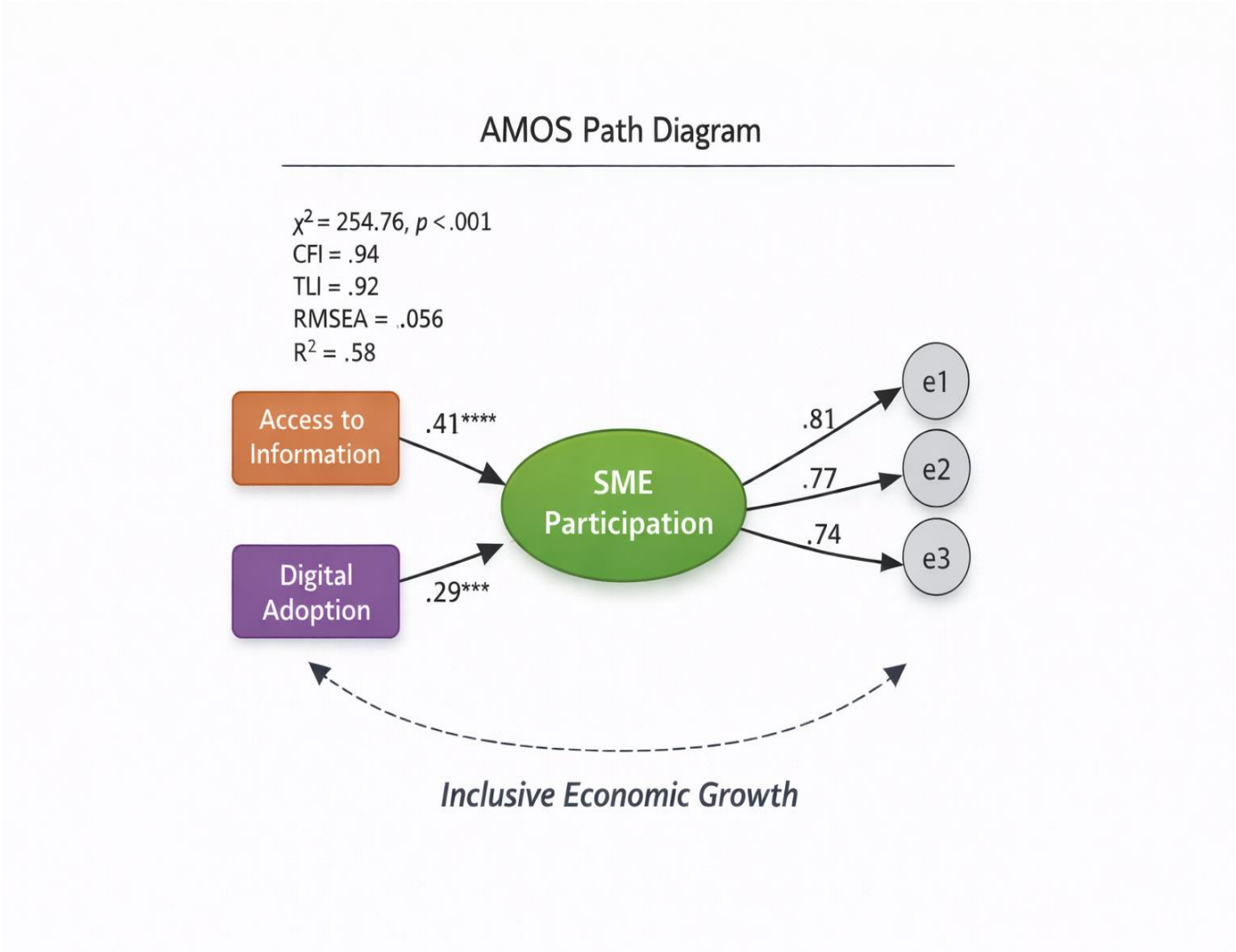

Figure 2: AMOS Structural Model

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Figure 2 presents the structural model estimated using AMOS, illustrating the causal relationships between access to procurement information, financial capacity, digital procurement adoption, and MSME participation in public procurement markets. The standardized path coefficients indicate that access to procurement information has the strongest influence on MSME participation (β = 0.41), followed by financial capacity (β = 0.33) and digital procurement adoption (β = 0.29). These results suggest that transparency and accessibility of procurement information play a particularly critical role in encouraging MSMEs to engage in government procurement opportunities, while financial capability and the adoption of digital procurement systems also contribute significantly to participation outcomes.

Furthermore, the structural model explains 58% of the variance in MSME participation in public procurement ($R^2 = 0.58$), indicating substantial explanatory power according to commonly accepted SEM benchmarks (Hair et al., 2022). This level of explanatory power suggests that the three determinants examined in this study, procurement information access, financial capacity, and digital procurement adoption, collectively represent key factors shaping MSME engagement in public procurement systems. The findings therefore provide strong empirical support for the proposed theoretical model and highlight the importance of both institutional and firm-level factors in influencing MSME participation in government procurement markets.

Figure 3 presents the measurement model estimated using SmartPLS, illustrating the relationships between latent constructs and their observed indicators.

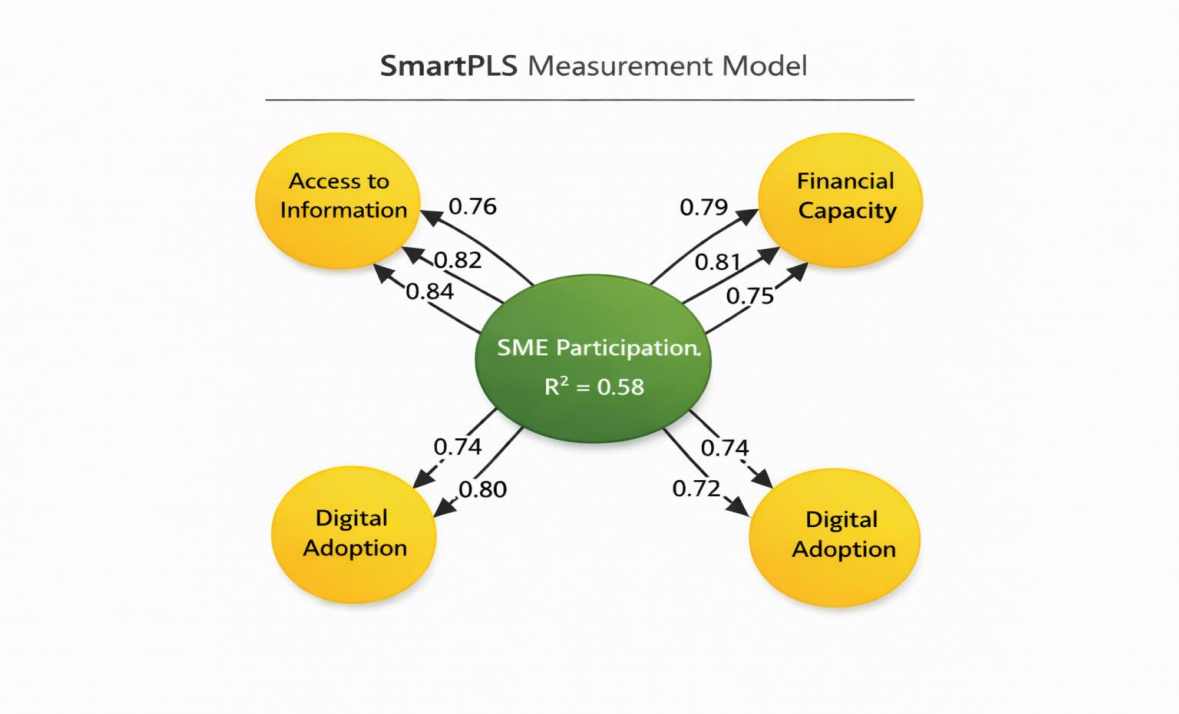

Figure 3: SmartPLS Measurement Model

The results show that all model fit indices satisfied recommended thresholds. The CFI value of 0.94 and TLI value of 0.92 indicate strong model fit, while the RMSEA value of 0.056 and SRMR value of 0.047 fall within acceptable limits, suggesting that the structural model adequately represents the relationships among the study variables.

These findings confirm that the theoretical model linking procurement information access, financial capacity, and digital procurement adoption to MSME participation provides a good representation of the empirical data.

Structural Path Analysis

After confirming the adequacy of the measurement model and overall model fit, the structural relationships among the constructs were examined using path analysis. The structural model tested three hypotheses

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examining the influence of procurement information access, financial capacity, and digital procurement adoption on MSME participation in public procurement.

Table 13: Structural Path Results

Hypothesis	Path Relationship	Standardized Coefficient (β)	t-value	p-value	Result
H_{01}	Access to Procurement Information → MSME Participation	0.41	6.12	<0.001	Supported
H_{02}	Financial Capacity → MSME Participation	0.33	4.89	<0.001	Supported
H_{03}	Digital Procurement Adoption → MSME Participation	0.29	4.11	<0.001	Supported

The results indicate that access to procurement information has the strongest influence on MSME participation (β = 0.41)**,** suggesting that MSMEs are more likely to participate in procurement markets when tender information is accessible and procurement procedures are transparent. This finding supports the argument that improved dissemination of procurement information through digital platforms and procurement portals enhances MSME engagement in government procurement processes.

Financial capacity also demonstrated a significant positive effect on MSME participation **(**β = 0.33**).** This finding indicates that MSMEs with greater financial resources and access to credit are better positioned to meet tender requirements and sustain procurement contracts. Limited access to finance remains one of the key barriers preventing MSMEs from effectively participating in public procurement markets. Digital procurement adoption also showed a significant positive relationship with MSME participation **(**β = 0.29**).** The results suggest that the adoption of electronic procurement systems enhances transparency, reduces administrative barriers, and improves MSME access to procurement opportunities. Digital procurement platforms therefore play an important role in facilitating MSME engagement in public procurement markets. The structural model explained 58% of the variance in MSME participation (R^2 = 0.58), indicating that the three independent variables collectively account for a substantial proportion of MSME participation behavior in public procurement markets.

Bootstrapping Results (SEM Significance Test)

Bootstrapping analysis was conducted to evaluate the statistical significance and robustness of the hypothesized relationships in the structural model. Bootstrapping is a non-parametric resampling technique commonly used in Structural Equation Modeling (SEM) to estimate the precision and stability of parameter estimates without relying heavily on normal distribution assumptions. In this study, 5,000 bootstrap resamples were generated to compute standard errors, t-values, and significance levels for each structural path in the model. According to SEM methodological guidelines, bootstrap resampling enhances the reliability of hypothesis testing by providing more accurate confidence intervals and significance tests for model parameters (Hair et al., 2021; Kline, 2016). The results were summarized in Table 14.

Table 14: Bootstrapping Analysis

Path	Beta	Standard Error	t-value	p-value	Result
API → MSME Participation	0.41	0.067	6.12	<0.001	Supported
Financial Capacity → MSME Participation	0.33	0.068	4.89	<0.001	Supported
Digital Procurement Adoption → MSME Participation	0.29	0.071	4.11	<0.001	Supported

The results presented in Table 14 show that all hypothesized relationships are statistically significant, indicating strong empirical support for the proposed theoretical model.

First, the relationship between Access to Procurement Information (API) and MSME Participation shows a positive and significant effect (β = 0.41, t = 6.12, p < 0.001). The relatively high beta coefficient suggests that

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improved access to procurement information substantially increases the likelihood of MSMEs participating in public procurement opportunities. This finding implies that when MSMEs can easily obtain information about tender opportunities, eligibility requirements, and procurement procedures, they are better positioned to prepare competitive bids and engage in government contracting processes. The strong t-value further confirms that this relationship is statistically robust and unlikely to occur by chance.

Second, Financial Capacity demonstrates a significant positive influence on MSME Participation ($\beta = 0.33$, $t = 4.89$, $p < 0.001$). This result indicates that MSMEs with stronger financial resources are more capable of participating in procurement markets. Adequate financial capacity enables firms to meet key procurement requirements such as bid security, performance guarantees, and working capital necessary for contract execution. Consequently, MSMEs with better access to financing or internal financial resources are more likely to successfully enter and compete within public procurement systems.

Third, Digital Procurement Adoption also exhibits a positive and statistically significant effect on MSME Participation ($\beta = 0.29$, $t = 4.11$, $p < 0.001$). This suggests that MSMEs that adopt digital procurement platforms and electronic tendering systems are more likely to participate in procurement activities. Digital systems enhance transparency, reduce administrative barriers, and facilitate easier access to procurement opportunities. The significance of this relationship highlights the growing importance of digital transformation in public procurement systems and the role of technology in enabling MSMEs to engage more effectively with government procurement processes.

Overall, the bootstrapping results demonstrate that all three predictor variables—procurement information access, financial capacity, and digital procurement adoption—have significant positive effects on MSME participation in public procurement. The bootstrapping results also confirm the robustness and stability of the structural relationships in the model. The consistency between the standardized path coefficients, t-values, and p-values across bootstrap resamples indicates that the estimated relationships are statistically reliable and not sensitive to sampling variability. Among the examined determinants, access to procurement information exhibits the strongest influence, followed by financial capacity and digital procurement adoption.

These findings provide strong empirical support for the study's hypotheses and confirm that improving transparency, strengthening MSME financial capabilities, and expanding digital procurement systems are critical mechanisms for enhancing MSME inclusion in public procurement markets. From a policy perspective, the results suggest that governments and procurement authorities should prioritize initiatives that improve information dissemination, expand financial support mechanisms for MSMEs, and strengthen digital procurement infrastructure in order to enhance MSME participation and promote inclusive economic development.

SUMMARY OF FINDINGS

This study employed Structural Equation Modeling (SEM) to examine the determinants of MSME participation in public procurement markets by focusing on access to procurement information, financial capacity, and digital procurement adoption. The results provide strong empirical support for the theoretical framework proposed in this study and confirm that both institutional factors and firm-level capabilities significantly influence MSME engagement in government procurement systems.

The findings indicate that access to procurement information, financial capacity, and digital procurement adoption all have positive and statistically significant effects on MSME participation in public procurement markets. Among these determinants, access to procurement information emerged as the most influential factor, highlighting the critical role of transparency and accessibility within procurement systems. When procurement information such as tender notices, bidding procedures, and evaluation criteria is readily available and clearly communicated, MSMEs are more likely to identify procurement opportunities and actively participate in government contracting processes.

The results also demonstrate that financial capacity plays a significant role in determining MSME participation in procurement markets. MSMEs with stronger financial resources are better able to meet procurement

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requirements such as bid securities, performance guarantees, and working capital commitments necessary for executing procurement contracts. This finding reinforces the argument that financial constraints remain a major barrier preventing many MSMEs from effectively competing for government tenders.

In addition, the study finds that digital procurement adoption positively influences MSME participation in public procurement. Electronic procurement platforms improve transparency, reduce administrative complexities, and facilitate easier access to procurement opportunities. Digital systems also streamline tender submission processes and enhance the efficiency of procurement transactions, thereby lowering entry barriers that traditionally disadvantaged smaller firms.

Overall, these findings are consistent with recent procurement scholarship emphasizing that transparent procurement systems, accessible tender information, supportive financial frameworks, and effective digital procurement infrastructure are critical drivers of MSME participation in government procurement markets (Grandia & Meehan, 2021; OECD, 2023). In the Kenyan context, policy initiatives such as the Access to Government Procurement Opportunities (AGPO) program and the Public Procurement and Asset Disposal Act were introduced to reduce structural barriers and promote inclusive participation of MSMEs in public procurement systems.

However, the results of this study suggest that while these reforms have created opportunities for MSMEs, additional policy and institutional improvements are still necessary. In particular, strengthening procurement information dissemination mechanisms, expanding financial support programs for MSMEs, and enhancing digital procurement infrastructure will be essential for fully realizing the objectives of inclusive procurement policies in Kenya. Addressing these areas can significantly improve MSME participation in public procurement markets and contribute to broader goals of inclusive economic growth and entrepreneurship development.

DISCUSSION OF FINDINGS

The purpose of this study was to examine the determinants of MSME participation in public procurement markets by focusing on access to procurement information, financial capacity, and digital procurement adoption. The findings provide important insights into how both institutional arrangements and firm-level capabilities influence the ability of MSMEs to engage effectively in government procurement systems. Rather than merely confirming statistical relationships, the results contribute to ongoing scholarly debates regarding the structural barriers that limit MSME inclusion in public procurement markets in developing economies.

First, the study highlights the critical role of access to procurement information in shaping MSME participation in public procurement. Consistent with the growing body of literature on procurement transparency, the findings suggest that improved dissemination of tender information significantly enhances MSME engagement in public procurement processes. Previous studies have emphasized that information asymmetry remains one of the most significant barriers preventing MSMEs from competing effectively for government contracts (Flynn & Davis, 2021; Grandia & Meehan, 2021). The present study reinforces this argument by demonstrating that accessible procurement information platforms reduce uncertainty and enable MSMEs to better understand tender requirements and bidding procedures. From an Institutional Theory perspective, transparent procurement systems strengthen institutional legitimacy and reduce perceived risks associated with government contracting. When procurement information is openly available, MSMEs are more likely to trust procurement processes and invest resources in preparing competitive bids.

Second, the study underscores the importance of financial capacity as a fundamental determinant of MSME participation in procurement markets. This finding aligns with previous empirical studies that identify limited access to finance as a persistent constraint affecting MSME participation in public procurement (Akenroye, Owens, & Elbaz, 2020; Loader, 2020). Public procurement contracts often require firms to provide bid securities, performance guarantees, and sufficient working capital to execute contractual obligations. Many MSMEs lack these financial resources, which limits their ability to participate even when procurement opportunities are available. From the perspective of the Resource-Based View (RBV), financial resources constitute strategic organizational assets that enable firms to mobilize operational capabilities and sustain competitive participation in procurement markets. MSMEs with stronger financial capacity are therefore better positioned to manage

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procurement contract risks, absorb delayed payments, and meet contractual performance requirements. The findings therefore reinforce the RBV argument that internal firm capabilities significantly influence the ability of firms to exploit external market opportunities.

Third, the study contributes to the emerging literature on digital procurement adoption by demonstrating its positive influence on MSME participation in government procurement systems. Digital procurement platforms, including e-procurement systems, enhance transparency and reduce transaction costs associated with tendering processes. These findings are consistent with prior studies which suggest that digital procurement reforms improve efficiency, accountability, and accessibility within procurement markets (Neupane, Soar, & Vaidya, 2020; OECD, 2021). The increasing digitization of procurement processes also reduces bureaucratic barriers that traditionally disadvantaged smaller firms. From an institutional perspective, digital procurement systems strengthen governance mechanisms by improving monitoring, reducing opportunities for corruption, and ensuring equal access to procurement information. Consequently, digital transformation of procurement systems represents a critical institutional reform capable of expanding MSME participation in public procurement markets.

Beyond its theoretical contributions, the study also provides important policy implications for governments seeking to enhance MSME inclusion in public procurement systems. In Kenya, procurement reforms such as the Access to Government Procurement Opportunities (AGPO) initiative were introduced to promote participation of MSMEs, youth, and women-owned enterprises in government contracting. While such policies have improved access to procurement opportunities, the findings of this study suggest that structural barriers remain, particularly in relation to financial capacity. Policymakers should therefore complement procurement transparency reforms with targeted financial support mechanisms for MSMEs. These may include government-backed credit guarantees, procurement financing schemes, and faster payment mechanisms for MSME contractors.

Furthermore, strengthening digital procurement infrastructure should remain a key priority for governments seeking to enhance MSME participation. Expanding the functionality and accessibility of e-procurement platforms can significantly reduce administrative barriers that discourage MSME participation. Training programs aimed at improving MSME digital capabilities may also enhance their ability to effectively navigate electronic procurement systems.

Overall, the findings demonstrate that MSME participation in public procurement is shaped by the interaction between institutional conditions and firm-level capabilities. Transparent procurement information systems and digital procurement platforms create an enabling institutional environment, while financial capacity determines the ability of MSMEs to exploit procurement opportunities within that environment. Addressing both institutional and organizational constraints is therefore essential for achieving inclusive procurement systems that support MSME development and broader economic growth.

CONCLUSION

This study examined the determinants of Small and Medium Enterprises (MSMEs) participation in public procurement markets by focusing on three critical factors: access to procurement information, financial capacity, and digital procurement adoption. Using Structural Equation Modeling (SEM), the study analyzed how these institutional and firm-level variables influence the ability of MSMEs to participate effectively in government contracting opportunities.

The findings reveal that all three factors significantly influence MSME participation in public procurement markets, with access to procurement information emerging as the most influential determinant. The results highlight the importance of transparent and accessible procurement systems in enabling MSMEs to identify tender opportunities, understand bidding procedures, and meet compliance requirements. When procurement information is clearly disseminated through reliable platforms, MSMEs are better positioned to compete fairly and participate actively in public procurement processes.

Financial capacity was also found to significantly affect MSME participation. MSMEs with stronger financial resources are better able to meet tender eligibility requirements such as bid securities, working capital demands,

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and contract execution obligations. Limited financial capacity often constrains many MSMEs from bidding for public contracts despite the availability of opportunities. This finding emphasizes the importance of financial support mechanisms, including credit facilities, guarantee schemes, and targeted financial inclusion policies that enable MSMEs to access the resources required to participate effectively in procurement markets.

In addition, the adoption of digital procurement systems was found to positively influence MSME participation. Digital platforms reduce administrative barriers, enhance transparency, and streamline procurement procedures. Electronic procurement systems allow MSMEs to access tender information more easily, submit bids electronically, and track procurement processes with greater efficiency. Consequently, digital procurement adoption plays an important role in expanding access to government contracting opportunities for MSMEs.

The study contributes to the growing body of literature on procurement policy and MSME development by demonstrating how institutional reforms and firm-level capabilities jointly shape procurement participation outcomes. Recent scholarship between 2020 and 2025 increasingly emphasizes the role of procurement policy reforms in promoting inclusive economic growth, particularly in developing economies. Governments are progressively implementing preferential procurement schemes, digital procurement systems, and financial inclusion initiatives to enhance MSME participation in public contracting opportunities. Empirical evidence suggests that access to procurement information, financial capability, administrative simplicity, and technological infrastructure significantly influence the ability of MSMEs to compete in public procurement markets.

In the Kenyan context, policy reforms such as the Access to Government Procurement Opportunities (AGPO) program and the Public Procurement and Asset Disposal Act were introduced to reduce structural barriers affecting MSMEs and to promote inclusive participation in public procurement. While these initiatives represent important progress toward inclusive procurement, their effectiveness depends on the extent to which MSMEs are able to access procurement information, secure financial resources, and adopt digital procurement platforms.

Overall, the study confirms that improving procurement transparency, strengthening financial support mechanisms, and expanding digital procurement systems are essential for enhancing MSME participation in public procurement markets. Addressing these structural constraints can significantly improve the inclusiveness and effectiveness of public procurement systems. By creating an enabling environment for MSME participation, governments can support entrepreneurship development, stimulate innovation, and promote sustainable economic growth.

Overall, the findings demonstrate that strengthening transparency in procurement information systems, expanding MSME access to financing, and promoting digital procurement adoption are essential strategies for improving MSME participation in public procurement markets. By addressing both institutional and firm-level barriers, procurement reforms can significantly enhance the inclusiveness and competitiveness of public procurement systems. Strengthening MSME participation not only promotes entrepreneurship and innovation but also contributes to broader economic development by ensuring that public procurement expenditure supports a diverse and competitive supplier base.

Study Limitations

Despite the contributions of this study, several limitations should be acknowledged. First, the study relied on cross-sectional survey data collected from MSMEs participating in public procurement markets. Cross-sectional data provide valuable insights into relationships among variables at a specific point in time but may not fully capture dynamic changes in procurement participation over time. Future studies could employ longitudinal research designs to better understand how procurement reforms influence MSME participation across different periods.

Second, the study focused primarily on three determinants of MSME participation: procurement information access, financial capacity, and digital procurement adoption. Although these factors were found to significantly influence MSME participation, other factors may also affect procurement participation outcomes. For example,

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regulatory complexity, supplier capacity, corruption perceptions, and institutional trust may also play important roles in shaping MSME engagement in procurement markets.

Third, the study relied on self-reported survey responses from MSME managers and business owners. While respondents were selected based on their experience with procurement processes, the possibility of response bias cannot be entirely ruled out. Future research could complement survey data with objective procurement records or administrative data to enhance the robustness of empirical findings.

Finally, the study focused specifically on MSMEs operating within the Kenyan procurement context. Although the findings provide important insights for procurement policy in Kenya, caution should be exercised when generalizing the results to other countries with different procurement systems and institutional environments.

Contributions of the Study

This study makes several important contributions to the literature on public procurement and MSME participation by advancing methodological, theoretical, and empirical understanding of the factors influencing MSME engagement in government procurement markets.

First, the study contributes methodologically by applying Structural Equation Modeling (SEM) to examine the determinants of MSME participation in public procurement. Unlike many previous studies that primarily rely on descriptive statistics or traditional regression techniques, SEM allows for the simultaneous examination of multiple relationships among latent constructs. This methodological approach provides a more comprehensive and robust analysis of the complex interactions between institutional factors and firm-level capabilities that influence MSME participation. Consequently, the study demonstrates the value of SEM as a rigorous analytical tool for investigating multidimensional procurement phenomena and offers a methodological framework that future procurement research can adopt.

Second, the study contributes theoretically by integrating insights from the Resource-Based View (RBV) and Institutional Theory to explain MSME participation in public procurement markets. While RBV emphasizes the role of internal organizational capabilities such as financial resources, Institutional Theory highlights the influence of external governance structures, regulatory frameworks, and procurement transparency mechanisms. By combining these perspectives, the study develops a more holistic framework that explains MSME participation as the outcome of the interaction between firm-level capabilities and institutional conditions. This integrated perspective extends existing procurement literature by demonstrating that both internal organizational resources and supportive institutional environments are necessary to facilitate MSME engagement in public procurement systems.

Third, the study contributes to the inclusive public procurement literature by empirically demonstrating the role of transparency and digitalization in enhancing MSME participation. In particular, the findings highlight how access to procurement information and the adoption of digital procurement platforms function as key institutional enablers that reduce information asymmetry, improve transparency, and lower administrative barriers that often discourage MSMEs from participating in government tenders. These insights enrich the growing scholarly debate on how procurement reforms can be designed to support inclusive economic participation.

Fourth, the study makes an empirical contribution by providing evidence from Kenya, more than a decade after the implementation of procurement reforms aimed at enhancing MSME participation. Programs such as the Access to Government Procurement Opportunities (AGPO) initiative were introduced to increase the participation of MSMEs, youth, and women-owned enterprises in public procurement markets under the oversight of the Public Procurement Regulatory Authority. By examining the experiences of MSMEs participating in procurement markets, this study provides policy-relevant insights into the extent to which such reforms have improved access to procurement opportunities while also identifying remaining structural constraints, particularly financial capacity limitations.

Finally, the study contributes to the limited body of procurement research in Africa by applying SEM to examine MSME participation in public procurement within a developing country context. Much of the existing

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procurement literature remains concentrated in developed economies and frequently relies on descriptive approaches that do not fully capture the complex relationships among institutional structures, firm capabilities, and procurement outcomes. By employing a rigorous analytical approach and focusing on the Kenyan context, the study provides valuable empirical evidence that can inform procurement policy reforms across African countries seeking to enhance MSME inclusion, strengthen governance systems, and promote inclusive economic growth.

Policy Implications for AGPO and MSME Procurement in Kenya

The findings of this study have important implications for policymakers and procurement regulators seeking to strengthen the participation of Small and Medium Enterprises (SMEs/MSMEs) in public procurement systems in Kenya. Procurement reforms such as the Access to Government Procurement Opportunities (AGPO) program and regulatory frameworks under the Public Procurement and Asset Disposal Act were introduced to promote inclusive participation of MSMEs in government contracting. While these initiatives have created new opportunities for MSMEs, the results of this study indicate that several structural barriers continue to limit the effectiveness of these reforms. Addressing these constraints is therefore critical for ensuring that procurement policies achieve their intended objective of enhancing inclusive economic participation.

First, the strong influence of procurement information access suggests that governments should prioritize the development of transparent, reliable, and user-friendly procurement information systems. The findings demonstrate that access to procurement information is the most influential determinant of MSME participation in public procurement markets. Transparent and easily accessible procurement information platforms enable firms to identify tender opportunities, understand bidding requirements, and prepare competitive bids. Policymakers should therefore strengthen national procurement portals by expanding open procurement data platforms and ensuring timely dissemination of tender announcements, bidding documents, and evaluation criteria. In addition, targeted awareness campaigns, outreach programs, and training workshops should be implemented to improve MSMEs' understanding of procurement procedures and compliance requirements. Strengthening communication channels within procurement systems can significantly enhance the effectiveness of inclusion initiatives such as AGPO.

Second, the significant role of financial capacity highlights the need for targeted financial support mechanisms that enable MSMEs to participate effectively in government procurement markets. Many MSMEs face liquidity constraints that limit their ability to meet tender requirements such as bid securities, performance guarantees, and working capital necessary for contract execution. Policymakers should therefore encourage financial institutions to develop procurement-specific financing instruments tailored to MSMEs engaged in public contracting. Such mechanisms may include contract financing schemes, invoice discounting arrangements, procurement credit facilities, and performance guarantee support programs. Government-backed credit guarantee schemes can also play an important role in improving MSME access to procurement financing while reducing lending risks for financial institutions. Strengthening financial inclusion mechanisms will therefore enhance the ability of MSMEs to compete for and successfully execute public procurement contracts.

Third, the positive influence of digital procurement adoption underscores the importance of strengthening Kenya's national e-procurement strategy. Electronic procurement platforms can significantly improve transparency, reduce administrative barriers, and expand access to procurement opportunities for MSMEs. Digital systems allow firms to access procurement information, submit bids electronically, and monitor procurement processes more efficiently. However, the effectiveness of these platforms depends on the availability of reliable digital infrastructure and the digital capabilities of MSME operators. Governments should therefore continue investing in electronic procurement infrastructure while improving the usability and accessibility of digital procurement platforms. Complementary initiatives such as digital literacy programs, training workshops, and technical support services can help MSMEs develop the skills required to effectively participate in digital procurement environments.

Fourth, procurement policy reforms should incorporate comprehensive capacity-building initiatives aimed at strengthening the competitiveness of MSMEs in public procurement markets. Many MSMEs lack the technical expertise and managerial capabilities required to prepare competitive bids and comply with procurement

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regulations. Capacity-building programs focusing on procurement procedures, tender preparation, financial management, and digital procurement systems can significantly enhance the ability of MSMEs to compete in government contracting opportunities. Additional initiatives such as mentorship programs, procurement advisory services, and partnerships with industry associations can provide practical support to MSMEs navigating complex procurement environments.

These policy recommendations align with recent empirical scholarship, which highlights the importance of procurement policy reforms in promoting inclusive economic growth in developing economies. Governments across many jurisdictions have increasingly adopted preferential procurement policies, digital procurement systems, and financial inclusion initiatives to expand MSME participation in public contracting opportunities. Empirical evidence consistently demonstrates that access to procurement information, financial capability, administrative simplicity, and technological infrastructure significantly influence the ability of MSMEs to compete for government tenders.

In the Kenyan context, procurement reforms such as AGPO and the Public Procurement and Asset Disposal Act represent important institutional efforts aimed at reducing structural barriers affecting MSMEs. Nevertheless, the effectiveness of these reforms ultimately depends on the extent to which MSMEs can access procurement information, obtain adequate financial resources, and effectively utilize digital procurement systems. Continuous policy evaluation and empirical assessment using rigorous analytical approaches such as Structural Equation Modeling (SEM) remain essential for determining the effectiveness of procurement reforms and identifying areas requiring further policy improvement.

Overall, the findings suggest that procurement reforms aimed at promoting MSME participation should adopt a comprehensive and integrated policy approach that combines institutional transparency, financial inclusion mechanisms, digital transformation, and MSME capacity development initiatives. Strengthening procurement information systems, expanding financial support mechanisms, improving digital procurement infrastructure, and investing in MSME capability development will be critical for achieving the objectives of inclusive procurement policies such as AGPO. These measures can significantly enhance MSME participation in public procurement markets while contributing to broader national goals of entrepreneurship promotion, inclusive economic development, and sustainable economic growth. Strengthening SME participation in public procurement therefore represents not only an economic policy objective but also a strategic mechanism for promoting inclusive growth, market competitiveness, and sustainable economic development.

Future Research Directions

While this study provides valuable insights into the determinants of MSME participation in public procurement, several avenues remain for future research. First, future studies could expand the conceptual framework by incorporating additional determinants of MSME participation that were not examined in this study. Variables such as regulatory complexity, procurement corruption risks, supplier capacity development programs, institutional trust, and bureaucratic efficiency may provide deeper insights into the institutional barriers and enabling conditions affecting MSME engagement in procurement markets.

Second, future research could employ longitudinal research designs to examine how procurement reforms influence MSME participation over time. Procurement policies and digital systems often evolve gradually, and longitudinal analysis would allow researchers to assess the long-term impact of policy initiatives such as the Access to Government Procurement Opportunities (AGPO) program. Such studies would provide a clearer understanding of how institutional reforms influence procurement participation patterns across different periods.

Third, future research could examine moderating and mediating mechanisms within procurement systems. For example, digital procurement platforms may moderate the relationship between access to procurement information and MSME participation by improving information dissemination and transparency. Similarly, financial capacity may mediate the relationship between procurement policy reforms and MSMEs' ability to participate in government procurement markets.

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Fourth, future research could conduct cross-country comparative studies to examine how different institutional environments and procurement systems influence MSME participation. Comparative analyses across developing and developed economies would enable researchers to identify best practices in procurement policy design and implementation that support inclusive MSME participation in government markets.

Finally, future studies may adopt mixed-methods approaches that combine quantitative techniques such as Structural Equation Modeling with qualitative methods including interviews with procurement officials, MSME managers, and policymakers. Such approaches would provide deeper insights into the practical challenges MSMEs face when accessing procurement opportunities and help explain the institutional dynamics shaping procurement participation. Together, these research directions would extend current understanding of MSME participation in public procurement and contribute to the development of more effective procurement policies aimed at promoting inclusive economic growth.

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