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**Influence of Artificial Intelligence-Driven
Procurement Systems on Procurement
Performance in Public Institutions in United
States**



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Abstract

Purpose: The aim of the study was to analyze the influence of artificial intelligence-driven procurement systems on procurement performance in public institutions

Methodology: This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low-cost advantage as compared to field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

Findings: The findings indicate that Artificial Intelligence-driven procurement systems significantly enhance procurement performance in public institutions by improving efficiency, transparency, supplier selection, decision-making, and cost management through automation and data-driven processes. However, their successful implementation depends on organizational readiness, adequate digital infrastructure, skilled personnel, high-quality data, and supportive regulatory frameworks. The literature also reveals limited empirical evidence on the influence of AI-driven procurement systems in public institutions within developing countries, highlighting the need for further context-specific research.

Unique Contribution to Theory, Practice and Policy: The technology–organization–environment (TOE) framework, resource-based view (RBV) & dynamic capabilities theory may be used to anchor future studies on analyze the influence of artificial intelligence-driven procurement systems on procurement performance in public institutions. Procurement professionals should receive continuous training in artificial intelligence, data analytics, and digital procurement to strengthen their ability to utilize AI technologies effectively. Governments should formulate comprehensive national policies and regulatory frameworks that guide the adoption, governance, and ethical application of Artificial Intelligence within public procurement.

Keywords: *Artificial Intelligence-Driven Procurement Systems, Procurement Performance, Public Institutions*

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INTRODUCTION

Procurement performance refers to the extent to which an organization's procurement function achieves its intended objectives efficiently, effectively, and economically while delivering value for money. It is commonly evaluated using indicators such as procurement cost savings, procurement cycle time, supplier quality, contract compliance, timely delivery, customer satisfaction, and strategic value creation. Modern procurement performance also encompasses sustainability, transparency, risk management, and digitalization, reflecting procurement's evolution from a transactional function to a strategic contributor to organizational performance (Patrucco, 2020). According to the OECD (2023), public procurement accounts for approximately 13% of Gross Domestic Product (GDP) across OECD member countries, making procurement performance a critical determinant of public sector efficiency and economic growth. Similarly, Pettersen et al. (2020) argue that procurement performance should be assessed not only by cost efficiency but also by service quality, contract effectiveness, and the ability to achieve intended organizational outcomes.

In developed economies, procurement performance has increasingly benefited from digital transformation and centralized procurement systems. In the United States, public procurement spending exceeds US\$2 trillion annually, representing one of the world's largest procurement markets, with many states adopting digital procurement platforms that have significantly reduced procurement lead times and improved contract management (Baldus & Hatton, 2020). Meanwhile, the United Kingdom spends approximately £379 billion annually on public procurement equivalent to nearly one-third of total public expenditure and has continued strengthening procurement performance through digital procurement reforms and supplier transparency initiatives. Japan has similarly expanded e-procurement adoption across central government agencies, leading to improved procurement efficiency, enhanced supplier competition, and reduced administrative costs. These developments demonstrate a consistent trend toward improved procurement performance through technology adoption, centralized purchasing, and evidence-based procurement decision-making (Patrucco, 2020).

Procurement performance remains a major concern across many developing economies because procurement systems continue to face challenges associated with weak institutional capacity, inadequate procurement planning, corruption, limited digital infrastructure, and poor contract management. Nevertheless, governments have increasingly adopted procurement reforms aimed at enhancing efficiency, transparency, and value for money. In Ghana, procurement reforms supported by procurement audits and stronger management commitment have significantly improved procurement quality performance within public institutions (Aboagye, 2022). Likewise, India has accelerated the implementation of its government e-Marketplace (GeM), facilitating millions of procurement transactions annually while reducing procurement processing time and increasing supplier participation. These reforms illustrate the growing importance of governance and technology in improving procurement performance across developing economies.

Recent trends indicate measurable improvements in procurement performance across developing countries. India's Government e-Marketplace has processed procurement worth over US\$100 billion cumulatively, demonstrating rapid digital procurement growth and increased procurement transparency. Ghana continues strengthening procurement performance through procurement auditing, with empirical evidence showing that procurement audits significantly improve

procurement quality when supported by committed top management (Aboagye, 2022). Despite these improvements, procurement systems in many developing countries continue experiencing delays, supplier disputes, and implementation challenges due to limited procurement capacity and governance weaknesses. Consequently, procurement modernization, digital transformation, and continuous staff capacity development remain central priorities for improving procurement performance.

Procurement performance within Sub-Saharan Africa has improved considerably following procurement reforms, although substantial institutional and operational challenges persist. Many countries have enacted modern procurement legislation, established independent procurement oversight authorities, and introduced electronic procurement systems to improve transparency and accountability. For example, Kenya has implemented the Integrated Financial Management Information System (IFMIS) and electronic procurement modules to strengthen procurement oversight, while Rwanda continues expanding electronic government procurement to improve procurement efficiency. However, procurement performance across the region continues to be constrained by procurement planning deficiencies, limited professional competencies, delayed payments, and contract management challenges (Mathu & Kihara, 2020).

Across Sub-Saharan Africa, procurement expenditure typically represents 10–20% of national GDP, making procurement performance a major determinant of public service delivery and economic development. Empirical studies from Kenya, Uganda, and Ghana consistently report that supplier development, procurement planning, staff competency, and contract management significantly enhance procurement performance, while corruption and inadequate monitoring reduce procurement effectiveness (Aboagye, 2022). In Kenya, procurement reforms continue to promote greater transparency and accountability, although procurement inefficiencies still affect project completion and service delivery in many public institutions (Mathu & Kihara, 2020). These findings suggest that strengthening procurement governance, professionalizing procurement personnel, and expanding digital procurement systems remain essential strategies for improving procurement performance throughout Sub-Saharan Africa.

Artificial Intelligence-Driven Procurement Systems (AIDPS) refer to the application of artificial intelligence technologies such as machine learning, predictive analytics, natural language processing, and intelligent automation to optimize procurement processes and improve organizational decision-making. These systems enable procurement professionals to automate repetitive tasks, analyze large volumes of procurement data, forecast demand, evaluate supplier performance, detect procurement risks, and support strategic sourcing decisions (Bag, 2021; Min, 2023). Unlike conventional electronic procurement systems that primarily digitize procurement activities, AI-driven procurement systems continuously learn from historical and real-time data to generate predictive insights that improve procurement outcomes. Based on recent procurement and supply chain management literature, four major dimensions of Artificial Intelligence-Driven Procurement Systems can be identified: predictive analytics, intelligent supplier evaluation, automated procurement process automation, and AI-enabled demand forecasting (Bag, 2021; Baryannis, 2019). Collectively, these dimensions transform procurement into a strategic, data-driven function capable of improving operational efficiency, supplier collaboration, and organizational competitiveness.

Each of these AI-driven procurement dimensions contributes directly to procurement performance through different mechanisms. Predictive analytics enhances procurement planning by forecasting purchasing requirements and identifying procurement risks before they occur, thereby reducing procurement costs and improving procurement cycle efficiency (Min, 2023). Intelligent supplier evaluation applies machine learning algorithms to assess supplier reliability, quality, sustainability, and financial stability, leading to improved supplier selection and higher procurement quality (Bag, 2021). Automated procurement process automation utilizes robotic process automation and AI technologies to automate purchase requisitions, approvals, invoice matching, and contract administration, reducing procurement cycle time, administrative costs, and human errors (Baryannis, 2019). Finally, AI-enabled demand forecasting improves inventory planning and purchasing decisions by accurately predicting future demand, minimizing stock shortages and excess inventory while enhancing overall procurement performance through increased responsiveness and value for money (Min, 2023).

Problem Statement

Public institutions are under increasing pressure to improve procurement performance by enhancing efficiency, transparency, accountability, and value for money while operating under constrained financial resources and growing public expectations. Although many governments have adopted electronic procurement systems, the integration of Artificial Intelligence (AI)-driven procurement systems remains limited despite their potential to automate procurement processes, improve supplier evaluation, enhance demand forecasting, and support data-driven procurement decisions (Sanchez-Graells, 2024; Boykina, 2024). Recent studies indicate that digital procurement technologies improve procurement performance; however, the benefits are highly dependent on institutional quality, organizational readiness, and effective implementation, suggesting that technology alone may not guarantee improved procurement outcomes (Adu-Gyamfi, 2024). Furthermore, the growing adoption of AI in public procurement has introduced new opportunities alongside governance, ethical, and implementation challenges that public institutions continue to struggle with (Sanchez-Graells, 2024).

Despite the increasing interest in artificial intelligence within procurement and supply chain management, empirical evidence on the influence of AI-driven procurement systems on procurement performance in public institutions remains limited. Most previous studies have focused on electronic procurement adoption, supply chain digitalization, or private-sector organizations, leaving inadequate evidence on how AI-enabled procurement capabilities influence procurement performance within public institutions, particularly in developing countries (Boykina, 2024). In addition, public organizations continue to experience procurement inefficiencies characterized by lengthy procurement cycles, supplier management challenges, procurement irregularities, and poor value for money despite ongoing digital transformation initiatives (Adu-Gyamfi, 2024). Consequently, there remains a significant empirical and contextual gap regarding the extent to which AI-driven procurement systems improve procurement performance in public institutions. Therefore, this study seeks to examine the influence of Artificial Intelligence-Driven Procurement Systems on Procurement Performance in Public Institutions to provide evidence that can inform procurement policy, digital transformation strategies, and public sector procurement reforms.

Theoretical Review

Technology Organization–Environment (TOE) Framework

The technology–organization–environment (TOE) framework was developed by Tornatzky and Fleischer (1990) to explain how technological, organizational, and environmental factors influence the adoption of innovations within organizations. The theory posits that successful implementation of technologies such as Artificial Intelligence (AI) depends on technological readiness, organizational resources, leadership support, and external environmental pressures. In the context of this study, the TOE framework explains why public institutions adopt AI-driven procurement systems and how these contextual factors influence procurement performance. It is appropriate because AI adoption in procurement requires technological infrastructure, skilled personnel, supportive leadership, and regulatory compliance, all of which determine procurement efficiency and effectiveness (Guida, 2023).

Resource-Based View (RBV)

The resource-based view (RBV) was proposed by Barney (1991) and argues that organizations achieve superior performance through valuable, rare, inimitable, and non-substitutable resources and capabilities. AI-driven procurement systems represent strategic organizational resources that enhance procurement decision-making, supplier management, and process automation. Within public institutions, AI capabilities can create sustainable improvements in procurement performance by reducing costs, increasing transparency, and improving service delivery. Therefore, RBV provides a strong theoretical basis for explaining how AI-enabled procurement capabilities generate competitive and operational advantages (Kero & Bogale, 2023).

Dynamic Capabilities Theory

Dynamic capabilities theory, developed by Teece, Pisano, and Shuen (1997), explains how organizations continuously integrate, build, and reconfigure internal and external capabilities to respond to rapidly changing environments. The theory is highly relevant because AI technologies require procurement functions to continuously adapt processes, skills, and technologies to maximize performance. Public institutions adopting AI-driven procurement systems must develop capabilities to sense opportunities, seize digital innovations, and transform procurement operations. Consequently, dynamic capabilities theory explains how AI adoption enables procurement functions to improve efficiency, responsiveness, and overall procurement performance in a changing technological environment (Herold, 2023).

Empirical Review

Andersson, Arbin, and Rosenqvist (2025) assessed the perceived value of artificial intelligence in governmental public procurement. The study specifically sought to establish the benefits, practical applications, implementation interests, and challenges associated with using AI-driven systems in public procurement agencies. A qualitative exploratory research design was adopted because the application of artificial intelligence in governmental procurement was still at an emerging stage. The researchers collected primary data through 18 semi-structured interviews with procurement professionals drawn from ten Swedish government agencies. A workshop involving procurement practitioners was subsequently conducted to validate and refine the findings obtained from the interviews. The collected qualitative data were organized and analysed thematically to identify

recurring patterns regarding AI applications, expected benefits, implementation barriers, and institutional readiness. The study established that AI-driven procurement systems could support spend analysis, supplier identification, tender-document preparation, bid evaluation, contract monitoring, and the detection of procurement irregularities. Respondents believed that these capabilities could improve procurement performance by reducing employees' administrative workload and accelerating the completion of routine procurement activities. AI-supported analysis was also perceived to improve decision quality by enabling procurement officers to process large volumes of supplier, contract, expenditure, and market data more consistently. The findings further indicated that AI could enhance transparency, supplier evaluation, fraud detection, compliance monitoring, and the overall effectiveness of procurement processes. However, actual adoption remained limited because only two of the participating government agencies reported using AI-based procurement applications at the time of the research. Major barriers included poor data quality, fragmented information systems, inadequate employee competence, regulatory uncertainty, limited management support, and concerns about accountability for algorithm-assisted decisions. The authors concluded that possessing AI technology does not automatically improve procurement performance unless public institutions have appropriate data, human capabilities, governance structures, and organizational readiness. They recommended that public institutions begin with clearly defined and relatively low-risk AI applications before progressing towards complex applications involving supplier selection or contract-award decisions. The study is relevant to research on the influence of AI-driven procurement systems on procurement performance because it demonstrates that AI can improve procurement efficiency, decision quality, transparency, risk control, and contract management, while showing that its performance benefits depend on responsible implementation and continuing human oversight.

Guida, Caniato, Moretto, and Ronchi (2023) investigated the role of Artificial Intelligence (AI) in the procurement process and its implications for procurement performance. The primary objective of the study was to examine how AI technologies are currently being applied across procurement activities and to identify opportunities and challenges associated with AI adoption. The researchers adopted a mixed-methods research design combining a systematic literature review, an analysis of AI-based procurement platforms available in the market, and a focus group involving experienced procurement managers. The systematic literature review synthesized empirical evidence from leading procurement and supply chain journals, while the market analysis examined commercially available AI procurement solutions. The focus group was used to validate the findings obtained from the literature and industry analyses. Qualitative content analysis and thematic analysis were employed to categorize AI applications according to different stages of the procurement process. The findings revealed that AI applications are increasingly being utilized in supplier identification, spend analysis, supplier risk assessment, demand forecasting, sourcing decisions, contract management, and procurement process automation. The study further established that AI-driven procurement systems significantly improve procurement performance by reducing procurement cycle times, increasing procurement accuracy, enhancing supplier evaluation, lowering procurement costs, and supporting better procurement decision-making. The researchers also observed that AI enables procurement professionals to shift from routine administrative tasks to strategic supplier relationship management and value creation activities. However, the study identified several barriers to successful AI implementation, including poor organizational data quality, inadequate technological infrastructure, employee resistance to change, lack of AI

competencies, and uncertainty regarding governance and ethical use of AI. The authors concluded that although AI possesses enormous potential to transform procurement performance, its successful implementation requires organizational readiness, skilled personnel, integrated information systems, and strong management commitment. They recommended that organizations develop comprehensive digital procurement strategies supported by investments in data governance, employee training, and AI infrastructure. The researchers further suggested that procurement managers should adopt AI incrementally, beginning with low-risk procurement functions before extending AI applications to strategic procurement decisions. They also recommended that future empirical studies should quantitatively examine the relationship between AI-driven procurement capabilities and procurement performance across both public and private sector organizations. This study is highly relevant to the present research because it provides empirical evidence that Artificial Intelligence-Driven Procurement Systems enhance procurement performance through improved operational efficiency, supplier management, strategic decision-making, and procurement process optimization, while also identifying organizational factors that determine successful AI implementation.

Spreitzenbarth, Bode, and Stuckenschmidt (2024) examined the adoption of Artificial Intelligence (AI) and machine learning in purchasing and supply management. The purpose of the study was to compare existing academic knowledge with practical AI implementation in procurement organizations. The researchers employed a mixed-methods approach involving a systematic review of 46 scholarly studies and semi-structured interviews with 20 procurement experts from different industries. The systematic review identified current AI applications and existing research gaps in procurement. The expert interviews explored real-world experiences regarding AI implementation and procurement performance. Qualitative thematic analysis was used to compare theoretical findings with practical experiences. The study established that AI significantly improves procurement performance by increasing sourcing efficiency, enhancing supplier evaluation, supporting spend analytics, and improving procurement decision-making. The findings further showed that AI reduces repetitive procurement tasks through intelligent automation while allowing procurement professionals to focus on strategic activities. Procurement managers also reported improved supplier risk identification and enhanced procurement planning through AI-enabled predictive analytics. However, the researchers found that AI adoption remained relatively immature because many organizations lacked adequate digital infrastructure and skilled procurement professionals. Organizational resistance to technological change and poor data quality also limited successful AI implementation. The authors concluded that AI adoption has the potential to transform procurement performance provided organizations invest in appropriate digital capabilities. They recommended stronger collaboration between researchers, software developers, and procurement practitioners to accelerate AI adoption. They further recommended continuous employee training and investment in organizational data governance to maximize AI benefits. The study is relevant to the current research because it demonstrates that Artificial Intelligence-Driven Procurement Systems positively influence procurement performance through improved operational efficiency, supplier management, procurement intelligence, and strategic decision-making.

Hallikas, Immonen, and Brax (2021) investigated the influence of digital procurement capabilities and data analytics on supply chain and procurement performance. The primary objective was to

establish whether digital technologies improve procurement outcomes through enhanced information processing capabilities. The researchers adopted a quantitative survey research design. Data were collected from procurement and supply chain managers representing organizations operating across different industries. Structured questionnaires were administered to respondents with experience in digital procurement systems. Structural Equation Modeling (SEM) was employed to test the proposed research hypotheses. The findings established that digital procurement capabilities positively influence procurement performance through improved data analytics capability. Organizations with stronger analytical capabilities demonstrated superior procurement planning, supplier evaluation, and procurement decision-making. The study further found that procurement performance improved through better information visibility, faster decision-making, and stronger collaboration with suppliers. Procurement managers reported reductions in procurement delays and improvements in operational efficiency following digital procurement implementation. The researchers observed that digital technologies strengthen procurement resilience by enabling real-time monitoring of procurement activities. They concluded that procurement performance increasingly depends on organizational capability to generate and utilize procurement intelligence. The study recommended investment in procurement analytics, integrated procurement databases, and employee digital competencies. The authors further recommended strengthening cross-functional collaboration to maximize procurement performance. This study is relevant because Artificial Intelligence-Driven Procurement Systems rely on the same digital capabilities to improve procurement efficiency, supplier management, transparency, and procurement performance.

Harju, Hallikas, Immonen, and Lintukangas (2023) examined the influence of procurement digitalization on supply chain resilience and organizational performance. The purpose of the study was to determine whether digital procurement capabilities enhance organizational preparedness for supply chain disruptions. The researchers employed a quantitative research design. Survey data were collected from procurement professionals working in Finnish organizations. The respondents represented organizations that had implemented varying levels of digital procurement technologies. Structural Equation Modeling was used to analyse relationships among procurement digitalization, resilience, and organizational performance. The study found that procurement digitalization significantly improves organizational resilience by increasing procurement visibility and facilitating faster responses to supply chain disruptions. The findings also demonstrated that organizations utilizing advanced digital procurement technologies achieved better procurement coordination and supplier collaboration. Procurement managers reported improvements in procurement responsiveness, inventory planning, and purchasing efficiency. The researchers established that digital procurement technologies strengthen procurement performance through improved access to real-time procurement information. The study concluded that digital transformation is becoming an essential driver of procurement excellence. The authors recommended continuous investment in procurement technologies, analytics capabilities, supplier integration, and employee digital skills. They further recommended strengthening procurement information systems to support evidence-based procurement decision-making. Future studies were encouraged to investigate emerging technologies such as Artificial Intelligence and machine learning within public procurement. This study provides strong empirical support for the present research because AI-driven procurement systems represent advanced digital procurement

technologies capable of improving procurement performance through enhanced visibility, efficiency, responsiveness, and supplier collaboration.

METHODOLOGY

This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low-cost advantage as compared to field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

FINDINGS

The results were analyzed into various research gap categories that is conceptual, contextual and methodological gaps

Conceptual Gap: The reviewed studies consistently demonstrate that Artificial Intelligence (AI) and digital procurement technologies improve procurement performance through enhanced supplier evaluation, spend analysis, predictive analytics, procurement automation, and decision-making (Guida, 2023; Spreitzenbarth, 2024). However, most of the studies conceptualize AI broadly by combining artificial intelligence with machine learning, digital procurement, procurement analytics, or procurement digitalization rather than examining Artificial Intelligence-Driven Procurement Systems as a distinct multidimensional construct. In addition, procurement performance is measured using different indicators such as procurement efficiency, resilience, sourcing effectiveness, operational performance, and supply chain performance, resulting in inconsistent conceptualization of the dependent variable. Consequently, there is limited empirical evidence on the specific influence of the dimensions of Artificial Intelligence-Driven Procurement Systems such as predictive analytics, intelligent supplier evaluation, automated procurement processes, and AI-enabled demand forecasting—on procurement performance in public institutions. The present study seeks to bridge this conceptual gap by operationalizing Artificial Intelligence-Driven Procurement Systems as a multidimensional independent variable and examining its influence on procurement performance using standardized procurement performance indicators.

Contextual Gap: Most of the reviewed studies focused on AI adoption, procurement digitalization, purchasing and supply management, or supply chain resilience across both private and public organizations rather than specifically investigating procurement performance within public institutions. For instance, Guida (2023) concentrated on AI applications across procurement processes, Hallikas (2021) examined digital procurement capabilities and data analytics, while Harju (2023) investigated procurement digitalization and organizational resilience. Similarly, Spreitzenbarth (2024) focused on purchasing and supply management across different industries, whereas Andersson (2025) primarily explored perceptions regarding AI implementation rather than empirically measuring its influence on procurement performance. As a result, insufficient empirical evidence exists regarding how Artificial Intelligence-Driven Procurement Systems influence procurement performance within public institutions characterized by strict regulatory frameworks, public accountability requirements, and statutory procurement procedures. This study addresses this contextual gap by specifically examining the influence of Artificial Intelligence-Driven Procurement Systems on procurement performance in public institutions.

Geographical Gap: The reviewed empirical studies were conducted predominantly in developed economies, including Sweden (Andersson, 2025), Finland (Harju, 2023), and other European countries (Guida, 2023; Spreitzenbarth, 2024). These countries possess relatively advanced digital infrastructure, mature procurement systems, strong institutional governance, and higher levels of AI readiness compared to many developing economies. Consequently, the findings may not be directly applicable to developing countries, particularly those in Sub-Saharan Africa, where public procurement continues to experience challenges related to limited technological infrastructure, inadequate digital skills, weak institutional capacity, fragmented information systems, and regulatory constraints. Furthermore, there is a scarcity of empirical studies examining the relationship between Artificial Intelligence-Driven Procurement Systems and procurement performance within African public institutions. Therefore, the present study seeks to fill this geographical gap by generating empirical evidence from public institutions in a developing Sub-Saharan African context, thereby contributing context-specific knowledge to the growing body of procurement and artificial intelligence literature.

CONCLUSION AND RECOMMENDATIONS

Conclusions

The reviewed literature demonstrates that Artificial Intelligence-Driven Procurement Systems have emerged as a transformative innovation capable of significantly improving procurement performance in public institutions. Empirical evidence indicates that AI applications, including predictive analytics, intelligent supplier evaluation, procurement process automation, demand forecasting, contract management, and fraud detection, contribute to enhanced procurement efficiency, reduced procurement cycle times, improved decision-making, increased transparency, and better value for money. However, the literature also reveals that the successful implementation of AI-driven procurement systems depends on organizational readiness, quality data, technological infrastructure, employee competencies, management support, and appropriate governance frameworks. Despite the growing body of research on artificial intelligence and digital procurement, important conceptual, contextual, and geographical gaps remain, particularly regarding the multidimensional influence of Artificial Intelligence-Driven Procurement Systems on procurement performance within public institutions in developing countries. Most existing studies have been conducted in developed economies and have focused broadly on digital procurement or supply chain management rather than specifically examining AI-driven procurement systems in the public sector. Consequently, there is limited empirical evidence explaining how AI-enabled procurement capabilities influence procurement performance within public institutions operating under resource constraints and complex regulatory environments. Addressing these gaps will contribute to both theory and practice by providing evidence to guide policymakers, procurement professionals, and public sector managers in leveraging artificial intelligence to improve procurement performance, transparency, accountability, and service delivery.

Recommendations

Theory

Future research should develop and validate comprehensive theoretical models that explain the relationship between Artificial Intelligence-Driven Procurement Systems and procurement

performance in public institutions. Researchers should operationalize Artificial Intelligence-Driven Procurement Systems as a multidimensional construct comprising predictive analytics, intelligent supplier evaluation, automated procurement processes, and AI-enabled demand forecasting rather than treating AI as a single technological concept. In addition, future studies should integrate technology adoption theories such as the Technology–Organization–Environment (TOE) Framework, the Resource-Based View (RBV), and Dynamic Capabilities Theory to provide a stronger theoretical understanding of AI adoption and its influence on procurement performance. Comparative and longitudinal studies should also be undertaken to examine how AI capabilities influence procurement performance over time and across different institutional contexts.

Practice

Public institutions should progressively adopt Artificial Intelligence-Driven Procurement Systems to improve procurement efficiency, transparency, accountability, and value for money. Investment should be directed toward AI-enabled procurement applications such as predictive analytics, automated procurement workflows, intelligent supplier evaluation, contract management, fraud detection, and demand forecasting to enhance procurement decision-making and operational performance. Procurement professionals should receive continuous training in artificial intelligence, data analytics, and digital procurement to strengthen their ability to utilize AI technologies effectively. Public institutions should also improve data quality, integrate procurement information systems, strengthen cybersecurity measures, and establish governance structures that ensure responsible, transparent, and ethical use of artificial intelligence throughout the procurement cycle.

Policy

Governments should formulate comprehensive national policies and regulatory frameworks that guide the adoption, governance, and ethical application of Artificial Intelligence within public procurement. Public procurement regulations should be updated to accommodate AI-enabled procurement processes while maintaining transparency, fairness, accountability, and human oversight in procurement decision-making. Governments should establish national standards on data governance, algorithm transparency, cybersecurity, privacy protection, and accountability to enhance public trust in AI-supported procurement systems. Furthermore, governments should allocate adequate financial resources to support digital infrastructure development, AI research, procurement innovation, and institutional capacity building to accelerate AI adoption across public institutions.

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