**EFFECT OF DIGITALIZATION ON PROCUREMENT EFFICIENCY IN**

**RWANDA PUBLIC PROCUREMENT AUTHORITY (RPPA)**

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**22/DPS/BU/R/0007**

**A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS DEPARTMENT OF MANAGEMENT PARTIAL FULFILLMENT FOR THE**

**AWARD OF DIPLOMA IN PROCUREMENT, LOGISTICS AND**

**SUPPLIES CHAIN MANAGEMENT OF**

**BUGEMA UNIVERSITY**

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# **ACCEPTANCE SHEET**

This research project entitled **“EFFECT OF DIGITALIZATION ON PROCUREMENT EFFICIENCY IN RWANDA PUBLIC PROCUREMENT AUTHORITY (RPPA)”** isprepared and submitted by **KWIZERA YVES KELLY** in partial fulfillment of the requirement for the Award of Diploma of Procurement and Chain management of Bugema University is hereby accepted.

Signature…………………………....

Mr.

Supervisor

Date ………………………………….

Accepted as partial fulfillment of the requirements for the Award of Diploma of procurement and Chain management of Bugema University.

Signed ……………………………….

Dr

Head of Department

Date Signed………………..................

# **DECLARATION**

I declare that this research project is my original work and it has never been presented to Bugema University or any other institution of higher learning.

Sign………………………………….

**KWIZERA YVES KELLY**

Researcher

Date signed………………………….

# **DEDICATION**

The researcher would like to dedicate this research project to his family members, friends and relatives for care, guidance, financial and moral support that inspired the researcher to complete this research project.

God bless them all.

# **ACKNOWLEDGEMENT**

First and foremost, the researcher wishes to express her sincere gratitude to the Almighty God for His love and care that has enabled her to complete the research project.

The researcher’s special gratitude goes to her supervisor the wholehearted support and courage in molding the research project, and intellectually inspiring and providing relevant materials and advice from the very beginning to completion.

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# **ABSTRACT**

The study assessed Effect of Digitalization On procurement Efficiency in Rwanda Public Procurement Authority (Rppa).” Study objectives included; To find out the effect of adoption of e-procurement systems on procurement efficiency in Rwanda Public Procurement Authority, To find out the effect of reduction in processing times on procurement efficiency in Rwanda Public Procurement Authority, To find out the effect of integration of digital tools for monitoring and reporting in Rwanda Public Procurement Authority and to establish the relationship between digitalization of procurement processes and procurement efficiency in Rwanda Public Procurement Authority. Data was gathered randomly from 127 employees using a questionnaire. The study applied a descriptive cross-sectional research design using quantitative approach. This design fits this study since it was able to provide a statistical description on how Digitalization of Procurement Processes influence procurement efficiency. The study also applied a correlational research design which helped in establishing the extent to which digitalization of procurement processes is related to procurement efficiency Rwanda Public Procurement Authority (RPPA). In conclusion, the study demonstrates that digitalization has a profound and positive effect on procurement efficiency at the Rwanda Public Procurement Authority (RPPA). The widespread adoption of e-procurement systems, the reduction in processing times, and the effective integration of digital tools for monitoring and reporting have all contributed to a more streamlined, transparent, and efficient procurement process. The strong correlation between digitalization and procurement efficiency further highlights the significant role of technology in improving service delivery, reducing delays, and ensuring compliance with procurement standards. These findings indicate the importance of continued digital transformation in enhancing the general procurement framework at RPPA, suggesting that further investment in digital tools could lead to even greater improvements in procurement performance. Basing on the study results, the researcher recommends RPPA should prioritize regular and comprehensive training on e-procurement systems to ensure all staff are equipped with the necessary skills and knowledge to fully utilize digital tools Additionally, RPPA should continue to invest in and upgrade its digital tools, with a particular focus on automating procurement processes and enhancing real-time reporting features. To promote transparency and ensure compliance with national procurement regulations, RPPA should further integrate digital platforms that track procurement performance and compliance. RPPA should implement a system for continuous evaluation of the digitalization process.

# **CHAPTER ONE**

# **INTRODUCTION**

# **Background of the study**

Digitalization has profoundly impacted procurement efficiency globally, with organizations witnessing tangible benefits in cost savings and process optimization. According to a report by the Boston Consulting Group (BCG), digitalization in procurement processes can yield cost savings ranging from 5% to 10% on direct spend, highlighting its significant potential for financial impact. This underscores the practical importance of adopting digital procurement technologies across industries. Accenture's 2019 Intelligent Operations Survey further reinforces this trend, revealing that 83% of procurement executives prioritize digitalization as their top agenda, reflecting a widespread recognition of its importance. Real-world case studies, such as the one published by the Institute for Supply Management (ISM), provide concrete evidence of the transformative effects of digitalization, showcasing instances where companies achieved notable reductions in procurement cycle times and overall costs through the implementation of digital procurement solutions (BCG, 2018; Accenture, 2019; ISM, 2020).

Digitalization is playing a pivotal role in transforming procurement practices across Africa, with notable statistics highlighting its impact. According to a report by the African Development Bank (AfDB), digitalization in procurement has the potential to reduce procurement costs by up to 30% and improve efficiency by 50%, leading to significant savings for businesses and governments (AfDB, 2021). This underscores the financial benefits that digital procurement can bring to the continent. Additionally, a study by the World Bank reveals that digital procurement platforms have increased the participation of small and medium-sized enterprises (SMEs) in public procurement by 30%, promoting economic inclusion and fostering entrepreneurship (World Bank, 2020). Furthermore, the adoption of e-procurement systems in Africa has led to a 25% reduction in procurement cycle times, allowing organizations to streamline processes and achieve faster results (AfDB, 2021).

In recent years, Kenya, within the broader East African region, has made remarkable strides in digital procurement, harnessing technology to revolutionize traditional procurement practices and drive economic progress. Reports from the Kenya National Bureau of Statistics (KNBS) indicate that the adoption of digital procurement systems has resulted in a notable 30% reduction in procurement cycle times and a corresponding 25% decrease in transaction costs, illustrating the tangible efficiency gains brought about by digitalization (KNBS, 2021). Moreover, the implementation of e-procurement platforms has significantly enhanced transparency and accountability in public procurement processes, a critical aspect for fostering good governance and combating corruption, as highlighted in World Bank reports (World Bank, 2020). The Kenya Revenue Authority (KRA) further emphasizes the positive impact of digital procurement on tax compliance, reporting a 20% increase in tax revenue attributed to procurement-related activities (KRA, 2022). Kenya's vibrant digital ecosystem has also spurred local innovation, with tech startups developing tailored procurement solutions that contribute to job creation and bolster the country's competitiveness in the global digital economy (Daily Nation, 2023).

Rwanda's procurement landscape reflects a blend of progress and challenges. The country has shown significant advancements in digitalization, with approximately 70% of procurement processes now conducted through e-procurement systems, according to a report by the Rwanda Public Procurement Authority (RPPA). This shift has led to a notable reduction in processing times by around 40% and an increase in transparency and accountability, aligning with Rwanda's broader vision of becoming a digital economy (RPPA, 2021). However, despite these improvements, there are concerns regarding inclusivity and transparency in certain procurement practices. For instance, reports suggest that about 25% of contracts in the public sector are awarded without competitive bidding, raising questions about fairness and efficiency in the procurement process (Transparency International, 2020). Additionally, only about 30% of SMEs in Rwanda report having adequate opportunities to participate in government procurement, highlighting challenges in promoting economic inclusivity (World Bank, 2022). Addressing these issues is crucial to ensuring fairness, promoting economic growth, and fostering a more robust procurement environment in Rwanda and hence the researcher intends to establish the effects of digitalization on procurement efficiency in Rwanda public procurement authority (RPPA)

# **Statement of the problem**

The Rwanda Public Procurement Authority (RPPA) faces significant challenges in ensuring efficiency and transparency in its procurement processes, posing detrimental consequences for the country's economic development and public trust. Despite efforts by RPPA and regulatory bodies to enforce procurement regulations, instances of inefficiencies, corruption, and lack of accountability persist. According to recent statistics, irregularities in procurement contracts accounted for approximately 12% of all reported corruption cases in Rwanda in the past year alone, indicating a pressing need for intervention. This problem not only undermines the government's efforts to promote integrity and competitiveness but also hampers the effective allocation of public resources. Given the critical role of procurement in driving socio-economic progress, this study seeks to examine the effects of digitalization on procurement efficiency and transparency within RPPA, aiming to provide evidence-based recommendations for enhancing procurement governance and accountability.

# **General Objectives**

The Main objectives of this study was to assess the effect of digitalization on procurement efficiency in Rwanda Public Procurement Authority

# **Specific Objectives**

1. To find out the effect of adoption of e-procurement systems on procurement efficiency in Rwanda Public Procurement Authority
2. To find out the effect of reduction in processing times on procurement efficiency in Rwanda Public Procurement Authority
3. To find out the effect of integration of digital tools for monitoring and reporting in Rwanda Public Procurement Authority
4. To establish the relationship between digitalization of procurement processes and procurement efficiency in Rwanda Public Procurement Authority

# **Research questions**

1. What is the effect of adoption of e-procurement systems on procurement efficiency in Rwanda Public Procurement Authority?
2. What is the effect of reduction in processing times on procurement efficiency in Rwanda Public Procurement Authority?
3. What is the effect of integration of digital tools for monitoring and reporting in Rwanda Public Procurement Authority?
4. What is the relationship between digitalization of procurement processes and procurement efficiency in Rwanda Public Procurement Authority?

# **Scope of the Study**

This study encompassed the Rwanda Public Procurement Authority (RPPA) within Rwanda, focusing on digital procurement processes and practices. Geographically, the study was limited to the operations of RPPA offices and stakeholders within Rwanda. Additionally, it focused on assessing the effectiveness of existing e-procurement systems, evaluating transparency and accountability measures, analyzing processing times and efficiency gains, gathering stakeholder feedback, conducting a comparative analysis with best practices from other jurisdictions, and generating actionable recommendations. The study was conducted for a three-month period, from February 2024 to May 2024, allowing for a comprehensive analysis of digital procurement initiatives and their impact within RPPA's operational framework.

# **Significance of the Study**

**Government and Public Sector Entities**

The study's findings will be crucial for government and public sector entities as they stand to benefit significantly from improved transparency and accountability in procurement processes. By embracing digital procurement practices, these entities will streamline operations, reduce processing times, and ensure adherence to procurement regulations and standards. This will lead to more efficient use of public funds, fair competition among suppliers and contractors, and ultimately optimized public spending.

**Small and Medium-Sized Enterprises (SMEs)**

For SMEs, the study will hold immense importance as it will open up doors to increased access to procurement opportunities through digital platforms. This will translate into reduced barriers to entry, enabling SMEs to participate actively in government procurement processes. With improved visibility and equal opportunities alongside larger suppliers, SMEs will experience business growth, economic empowerment, and a level playing field in the procurement landscape.

**Taxpayers and General Public**

Taxpayers and the general public will benefit from the study's outcomes by ensuring value for money in public spending. Transparent and accountable procurement practices will reduce the risk of corruption and misuse of public funds, leading to increased trust in government institutions and services. This, in turn, will contribute to a more efficient and effective allocation of resources for public projects and services.

**Civil Society and Watchdog Organizations**

Civil society and watchdog organizations will play a crucial role in promoting transparency and accountability in public procurement. The study's findings will empower these entities with enhanced monitoring and oversight capabilities, enabling them to detect and report irregularities or unethical practices more effectively. This will strengthen their advocacy efforts for transparent and fair procurement practices, contributing to a culture of good governance and responsible spending.

**Private Sector Suppliers and Contractors**

Private sector suppliers and contractors will benefit from the study's outcomes through fair and transparent procurement processes. Increased trust and confidence in procurement practices can lead to potential collaborations with government entities, improved business reputation, and long-term growth opportunities. This will foster a positive business environment conducive to sustainable partnerships and business development.

# **Theoretical Framework**

The study was guided by the Technology-Organization-Environment (TOE) framework, which posits that successful adoption and implementation of digital technologies are influenced by technological factors, organizational factors, and external environmental factors. Within the TOE framework, the study will also consider concepts such as the Technology Acceptance Model (TAM), which will be used to examine user perceptions and attitudes toward technology adoption, and the Resource-Based View (RBV), which will be utilized to emphasize the role of organizational resources and capabilities in leveraging digital technologies for competitive advantage. Furthermore, the study was informed by theories of governance and accountability, including Principal-Agent Theory, Stakeholder Theory, and Institutional Theory, to explore how digital procurement practices impact transparency, accountability, and stakeholder relationships within the public sector context.

# **Conceptual framework**

**Independent Variable Dependent variable**

**Procurement Efficiency**

**Digitalization of Procurement Processes**

* Adoption of e-procurement systems
* Reduction in processing times
* Integration of digital tools for monitoring and reporting

# **Operational Definition of terms**

**Adoption of e-procurement systems:** in this study, it refers to the extent to which Rwanda Public Procurement Authority (RPPA) and its stakeholders actively utilize digital platforms and electronic systems for conducting procurement processes, including online bidding portals, digital procurement software, and e-auction platforms. This includes measuring the percentage of procurement activities conducted through e-procurement systems compared to traditional manual methods.

**Reduction in processing times**: In this study it refers to the measurable decrease in the time taken to complete various procurement processes, from requisition to contract award and fulfillment, as a result of implementing digital procurement systems. This involves quantifying the time savings achieved in processing procurement requests, evaluating cycle times, and comparing the

**Integration of digital tools for monitoring and reporting**: In this study, it refers to the incorporation and utilization of digital monitoring and reporting tools within RPPA's procurement framework. This involves assessing the functionality and effectiveness of digital tools such as dashboards, analytics software, and real-time reporting systems in tracking procurement activities, monitoring performance metrics, detecting anomalies, and generating timely reports for stakeholders.

# **CHAPTER TWO**

# **LITERATURE REVIEW**

# **Introduction**

This chapter contains the reviewed literature on Effect of Digitalization on Procurement Efficiency in Rwanda Public Procurement Authority (Rppa). The source of this literature are articles, books and reports with the intension of identifying the study gaps.

# **Effect of Adoption of e-procurement systems on Procurement efficiency**

The adoption of e-procurement systems has had a profound impact on procurement efficiency across various industries. One significant effect is the streamlining of the procurement process through automation. E-procurement systems allow organizations to digitize and centralize their procurement activities, including sourcing, requisitioning, ordering, and invoice processing.

E-procurement systems reduce manual interventions, minimize paperwork, and enhance data accuracy, thereby significantly reducing the time and effort required for procurement tasks. This automation not only accelerates the procurement cycle but also enables procurement professionals to focus on strategic activities such as supplier relationship management and cost optimization (Arbi et al., 2019).

The adoption of e-procurement systems has revolutionized procurement processes, delivering significant efficiency gains for organizations. Statistics underscore the positive impact of these systems. Studies reveal that e-procurement can lead to cost reductions of 10-30% through improved negotiation processes, reduced maverick spending, and streamlined workflows (Dobler & Burt, 2014). Additionally, more research suggests that e-procurement can decrease cycle times by up to 70% by automating manual tasks and facilitating real-time communication (Matthews, 2023). This translates to faster approvals, quicker sourcing, and overall improved responsiveness to business needs. E-procurement's impact extends beyond cost and speed. 80% of businesses using e-procurement reported improved compliance with regulations and internal policies. This enhanced transparency is achieved by centralizing procurement data in a single platform, allowing for better audit trails and risk mitigation (Deloitte, 2023). Furthermore, e-procurement fosters collaboration, indicating that 72% of organizations experienced improved supplier relationships due to increased communication and streamlined processes (BambooCX, 2023)

The adoption of e-procurement systems has had a profound impact on procurement efficiency across various industries. One significant effect is the streamlining of the procurement process through automation. E-procurement systems allow organizations to digitize and centralize their procurement activities, including sourcing, requisitioning, ordering, and invoice processing. According to a study by Arbi et al. (2019), e-procurement systems reduce manual interventions, minimize paperwork, and enhance data accuracy, thereby significantly reducing the time and effort required for procurement tasks. This automation not only accelerates the procurement cycle but also enables procurement professionals to focus on strategic activities such as supplier relationship management and cost optimization.

The adoption of e-procurement systems improves transparency and visibility throughout the procurement process. Systems like e-marketplaces and e-catalogs enable buyers to access a wider range of suppliers and compare prices and offerings in real-time. This transparency fosters competition among suppliers, leading to better pricing and terms for buyers (Fernandez & Fernandez, 2020). Additionally, e-procurement systems facilitate better data analytics and reporting capabilities, allowing organizations to make data-driven decisions and identify areas for process improvement. For instance, by analyzing procurement data, organizations can identify patterns of supplier performance, track spending trends, and implement strategies to optimize procurement outcomes. E-procurement systems have a profound impact on procurement efficiency, particularly in terms of cost savings and resource optimization. One key effect is the reduction in procurement costs associated with manual processes and paperwork. By digitizing procurement activities such as sourcing, ordering, and invoicing, organizations can eliminate the need for physical paperwork, reduce processing errors, and minimize administrative overheads (Lacity & Willcocks, 2021).

Furthermore, the adoption of e-procurement systems enhances procurement visibility and strategic decision-making. These systems provide real-time access to procurement data, including spending patterns, supplier performance metrics, and inventory levels. This visibility allows organizations to identify cost-saving opportunities, track compliance with procurement policies, and make informed decisions based on data-driven insights (Verma, 2020). By leveraging analytics and reporting functionalities within e-procurement systems, organizations can optimize their procurement strategies, mitigate risks, and drive continuous improvement in procurement performance.

Additionally, e-procurement systems enhance the overall agility and responsiveness of procurement operations. In today's dynamic business environment, organizations need to adapt quickly to changing market conditions, supplier disruptions, and evolving customer demands. E-procurement systems enable organizations to respond swiftly to these challenges by providing real-time insights into procurement activities, supply chain dynamics, and market trends (Batenburg & van Raak, 2022). This agility allows organizations to make proactive decisions, optimize inventory levels, and mitigate supply chain risks, ultimately improving their competitive advantage and business resilience.

Moreover, the adoption of e-procurement systems contributes to improved supplier relationships and collaboration. These systems provide a platform for efficient communication and interaction between buyers and suppliers, fostering a more transparent and mutually beneficial relationship (Mital, 2020). With features such as electronic catalogs, online bidding, and contract management tools, e-procurement systems enable buyers to engage with suppliers more effectively, negotiate favorable terms, and track performance metrics. This level of collaboration not only strengthens supplier partnerships but also promotes innovation and continuous improvement in product quality and delivery.

# **Effect of Reduction in processing times on Procurement efficiency**

The reduction in processing times plays a crucial role in enhancing procurement efficiency across various industries. A study conducted by the Chartered Institute of Procurement & Supply (CIPS) in 2020 found that organizations that implement e-procurement systems experience a significant decrease in processing times for procurement activities. For example, the time taken from requisition to purchase order generation reduced by an average of 30%, while invoice processing time decreased by up to 50% (CIPS, 2020). These statistics highlight the tangible impact of reducing processing times on overall procurement efficiency.

One of the key benefits of reduced processing times is the acceleration of the procurement cycle. With faster processing, organizations can streamline their procurement workflows, handle a higher volume of transactions efficiently, and meet procurement deadlines more effectively (Gadde & Dubois, 2021). This speed not only improves operational efficiency but also enhances agility in responding to market demands and changes in supply chain dynamics. Moreover, reduced processing times contribute to cost savings by minimizing labor costs associated with manual processing and reducing the risk of late payment penalties or missed discounts (Sohrabpour & Ardestani, 2023). Organizations can also free up resources and reallocate them to more strategic procurement activities, such as supplier relationship management and strategic sourcing initiatives.

Another significant effect of the reduction in processing times on procurement efficiency is improved decision-making and responsiveness. When processing times are reduced, procurement professionals have access to real-time data and insights, enabling them to make faster and more informed decisions (Berglund & Sallis, 2022). For example, quicker access to supplier performance metrics, pricing information, and inventory levels allows organizations to identify opportunities for cost savings, negotiate better contracts, and respond promptly to changing market conditions. This agility in decision-making not only improves procurement outcomes but also enhances overall business responsiveness and competitiveness. Furthermore, the reduction in processing times leads to better stakeholder satisfaction and collaboration. Timely and efficient procurement processes result in faster delivery of goods and services, leading to increased satisfaction among internal stakeholders such as project managers, operations teams, and end-users (Zhu & Sarkis, 2020).

Within the dynamic landscape of modern business, procurement efficiency reigns supreme. It directly impacts an organization's ability to acquire goods and services at competitive prices while adhering to quality standards and delivery timelines. A crucial driver of procurement efficiency is the reduction in processing times – the time taken to complete various procurement tasks. Studies by McKinsey & Company (n.d.) suggest that reducing requisition-to-order processing times by 30% can lead to significant cost savings of up to 15% (McKinsey & Company, n.d.). This improvement stems from a multitude of benefits associated with faster processing times.

Faster processing times empower procurement teams to dedicate more time to strategic initiatives. When bogged down by time-consuming manual tasks like approvals and vendor communication, procurement professionals have limited bandwidth for strategic activities. Reduced processing times, often achieved through automation and digitization, free up valuable time. This allows them to focus on tasks like supplier relationship management, sourcing optimization, and negotiating better contracts. A 2023 report by Deloitte suggests that procurement teams utilizing automation tools report a 20% increase in time dedicated to strategic initiatives (Deloitte, 2023). This shift in focus can lead to cost savings through better negotiation leverage and identification of new, more cost-effective suppliers.

Additionally, faster processing speeds enhance risk management and compliance in procurement processes. Regulatory standards, contractual agreements, and internal regulations can be more carefully adhered to by enterprises with faster processing (Ding et al., 2021). For example, the likelihood of non-compliance fines, contract disputes, and supplier payment delays is decreased when contracts and purchase orders are processed on time. Faster processing times can help companies promptly detect and handle any hazards in the procurement process, such interruptions in the supply chain, poor performance from suppliers, and low inventories. By taking a proactive stance towards risk management, procurement governance is strengthened and smoother operations are guaranteed.

# **Effect of Integration of digital tools for monitoring and reporting**

# **On Procurement efficiency**

The integration of digital tools for procurement efficiency monitoring and reporting has been a well-documented area of research, highlighting significant benefits for organizations. Studies by Apty demonstrate how companies like Nike leveraged data analytics from digital tools to optimize their supply chains and achieve substantial growth in both earnings and revenue. This aligns with McKinsey's report (Apty, 2023), which suggests that digital adoption in procurement can lead to a 3.2% increase in annual earnings before interest and taxes, showcasing the financial advantages of digital integration. Furthermore, research emphasizes the shift from manual, paper-based processes to streamlined digital operations. This not only improves efficiency but also fosters better data collection and analysis. By leveraging digital tools, organizations can gain real-time insights into procurement activities, identify areas for improvement, and make data-driven decisions for cost savings and optimized supplier relationships ( Ivanov et al., 2020). These studies collectively highlight the transformative power of digital tools in monitoring and reporting on procurement efficiency, paving the way for a more data-centric and optimized approach to supply chain management.

Integration of digital tools for monitoring and reporting on procurement efficiency has been a well-researched area, highlighting significant advantages for organizations. Studies demonstrate how companies like Siemens leveraged cloud-based procurement platforms to streamline workflows, achieving a 20% reduction in procurement cycle time and substantial cost savings (Gopal et al. 2022). This aligns with the findings of Chen et al, who emphasize the potential of digital tools in procurement to enhance data visibility and facilitate informed decision-making, ultimately contributing to improved supplier selection and cost optimization (Chen et al. (2023).

Despite the clear advantages, challenges associated with digital tool integration for procurement efficiency also exist. A study by Weber highlights the importance of cyber security measures when implementing such tools (Weber et al., 2023). Increased reliance on digital platforms can expose organizations to cyber-attacks, requiring robust security protocols to protect sensitive procurement data. Additionally, integration costs can be significant, especially for smaller businesses. The initial investment in software, hardware, and implementation can be a hurdle, necessitating careful cost-benefit analysis before adoption (Carter et al., 2021).

# **CHAPTER THREE**

# **METHODOLOGY**

# **Introduction**

This chapter contains the locale of the study, research design, population of the study, target population, sample size, sampling method, Research collection method, validity and reliability test of the tool, data collection procedure, data processing and analysis and report writing.

# **Locale of the Study**

This study encompassed the Rwanda Public Procurement Authority (RPPA) within Rwanda, focusing on digital procurement processes and practices. Geographically, the study was limited to the operations of RPPA offices and stakeholders within Rwanda. Additionally, it focused on assessing the effectiveness of existing e-procurement systems, evaluating transparency and accountability measures, analyzing processing times and efficiency gains, gathering stakeholder feedback, conducting a comparative analysis with best practices from other jurisdictions, and generating actionable recommendations.

# **Research Design**

The study applied a descriptive cross-sectional research design using quantitative approach. This design fits this study since it was able to provide a statistical description on how Digitalization of Procurement Processesinfluence procurement efficiency. The study also applied a correlational research design which helped in establishing the extent to which digitalization of procurement processes is related to procurement efficiency Rwanda Public Procurement Authority (RPPA). The descriptive design guided by the quantitative approach helped in giving a statistical description of the study objectives in terms of mean and standard deviation.

# **Population of the Study**

Rwanda Public Procurement Authority has over 185 employees and it is this number of employees that the researcher will use as his study population.

# **Target Population and Sample size**

The researcher targeted 185 employees that work within Rwanda Pubic Procurement Authority

# **Sample Size**

N= total target population (185)

N=total sample size

E=desired margin error

*= 127 employees*

# **Sampling Procedure**

This study applied purposive sampling techniques. The researcher purposively collected data from only 185 employees since the researcher is looking for the performance of the digitalization processes within Rwanda Public Procurement Authority and hence they are the only ones that qualified to provide the required data.

# **Data Instrumentation**

The researcher used a questionnaire as the method of data collection because it is time and cost effective since it helped the researcher to collect adequate data within a very short time. In addition, the researcher used a self-administered questionnaire as a research tool to collect data from the respondents. The questionnaire contained the introduction part which described the researchers. In addition, the tool has four sections: Section A of the questionnaire included demographic information of respondents. Section B involved objective answering questions (quantitative data through closed ended questions). Section C involved respondents’ views and suggestions (qualitative information through open ended questions).

**Table 2: A four Point Likert Scale**

|  |  |  |  |
| --- | --- | --- | --- |
| **Score** | **Response** | **Mean range** | **Interpretation** |
| 1 | Strongly Disagree | 1.00-1.74 | Very low level |
| 2 | Disagree | 1.75-2.49 | low level |
| 4  5 | Agree  Strongly agree | 2.50-3.24  3.25-4.00 | high level  very high level |

# **Validity of the Instrument**

The researcher formulated a questionnaire based on the study objectives. Then the formulated questionnaire was availed to the supervisor to scrutinize whether it was answering the intended objectives and if not the researcher was in place to re-visit it and adjust it according to the supervisor’s instruction. However, the final validation process was achieved through calculation of Content Valid Index (CVI) based on the formula underneath. The minimum recommended CVI value is 0.70 as recommended by (Amin, 2005).

# **Reliability of the instruments**

For the researcher to ensure reliability in this study, a pilot study was done on 20 employees of Rwanda Development Baard since they have the same characteristic characteristics as of Rwanda Public Procurement Authority. With the help of SPSS computer software the responses were analysed to generate the reliability coefficient (α). A reliability coefficient (α) of 0.70 or above was recommended by Amin (2005).

# **Data Collection Procedure**

The researcher got an approval letter from the Dean, School of business, Bugema University which therefore requested a permission from the Human Resource of the Organization to request for data collection permission from the employees of the organization. Once permission was granted, the researcher collected data from the employees of the organization.

# **Ethical Consideration**

The researchers presented an informed Consent Form which the respondents read through and those contented, to answer the questionnaire. Lastly, strict confidentiality of all information received will be assured to the respondents.

# **Data Processing and Analysis**

This section was concerned with organizing and presentation of the data collection. Thus, after collecting data from the field, the researcher edited, coded, and carried out data entry before analysis.

Data was analyzed using SPSS (Version 20). Objective 1, & 2 were analyzed using descriptive statistics, such as mean and standard deviation tables. Objective 3 was analyzed using inferential statistics to establish the extent in which digitalization of procurement processes influence procurement efficiency in Rwanda Public Procurement Authority.

# **Limitation of the Study**

The researcher anticipated the problem of time and financial constraints because the process required more time and had an expensive process in terms of printing of questionnaires, copies and binding. Therefore, the researcher prepared a clear timetable and hopes to get financial help from friends and relatives.

# **CHAPTER FOUR**

# **RESULTS AND DISCUSSION**

This chapter presents the results and discussion on “Effect of Digitalization On procurement Efficiency in Rwanda Public Procurement Authority (Rppa**)**.” Study objectives included; To find out the effect of adoption of e-procurement systems on procurement efficiency in Rwanda Public Procurement Authority, To find out the effect of reduction in processing times on procurement efficiency in Rwanda Public Procurement Authority, To find out the effect of integration of digital tools for monitoring and reporting in Rwanda Public Procurement Authority and to establish the relationship between digitalization of procurement processes and procurement efficiency in Rwanda Public Procurement Authority. Datawas gathered randomly from 127 employees using a questionnaire.

# **Respondents Demographic Information**

The study assessed respondents’ demographic information in terms of gender, age and religion. The findings are presented in the sub-section of the report.

**Table 2: Respondents Demographic Information**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Frequency** | **Percent** |
| **Age** | 18-23 Years | 18 | 14.2 |
| 24-25 Years | 21 | 16.5 |
| 26-30 | 25 | 19.7 |
| 31 and above Years | 63 | 49.6 |
| **Education level** | Primary | 03 | 2.4 |
| Secondary | 18 | 14.2 |
| Tertiary | 79 | 62.2 |
| Others | 27 | 21.2 |
| **Religion** | Christian | 113 | 88.9 |
| Muslim | 14 | 11.1 |

The demographic characteristics of the respondents provide valuable context for understanding the Effect of Digitalization on Procurement Efficiency in Rwanda Public Procurement Authority (RPPA) by illustrating the diversity and background of the participants who provided insights on this topic.

**Age Distribution**: A significant portion of respondents (49.6%) were aged 31 years and above, suggesting that a large proportion of the participants are likely to be seasoned professionals with considerable experience in procurement processes. This age group may provide valuable perspectives on the transition from traditional procurement methods to digitalized systems. Meanwhile, respondents aged 26-30 years (19.7%) and 24-25 years (16.5%) represent younger professionals who may be more familiar with or adaptable to digital tools. The smallest age group, 18-23 years (14.2%), likely includes entry-level employees or interns who bring fresh perspectives on the adoption and implementation of e-procurement systems.

**Education Level**: The dominance of respondents with tertiary education (62.2%) suggests a highly knowledgeable workforce, capable of comprehending and utilizing digital tools in procurement processes. Participants with secondary education (14.2%) and primary education (2.4%) represent a smaller portion of the workforce, likely engaged in less specialized roles. The "Others" category (21.2%) reflects a variety of non-traditional educational backgrounds, which may include technical or vocational training, aligning with the need for specialized skills in digital systems.

**Religious Affiliation**: The overwhelming majority of respondents identify as Christian (88.9%), with a smaller proportion identifying as Muslim (11.1%). While religion might not directly influence attitudes toward digitalization, cultural or societal norms linked to religious affiliations could indirectly shape perceptions of technological changes in public institutions.

# **Adoption of E-Procurement Systems and Procurement Efficiency**

Objective one of this study was to find out the effect of adoption of e-procurement systems on procurement efficiency in Rwanda Public Procurement Authority. The study variables are effect of adoption of e-procurement systems on procurement efficiency in Rwanda Public Procurement Authority and the empirical results are shown in the table below.

**Table 3: Adoption of E-Procurement Systems and Procurement Efficiency**

|  |  |  |  |
| --- | --- | --- | --- |
| **Items on Adoption of e-procurement systems** | **Mean** | **S.D** | **Interpretation** |
| E-procurement systems are widely used in procurement processes at RPPA. | 3.14 | .706 | High |
| The use of e-procurement systems has streamlined procurement workflows at RPPA. | 3.08 | .777 | High |
| Training on e-procurement systems is regularly conducted to enhance staff competency. | 3.02 | .952 | High |
| E-procurement systems at RPPA comply with national procurement regulations. | 3.12 | .788 | High |
| **Average Mean and Standard Deviation** | **3.09** | **0.806** | High |

The results indicate that the respondents generally agree on the effectiveness of e-procurement systems in enhancing procurement processes at the Rwanda Public Procurement Authority (RPPA), with all individual statements achieving a mean score above 3.0, interpreted as "High." The average mean score of 3.09 suggests a strong positive perception of e-procurement systems among the respondents.

The relatively low average standard deviation of 0.806 signifies consistency in the responses, indicating that the views of the respondents are aligned regarding the role of e-procurement systems in streamlining procurement processes, improving compliance with regulations, and enhancing staff competency.

The high mean scores suggest that e-procurement systems are widely adopted and perceived as beneficial at RPPA. For instance, the statement about compliance with national procurement regulations scored the highest mean of 3.12, reflecting confidence in the system’s alignment with regulatory requirements. Similarly, training on e-procurement systems received a slightly lower mean of 3.02, indicating that while efforts to enhance staff competency exist, there may be room for improvement to ensure comprehensive training programs. The streamlined workflows facilitated by e-procurement systems, as evidenced by a mean score of 3.08, show that digitalization has significantly contributed to operational efficiency. However, the relatively higher standard deviation in some statements, such as the one on training (0.952), suggests variability in experiences or satisfaction levels among staff regarding training initiatives.

Objective two of this study was to find out the effect of reduction in processing times on procurement efficiency in Rwanda Public Procurement Authority. The variable of this objective is effect of reduction in processing times on procurement efficiency and the the findings on the on this objective are found in the report below.

**Table 4: effect of reduction in processing times on procurement efficiency**

|  |  |  |  |
| --- | --- | --- | --- |
| **Reduction in processing times** | **Mean** | **S.D** | **Interpretation** |
| Digital tools have significantly reduced the time required for procurement approvals at RPPA. | 3.35 | .763 | Very High |
| Automated procurement processes have minimized delays in service delivery at RPPA. | 3.28 | .875 | Very High |
| Digitalization has improved the speed of communication among procurement stakeholders at RPPA. | 3.31 | .900 | Very High |
| The implementation of digital tools has reduced time spent on repetitive procurement tasks. | 3.36 | .892 | Very High |
| **Grand Mean and S.D** | **3.33** | **.858** | **High** |

The results indicate that digital tools have significantly contributed to reducing processing times in procurement activities at the Rwanda Public Procurement Authority (RPPA). All individual statements achieved high mean scores ranging from 3.28 to 3.36, with an overall grand mean of 3.33, interpreted as "Very High." This demonstrates strong agreement among respondents regarding the positive impact of digitalization on efficiency. The standard deviations, averaging 0.858, show moderate consistency in the responses, with slight variability possibly reflecting differing levels of exposure or experience with digital tools among stakeholders.

The highest mean score (3.36) for the reduction in time spent on repetitive procurement tasks underscores the effectiveness of automation in streamlining processes. Similarly, the high scores for improved communication (3.31) and minimized delays in service delivery (3.28) highlight the role of digitalization in enhancing coordination and timeliness. These findings affirm that the integration of digital tools at RPPA has led to tangible improvements in processing times, contributing to greater efficiency and better service delivery within the procurement function. However, the moderate variability suggests opportunities for further standardization and optimization of digital practices to ensure uniform benefits across all stakeholders.

# **Effect of integration of digital tools for monitoring and reporting**

# **In Rwanda Public Procurement Authority**

Objective three of this study was to find out the effect of integration of digital tools for monitoring and reporting in Rwanda Public Procurement Authority. The variable on this study that was analysed is effect of integration of digital tools for monitoring and reporting in Rwanda Public Procurement Authority and the empirical findings are shown in the table below.

**Table 5:** **Integration of Digital Tools for Monitoring and Reporting**

|  |  |  |  |
| --- | --- | --- | --- |
| **Items on Integration of Digital Tools for**  **Monitoring and Reporting** | **Mean** | **S.D** | **Interpretation** |
| Digital tools are extensively used for monitoring procurement performance at RPPA. | 2.97 | .885 | High |
| Real-time reporting features are integral to digital systems in procurement activities at RPPA. | 3.11 | .793 | High |
| The adoption of digital monitoring tools has enhanced transparency in procurement reporting at RPPA. | 3.07 | .742 | High |
| Digital platforms are effectively utilized to track compliance with procurement standards at RPPA. | 3.02 | .848 | High |
| **Average Mean and Standard Deviation** | 3.034, | 0.817 | High |

The results from the items on the integration of digital tools for monitoring and reporting indicate a high level of adoption and effective use at the Rwanda Public Procurement Authority (RPPA). The mean scores across all items ranged between 2.97 and 3.11, suggesting that respondents generally perceive the integration of digital tools as a positive factor in improving procurement monitoring and reporting. The real-time reporting feature is particularly valued, with the highest mean of 3.11, indicating that it plays a crucial role in the efficiency and transparency of procurement activities. The adoption of digital monitoring tools has led to greater transparency in procurement reporting and better tracking of compliance with procurement standards, as reflected by the mean scores of 3.07 and 3.02, respectively.

The overall average mean of 3.034 and standard deviation of 0.817 reinforce the notion that digital tools are effectively integrated into RPPA's procurement processes, contributing to improved monitoring and reporting capabilities. While the results are largely positive, the relatively high standard deviation indicates some variability in responses, suggesting that there might be certain areas within RPPA where the full benefits of these tools have not been realized. Nonetheless, the overall trend points to the successful adoption of digital tools to enhance transparency, track procurement performance, and ensure compliance with standards at RPPA.

# **Relationship between digitalization of procurement processes a procurement efficiency in Rwanda Public Procurement Authority**

Objective four of this study was to establish the Relationship between digitalization of procurement processes a procurement efficiency in Rwanda Public Procurement Authority and the empirical findings are represented in the table below.

|  |  |  |
| --- | --- | --- |
| **Effect Of Digitalization** |  | **Procurement Efficiency** |
|  | **Pearson Correlation** | **.658\*\*** |
| **Sig. (2-tailed)** | **.000** |
| **\*\*. Correlation is significant at the 0.01 level (2-tailed).** | | |

The Pearson correlation coefficient of 0.658, with a significance level of 0.000, indicates a moderate to strong positive relationship between digitalization and procurement efficiency. This means that as digitalization increases, there is a corresponding improvement in procurement efficiency at the Rwanda Public Procurement Authority (RPPA). The significance level of 0.000 (which is less than the typical alpha level of 0.05) suggests that this correlation is statistically significant, implying that the observed relationship is not due to random chance.

This positive correlation supports the hypothesis that digitalization plays a crucial role in enhancing procurement efficiency. The findings indicate that the integration of digital tools, such as e-procurement systems and digital monitoring platforms, directly contributes to streamlining procurement workflows, reducing processing times, and improving reporting and compliance at RPPA. Given the strength of the correlation, these findings suggest that further investment in digitalization could further optimize procurement operations, leading to even greater efficiency and transparency in procurement processes at RPPA.

# **CHAPTER FIVE**

# **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

# **Summary**

The study assessed Effect of Digitalization On procurement Efficiency in Rwanda Public Procurement Authority (Rppa).” Study objectives included; To find out the effect of adoption of e-procurement systems on procurement efficiency in Rwanda Public Procurement Authority, To find out the effect of reduction in processing times on procurement efficiency in Rwanda Public Procurement Authority, To find out the effect of integration of digital tools for monitoring and reporting in Rwanda Public Procurement Authority and to establish the relationship between digitalization of procurement processes and procurement efficiency in Rwanda Public Procurement Authority. Data was gathered randomly from 127 employees using a questionnaire.

The results of the study indicate that digitalization has a significant positive impact on procurement efficiency at the Rwanda Public Procurement Authority (RPPA). The adoption of e-procurement systems received a mean score of 3.09, reflecting strong integration into procurement processes, with a relatively low standard deviation (0.806), showing consensus among respondents. The reduction in processing times, measured by a mean of 3.33 and a standard deviation of 0.858, highlights that digital tools have effectively minimized delays and optimized service delivery. The integration of digital tools for monitoring and reporting was also rated highly, with a mean of 3.03 and a standard deviation of 0.817, suggesting that these tools play a crucial role in enhancing transparency and performance tracking. Furthermore, the Pearson correlation of 0.658 (p < 0.01) supports a moderate to strong positive relationship between digitalization and procurement efficiency, confirming that the implementation of digital tools contributes significantly to improving procurement processes at RPPA. These findings demonstrate that digitalization has substantially enhanced procurement efficiency, with strong agreement among participants on its effectiveness.

# **Conclusion**

In conclusion, the study demonstrates that digitalization has a profound and positive effect on procurement efficiency at the Rwanda Public Procurement Authority (RPPA). The widespread adoption of e-procurement systems, the reduction in processing times, and the effective integration of digital tools for monitoring and reporting have all contributed to a more streamlined, transparent, and efficient procurement process. The strong correlation between digitalization and procurement efficiency further highlights the significant role of technology in improving service delivery, reducing delays, and ensuring compliance with procurement standards. These findings indicate the importance of continued digital transformation in enhancing the general procurement framework at RPPA, suggesting that further investment in digital tools could lead to even greater improvements in procurement performance.

# **Recommendations**

Basing on the study results, the researchers recommends that;

RPPA should prioritize regular and comprehensive training on e-procurement systems to ensure all staff are equipped with the necessary skills and knowledge to fully utilize digital tools. This will enhance their competency, streamline procurement processes, and contribute to greater efficiency within the organization.

Additionally, RPPA should continue to invest in and upgrade its digital tools, with a particular focus on automating procurement processes and enhancing real-time reporting features. These advancements will help further streamline workflows, minimize delays, and increase service delivery speed, ultimately improving the overall procurement process.

To promote transparency and ensure compliance with national procurement regulations, RPPA should further integrate digital platforms that track procurement performance and compliance. This will help create a more transparent procurement environment and ensure that all activities align with established standards.

RPPA should implement a system for continuous evaluation of the digitalization process. Regular assessments will allow the authority to identify areas for improvement, adjust strategies as necessary, and optimize the use of e-procurement tools to achieve maximum efficiency and effectiveness in procurement activities.

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# **APPENDICES**

# **Appendix A: questionnaire**

Dear respondent,

I am **KWIZERA YVES KELLY**”, a student in Bugema University pursuing a Diploma in procurement and chain management of Bugema University. I am carrying a study on “**EFFECT OF DIGITALIZATION ON PROCUREMENT EFFICIENCY IN RWANDA PUBLIC PROCUREMENT AUTHORITY (RPPA)**

The study is purely for academic purpose. The information obtained will be treated with great confidentiality. Therefore, I kindly request you to fill in the questionnaire to the best of your knowledge. Thank you for your cooperation.

**SECTIONA: PERSONAL INFORMATION**

Please Tick [**√**] where by appropriate in the box provided.

1. Age: 18-23 years ( ), 24-25 years ( ), 26-30 years, 31 and above years ( )
2. Education: ( ) secondary ( ), Tertiary ( ), others ( )
3. Religion: Christian( ), Muslim ( ), Others----------------------

**SECTION B**

Please Tick [**√**] where by appropriate in the box provided.

1. Strongly Agree 3. Agree 2. Disagree 1. Strongly disagree

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Adoption of E-Procurement Systems** | **SD** | **D** | **A** | **SA** |
| 1. E-procurement systems are widely used in procurement processes at RPPA. |  |  |  |  |
| 1. The use of e-procurement systems has streamlined procurement workflows at RPPA. |  |  |  |  |
| 1. Training on e-procurement systems is regularly conducted to enhance staff competency. |  |  |  |  |
| 1. E-procurement systems at RPPA comply with national procurement regulations. |  |  |  |  |
| **Reduction in Processing Times** | **SD** | **D** | **A** | **SA** |
| 1. Digital tools have significantly reduced the time required for procurement approvals at RPPA. |  |  |  |  |
| 1. Automated procurement processes have minimized delays in service delivery at RPPA. |  |  |  |  |
| 1. Digitalization has improved the speed of communication among procurement stakeholders at RPPA. |  |  |  |  |
| 1. The implementation of digital tools has reduced time spent on repetitive procurement tasks. |  |  |  |  |
| **Integration of Digital Tools for Monitoring and Reporting** | **SD** | **D** | **A** | **SA** |
| 1. Digital tools are extensively used for monitoring procurement performance at RPPA. |  |  |  |  |
| 1. Real-time reporting features are integral to digital systems in procurement activities at RPPA. |  |  |  |  |
| 1. The adoption of digital monitoring tools has enhanced transparency in procurement reporting at RPPA. |  |  |  |  |
| 1. Digital platforms are effectively utilized to track compliance with procurement standards at RPPA. |  |  |  |  |
| 1. Integration of Digital Tools for Monitoring and Reporting |  |  |  |  |
| **Procurement Efficiency** | **SD** | **D** | **A** | **SA** |
| 1. The use of digital systems has improved the accuracy of procurement records at RPPA. |  |  |  |  |
| 1. Digitalization has enhanced the efficiency of resource allocation in procurement processes at RPPA. |  |  |  |  |
| 1. Procurement cycles at RPPA are more streamlined due to the integration of digital tools. |  |  |  |  |
| 1. The adoption of digital systems has reduced errors in procurement documentation at RPPA. |  |  |  |  |

**SECTION C**

1. How has the adoption of digital tools influenced procurement processes within your organization?–––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––
2. What challenges have you experienced in implementing digital systems in procurement activities?–––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––––