

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF COMMERCE

DEPARTMENT OF ECONOMICS



**THE IMPACT OF LEVERAGING ELECTRONIC TO ENHANCE HEALTHCARE
SERVICE DELIVERY. A CASE STUDY OF MASHONLAND CENTRAL
HEALTHCARE INSTITUTIONS.**

BY

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**A DISSERTATION SUBMITTED TO BINDURA UNIVERSITY OF SCIENCE
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DECLARATION

I, Brenda Mapako declare this research project herein is my own work and has not been copied or lifted from any source without the acknowledgement of the source.

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DEDICATION

I dedicate this work to my mother, Lucia Muhovo who has always supported and encouraged me over all the challenges I faced in completing my project. I would also like to express my gratitude to my supervisor, Mrs. Ncube, for her unwavering devotion and dedication, without which I could not have completed this research project and met my professional goals.

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God bless you.

ABSTRACT

This research examines the effect of electronic government procurement system adoption on health care delivery for a specific health care facility in Mashonaland Central, Zimbabwe. Adopting the quantitative method, this research sought to evaluate the effect of electronic government procurement efficiency adoption and hence quality of health care service delivery. Data were collected by way of structured questions sent via e-mail to a target group of 41 members who are procurement officers, administrative healthcare and IT staff. Various statistical correlation, descriptive statistics and ANOVA were applied in the analysis by way of the Statistical Package for the Social Sciences (SPSS). The results of this research indicate that there is significant positive correlation between e-government procurement usage and availability of supply improvement, cost reduction and timeliness achievements. Nevertheless, benefits and drawbacks like poor ICT infrastructure and a lack of training of staff were realized as part of the implementation process. The research suggests that capacity building, policy framework and infrastructure electronic investment will result in the efficient usage of electronic government process.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Electronic government procurement has become one of the key tools being implemented by organisations currently to retool their services delivery. The main subject of the essay is the effect of utilizing electronic procurement towards improving healthcare service delivery. The statement of the problem, research aims, study rationale, research questions, restrictions, and delimitation will all be discussed under chapter one.

1.2 Background of study

The international public sector has witnessed a paradigm change in the management of procurement as a result of the implementation of electronic government procurement systems. The platforms are revolutionizing the way government buys goods and services through the process of automation by replacing conventional processes with automated processes. Electronic government procurement improves transparency, accountability and efficiency in the government procurement process hence enabling government to save money and reduce corruption risks. This change facilitates not just internal administration transformation but also other public sector objectives, particularly timely and effective service delivery to the public. (OECD,2023).

Effective service delivery of public sector reforms depends on the ability of the government to procure and distribute resources clearly and in a timely manner. E-procurement helps ensure that essential goods and services are delivered to the population with minimal delay, minimizes administration bottlenecks and encourage efficient public spending. For instance, when the COVID-19 pandemic happened, nations with solid e-procurement infrastructure were capable of purchasing and distributing vaccines, emergency relief and supplies much faster compared to use of outed systems. Therefore, this real-time responsiveness provided continuity of vital services like healthcare, sanitation and emergency relief (World Bank Group, 2022). The link between

procurement and delivery of services directs attention to electronic government procurement as a strategic element of broader public sector reforms for improving governance, accountability and service delivery in Africa (European Commission, 2024).

Electronic government is increasingly seen as part of broader public sector reforms intended to improve governance, accountability and service delivery throughout Africa. This acknowledges that modernising procurement is central to realizing the Sustainable Development Goals (SDGs) most specifically those specific to health like universal health coverage, maternal and child health and control of diseases. By promoting members to use the eGP system, these organizations establish a culture of openness and harmonized procurement procedures that promote coordination, bulk purchase and enhanced monitoring of health commodities.

Despite such promising development, regional uptake of the eGP is currently under severe strain. Disparities in technology readiness, connectivity and institutional capacity among member states present the risk of achieving unequal rates and levels of adoption. The eGP has vast potential to transform continental procurement of healthcare, realising its gains necessitates hard, consistent efforts both by the regional and the national. These are critical towards breaking barriers and creating a harmonized procurement setting that has the potential to catalyze equitable and efficient delivery of healthcare services throughout Africa (Healthcare Procurement Africa, 2023) and (Africa Union, 2022).

According to the Zimbabwean Government's Public Procurement and Disposal of Public Assets (PPDPA) directives, a step in the right direction has been made toward embracing electronic procurement system in public healthcare for purposes of enhancing transparency and accountability. While others of the city-based large hospitals have managed to establish electronic procurement systems, rural hospitals in Mashonaland central have also experienced unique challenges varying from unreliable internet connectivity, lack of technical infrastructure, staff resistance and training in proper e-procurement use.

However, the application of electronic procurement improves service delivery by automating the purchasing process and enhance collaboration with suppliers to allow them to negotiate prices more effectively and facilitate on-time delivery of suppliers. Notwithstanding this, there have been

efforts from the government in promoting the use of e-procurement in public institutions such as the Zimbabwe Electronic Procurement System (Zeps) whose function is to standardize and digitalize purchasing process in all government institutions including healthcare facilities (Ndlovu & Nyoni, 2021). As reported by Chikodzi (2021), e-procurement systems help ensure that tender documents, bid evaluation and contract award become accessible to stakeholders involved thereby enhancing transparency and preventing the possibility of corrupt practices

1.3 Statement of the problem

Public service delivery remains a persistent challenge in healthcare institutions, that can be caused by inefficiencies, delays and lack of transparency in procurement processes (Chronicle, 2022). Manual and paper-based systems are prone to delays and poor accountability (Nhitai, 2021). Although the adoption of electronic government procurement system has been promoted as a solution to mitigate these challenges in public procurement since system officially operated in 2024 that impact on the healthcare service delivery.

In rural areas, delays in acquiring essential medical supplies, including medicines and equipment are primarily due to outdated procurement methods that rely on manual processes, causing stock outs and interruptions in service provisions (Chimombe, 2023). This situation is exacerbated by limited funding and insufficient infrastructure leading to suboptimal healthcare outcomes for patients. While eGP has the potential to improve procurement speed, transparency and cost-effectiveness, in healthcare institutions are still investigating issues as poor digital infrastructure, lack of user training and resistance to technological changes (Manica Post, 2023).

1.4 Research objectives

This study is sort to achieve the objectives:

- i. To examine the impact of leveraging electronic government procurement on the availability of quality supplies in healthcare institutions in Mashonaland central.
- ii. To assess the impact of leveraging electronic government procurement on cost reduction in healthcare institutions in Mashonaland central.

- iii. To evaluate the impact leveraging of electronic government procurement on timeliness outcomes in healthcare institutions in Mashonaland central.

1.5 The statement of hypothesis

Based on the objectives of the study, the following hypothesis have been formulated.

1. Leveraging electronic government procurement significantly improves the availability of quality supplies in healthcare institutions in Mashonaland central.

H2. Leveraging electronic government procurement significantly reduces cost in healthcare institutions in Mashonaland central.

H3. Leveraging electronic government procurement significantly enhances the timeliness outcomes of service delivery in healthcare institutions in Mashonaland central.

1.6 Significant of study

This study was undertaken to satisfy personal, intellectual, and professional interests. The study's major focus is to assess the impact of leveraging eGP system to enhance healthcare service delivery. This study aims to address the missing gaps which are providing space for mentioning strengths and weaknesses of the act.

1.6.1 To the Academia

This study provides valuable insights to academia by examining the impact of electronic government procurement on healthcare service delivery in Mashonaland Central healthcare institutions. It bringing the knowledge gap between information technology applications and healthcare management. By examining how electronic procurement systems influence the efficiency, transparency and responsiveness of healthcare service delivery. The study also provides empirical evidence that supports the integration of digital tools in public healthcare institutions.

For scholars in healthcare economics, public health and information systems, this research offers ha framework for analysing the operational benefits and challenges of electronic procurement. It advances theoretical models on healthcare supply chain management and transformation of digital

platforms by contextualising them within healthcare sector where by timely delivery of medical supplies and services is important to the patient outcomes. Also, the study opens up new avenues for academic inquiry, encouraging future researchers to explore related themes such as cost-effectiveness analysis, stakeholder adoption, digital literacy and data security within electronic procurement system and also serves as valuable reference for curriculum development in health informatics, procurement management and health system strengthening programs.

1.6.2 To the organisation

This study is of great importance to Mashonaland Central as it explores how e-procurement can be leveraged to improve healthcare service delivery. Currently, the hospital faces challenges such as delays in the procurement process, stock-outs of essential medicines and equipment, and limited transparency in the use of resources. The findings of this study will help the hospital understand how the adoption of electronic procurement systems can address these challenges by improving efficiency, reducing paperwork, and increasing accuracy in ordering and stock management.

The research offers practical contributions through the conceptual framework which can guide the organisation in leveraging or adoption electronic government with its healthcare service delivery objectives. Therefore, this framework can be used as a decision-making tool within healthcare institution to assess the procurement practices and performance to achieve service delivery goals and make informed decision based on research backed evidence.

1.6.3 To the policy makers

This study offers significant value for policymakers at the district, provincial, and national levels. It provides that how the adoption of electronic government procurement can improve procurement transparency, reduce corruption, and enhance service delivery in public healthcare institutions. By focusing on the healthcare institutions in Mashonaland Central, the research provides a practical that guide similar reforms in other rural and district hospitals. It supports efforts to standardise and mordenise procurement processes throughout the public health sector.

The findings can assist in shaping informed policies and strategic plans to strengthen health supply chains. They underscore the importance of investing in ICT infrastructure, building technical

capacity among health workers and administrators to establishing clear practical guidelines for implementing electronic government procurement systems. Beyond operational improvements this study aligns with broader national priorities such as promoting good governance ensuring the efficient use of public resources and moving closer toward the goal of universal health coverage. By leveraging these findings, policymakers can implement reforms that lead to sustainable improvements in healthcare service delivery throughout the country.

1.6.4 To the practitioners

For healthcare professionals and procurement personnel including hospital staff, administrators and supply chain managers this study offers practical and relevant guidance. It shows how electronic government procurement can streamline routine purchasing tasks reduce reliance on manual paperwork and introduce automation that saves time and minimises errors. By adopting electronic systems, practitioners can better track orders maintain supply availability and respond more effectively to patient needs.

Additionally, the study provides opportunities for learning and professional growth by introducing modern procurement tools and best practices. It encourages a forward-thinking approach that embraces innovation and continuous improvement. With more efficient procurement system in place, healthcare practitioners can devote more attention to patient care avoid supply shortages and help build a more responsive and reliable healthcare delivery system.

1.7 Assumptions

This study has the following assumption:

- i. It is assumed that the tools and methods used to collect data (such as questionnaires and interview) are reliable and valid for capturing the necessary information.
- ii. It is assumed that external factors (such as government policies, infrastructure, or funding) remain relatively stable during the study period and do not significantly distort the impact of electronic procurement.
- iii. It is assumed that the leveraging of electronic directly influences key aspects of service delivery such as cost reduction, availability of supplies and timeliness outcomes.

1.8 Delimitations

This study has following delimitations

Subject delimitation of the study

The study specifically targets healthcare procurement officers, administration staff and IT personnel within the selected healthcare institutions in Mashonaland Central. It excludes other stakeholders such as patients, suppliers outside the procurement systems or policymakers.

Technological delimitation of the study

This study focuses only on electronic procurement systems currently implemented in the institution such as e-tendering, e-auction, e-invoicing and automated purchase orders. It does not consider traditional procurement methods or other unrelated IT systems like electronic health records.

Geographical boundaries of the study

This study is limited to the public healthcare in Mashonaland Central region and does not include healthcare institution outside this area. It does not include private hospitals or clinics and the findings may not generalize beyond this geographic and institutional context.

1.9 Limitation

This study has following limitations:

- Data collecting proved challenging in areas that are under the purview of the law and morality. However, the researcher had to request permission from the Accounting Officer before being given access to the necessary data. It was challenging to deal with sensitive and confidential information because respondents were reluctant to disclose it. However, the researcher had to convince them that the material was crucial because it was only being used for academic purposes.

- Some respondents were unable to timely return the completed surveys. They needed to be convinced to complete on time by the researcher.

1.10 Definition of terms

This study has definition of terms below:

Procurement is the process of acquiring goods and services from external sources often through a tendering or purchasing system (Chilunjika ,2024).

Electronic procurement is the use of digital tools, platforms and systems to acquire goods, services and works from suppliers through online processes and it aims to streamline procurement processes, enhance transparency and reduce costs. (Nambela, N 2024).

Service delivery refers to the processes and mechanisms through which services are provided to individuals or communities, emphasizing efficiency, accessibility, and quality. It involves organizing, funding, managing, and accessing services to meet the needs of the public. In healthcare refers to the provision of health services to patients encompassing the quality and efficiency of care provided. (Ndlovu, 2024).

Leveraging The strategies utilisation involves utilizing resources or capabilities to achieve greater outcomes

1.11 List of acronyms

OECD	Organisation for Economic Co-operation and Development
WHO	World Health Organisation
NHS	National Health Service
UNDP	United Nations Development Programme
Zeps	Zimbabwe Electronic Procurement System
PPDPA	Public Procurement and Disposal of Public Assets

1.12 Chapter summary

The background information and problem statement for the subject under study were revealed in this chapter. Additionally, it proposed the study's goals and the questions that would go along with the, briefly discussed the significance of the research, and outlined the presumptions, restrictions, and delimitations that applied to the subject under study. This research involves chapter 2, the literature review of the study, chapter 3 the methodology and chapter 4 research findings and chapter 5. The following chapter is the literature review of the study.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The chapter gives an extensive literature review of literature that is relevant to the employment of electronic procurement as a step towards better healthcare service delivery. It starts by defining key terms and exploring relevant theories that inform the study like the New Public Management (NPM) theory, Diffusion of Innovation (DIO) theory and Technology Acceptance Model (TAM). This chapter also comprises definition of concepts, theoretical review, conceptual framework and research gap. This chapter also describes empirical reviews of previous research work, how they are connected to the present study, and how conclusions in previous chapters of this research were arrived at. The chapter will be concluded near the end of that section, discussing the gap in research which this study is aiming to fill in.

2.2 Theoretical framework

The study is underpinned by a theoretical framework constituted by new public management, innovation diffusion theory and technological acceptance model theory.

2.2.1 New Public Management theory

New Public Management Theory, which promotes increased efficiency and less wastage in the public sector, was initiated by Hood (1991). It focuses on applying private sector techniques to improve the delivery of public goods and services. Elahi et al. (2021) extended TAM and added fear of COVID 19 to it, and it was discovered that individuals' attitudes and behavioral intentions regarding the uptake of e-health services were positively affected by fear of COVID 19. The necessity of informing the public procurement systems is parallel to the necessity to settle the unresolved procurement issues that negates efficiency in the utilization of the public resources in the public sector in Zimbabwe. Referring to Hood (1991), among the key determinants of the NPM was to cut down on the stranglehold of public sector spending on the public accounts. It is the

contention of Joukie-deVries (2010) that the NPM model entails cost-reduction and enhanced operation performance particularly in major services such as healthcare. Adoption of digital procurement system covers this need in the way it provides an open, cost-cutting and lean alternative to conventional procurement systems. Electronic procurement systems have the potential to reduce transaction cost, foster accountability and enhance the quality of goods and services offered to healthcare institutions (Madzinga, Sibanda & Munuhwa, 2020).

NPM supports competitive tendering procedures like in the private sector with value for money guarantees and better service standards (Hughes, 2023). This means the electronic government procurement process has to be reformed to abide by standardized tendering procedures which, in the aggregate, can deliver quality public goods and services as well as cost savings in delivery. Jouke-DeVries (2010) notes that the application of ICT is increasingly becoming an enabling or vital factor in NPM doctrine as the technology remains on the forefront of transforming the public sector into modernizing its operations to match the private sector's performance. Therefore, in accordance with NPM theoretical framework, the study is looking to discover how to assess transparency in the implementation of electronic government procurement system in the Zimbabwean healthcare.

2.2.2 Technology Acceptance Model (TAM) theory

Developed by Davis (1989) the Technology Acceptance Model attempts to explain how users in practice end up accepting and using new technology. TAM is a theory of information systems which describes how users in practice end up accepting and using some technology. It is how much one is convinced that the use of some system would be easy. Applying TAM as a conceptual model, researchers and implementers may gain insight into challenges that may impact adoption and utilization of e-procurement system in healthcare for improved healthcare service delivery.

The function of this model is to predict and explain the acceptability of an aggregate of information technology, investigating and probing factors determining the acceptability of some information on technology. TAM identifies perceived ease of use (PEOU) and perceived usefulness (PU) as two factors that are expected to influence the attitude. Theoretically, TAM assumes that actual behavior directly and predominantly influences behavioral intention, (Alshaharani & Sherry,

2022). The theory describes that the usage of employees, perceived usefulness ease of use of the software were significantly and positively correlated (Neil, Walter and Boot, 2016). For example, if the healthcare staff believes that e-procurement system like to be helpful and easy to use they would tend to use this system and adopt leading to better procurement processes, cost reduction, higher transparency and improved healthcare service delivery (Kumar et al., 2023).

In particular, new technologies like personal computers are sophisticated and there is a degree of uncertainty in the minds of decision makers regarding successful use of them as well as people regarding attitudes and intentions towards attempting to learn to utilize the new technology before going ahead with efforts towards use. Research by Elahi et al. (2021) extended TAM to fear of COVID 19 and established that people's attitude and behavior towards adopting e-health services were positively affected by this fear.

The theory was applicable to the research provided because the research is concerned with how exploiting electronic procurement in an effort to improve service delivery of healthcare services has an effect or influence. The study wanted to understand how using technology in procurement has the impact or effect on service delivery.

2.2.3 Diffusion of Innovation theory

Rogers built the Diffusion of Innovations theory in 1992 and it's a highly retro social science theory of how, why, and at what rate new ideas and technology diffuse throughout cultures, at firm and individual levels. Miller (2015) believes that on an organisational level innovativeness is related to such independent variables as personal attributes, internal organisational structural attributes and external organisational attributes. Sharma et al. (2022) took into account the position of telehealth services during the COVID 19 pandemic by using an extended TAM, comprising consult like perceived risks and need for policy and training. Under this theory, while centralisation is the extent to which power and control within a system are held and exercised by a relatively small group of people, complexity is the extent to which members of an organisation have a relatively high degree of knowledge and know-how and formalisation is the extent to which an organisation cares for the conformity of its members with rules and procedures.

But the external organisation features capture openness of the system. As far as it applies to this study the capacity of an organisation to embrace appropriate technology is determined by the nature of activity that calls for the use of innovative technology. Employment of e-procurement here relies on the necessity to transform the key steps of procurement.

The DOI theory categorizes adopters of innovation into five groups

1. Innovators – These are the first to adopt new technologies and are typically risk-takers, such as leading government ministries and well-resourced hospitals.
2. Early Adopters – These include proactive procurement officers in healthcare institutions who adopt e-procurement after observing its viability.
3. Early Majority – This group adopts innovation after its benefits are proven. They are deliberate and rely on the experiences of early adopters.
4. Late Majority – These individuals are skeptical and adopt innovation mainly due to economic necessity or social pressure. They are often found in under-resourced district and rural hospitals.
5. Laggards – These are resistant to change, preferring traditional practices and are usually the last to adopt new systems.

Figure 1.1: An illustration of the five established adopter categories in the Diffusion of Innovations Theory.

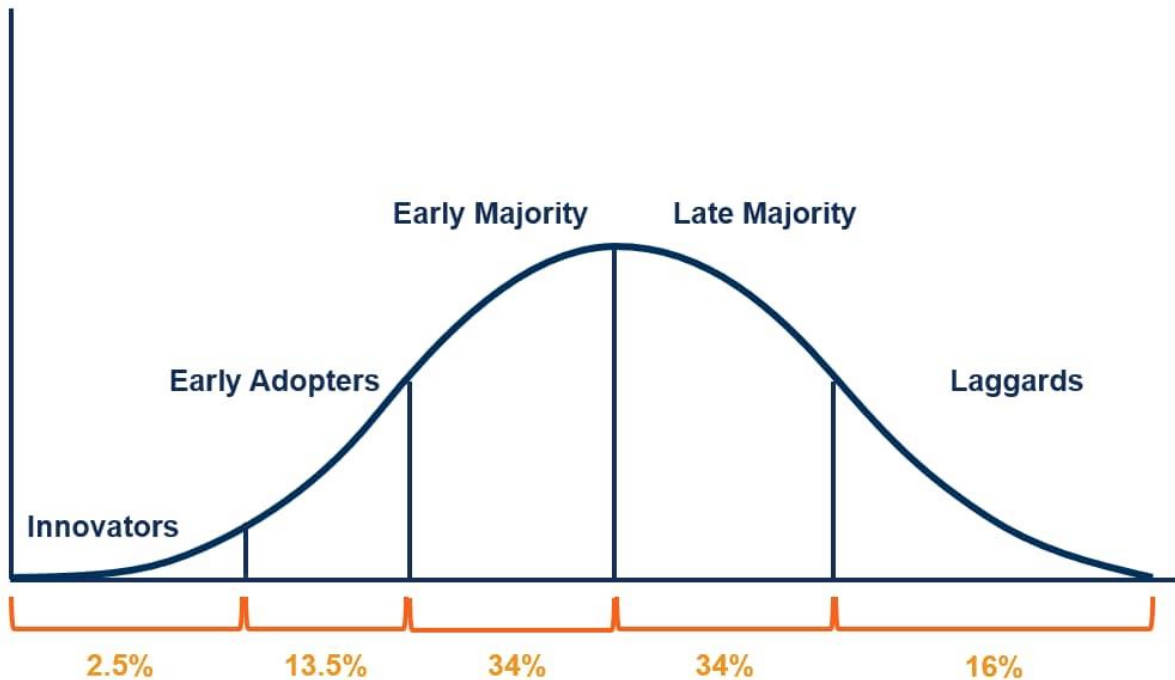


Figure 3: Diffusion of innovation theory (source Field 2020)

2.3 E-Procurement and Service Delivery

E-procurement, or electronic government procurement (eGP), revolutionises traditional public procurement by digitising all stages from tendering to contract management. This digital transformation not only accelerates procurement cycles but also enforces compliance with regulatory frameworks, reducing manual errors and fraud. The adoption of eGP systems has become a cornerstone for governments striving to improve service delivery efficiency, ensuring public resources are utilised optimally to meet citizen demands (OECD, 2023).

Digital procurement platforms provide public agencies with robust data management capabilities, enabling better transparency and accountability. Access to real-time procurement data allows for enhanced monitoring and evaluation of procurement activities, ensuring contracts are awarded fairly and suppliers perform reliably. This transparency fosters increased public confidence and participation, as suppliers from diverse backgrounds can compete on equal footing, broadening the supplier base and driving innovation in public services (World Bank Group, 2022).

Moreover, eGP systems support integrated workflows that connect procurement with financial management, inventory control, and service delivery units. This integration creates seamless processes where procurement delays or irregularities are swiftly detected and corrected, preventing service disruptions. By linking procurement decisions directly to service requirements, governments ensure that public services such as healthcare, education, and infrastructure development receive timely and quality inputs (UNDP, 2021).

Finally, e-procurement contributes to sustainability objectives by promoting environmentally responsible procurement and reducing the carbon footprint associated with paperwork and logistics. Digital systems facilitate the implementation of green procurement policies and the tracking of sustainability metrics in procurement decisions. This aligns service delivery not only with efficiency goals but also with broader national and global commitments to sustainable development (OECD, 2023).

2.3.1 Process Automation

Automating procurement processes has become essential in modern electronic procurement systems. By using technologies like workflow automation, robotic process automation (RPA), and artificial intelligence (AI) organisations can eliminate repetitive manual tasks and improve the efficiency of their procurement operations. These tools help streamline activities such as bidding, evaluation and approvals ultimately reducing turnaround times and cutting down operational costs (European Commission, 2024).

Beyond just speeding things up, automation increase accuracy by reducing the chances of human error. It also helps ensure that procurement practices stay aligned with internal policies and regulations. This level of consistency is especially important in large public sector organisations, where multiple departments and stakeholders are involved. Automated workflows help keep processes uniform and predictable, making it easier to track accountability and lessen the administrative workload (UK Government Digital Services,2023). Also, automation is the visibility it provides. Procurement teams can monitor performance in real time using dashboard, alerts and analytics. These tools allow for quicker responses when issues arise and support continuous improvements in how procurement is managed (Word Bank Group, 2022).

Furthermore, automation supports better data management by ensuring all procurement transactions and approvals are digitally recorded and easily auditable. This comprehensive data trail facilitates compliance reporting, fraud detection, and informed decision-making. When combined with AI-driven analytics, procurement teams gain predictive insights to optimize supplier selection, contract renewals, and demand forecasting, ultimately strengthening service delivery outcomes (European Commission, 2024).

2.3.3 Organisational Readiness

Organisational readiness is foundational for the successful implementation of e-procurement systems. It encompasses the availability of adequate IT infrastructure, skilled human resources, and leadership commitment necessary to adopt and sustain digital procurement innovations. Without proper readiness, organisations risk system underutilization, resistance to change, and failure to realize anticipated service delivery improvements (OECD, 2023).

Effective readiness requires ongoing capacity building to develop procurement professionals' competencies in both technical system use and procurement governance. Training programs that cover digital skills, regulatory frameworks, and change management are essential to ensure staff can navigate new systems confidently. Cultivating a culture that embraces innovation, transparency, and accountability further supports staff buy-in and successful adoption of eGP platforms (UK Government Digital Service, 2023).

Leadership plays a pivotal role in organisational readiness by providing clear vision, allocating adequate resources, and championing digital transformation efforts. Senior management's endorsement facilitates cross-departmental collaboration and ensures that e-procurement initiatives align with broader strategic goals. Leadership also drives policy reforms and enforces compliance standards that sustain system effectiveness over time (UNDP, 2021).

Moreover, organisations must establish robust change management frameworks to address challenges such as process redesign, user resistance, and technical integration. This involves continuous stakeholder engagement, feedback mechanisms, and iterative improvements to system functionalities. When organisations demonstrate high readiness, they achieve smoother transitions,

higher user satisfaction, and measurable enhancements in procurement efficiency and service delivery quality (OECD, 2023).

2.3.4. Timeliness Outcomes in service delivery

Timeliness in service delivery ensures that public goods and services are accessible to citizens when needed, which is crucial for sectors like health, emergency response, and education. E-procurement accelerates procurement processes by automating approvals, eliminating paperwork, and enabling instant communication between buyers and suppliers. This reduces procurement cycle times, allowing services to maintain continuity and meet critical deadlines (European Commission, 2024).

EGP platforms' real-time tracking capabilities provide stakeholders with comprehensive visibility into procurement stages. Such transparency enables the early detection of delays and facilitates timely corrective actions, preventing service interruptions. Supplier accountability is also strengthened, as contract milestones and delivery schedules are monitored closely, ensuring commitments are met on time (UNOPS, 2022).

During crisis situations, e-procurement offers heightened agility, enabling rapid procurement and deployment of essential supplies. The ability to quickly issue tenders, evaluate bids, and manage contracts digitally allows governments to respond swiftly to emergencies. This capability is key to maintaining uninterrupted public services and protecting vulnerable populations during disasters (World Bank Group, 2022).

Finally, the reduction of administrative bottlenecks through eGP fosters a culture of efficiency and responsiveness in public procurement. By consistently meeting delivery timelines, governments build citizen trust and improve overall satisfaction with public services, reinforcing the social contract between the state and its citizens (OECD, 2023).

2.3.5 Cost Reduction in service delivery

Cost reduction is a primary motivation behind adopting e-procurement, as it enhances budget efficiency and value for money. By digitalizing procurement workflows, eGP reduces expenditures

related to printing, mailing, storage, and manual processing, leading to significant savings. These savings can then be redirected towards expanding or improving public services (OECD, 2023).

Furthermore, eGP facilitates competitive and transparent bidding processes, which limit price inflation and reduce the risk of corrupt practices. The availability of multiple suppliers on a digital platform enhances competition, enabling governments to negotiate better prices and contract terms. Tools such as e-auctions and price benchmarking further empower procurement officials to achieve cost-effective purchases without compromising quality (UK Government Digital Service, 2023).

Automated financial controls embedded in eGP platforms prevent errors like duplicate payments or unauthorised expenditures. Comprehensive audit trails and digital approvals improve oversight and reduce financial leakage. This enhances fiscal discipline and public accountability, crucial for sustainable service delivery (World Bank Group, 2022).

Moreover, data analytics capabilities enable ongoing expenditure analysis, helping governments identify inefficiencies and optimize procurement strategies. With better insight into spending patterns, governments can forecast future budgets more accurately and adjust procurement plans to maximize resource utilization (OECD, 2023).

2.3.6 Availability of Supplies in service delivery

Reliable availability of goods and services is vital for uninterrupted public service delivery. E-procurement enhances supply chain management by providing advanced demand forecasting and inventory controls. Automated systems analyse past consumption data and emerging trends to anticipate needs accurately, minimizing the risk of stockouts or overstocking (UNOPS, 2022).

Centralised procurement data enhances coordination across departments and with suppliers, offering a comprehensive overview of stock levels, pending orders, and supplier performance. This visibility enables proactive restocking and efficient inventory management, reducing lead times and operational delays (European Commission, 2024).

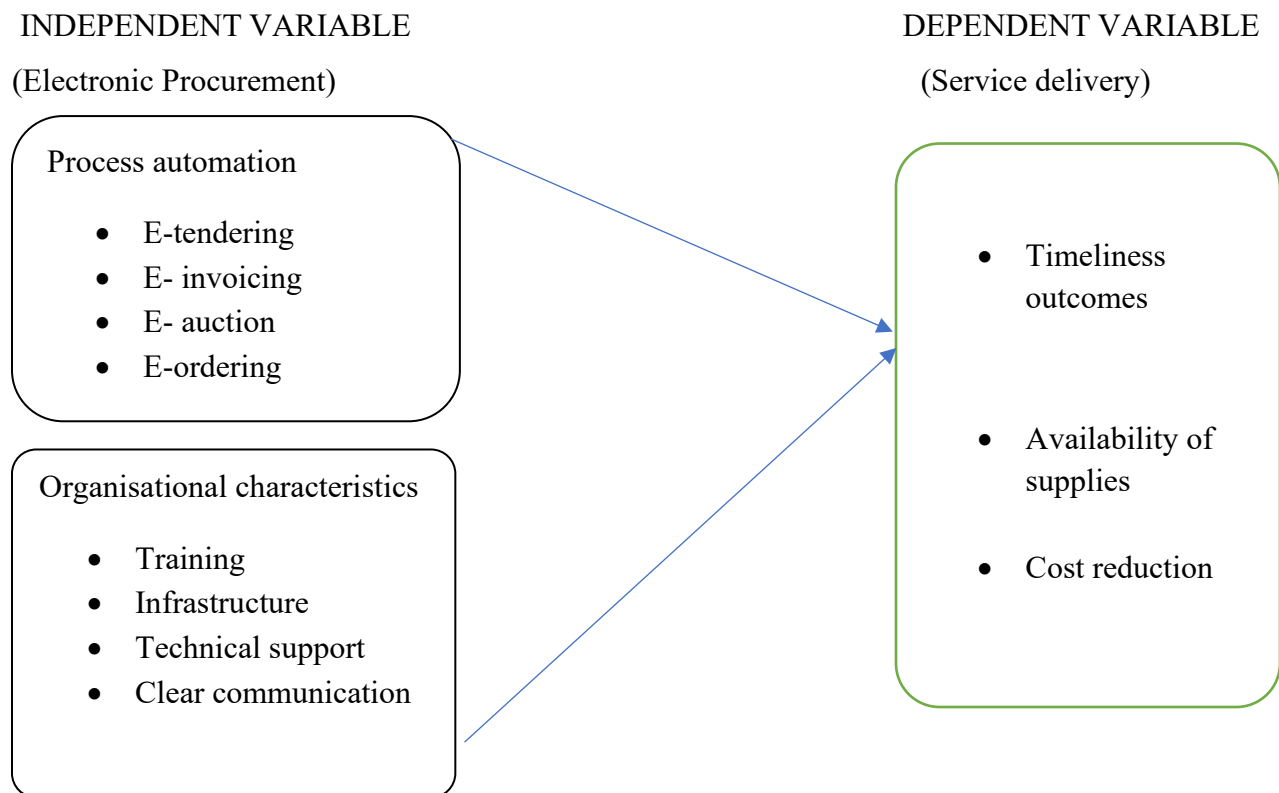
Stronger supplier relationships emerge from transparent, predictable procurement processes facilitated by eGP. Timely payments, clear communications, and consistent procurement

schedules foster supplier confidence and reliability. Trustworthy supplier networks are critical to maintaining quality and continuity of supplies necessary for public service programs (World Bank Group, 2022).

Finally, e-procurement supports integration with other government systems such as logistics and asset management, creating end-to-end supply chain visibility. This integration helps streamline operations, mitigate risks, and enhance resilience against disruptions, ultimately strengthening the overall quality and reliability of service delivery (OECD, 2023).

2.4 Conceptual Framework

A conceptual framework shows how a researcher views and connects ideas from the literature to explain a specific issue. It outlines how the variables in a study relate to each other and guides what will be studied during the research.



2.5 Empirical studies

Mwangi, Wanjiku, & Kamau, (2022)

The financial impact of electronic government procurement in Kenya's public hospitals and found that digitising procurement process resulted in considerable cost savings. The analysing records from 50 hospitals over five years, the authors reported that electronic procurement led to a 25 percent average reduction in the cost of acquiring medicines and other medical supplies. They attributed these savings to the improved price transparency that electronic procurement system introduced which helped eliminated the inflated pricing and irregularities that are often associated with manual procurement.

Beyond direct cost savings, the study observed significant reductions in administrative overhead. Tasks that previously involved more paperwork and manual cross checking were streamlined through automation. This not only shortened procurement cycles but also reduced the chances of errors and inefficiencies that previously delayed supply chains and increased operational expense. The researchers highlighted that how these financial efficiencies had a positive ripple effect on healthcare delivery. The savings enabled hospitals to reinvest in critical areas such as infrastructure improvements and staff development. By reallocating funds, many hospitals were able to improve service quality and accessibilities, demonstrating that electronic procurement can be both a financial healthcare and service delivery enabler.

Kamau & Nkoma, (2024)

The study investigates how electronic government procurement platforms adoption influence the efficiency of medical supply deliveries in Tanzania public hospitals. Their study used both statistical data and staff interviews to understand the real-world impact. Quantitative data revealed that procurement cycles times were reduced by 40 percent, a significant improvement attributed to the automation of approval processes and better coordination between departments.

The quantitative portion of the research provided rich insights from staff members worked directly with these systems. Many expressed that the ability to track supplies in real time allowed them to anticipate delays and communicate with suppliers more effectively. This shift from a reactive to a proactive system minimised disruptions and created a more transparent environment operation. The effects were felt across healthcare delivery, hospitals were able to maintain consistent access to supplies which in turn reduced patient waiting times and improved service continuity, particularly in emergency situations. Kamau and Nkoma emphasised that digital procurement contributed to a more responsive and reliable healthcare system especially in times of increased demand such as during disease outbreaks

Namutebi, Kintu & Lubega (2022)

According to their study on how electronic procurement system impacted the availability of essential medicines in Uganda public health sector. Their research showed a clear improvement, stock out rates fell from 28 percent to 15 percent after implementation. The improvement was closely linked to better integration between procurement systems and inventory tracking tools which allowed for more accurate and timely reorder decisions.

The study emphasised that how data visibility played a role. With real time inventory updates and consumption patterns, facility managers were better equipped to anticipate shortages and place orders in advance. This automation minimised last minute procurements which are often more expensive and less reliable. Moreso, improved communication with suppliers helped ensure timely deliveries and built stronger relationship between healthcare facilities and vendors. Managers reported that the enhanced predictability and planning capacity allowed for smoother operations and reduced the needs for emergency interventions ultimately contributing to more stable and effective healthcare service delivery.

Kamara & Sesay (2025)

The introduction of electronic government system has influenced healthcare delivery within Sierra Leone's public health sector. Their research which combined both qualitative and quantitative interviews, highlighted a range of improvements tied to the adoption of digital procurement platforms. Among the most notable were a 20% reduction in procurement costs, 30% increase in the timeliness of deliveries and 22% drop in the frequency of medical suppliers' shortages. These gains were attributed largely to the automation of procurement workflows, better monitoring of transactions and increased transparency in how public resources were managed.

The authors emphasised that beyond just saving money or speeding up logistics, procurement has had a tangible effect on patient care. Health workers interviewed for the study noted that they now have more consistent access to essential medicines and supplies which has allowed them to provide uninterrupted services. This, in turn has helped reduce patient dissatisfaction particularly in remote clinics that had previously struggled with irregular deliveries. Additionally, the study pointed out that e-procurement platforms enhanced accountability making it easier to detect fraud, avoid duplicate orders and ensure compliance with procurement regulations. Kamara and Sesay argued that in resource constrained environments like Sierra Leone such systems are not just technical upgrade but a fundamental tool for improving public health outcomes. Their findings support the view that investing in digital infrastructure can directly strengthen health systems by making them more efficient, equitable and responsive to community needs.

Ndlovu & Khumalo, (2023)

The organizational readiness of healthcare institutions to implement e-procurement systems was analyzed to determine its effect on cost reduction in service delivery. The study surveyed hospitals in Southern Africa, measuring factors such as the adequacy of IT infrastructure, leadership support, training programs, and staff readiness. The research aimed to assess whether organizational preparedness directly influenced the extent of cost reductions post-implementation of e-procurement systems.

The study revealed a strong positive relationship between organizational readiness and the cost reduction achieved through e-procurement systems. Hospitals with higher readiness levels that

characterized by effective leadership, comprehensive staff training, and robust IT support that achieved cost reductions of up to 30% in procurement-related expenses. The research highlighted that well-trained staff who understood how to utilize e-procurement tools efficiently were better able to negotiate lower prices with suppliers, identify inefficiencies, and avoid procurement errors, which directly contributed to the overall cost savings.

Additionally, hospitals that had the support of top management were more likely to succeed in their e-procurement initiatives. These institutions had better access to the resources needed to implement and sustain these systems, making it easier to achieve long-term cost reductions in procurement. The study found that organisational readiness also facilitated smoother transitions from traditional procurement processes to digital systems, leading to reduced resistance to change and ensuring faster adoption of the new systems.

Nwankwo et al (2024)

A study analyzed the effect of leveraging electronic procurement on the availability of supplies in hospitals across sub-Saharan Africa. The research employed a cross-sectional survey and statistical analysis to assess how digital procurement systems affected supply availability, especially in terms of essential medicines, medical equipment, and consumables. The study focused on hospitals that had transitioned from manual to electronic procurement and compared their supply availability before and after the switch.

The study concluded that hospitals using electronic procurement systems were 30% more likely to have consistent availability of medical supplies compared to those relying on manual procurement methods. Hospitals with digital systems reported fewer stockouts of essential drugs, more efficient stock management, and improved inventory visibility. The automation of the ordering process allowed hospitals to better track real-time supply levels and forecast demand, ensuring that necessary supplies were available when needed. Furthermore, e-procurement practices enabled hospitals to negotiate better contracts with suppliers, reducing the costs of supplies and improving the overall reliability of the supply chain.

Hospitals that embraced electronic procurement found that better coordination with suppliers and the ability to place automated, just-in-time orders led to more accurate and timely deliveries. This

directly impacted patient care, as critical items such as medications, diagnostic tools, and surgical instruments were consistently available. As a result, patient treatment and service delivery were less delayed, and care quality improved. The study concluded that electronic procurement systems played a crucial role in improving the availability of supplies, there supporting better healthcare service delivery.

Chikozho & Moyo, (2024).

The implementation of electronic government procurement has influenced Zimbabwe's health sector which has long faced challenges such as poor supply chain management and misallocation of financial resources. Although the country has laws in place like Public Procurement and Disposal of Public Assets Act (PPDPA) designed to enforce fair and competitive procurement practices, many public hospitals continue to struggle with delays and inefficiencies in obtaining essential medical supplies and equipment.

The study highlights that introducing electronic government procurement system in public healthcare institutions has helped address some of these persistence problems. By automating key steps in the procurement process and making supplier selection more transparent, e-procurement has reduced the paperwork burden on officials and improved oversights. These digital platforms have also made it easier for government bodies to monitor spending patterns and spot inefficiencies in the purchase of drug and medical materials

However, the researchers also point out that the benefits of electronic government procurement are uneven across the country. Infrastructure issues such as unreliable internet and lack of digital skills especially in rural areas. The overall impact has been positive thus enhancing accountability and curbing opportunities for corruption. As a result, there has been noticeable improvement in the availability and delivery of medical resources.

2.6 Research Gap

Literature in the global context agree that in exploring the impact of leveraging electronic procurement (e-procurement) to enhance healthcare service delivery in healthcare institution, the literature gap reveals several key areas that remain underexplored. The study would benefit from

further research to bridge these gaps, particularly in the context of a district hospital setting. However, there is a need of further research examining how e-procurement impacts smaller, rural hospitals. Rural hospitals face unique challenges such as limited infrastructure, lower technology adoption, and more complex supply chains, which have not been adequately addressed in existing literature (A & Mwebesa,202)). Literature has explored e-procurement adoption in healthcare organizations but rarely examines how it integrates with other local healthcare management systems (Nambela, N 2024).

2.7 Chapter Summary

The theoretical analysis and empirical data pertaining to the current situation were the main topics of this chapter. The research gap is also discussed in this chapter. The following chapter went over the research methodology. It included the methods and techniques used for gathering, analysing, and sampling data. It focused on how the sample size was determined, the tools used to gather the data, and the method used to process the data.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter illustrates the methodology adopted in solving the research problem. It describes the research design, population of interest, sample size, sampling method, data collection and how the variables were being measured. Research methodology is crucial as it lays down the whole research process as well as how one is meant to start, how to measure progress and how to conclude whether the research has been a success or not. As mandated by earlier researchers, methodology is crucial as it stipulates the method that guides the researcher in guaranteeing that the study is well planned, effective and relevant. Data collection, processing, analysis, and reporting as well as the problems that may occur in the study are also discussed in this chapter

3.2 Research design

The research utilized a descriptive survey study design, which is highly acceptable in quantitative research to effectively examine the relationships and determine the dominant practices. The design was appropriate for methodologically examining how electronic procurement (eGP) affects the provision of healthcare services in a chosen institution in Mashonaland Central. Creswell (2022) observes that descriptive designs enable systematic and objective examination of behavior, process, and outcome that fits in with the purpose of the study. The design enabled quantitative data to be collected that was examined to identify trends and relationships in relation to procurement efficiency, cost-effectiveness, speediness, and general service performance.

The research design facilitated the collection of quantitative data that were used to determine patterns, trends and relationship in procurement efficiency, cost saving, timeliness and general service delivery effectiveness. Structured questionnaire survey was the main data collection

method used for healthcare practitioners and procurement officers within the institution. This study investigated electronic government similar processes automation and organizational preparedness and operational performance thereby developing actionable findings to inform healthcare procurement systems improvement (Saunders et al, 2021).

Descriptive statistics like percentages, frequencies and measures of central tendency (mean and standard deviation) were employed to summarize the data and make inferences about the effect of electronic procurement. The survey approach also allows for gathering data from a large number of samples where generalization is possible to a larger population of healthcare establishments with similar

3.3. Research paradigm

The research was informed by the positivist paradigm of research, in line with its quantitative nature. Positivism prefers empirical observation, statistical analysis and objectivity in comprehending social processes (Neuman,2022). The paradigm holds that reality could be observed and measured regardless of the research that made it easy to research the cause-and-effect relationship between electronic government procurement and service delivery outcomes.

With this paradigm, application of systematic survey and statistical instrument guaranteed the research outcome was grounded on tangible and palpable facts. This helped in achieving generisable conclusions eliminated bias and even improved the validity and reliability of the outcome (Babbie, 2023). Positivism also facilitated strict analysis of how digital procurement system impacted healthcare delivery measures like availability of supply, timely outcome and cost savings

3.4. Target population

The research was conducted among Mashonaland Central healthcare workers and procurement officers working in healthcare facilities. The target population consisted of procurement officers, hospital administrators, senior managers and other workers directly engaged in procurement business. Institutional records estimated the population size at 45.

In order to calculate an adequate sample size with the Raosoft sample size calculator, a confidence level of 95%, a margin error of 5% and an assumption of 50% response distribution were used. Application of the calculation provided a needed sample of about 41 respondents.

3.4. Sampling Techniques

Simple random sampling was employed in this study to pick respondents from the population that had been identified. This method ensured that every member who was eligible had an equal chance of being selected and thus removed sampling bias and improved the generalizability of the results (Creswell,2021). A stratified sampling process was also conducted among the sub-group of procurement officers. Procurement positions were split into strata such as senior management, procurement officers and support staff and random samples were taken from each of these strata. This permitted more subtle exploration of eGP effects by various functional tasks (Saunders et al,2021)

3.5 Sampling procedure

A master list of all the medical officers and procurement officers in Mashonaland Central was provided by the hospital procurement and HR departments. A unique identification number was given to each participant, and participants were selected using a computer program random number generator. This ensures that the sample is random and unbiased, enhancing external validity for the study.

In addition to that, the research was using stratified sampling among the procurement officers. This method was splitting the procurement officers into various strata according to their levels (e.g., senior management, procurement officers, and administrative support). A random sample from each of these strata would then be drawn in such a way that all the subgroups, which are party to the procurement process, are appropriately represented in the research in order to better understand how electronic procurement impacts different levels of responsibility (Saunders et al., 2021).

3.6 Research instruments

The study instrument is a standardized questionnaire, intended to collect data on different dimensions of electronic purchasing and how it affects health service delivery. The questionnaire was segmented into clusters, each addressing a distinct dimension of the e-purchasing process, e.g., process automation, organizational preparedness and the service delivery in terms of timeliness outcome, material availability and cost saving. The items used for questioning were closed-ended, forming Likert-scale items in order to evaluate the degree of agreement or disagreement with statements regarding electronic procurement practices.

The questionnaire was pilot-tested among a small hospital workforce to ensure that the items are clear, relevant, and suitably phrased. Pre-test feedback was utilized to sanitize the instrument prior to its administration among the entire sample. The last questionnaire was sent online to the participants who had been invited, and it was simple for them to fill out and return their answers (Babbie, 2023).

3.6.1 Questionnaire justification and arguments

The use of a questionnaire as the data collection instrument for this study on the impact of leveraging electronic government procurement on service delivery is justified by its ability to gather standardized information efficiently. Questionnaire are important in studies involving multiple respondents from different organisations ensuring consistency and comparability across responses. Hashim et al. (2023), structured questionnaires help capture user's perception of digital systems, enabling systematic evaluation of service quality and operational efficiency in e-procurement.

Questionnaires are cost-effectiveness and scalability to use. Digital distribution through email or online platforms allows researchers to collect data quickly from a large audience at minimal cost. Smith et al. (2022) emphasized that electronic data collection tools enhance speed, reduce errors and are well suited for large studies. Also, they are designed with closed-end questions, which produce data suitable for statistical analysis. This allows descriptive and inferential statistics to examine how e-procurement affects service delivery outcomes. In line with the Zimbabwe eGovernment Procurement initiative (Procurement Regulatory Authority of Zimbabwe, 2025),

using a questionnaire helps capture quantifiable indicators such as procurement cycles times, cost saving and timeliness outcomes contributing to data-driven decisions in public service improvement.

3.7 Data collection procedures

Recruitment of the data took one week to finish. At first, the research team was seeking permission from the hospitals' management and the concerned authorities, such as ethical clearance. After approval, the structured questionnaires were sent to the recruited participants through email, with clear indication of the purpose of study and instructions to complete and submit the questionnaire. Participants were assured confidentiality and voluntariness.

A reminder was also sent in order to get a high response rate. The reminder was requesting participants who had not yet returned the survey to do so. Completed questionnaires were received online, and incomplete and missing responses were taken care of by phoning the participants (Creswell, 2021).

Once the data was gathered, it was verified for completeness and accuracy. Any inconsistency or missing value was handled by calling participants to seek clarification or further details. The data will then be prepared to carry out statistical analysis (Neuman, 2022).

3.8 Data reliability and validity

In order to validate the instrument, the questionnaire was developed following a thorough review of theoretical and empirical literature in electronic government procurement and delivery of health care services. Academic and practitioner expert review was conducted to validate the content and confirm that the instrument contained all the constructs appropriately.

Regarding reliability, internal consistency of the questionnaire was tested in terms of Cronbach's alpha. The lowest value taken into consideration was 0.7 or above in order to ensure consistency of items would capture the desired constructs (Babbie, 2023). Pre-testing was also carried out with a pilot sample and feedback was taken to settle questions in such a way that the principal survey was reliable as well as understandable.

3.9 Data analysis

Quantitative data analysis methods were used in the study to analyze the effect of electronic procurement usage on healthcare service provision. Statistical methods such as correlation analysis, regression analysis and analysis of variance (ANOVA) were used to analyze the data gathered, with statistical packages such as SPSS offering strong facilities for data handling and data analysis (Neuman, 2022).

3.9.1 Models specifications

Correlation analysis determined the extent and direction of the relationship between electronic government procurement procedures like e-tendering, e-invoicing and e-ordering and selected measures of health service delivery like reduction in costs, outcome in terms of timeliness and availability of material. It gave insights as to whether improved outcomes of service delivery were linked with increased e-procurement practice.

Multiple regression was used to examine the predictive effect of e-procurement practices on service delivery in healthcare. Independent variables such as e-procurement dimension and dependent are service delivery and its dimensions i.e. timeliness outcomes, cost reduction and supply availability. The regression model assisted in measuring the degree to which each practice of e-procurement affects service improvement in the healthcare industry.

Analysis of variance (ANOVA) was applied to test differences in healthcare service delivery outcomes at different levels of healthcare facilities, classified into groups according to the level of e-procurement adoption. The analysis performed tests if there are significant differences between groups and assisted in establishing if greater adoption of e-procurement implies improved service delivery outcomes.

3.10 Ethical considerations

Moral norms was of the highest priority throughout the study. The study followed moral norms for research involving human subjects with a vision of ensuring confidentiality and the rights of the participants. All the participants were informed about the aim of the study, voluntary nature,

and possible risk involved. Informed consent was sought prior to data collection to guarantee that participants are well aware about their rights and the nature of the study.

In addition, all data gathered was kept safe, while it was accessed by the authorized personnel only. Participants' answers were anonymized to ensure that their identity was not revealed, and sensitive or personal data were kept confidential. The study's ethical clearance was offered by the respective institutional review board prior to data collection ([Babbie, 2023]).

3.11 Chapter summary

Principles applied in the research were established at the beginning of this chapter. The selection of that ideology was then elaborated in very minute details. Data collection procedures preceded the demonstration of results and data manipulation in chapter four, which is the next chapter

CHAPTER 4

QUANTITATIVE DATA ANALYSIS

4.1 Introduction

This chapter presents the results of quantitative data analysis examining the relationship between process automation and healthcare service delivery outcomes which are availability of supplies, timeliness outcome and cost reduction. This study also controls for training, infrastructure, technical support and SOPs (Standard operating procedures) to ensure that the effects of process automation are not confounded by these enabling conditions.

4.2 Data Descriptive Statistics

4.2.1 Process on Automation

Descriptive statistics for process automation items ($N = 273$) show consistently positive results across all digital procurement tools, with means ranging from 3.77 to 3.90 on a 5-point scale. E-ordering systems received the highest average rating ($M = 3.90$, $SD = 0.723$), indicating strong perceived efficiency gains, while e-tendering scored slightly lower but still positively ($M = 3.77$, $SD = 0.796$). The composite Process Automation Average ($M = 3.84$, $SD = 0.62$) confirms moderately high adoption/effectiveness across the hospital's digital procurement functions, with all individual items (e-tendering, e-invoicing, e-auctions, e-ordering) clustering closely around this mean. The relatively low standard deviations ($SD = 0.62$ – 0.96) suggest general consensus among respondents about these tools' effectiveness, though e-auctions showed slightly more variability in perceptions ($SD = 0.957$).

Table 12: Descriptive statistics of process automation

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
E-tendering	273	1	5	3.77	.796
E-invoicing	273	1	5	3.80	.812
E- actions	273	1	5	3.87	.957
E-ordering	273	1	5	3.90	.723
Process Automation Average	273	1.50	5.00	3.835 2	.62230
Valid N (listwise)	273				

4.2.2 Availability of supplies

Descriptive statistics reveal strong positive perceptions of supply availability improvements, with individual item means ranging from 3.73 to 3.86 on a 5-point scale. The highest-rated aspects are inventory monitoring and reduced care disruptions (both $M = 3.86$), though the latter shows greater variability in responses ($SD = 0.994$). The composite Availability of Supplies Average ($M = 3.81$, $SD = 0.69$) confirms consistently favorable outcomes, aligning closely with your earlier finding of a strong correlation between process automation and supply availability ($r = .646$). All items scored well above the scale midpoint (3.0), with "reduced stockouts via e-procurement" ($M = 3.78$, $SD = 0.82$) and "improved essential supplies availability" ($M = 3.73$, $SD = 0.91$) reflecting robust operational gains.

Table 13: Descriptive statistics of availability of supplies

Descriptive Statistics					
Availability of supplies	N	Minimum	Maximum	Mean	Std. Deviation
Availability of supplies 1	273	1	5	3.73	.910
Availability of supplies 2	273	1	5	3.78	.817
Availability of supplies 3	273	1	5	3.86	.849
Availability of supplies 4	273	1	5	3.86	.994
Availability of supplies Average	273	1.75	5.00	3.8086	.69183
Valid N (listwise)	273				

4.2.3 Timeliness Outcomes

Descriptive statistics indicate strong perceived improvements in procurement timeliness following e-procurement adoption, with individual item means ranging from 3.66 to 3.89 on a 5-point scale. The highest-rated aspect is faster procurement processes ($M = 3.89$, $SD = 0.835$), closely followed by timely responses to urgent supply needs ($M = 3.87$, $SD = 0.837$), highlighting automation's effectiveness in critical areas. The composite Timeliness Outcomes Average ($M = 3.81$, $SD = 0.67$) aligns with your earlier correlation finding ($r = .436$, $p < .001$), confirming that process automation moderately enhances timeliness. While reduced supply delays ($M = 3.82$, $SD = 0.913$) scored well, service delivery time improvements ($M = 3.66$, $SD = 0.962$) where the lowest suggesting procurement gains may not yet fully translate to frontline care delivery.

Table 14: Descriptive statistics of timeliness outcomes

Descriptive Statistics					
Timeliness outcomes	N	Minimum	Maximum	Mean	Std. Deviation
Timeliness Outcomes 1	273	1	5	3.89	.835
Timeliness Outcomes 2	273	1	5	3.82	.913
Timeliness Outcomes 3	273	1	5	3.87	.837
Timeliness Outcomes 4	273	1	5	3.66	.962
Timeliness outcomes Average	273	2.00	5.00	3.8077	.66705
Valid N (listwise)	273				

4.2.4 Cost Reduction

Descriptive statistics demonstrate strong perceived cost-reduction benefits from e-procurement adoption, with individual item means ranging from 3.70 to 3.98 on a 5-point scale. The highest-rated aspects are e-auction cost savings ($M = 3.98$, $SD = 0.822$) and reduced procurement costs/avoided unnecessary purchases (both $M = 3.95$), indicating automation excels at price negotiation and expenditure control. The composite Cost Reduction Average ($M = 3.90$, $SD = 0.64$) is the strongest among all outcome variables analyzed, aligning with your earlier correlation finding ($r = .536$, $p < .001$) that process automation moderately explains cost savings. While administrative cost reduction scored slightly lower ($M = 3.70$, $SD = 0.913$), the overall results confirm e-procurement significantly cuts costs particularly through competitive bidding (e-auctions) and purchase optimization.

Table 15: Descriptive statistics of cost reduction

Descriptive Statistics					
Cost reduction	N	Minimum	Maximum	Mean	Std. Deviation
Cost Reduction 1	273	1	5	3.70	.913
Cost Reduction 2	273	2	5	3.95	.756
Cost Reduction 3	273	1	5	3.95	.908
Cost Reduction 4	273	1	5	3.98	.822
Cost Reduction Average	273	1.75	5.00	3.8956	.63889
Valid N (listwise)	273				

4.3 Pearson Correlation Analysis

4.3.1 Availability of supplies

A statistically significant strong positive correlation exists between process automation and availability of supplies ($r=.646$, $p<.001$), indicating that higher levels of process automation are robustly associated with improved supply availability. The effect size ($r^2=.417$) reveals that approximately 41.7% of the variability in supply availability outcomes is explained by process automation. With a substantial sample size ($n=269$), derived from $df=267$ and extreme statistical significance ($p<.001$), this relationship is highly reliable and likely generalises beyond the sample.

Table 16: Correlation analysis of availability of supplies

Correlations			
Control Variables			Availability of supplies Average
Training	Process Automation Average	Correlation	.646
Technical Support		Significance (2-tailed)	.000
Infrastructure Procedures		def.	267

4.3.2 Timeliness outcomes

The analysis shows a statistically significant, moderate positive correlation between process automation and timeliness outcomes ($r=.436$ $r=.436$, $p<.001$ $p<.001$). This indicates that higher levels of process automation are associated with improved timeliness performance. The effect size ($r^2=.190$ $r^2=.190$) reveals that approximately 19.0% of the variability in timeliness outcomes can be attributed to process automation. With a robust sample size ($n=269$, derived from $df=267$) and high statistical significance ($p<.001$ $p<.001$), this relationship is unlikely due to chance and likely generalises to the broader population.

Table 17: Correlation analysis of timeliness outcomes

Correlations			
Control Variables			Timeliness outcomes Average
Training	Process Automation Average	Correlation	.436
Technical Support		Significance (2-tailed)	.000
Infrastructure Procedures		Df	267

4.3.3 Cost reduction

The correlation analysis indicates a statistically significant, moderate positive relationship between process automation and cost reduction ($r = .536$, $p < .001$), meaning that as process automation increases, cost reduction tends to increase proportionally. The effect size ($r^2 = .287$) reveals that approximately 28.7% of the variability in cost reduction outcomes can be explained by changes in process automation levels. With a substantial sample size ($n = 269$) and high statistical significance ($p < .001$), this correlation provides strong evidence of a meaningful association in the population, though it does not establish causation between these variables.

Table 18: Correlation analysis of cost reduction

Correlations			
Cost Reduction			Cost Reduction Average
Training	Process Automation Average	Correlation	.536
Technical Support		Significance (2-tailed)	.000
Infrastructure Procedures		Df	267

4.4 Regression Analysis of Electronic government procurement and healthcare service delivery.

The regression analysis provides information on the relationship between e-procurement and service delivery. Table 8 presents the model summary of the variables involved in this study. The R value of 0.710 shows the regression coefficient of process automation on e-procurement and healthcare service delivery. The regression coefficient shows a high relation between electronic government procurement and healthcare service delivery. The R² value of 0.505 showed the coefficient of determination between e-procurement as well as healthcare service delivery. The coefficient of determination showed that high percentage variation in healthcare service delivery is caused by electronic government procurement.

Table 19: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2
1	.710 ^a	.505	.499	.44047	.505	91.301	3	269

a. Predictors: (Constant), Process automation

b. Dependent Variable: Cost reduction, timeliness outcomes, availability of supplies

Table 9 represents the analysis of variance. From the table, the sig. figure of 0.00 indicate that e-procurement processes are significant to service delivery

Table 20: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	53.142	3	17.714	91.301	.000 ^b
	Residual	52.191	269	.194		
	Total	105.332	272			

a. Dependent Variable; Cost reduction, timeliness outcomes, availability of supplies

b. Predictors; (Constant), Process automation

Table 10 represents the effect (B), relationship (Beta) and significance (Sig.) of e-procurement and service delivery. The B value showed that e-procurement has a positive relationship with healthcare service delivery. This means that as organizations utilizes e-procurement processes, it influences and improves their service delivery in healthcare. The beta value showed that there is a positive and strong correlation between e-procurement and healthcare service delivery. The significant value of 0.00 showed that e-procurement processes is significant to service delivery.

Table 21: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Correlations	
		B	Std. Error	Beta			Zero-order	Partial
	(Constant)	1.211	.175		6.902	.000		
	Availability of supplies	.531	.055	.590	9.703	.000	.681	.509
	Timeliness	-.170	.067	.182	-2.521	.012	.472	-.152
	Cost reduction	.320	.068	.329	4.726	.000	.573	.277

a. Dependent Variable: CR, AS, TO

4.5 Hypothesis testing

In this study, the relationships were examined using multiple regression analysis. The hypothesis was done to test the strength of the relationships between the dependent variable which was availability of supplies, cost reduction and timeliness outcomes and independent variable which is process automation.

Table 22: Multiple regression analysis results

Variable	B Coefficients	Beta Coefficients	T value	P value	Partial correlation	Part correlation
Availability of supplies	0.531	0.590	9.703	0.000	0.509	0.461
Timeliness outcomes	-0.170	0.182	-2.52	0.012	-1.52	0.108
Cost reduction	0.320	0.392	4.726	0.000	0.277	0.203

The table shows results how to determine the significant influence between the electronic government procurement on the three dependent variables that is cost reduction, availability of supplies and timeliness outcomes. A sample of 41 participants from the healthcare institutions was used in the analysis.

4.5.1 The significant influence between process automation and availability of supplies

The table 11 show results that there was a statically significant positive relationship between electronic government procurement on process automation and availability of supplies on service delivery ($t=9,703$; $p>0.000$). This means that there were successful results not reject the hypothesis by the researcher.

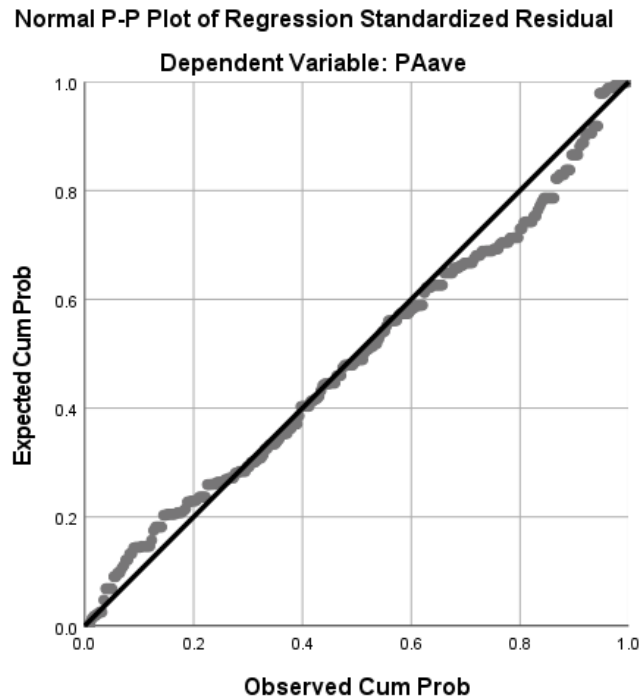
4.5.2 The significant influence between process automation and timeliness outcomes

Results from Table 11 revealed that there was a negative significant relationship between electronic procurement on process automation and timeliness outcomes ($t= -2.52$; $p>0.012$). This showed that there is no significant influence hence the researcher was rejected the failure of hypothesis.

4.5.3 The significant influence between process automation and cost reduction

The table 11 revealed shows that there was a statically significant positive results between electronic government procurement on process automation and cost reduction in service delivery. Therefore, means that the researcher was not reject the hypothesis.

Figure 4: Presentation of regression



4.6 Discussion of Findings

The primary objective of this study was to examine the impact of leveraging electronic government procurement (e-GP) on the availability of supplies in healthcare institutions within Mashonaland Central. The results indicated that the adoption of e-GP platforms plays a significant role in streamlining procurement processes, ultimately enhancing the availability of essential supplies. This finding is consistent with the observations made by Boateng (2020), who emphasized the growing importance of electronic procurement within public sector procurement and highlighted the need for efficient execution of e-GP systems to fully realize their benefits. The e-GP system facilitates procurement activities such as the acquisition of goods, consultancy and non-consultancy services, and disposal of assets. It supports several procurement functions, including

user registration, tender notifications, tender submissions and evaluations, contract awards, catalog and framework agreement management, auctions, and payment processes. Consequently, the system contributes to ensuring consistent and timely availability of supplies, a factor that is particularly critical in the healthcare sector.

The second objective was to assess the extent to which e-procurement contributes to cost reduction in healthcare institutions. The findings revealed that the use of e-procurement significantly reduces administrative costs and improves operational efficiency by minimizing the time and effort required to complete purchase orders. These results are supported by Tiago (2022), who highlighted that e-procurement not only reduces costs but also simplifies procurement processes, enhances contract compliance, and improves oversight of expenditures. Additionally, Ronchi (2021) identified four key areas where electronic procurement systems can lead to cost savings: order costs, administrative costs, lead-time costs, and capital opportunity costs. These insights collectively affirm the cost-efficiency gains realized through the implementation of e-procurement in healthcare institutions.

The third objective of the study was to evaluate the impact of electronic government procurement on timeliness outcomes in Mashonaland Central. The findings underscored the importance of timely delivery of goods and services, especially in critical sectors such as healthcare. The study found that e-procurement significantly enhances timeliness by minimizing delays typically associated with manual procurement procedures and hierarchical approval processes. Key features such as real-time communication between suppliers and procuring entities, automated notifications, and digital tracking mechanisms were found to support improved timeliness. Consequently, the procurement cycle is shortened, allowing organizations to manage lead times more effectively and enhance overall service delivery.

4.7. Chapter summary

This chapter involves the analysis of data collection using a sample size of 41 respondents. The data analysis was presented using descriptive statistics, correlation and analysis of variance (ANOVA) using objectives and questionnaire respondents through SPSS. The following chapter 5 will provide the summary, conclusion and recommendations of study.

CHAPTER 5

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter presents an interpretation and in-depth discussion of the findings derived from the analysis of data collected in relation to the objectives of the study. The findings are compared with previous studies to identify consistencies or deviations, providing a broader understanding of the impact of electronic procurement (e-procurement) on organizational procurement outcomes. The chapter concludes with actionable recommendations and suggestions for future research.

5.2 Summary of findings

This study sought to evaluate the role of electronic procurement in improving procurement outcomes in three main areas: quality of supplies, cost reduction, and timeliness in service delivery.

5.2.1 Impact of leveraging electronic government procurement on the Availability of Quality Supplies

The study found that healthcare institution that adopted e-procurement systems reported improved quality in the supplies they received. This improvement can be attributed to the enhanced transparency and traceability offered by electronic government procurement systems. With digital procurement, organizations can evaluate accurately, standardize specifications, and monitor compliance with quality standards in real-time.

The automation of process and bid evaluation ensures objectivity and reduces the influence of personal bias or favoritism. These factors contribute to the procurement of better-quality products and services. As a result, Hypothesis 1 (H1) that leveraging e-procurement significantly improves the availability of quality supplies is supported.

Similar findings have been noted in literature, where digital procurement systems have enabled institutions to source from pre-qualified, high-performing suppliers, thereby improving overall supply quality.

5.2.2 Impact of leveraging electronic government procurement on cost reduction

Cost reduction emerged as a key benefit of e-procurement. Respondents highlighted that the use of online platforms reduced administrative burdens, eliminated redundant paperwork, and lowered transaction costs. E-procurement platforms also facilitate price comparisons from multiple vendors, which creates a more competitive procurement environment.

Additionally, e-procurement reduces the risk of fraud and corruption, which often leads to inflated pricing in manual procurement system. By enhancing accountability and auditability, e-procurement ensures that public and organizational funds are used more efficiently.

Hence, Hypothesis 2 (H2) that leveraging e-procurement significantly reduces procurement costs is strongly supported. These findings align with global trends where digital procurement has been shown to reduce operational procurement costs by up to some cases.

5.2.3 Impact of leveraging electronic government procurement on timeliness outcomes

The timely delivery of goods and services is essential to maintaining operational efficiency, particularly in sectors like healthcare, education, and infrastructure. The findings of this study indicate that e-procurement significantly improves timeliness in the procurement process by reducing delays caused by manual procedures and bottlenecks in approval hierarchies.

Real-time communication between buyers and suppliers, automatic notifications, and digital tracking of procurement processes all contribute to improved timeliness. Procurement cycle times are shortened, and organizations can better manage lead times, which enhances service delivery.

These results affirm Hypothesis 3 (H3) that leveraging e-procurement significantly enhances timeliness outcomes. Similar studies have shown that organizations implementing e-procurement experience up to faster procurement cycles compared to those using traditional systems.

5.3 Conclusion

This study has demonstrated the positive and significant impact of electronic procurement on key procurement performance indicators such as quality, cost, and timeliness. The findings show that e-procurement contributes to more informed decision-making, better supplier management, improved transparency, and overall efficiency in procurement operations.

The integration of digital technology into procurement practices aligns with global best practices and is increasingly necessary in today's fast-paced, data-driven business environment. By adopting e-procurement, organizations not only streamline their processes but also position themselves for sustainable growth and improved service delivery.

5.4 Recommendations

Based on the study's findings, the following recommendations are made;

i. Improve digital infrastructure and connectivity

One of the challenges in adopting electronic government procurement system in healthcare institutions is unreliable internet access and outdated IT infrastructure. For e-GP to truly enhance healthcare service delivery, institutions in Mashonaland Central must invest in stable and fast internet connections as well as modern computer hardware. Without this, delays and disruptions in procurement processes will continue limiting the system's effectiveness.

Furthermore, government agencies and development partners should collaborate to support infrastructure upgrades especially in rural areas. Equipping healthcare facilities with reliable digital tools ensures that procurement staff can operate e-GP platforms efficiently, enabling timely ordering and delivery of essential medicines and supplies which ultimately improves patient care.

ii. Strengthen policy and regulatory frameworks

Policies guiding government procurement need to be clear, updated and aligned with the realities of digital platforms. Regulatory frameworks should define roles, responsibilities and accountability mechanisms for all stakeholders involved in e-GP. Strengthening these policies helps reduce corruption risks and builds trust in the procurement system, encouraging broader participants and compliance.

Moreover, the government should regularly review these policies to keep pace with technological advancements and emerging challenges. Flexibility in the legal frameworks will enable quicker adaptation to new tools and approaches while maintaining transparency and fairness, which are crucial for improving healthcare service delivery through GP.

iii. Focus on user training and support

Technology alone cannot guarantee success hence people must know how to use it well. This means that healthcare workers and procurement officers need comprehensive training on e-GP platforms. Training should go beyond basic system navigation to include procurement best practices, ethical standards and troubleshooting common issues. Continuous capacity building will help users feel confident and motivated, reducing errors and resistance.

In addition, creating support systems such as help desks or peer learning groups can provide ongoing assistance when users encounter challenges. This continuous support structure not only improves efficiency but also encourages adoption and sustainability of e-GP system over the time. Empowered users are key to unlocking the full potential of digital procurement in healthcare.

5.5 Areas for Further Research

While this study has provided valuable insights, there are several areas where further research could be beneficial

1. Sector-specific studies - Future research could investigate the impact of e-procurement in specific sectors such as health, education, or manufacturing to better understand unique challenges and benefits.
2. Comparative analysis - A comparative study between public and private sector adoption of e-procurement could offer insights into best practices and performance differences.
3. Challenges and barriers - Further research could focus on identifying and addressing the barriers to e-procurement implementation, such as resistance to change, lack of infrastructure, or policy limitations.
4. Impact on supplier development- Studies could explore how e-procurement affects small and medium-sized enterprises (SMEs) and their ability to compete in digital procurement environments.

5.6 Chapter summary

This final chapter highlighted areas where future research can build on the findings of the study. This research has established that electronic government procurement can significantly enhance healthcare service delivery by improving transparency, cost reduction and accountability in procurement processes.

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APPENDIXX 1: QUESTIONNAIRE

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF COMMERCE

DEPARTMENT OF ECONOMICS



My name is Brenda Mapako registration number B212056B, a final year student of Bindura University of Science Education doing a Bachelor of Commerce Honours Degree in Purchasing and Supply. I am undertaking research entitled “The impact of leveraging electronic government to enhance healthcare service delivery”. Kindly be informed that the information you provide will be treated with extreme confidentiality, it will only be used for this study and will not be published because the research is entirely academic in nature. On behalf of Bindura University of Science Education, the researcher would like to assure you that no information obtained will be misused. Your assistance in filling out the questionnaire is greatly appreciated. For more information you can contact the following.

Researcher

Research Supervisor

Brenda Mapako

Mrs Ncube

Phone number: 0786536267

0773593402

Email: brendamapako3@gmail.com

Section A: Demographic information (Kindly tick your response)

1. Has your institution conducted and training sessions on electronic procurement in the past years.

☐ [1] Yes, regularly ☐ [2] Yes, occasionally ☐ [3] No training conducted ☐ [4] Not sure

2. Is there ongoing technical support available to staff for using digital procurement system?

☐ [] Yes dedicated internal team ☐ [] Yes, external service provider ☐ [] No dedicated support

☐ [] Not applicable

- 3 Does the institution have access to adequate ICT infrastructure (computers, internet and procurement software.

☐ [] Fully adequate ☐ [] Partially adequate ☐ [] Inadequate ☐ [] Not infrastructure

4. Are there clear and accessible guidelines or standard operating procedures (SOPs) for using electronic procurement systems?

☐ [] Yes, documented and available ☐ [] Some exist but are outdated or unclear ☐ [] None available

☐ [] Not sure.

Section B: Leveraging e- government procurement in Process Automation

Please indicate (by ticking) to what extent you agree or disagree with the following statement

1 Strongly disagree 2 Disagree 3 Neutral 4 Strongly Agree 5 Agree

No	Statement	1	2	3	4	5
PA1	The hospital uses e-tendering to manage supplier selection effectively.					
PA2	E-invoicing has helped reduce paperwork and billing errors in procurement.					
PA3	The hospital's use of digital bidding (e-auction) has improved fairness in procurement					
PA4	E-ordering system have helped make ordering supplies more efficient					

Section C: Healthcare service delivery (i) Availability of supplies

Please indicate (by ticking) to what extent you agree or disagree with the following statement

1 Strongly disagree 2 Disagree 3 Neutral 4 Strongly Agree 5 Agree

Code	Statement	1	2	3	4	5
AS1	The availability of essential supplies such as drugs has improved at hospital.					
AS2	E-procurement has helped reduce frequent stockouts at the hospital					
AS3	Inventory levels are now better monitored and managed though the system					
AS1	Healthcare staff face fewer disruptions in care delivery due to missing supplies.					

(ii) Timeliness outcomes

Please indicate (by ticking) to what extent you agree or disagree with the following statement

1. Strongly disagree 2. Disagree 3. Neutral 4. Strongly Agree 5. Agree

Code	Statement	1	2	3	4	5
TO1	The hospital's procurement process has become faster since introducing e-procurement.					
TO2	There are fewer delays in receiving medical supplies at hospital					
TO3	The e-procurement system allows timely responses to urgent medical supply needs.					
TO4	Service delivery time has improved due to faster procurement processes.					

(iii) Cost reduction

Please indicate (by ticking) to what extent you agree or disagree with the following statement

1. Strongly disagree 2. Disagree 3. Neutral 4. Strongly Agree 5. Agree

Code	Statement	1	2	3	4	5
CR1	Administrative costs have decreased since using adopting e-procurement system.					
CR2	The hospital has reduced procurement costs through e-procurement					
CR3	The hospital avoids unnecessary purchases due to better tracking and automation					
CR4	The use of e-auction or digital quotations has resulted in cost savings,					

THANK YOU!

APPENDIX 2

BRENDA MAPAKO B212056B_112657.docx

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