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Effects of Inventory Management on Service Delivery in Public Sector: A Case of Office of Registrar of Political Parties

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Abstract

This study was intended to assess the effect of inventory management on services delivery in public sector: A case in Office of Registrar of Political Parties. The specific objective was to investigate the influence of inventory management on service delivery in public sector. The study employed a cross-section research design and a sample of 44 respondents was selected using a simple randomly sampling technique. Data collection methods included questionnaire and interview. Data were analyzed using descriptive statistics and correlation analysis. The study finding shows that there is a positive relationship between the inventory management and service delivery. The study concludes that inventory management was important factors in inventory management that influence service delivery in Office of Registrar of Political Parties. Therefore, the study recommends that, to improve inventory management on service delivery, the study recommends that, the Office of Registrar of Political Parties could ensure technology adoption regulatory environment, and physical infrastructure and facilities. Also, further research in the academic study of the effect of inventory management on service delivery in the public sector could explore several areas to deepen understanding and address gaps in existing knowledge. Some potential areas for further research can investigate the impact of emerging technologies such as Internet of Things (IoT), artificial intelligence (AI), and blockchain on inventory management practices and service delivery in the public sector.

Keywords: Inventory Management, Service Delivery, Technology Adoption, Regulatory Environment, Physical Infrastructure and Facilities.

1. Introduction

Every business strives to minimize supply chain costs, stockpile as little as possible along the w nowadays ay, and meet or exceed their customers' expectations for service (Kot, 2023; Chopra, *et al.*, 2021). Because of this, expenses have been cut, efficiency has improved, and the company's output has increased. As a result, demand has become more volatile, increasing the importance of stocking adequate quantities of goods to ensure smooth operations in the supply chain for some businesses. Excess inventory in the supply chain, according to Dryden and (Dryden & Brownell, 2012), impedes cash flow, which could have a detrimental impact on the effectiveness of the organization's service provision.

Governments in poor countries have a lot of issues, and poor inventory management is one of the biggest ones (Mesterházy, et al., 2020; Modisakeng, *et al*., 2020). The system is too unstable and lacks the necessary strength to effectively deliver services to those who require them. Mismanagement of inventory, both in terms of under- and over-stocking, appears to have exacerbated the situation (Okwaro, *et al*., 2017). Delivery of goods and services is hampered by poor inventory management in Africa to a much greater extent than in other parts of the world (Hendricks & Singhal, 2005). The goal of the procurement department in the public sector is to ensure timely, high-quality service delivery by supplying the appropriate goods and services to the various user departments. So that everything in the buildings and on the grounds is supplied and delivered at the proper time, they have an inventory management system in good working order.

Public sector organizations in most cases have insufficient physical infrastructure and facilities required for effective inventory management, such as warehouses, storage facilities, and transportation networks. Insufficient storage capacity, inadequate maintenance of facilities, and logistical constraints can lead to stockouts, overstocking,

and delays in delivering services to constituents, negatively impacting service delivery outcomes (Ahmad & Zabri 2016; Atnafu & Balda, 2018; Kaudunde, 2021). Public sector organizations must manage risks associated with inventory management, such as overstocking, stockouts, and obsolete inventory.

Public sector organizations navigate in a complex regulatory environment that governs inventory management practices, procurement processes, and service delivery standards (Barasa, *et al.*, 2018; Kaudunde, 2021). Compliance with regulations related to inventory control, asset management, and reporting requirements adds administrative burden and procedural complexity, potentially hindering operational efficiency and agility in responding to service delivery demands. Public sector entities often have different objectives, stakeholders, and constraints compared to private enterprises. Understanding how inventory management practices align with these specific contexts and impact service delivery is a significant gap.

While modern inventory management technologies offer opportunities for improving efficiency and effectiveness, many public sector organizations lag behind in adopting innovative solutions due to factors such as legacy systems, resistance to change, and lack of technical expertise. Limited investment in technology adoption and innovation hampers efforts to modernize inventory management practices and achieve service delivery excellence. The adoption of inventory management technologies, such as inventory tracking systems and automated replenishment systems, is often slower in the public sector compared to the private sector. Understanding the barriers to technology adoption and its impact on service delivery is essential.

The government might save money and boost supply chain efficiency by understanding the role of technology adoption regulatory environment, physical infrastructure and facilities in inventory management system (Weldeyes, 2019; Maheshwari, *et al*., 2021). However, in the public sector, service delivery often involves multiple dimensions beyond cost, such as quality, accessibility, and equity. This invites the need for research to explore how inventory management practices affect these broader dimensions of service delivery performance. Users' requirements must be met for governments to achieve their goals. There is no business that doesn't put its customers first, and those customers' requirements are prioritized based on their unique characteristics and the interests they (Okwaro, *et al*., 2017). The study's author anticipated that effective inventory management strategies would be put to use by government agencies to reduce customer complaints about service quality, which often come from a lack of funding for service providers (Medard, 2013). As a result, the researchers here set out to measure inventory management's influence on public service provision. The study focused on influence of inventory management on service delivery in Office of Registrar of Political Parties.

2 Literature Review

Many public sector organizations have struggled to develop and implement their service delivery strategies because their inventory management systems are not completely deployed ((Berman, *et al*., 2011). Fifty percent of public sector costs can be attributed to a lack of inventory management systems (Choi, 2021). Outdated inventory technology adoption regulatory environment, physical infrastructure and facilities have had a negative impact on public service delivery (Malatji & Marutha, 2023; Milakovich, 2021; Neumeyer, *et al.*, 2020). Similarly, in Tanzania, the failure to effect the management of inventory has been claimed to affect the service delivery. Typically, reported example that are associated with poor inventory management systems are several, including failed water projects (URT, 2019). In a similar manner, Gabriel (2020) stated that, now, the most pressing issue facing Tanzania's public sector is complaints from users over delayed deliveries of ordered supplies. Some of Tanzania's about 6,500 health facilities have been accused of using inefficient inventory management methods, which has led to a rise in consumer complaints in the country's public health sector (Gabriel, 2020).

However, technological adoption plays a crucial role in revolutionizing inventory management practices, offering numerous benefits and opportunities for optimization within the supply chain (Neumeyer, *et al*., 2020); (Yang, *et al*., 2021). Technology enables real-time tracking and monitoring of inventory levels, locations, and movements throughout the supply chain. Barcode scanning, RFID (Radio-Frequency Identification), and IoT (Internet of Things) sensors provide accurate and up-to-date information, enhancing visibility into inventory status across warehouses, distribution centers, and transit. Technology streamlines inventory management processes, reducing administrative burdens and operational inefficiencies (Lee, *et al*., 2022). Automated workflows, inventory control software, and warehouse management systems (WMS) automate tasks such as order processing, picking, packing, and shipping, leading to faster turnaround times and increased productivity.

Nzuza (2015) investigated the elements influencing the retail division's success in inventory control in Durban's EThekwini Municipality. His research led him to the conclusion that weak inventory controls and a lack of trained employees are the direct result of an inadequate staff. Due to the study's finding that store employees aren't particularly well-versed in the procurement process, it was suggested that the store division invest in training for its employees in order to boost inventory controls and management throughout the company and better inventory control planning.

Physical infrastructure, such as warehouses and storage facilities, is essential for inventory management forming indispensable components of inventory management systems in ensuring the efficiency, organization, and accessibility of inventory (Kumar, *et al*., 2021; Mashilo, *et al*., 2020). These spaces provide a secure and organized environment for storing goods, allowing for efficient tracking, easy access, and proper handling. Warehousing decisions, including location, layout, and capacity, significantly impact inventory holding costs and service levels. The layout of facilities impacts the efficiency of inventory operations. Properly organized storage areas, picking zones, and staging areas contribute to faster order fulfillment and reduced labor costs. Optimizing the physical layout also helps minimize the risk of errors and enhances overall operational efficiency. The role of physical infrastructure and facilities is pivotal in realm of inventory management, influencing various aspects of the supply chain and logistics processes (Kumar, *et al*., 2017; Orobia, *et al*., 2020).

The regulatory environment significantly influences inventory management practices, shaping how businesses handle inventory, ensure compliance, and manage associated risks (Shuai & Fan, 2020; Dolgui, *et al*., 2020). Regulatory agencies establish standards and regulations governing the safety and quality of products, including those related to inventory management. Compliance with these standards ensures that inventory items meet minimum safety requirements and quality specifications, reducing the risk of product recalls, liability claims, and reputational damage. Regulatory agencies often mandate recordkeeping and documentation requirements for inventory management processes (Malatji & Marutha, 2023; Dolgui, *et al*., 2020). Businesses are required to maintain accurate records of inventory transactions, including receipts, shipments, stock levels, and inventory adjustments. Compliance with recordkeeping regulations ensures transparency, accountability, and traceability in inventory management practices.

Studies about inventory management looked at how it affects customer satisfaction in firms, how it affects service delivery in public hospitals, and how it affects the management of inventory control systems in higher education. These studies focused on inventory control methods like merchant-managed stock, collaborative planning, forecasting and replacement, programmed recharging, quick framework, and material requirement planning (Rukiya & Kibet, 2019; Achieng, *et al*., 2018; Ondyeki, 2019; Thogori & Gathenya 2014). So, this study filled in the gap by looking at how inventory management affects how the Office of the Registrar of Political Parties gives services. Specifically the study focused on how technology adoption, regulatory environment, physical infrastructure and facilities influence service delivery in Office of Registrar of Political Parties.

3 Material and Methods

3.1 Research Design

Research design is a blueprint or plan of action that outlines how and where to get the needed information, how to analyze it, how to meet the research goals, and how to find solutions. The cross-sectional research design was used for this study. The design is most useful because it involves getting information from different people one at a time.

3.2 Population of the Study, Sampling procedure and Sample Size

The study targeted population of employees from the office of the registrar of political parties. This comprised employees from procurement department, finance department, internal auditors and User Department. This study used a method of sampling called stratified random sampling. Stratified random sampling is a very useful and effective sampling method that lets a researcher choose a sample based on what he knows about the population, the research elements, and the goals of the study. This method of choosing samples is also based on the researcher's judgment and the goal of the study.

In this study sample size was drawn from 50 respondents who are responsible with inventory management in the office of the registrar of political parties. The criteria for selecting respondents were based on the fact that they had relevant information relating to effect of inventory management on services delivery in the Office of the Registrar of Political Parties. Therefore, Yamane formula (1967) used to calculate the sample size for this study as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where: n = Sample size,
N = Number of respondents,
E = Constant (95% confidence level and ±5% precision)

With the desired respondent size being 50, therefore the sample size can be calculated as follows

$$n = \frac{50}{1 + 50(0.05)^2} = \frac{50}{1.125} = 44 \text{ (rounded)}$$

Therefore, the sample size for the study comprise 44 respondents

Table 1: Sample Size for Each Department

S/N	Department	Population	Number of respondent target
1	Finance and accounts	6	5
2	Human resource and administration	4	4
3	Procurement units	3	3
4	Head of units	5	4
5	User Department	32	28
	Total	**50**	**44**

Source: Researcher, 2022

3.3 Data Analysis Technique

Both qualitative and quantitative data were used to analyze the data for the study. The qualitative data was analyzed using content analysis, in which data from open-ended questions was put into themes based on the goals of the research and reported in a narrative form. Researchers chose content analysis because they can count and analyze the number, meanings, and relationships of certain words, themes, or concepts. The qualitative data was used to back up the data that was based on numbers.

Quantitative data like the mean, frequency, percentage, and the standard deviation were used in descriptive statistics to show the central tendency, while correlation analysis was used as part of the inferential statistics method. With the help of the Pearson product-moment correlation coefficient, the researcher looked at the relationship between the independent (technology adoption regulatory environment, physical infrastructure and facilities) and dependent (Service delivery) variables of the study. Correlation Coefficient was used to see if independent variables depended on each other and if independent variables were linked to the dependent variable.

4 Results and Discussion

4.1 Descriptive Results

This section intended to present the descriptive statistics results the related to influence of inventory management on service delivery in public sector. A five-point Likert scale was employed from 1 (Strongly Disagree) to 5 (Strongly Agree) while mean score was used to measure central tendency of the total response. The responses were shown in Table 2.

Table 2: Descriptive Results on Inventory Management on Service Delivery

Statement	A	N	D	SD	Mean
Adequate Infrastructures and Facilities	8 (18.2%)	0(0%)	17(38.8%)	19 (43.2%)	**1.31**
Technological Adoption	11(25%)	9(20.5%)	15(34.1%)	9 (20.5%)	**2.12**
Regulatory Environment	22 (50%)	0(0%)	18(40.9%)	4(9.1%)	**3.62**

Note: SA= strongly agree, A= Agree, N=Neutral, D= Disagree and SD= strongly disagree

Source: Field data (2022)

4.1.1 Physical Infrastructure and Facilities

Results in Table 2 revealed that, majority of respondent (43.2%) strongly disagree that, public sector has adequate physical infrastructure and facilities relating to inventory management followed by 38.8% who were disagree and 18.2% were agree. Moreover, the mean score of the total response was 1.31 which is below the mean level of 3.0 imply that physical infrastructure and facilities relating to inventory management was inadequate in ORPP.

However, the findings not concur with observation of fourth respondents during interview who state that:

> *"...physical infrastructure and facilities are indispensable components of service delivery in the public sector, impacting accessibility, service quality, efficiency, safety, scalability, community development, sustainability, resilience, and technological integration. Recognizing the importance of infrastructure investment and maintenance is essential for delivering effective and responsive public services that meet the needs of citizens…"*

Therefore, role of physical infrastructure and facilities in service delivery is multifaceted and crucial for the effective functioning of inventory management in sector organizations. The study findings concur with those of Kumar, *et al.* (2021) and Mashilo, *et al.* (2020) who found that physical infrastructure, such as warehouses and storage facilities, is essential for inventory management forming indispensable components of inventory management

systems in ensuring the application technology adoption regulatory environment, physical infrastructure and facilities in service delivery.

4.1.2 Technological Adoption

Results in Table 2 revealed that, majority of respondent (34.1%) disagree that, technological adoption in inventory management is followed by 25% who were agree while 20.5% were strongly disagree and neutral respectively. Moreover, the mean score of the total response was 2.12 which is below the mean level of 3.0 imply that public sector organisation have unsuccessful adopted technologic in performing inventory management activities.

The findings concurred with explanation provided by fifth respondents during interview who state that:

> *"...technological adoption revolutionizes inventory management by improving visibility, accuracy, efficiency, and collaboration within the supply chain. By leveraging advanced technologies and data-driven insights, organizations can optimize inventory levels, streamline operations, and enhance overall supply chain performance ..."*

4.1.3 Regulatory Environment

Results in Table 2 revealed that, majority of respondent (50%) agree that, staff have enough skills related to inventory management activities followed by 40.9% who were disagree and 9.1% were strongly disagree. Moreover, the mean score of the total response was 3.62 which is above the mean level of 3.0 imply that in regulatory environment have significant effect to inventory management in service delivery.

The findings supported by sixths respondents during interview who state that:

> *"…Compliance with these standards ensures that inventory items meet minimum safety requirements and quality specifications, reducing the risk of product recalls, liability claims, and reputational damage…*"

This study concurs with Shuai & Fan (2020) and Dolgui, *et al*., 2020), that regulatory environment significantly influences inventory management practices, shaping how businesses handle inventory, ensure compliance, and manage associated risks. From his study he concluded that, inadequate regulatory environment on inventory management and control, will results to poor inventory controls and ineffectiveness.

4.2 Inferential Statistics Results

The study then sought to find out whether there is any significant relationship between the inventory management and service delivery. The Pearson correlation coefficient (r) was employed to establish the relationship between the inventory management and service delivery. The findings presented in Table 3 show that there is a weak positive relationship between the technology adoption regulatory environment, physical infrastructure and facilities and service delivery (r= 0.317, p-value = 0.000). This implies that any unit increase of technology adoption regulatory environment, physical infrastructure and facilities in inventory management will increase the service delivery in public sector. In general, these findings coincides with Malatji & Marutha (2023), Milakovich, (2021) and Neumeyer, *et al.*, (2020) who passive that outdated inventory technology adoption regulatory environment, physical infrastructure and facilities have had a negative impact on public service delivery.

Table 3: Correlation between Inventory Management and Service delivery

		Inventory Management	**Service delivery**
Inventory Management	Pearson Correlation	1	0.317**
	Sig. (2-tailed)		0.000
	N	44	44
Service delivery	Pearson Correlation	0.317**	1
	Sig. (2-tailed)	0.000	
	N	44	44

**Correlation is significant at the 0.01 level of significance (2- tailed)

Source: Field data (2022)

5. Conclusions, Recommendation and the Area for Further Research

5.1.1 Conclusion

Effective inventory management practices positively impact service delivery in the public sector by ensuring timely availability of necessary resources. This helps in meeting the demands of citizens and stakeholders efficiently. Proper inventory management leads to cost savings through reduced wastage, better resource allocation, and

optimized inventory levels. This allows public sector organizations to allocate technology adoption, regulatory environment, physical infrastructure and facilities more effectively, directing strategies towards areas that directly contribute to service delivery.

It was also observed that implementing robust inventory management systems fosters technology adoption, regulatory environment, physical infrastructure and facilities within public sector organizations. Clear tracking and monitoring of inventory can help in identifying inefficiencies, reducing the likelihood of mismanagement or corruption. Streamlined inventory processes contribute to improved operational efficiency, reducing lead times and minimizing disruptions in service delivery. This ensures that public services are delivered promptly and consistently, meeting the expectations of citizens and stakeholders.

It be concluded that while effective inventory management positively impacts service delivery, there is a need for continuous improvement and adaptation to changing circumstances. Public sector organizations must remain agile and responsive to evolving demands and technological advancements to sustain the benefits of efficient inventory management over time. The study found that there is a weak positive relationship between the technology adoption, regulatory environment, physical infrastructure and facilities and service delivery. Therefore, the study concludes that, to low extent of technology adoption, regulatory environment, physical infrastructure and facilities affects the service delivery in ORPP.

5.1.2 Recommendations

To improve technology adoption, regulatory environment, physical infrastructure and facilities on service delivery, the study recommends that, the ORPP could provide training on inventory management for staff members. The organization could also provide resources on inventory management, such as manuals and software. On adoption of integrated inventory management systems, public sector organizations should consider adopting integrated inventory management systems that enable real-time tracking and monitoring of inventory levels, procurement, and distribution processes. These systems can help streamline operations, reduce inefficiencies, and improve service delivery.

Also, there is a need for investment in technology infrastructure and training programs to build capacity among staff members responsible for inventory management. Training should focus on best practices in inventory control, data analysis, and the use of inventory management software to ensure effective implementation. In some cases, policymakers and managers should prioritize data-driven decision-making processes based on accurate and timely inventory data. This can help identify trends, anticipate demand fluctuations, and make informed decisions to optimize inventory levels and enhance service delivery.

It is also suggested that public sector organizations should promote collaboration and information sharing among departments and agencies involved in inventory management. This can facilitate coordination, reduce duplication of efforts, and improve overall efficiency in resource allocation and distribution. Establishing clear performance metrics and accountability mechanisms is essential for evaluating the effectiveness of inventory management practices and ensuring accountability among staff members. Regular performance reviews and audits can help identify areas for improvement and address challenges in service delivery.

Public sector organizations should implement systems for continuous monitoring and evaluation of inventory management processes to identify bottlenecks, inefficiencies, and opportunities for improvement. This can help foster a culture of continuous improvement and innovation in service delivery. Engaging with stakeholders, including citizens, community organizations, and private sector partners, can provide valuable insights and feedback on inventory management practices and service delivery outcomes. Public sector organizations should actively seek input from stakeholders to ensure that inventory management strategies align with the needs and expectations of the community.

By implementing these recommendations, public sector organizations can enhance their inventory management practices, optimize resource utilization, and ultimately improve service delivery to citizens and stakeholders.

5.1.3 Area for Further Research

Further research in the academic study of the effect of inventory management on service delivery in the public sector could explore several areas to deepen understanding and address gaps in existing knowledge. Some potential areas for further research can investigate the impact of emerging technologies such as Internet of Things (IoT), artificial intelligence (AI), and blockchain on inventory management practices and service delivery in the public sector. Explore how these technologies can enhance real-time tracking, data analysis, and decision-making processes.

Also studies can be comparative studies to examine inventory management practices and service delivery outcomes across different sectors within the public domain (e.g., healthcare, transportation, education). Identify sector-specific challenges and opportunities and assess the transferability of best practices between sectors. In another perspective, further studies can explore the role of inventory management in building resilience and mitigating risks in the face of disruptions such as natural disasters, pandemics, or supply chain disruptions. Investigate strategies for improving the resilience of inventory systems and ensuring continuity of service delivery during crises.

Conflict of Interest Statement

Authors declare that research was conducted in absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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