Factors Affecting Inventory Management in Tanzania Police Force - A Case Study of Arusha Central Police Station

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Abstract: *Several reforms in the public procurement have been taken such as the PPA, 2011, PPR, 2013, and the Budget Act No. 11 of 2015 in Tanzania. Generally, public procurement plays a key role in service delivery where inventory management in public sector raises a great concern in terms of good governance and professionalism (Dzuke and Naude 2015).This study examined factors affecting inventory management in Tanzania Police Force, a case study of Arusha Central Police Station. The study used a descriptive case study design by a sample size of 60 respondents selected through probability sampling technique. Data were collected through questionnaire and document review. Data analysis showed that there were no adequate storage facilities and skilled procurement staff at Arusha Central Police Station with a significant relationship r (60) = 0.75, p =.462 between influence of resources and inventory management. The study also revealed noncompliance with procurement laws by a positive relationship r (60) = 0.70, p = .305 between the influence of legal frameworks and inventory management. Likewise, involvement of top management influences inventory management, revealed a positive correlation r (60) = 0.92, p = .305 between involvement of top management and inventory management. Similarly, ICT was not applied in inventory management, showing a positive correlation r (60) = 0.86, p = .241 between application of ICT and inventory management. It was concluded that inventory management in Tanzania Police Force is affected by several factors such as inadequate resources and skilled staff, noncompliance of laws, little involvement of top management as well as lack of application of ICT in inventory management. The study recommends the government to ensure that resources are adequately supplied and skilled staff recruited; compliance with public procurement legislation abided by allocating enough budgets to the police force. It is also recommended that further research be conducted to determine the influence of good governance on inventory management in defence and security organs in Tanzania.*

Keywords: Inventory Management, Public Procurement, Good Governance, Armed Forces, Resources, Legal Frameworks, Disposal, Value for Money, Electronic government, Bill of Rights, Defence and security organs

1. Introduction

The role of the inventory management system is to maintain a desired stock level of specific products or items. With respect to inventory management, public procurement is an important function of government activities. Globally, estimates of the financial activities of government procurement managers are believed to be in the order of 10 percent - 30 percent of GNP (Callender and Mathews, 2000). With respect to inventory management in defence and security organs like Tanzania Police Force, public procurement reforms have not been limited to legislation only but also include public procurement processes, methods, procurement organizational structures and appropriate job specifications and description for the workforce as it is emphasized in (Biramata, 2014).However, there are occasions where inventory administration is not able to respond adversely and appropriately to emerging needs. This suggests that there are some hindering factors to effective operation of inventory management which is the subject of this study. This study aimed at examining factors affecting inventory management in Tanzania Police Force,

Arusha Central Police Station. Further specific objectives of the study were as follows:
- To determine the influence of resources on inventory management at Arusha Central Police Station.
- To establish the influence of legal frameworks on inventory management at Arusha Central Police Station
- To examine how involvement of top management influences inventory management at Arusha Central Police Station.
- To determine how Information and Communication Technology affects inventory management at Arusha Central Police Station.

2. Literature Review

Basically, the role of inventory management is to maintain a desired stock level of specific products or items within an organisation in order to meet its operations. Likewise, Githu and Waiganjo (2015) note that stores play a vital role in an organization, it is in direct touch with the user department in its day-to-day activities. Oliveira and Rodrigues (2008)

emphasize that inventory management has direct and significant effects on operational efficiency and company finances. Essentially, the performance of a business depends on its service delivery to the consumers. Unlike when stocks are inadequate in supply to meet the demand then business operations are always interrupted or unnecessary delays in service delivery due to lack of materials may lead to tarnishing of the image of the organization whether public or private as it is emphasized in a study on police administration service in Kenya by Githu and Waiganjo (2015) who note that stores play a vital role in the operations of an organization.

For the case of the United Republic of Tanzania, public procurement is guided by the Public Procurement Act of 2011, Public Finance Regulations of 2001 and Public Procurement Regulations of 2013 as well as the Budget Act No.11 of 2015. In Kenya, the public procurement system is guided by the Public Procurement and Disposal Act, 2015 and the Procurement Regulations of 2014.These legal frameworks aim at ensuring best procurement practices are adhered in all public institutions; when it comes to procurement of goods, works and services not only for justifying compliance to the public procurement laws but also accountability of public spending.

In regard to inventory management, Kovacic and Pecek (2008) state that process innovation in the public sector still focuses largely on improvements related to the elimination of bureaucracy and simplifying processes. Logistics is all about managing stores, whether the inventory is moving or staying (Goldsby and Martichenko, 2005). A study by Choudhury (2008) reports that companies often use enterprise resource planning systems which are recognized as essential ICT for supporting internal sharing of information between functions and departments. For external integration most organizations have utilized automated information systems to support information sharing between customers and suppliers. Altogether with public procurement reforms, yet, public institutions including Tanzania Police Force do not have well-structured Procurement Management Units as it is required by public procurement laws, rule 37 (1) of the Public Procurement Act, 2011 requires the procurement entities to establish the Procurement Management Unit staffed with an appropriate level. On the other hand, rule 31 (1) stipulates establishment of a tender board for procurement functions but practices reveal that no procurement management units are available in police stations. Thus, because of pertinent to exclusive effect to such weaknesses has on inventory management.

According to Mpwanya (2005), the aim of inventory management is to hold inventories at the lowest possible cost, given the objectives to ensure uninterrupted supplies for on-going operations. When making decision on inventory, management has to find a compromise between the different cost components, such as the costs of supplying inventory, inventory-holding costs and costs resulting from insufficient inventories. On the other side, Roy (2012) points out that an effective inventory management will always give a competitive advantage to the business over its competitors. So long as inventory management is part of procurement function, it is clear that public institutions need to adhere to

the procurement plans in order to justify for value for money by purchasing right quantities to support operational requirements. Further, stores are often equated directly with money, as money is locked up in the stores (Frazelle, 2012).Although there has been a lot of research on inventory control, little has been done on the effectiveness of inventory control system in the public sector in Tanzania (Rogers 2011). With regard to value for money, inventory is vital to be effectively managed in order to justify expenditure.

On the other hand, logistics is all about managing stores, whether the inventory is moving or staying, whether it is in a raw state, in manufacturing, or finished goods (Goldsby and Martichenko, 2005). They further remark that logistics and stores management are embedded in each other and tied up closely. According to the "Bill of 'Rights'" logistics professionals often recall it as to deliver the right product to the right place, at the right time, in the right quantity and condition, and at the right cost (Goldsby and Martichenko 2005). In respect to the bill of rights, purchasing function in the public utilities needs to follow the principles of 5 Rs in order to safeguarding institutions from facing business interruptions due to lack of adhering to proper procurement functions in the public sector,; defence and security institutions in particular which have different inventory management practices; yet, they are forced to comply with laws relating to procurement. As stocks are a substantial portion of the assets of organizations, they can be seen as a potential factor in the optimization of public resources used, and in cost reduction (Martins and Alt, 2011). In regard to this affirmation, it is essential for public sector to have measures of controlling inventory, armed forces in particular.

3. Methods and Materials

A descriptive survey design was adopted by the study to examine factors affecting inventory management in Tanzania Police Force with an experience of Arusha Central Police Station. The population of the study constituted 60 respondents who were selected through probability sampling technique. The study collected primary and secondary data where the questionnaire was designed for collecting data from respondents who gave their views on the research topic as service users. For ensuring the validity and reliability of the instrument, a pilot test was done with few selected respondents before embarking on data collection from the whole sample size. Data collected through documentary review were grouped into themes as they were collected by using documentary review check list to compliment data collected through questionnaire. Data were analysed using quantitative data analysis techniques. Descriptive tools included frequencies and percentages while inferential statistics covered Pearson's product moment correlation that was used to test correlation of research hypothesis.

4. Results and Discussion

4.1.1 Gender Distribution of Respondents
In this study, respondents were categorised in terms of gender, Table 1 shows the results.

Table 1: Gender of Respondents

	Responses	Frequency	Valid Percent	Cumulative Percent
	Male	35	58.3	58.3
Valid	Female	25	41.7	41.7
	Total	**60**	**100.0**	**100.0**

Source: Field Data, 2018

Results indicated that 58.3% of respondents were male while 41.7% of respondents were female as illustrated in Table 1. This implies that the area of study had more males than females. Also, implies that the study sought data based on gender to avoid any bias. Similarly, it showed that many males participated in the study because in most cases they dominate the number of staff employed in armed forces.

4.1.2 Age Distribution of Respondents
In this study there were four age groups as shown in Table 2

Table 2: Age Distribution of Respondents

	Responses	Frequency	Valid Percent	Cumulative Percent
	18-24	25	41.6	41.7
	25-34	10	16.7	16.7
Valid	35-44	10	16.7	16.7
	≤45	15	25.0	25.0
	Total	**60**	**100.0**	**100.0**

Source: Field Data, 2018

Results in Table 4.2 indicated that 41.7 % of the respondents were ranging between 18-24 years, 16.7% were found to be between 25-34, similarly, those aged between 35- 44 were 16.7% respectively and those found to be 45 and above were 25%. Majority of respondents were found to be between 18-24 and 25-34 age groups. This implies that respondents were aware of the research topic because these age groups suggest that respondents had already known some aspects relating to supplies within the Police Force and they were free to provide data sought by the study.

4.1.3 Working Experience of Respondents
In the study respondents were categorised in terms of working experience, there were six groups of working experience as illustrated in Table 3.

Table 3: Work Experience of Respondents

	Responses	Frequency	Valid Percent	Cumulative Percent
	3-5	15	25.0	25.0
	5-10	12	20.0	20.0
	10-15	8	13.3	13.3
Valid	15- 20	15	25.0	25.0
	20-25	6	10.0	10.0
	≤ 25	4	6.7	6.7
	Total	**60**	**100.0**	**100.0**

Source: Field Data, 2018

Results in Table 3 showed that 25.0% of respondents working at Arusha Central Police Station had working experience of 3-5 years while 20.0 % of the respondents had 5 - 10 years of working experience. On the other side, 13.3 % had 10-15years of working experience, 25.0 % had 15-20 years of working experience, 10.0 % had 20-25 years of working experience and 6.7 % had equal and above 25 years of working experience. These results imply that majority of the respondents had less than 10 years of working experience in the Police Force. This meant working experience was an important aspect for respondents to understand how inventory management is practiced in the particular police station.

4.1.4 Educational Level of Respondents
In the study, respondents were categorised in terms of education as shown in Table 4.

Table 4: Educational Level of Respondents

	Responses	Frequency	Valid Percent	Cumulative Percent
	Secondary school	20	33.3	33.3
	Technical or Vocational training	15	25.0	25.0
Valid	Diploma	10	16.7	16.7
	Bachelor degree	10	16.7	16.7
	Bachelor and above	5	8.3	8.3
	Total	**60**	**100.0**	**100.0**

Source: Field Data, 2018

Findings in Table 4 showed that 33.3 % of respondents completed secondary education, 25.0 % completed technical training, 16.7% completed diploma level and bachelor degree respectively, while 8.3 % were above bachelor degree. It implies that majority of respondents have minimum educational level indicating respondents understood inventory management practiced in the police station. Similarly, it was easy to provide necessary data sought by the study from different angles of understanding of the respondents, of course, assisting in data analysis by making comparison of different views.

4.2 Factors Affecting Inventory Management

4.2.1 Influence of Resources on Inventory Management
The first objective was to determine the influence of resources on inventory management at Arusha Central Police Station. Thus, resources play a big role in ensuring effectiveness in public money. In realising the influence of resources on inventory management, results are presented in Table 5.

Table 5: Availability of Storage Facilities

	Responses	Frequency	Valid Percent	Cumulative Percent
	YES	16	26.7	26.7
Valid	No	44	73.3	73.3
	Total	**60**	**100.0**	**100.0**

Source: Field Data, 2018

Regarding availability of storage facilities, results showed that 26.7% of respondents agreed that there were storage facilities at the surveyed area. However, 73.3% of respondents disagreed that there were no storage facilities. This implies that the police station did not have storage facilities to manage inventory.

Table 6: Skilled Procurement Staff

	Responses	Frequency	Valid Percent	Cumulative Percent
	Strongly agree	9	15.0	15.0
	Agree	9	15.0	15.0
Valid	Neutral	6	10.0	10.0
	Disagree	35	58.3	58.3
	Strongly disagree	1	1.7	1.7
	Total	60	100.0	100.0

Source: Field Data, 2018

With respect to competence of procurement staff, results revealed that 30% of respondents agreed that there were skilled staff; 10% were neutral in their views while 6% of respondents disagreed that there were skilled staff. This implies that the surveyed police station had no skilled procurement staff to carry out inventory management.

Table 7: Relationship between Influence of resources and Inventory management (N=60)

Variable	Correlation	Influence of Resources	Inventory management
Influence of resources	Pearson Correlation	1	0.75
	Sig. (1 tailed)		.462
	N	60	60
Inventory management	Pearson Correlation	0.75	1
	Sig. (1 tailed)	.462	
	N	60	60

Source: Field Data, 2018

In finding the relationship between influence of resources and inventory management, correlation for independent variables and dependent variable was computed as shown in Table .7.Findings indicated that there was a positive correlation between influence of resources and inventory management, r (60) = 0.75, p =.462. With respect to resources in the Tanzania Police Force, it is evident that the findings are in line with Frazelle (2012) that stores are often equated directly with money, as money is locked up in the stores. A study on factors affecting stores management in the public sector in Kenyan police service by Githu (2015) reveals that stores management has adversely affected the public sector in Kenya and contributed to poor operations performance, available physical space for inventory is also a matter of being questioned because items are not well stored and managed attributing decline in quality, hitherto, decrease in value for money. Regarding inventory management, police stations performing variety of operations on daily basis need to be equipped with adequate resources with an eye of professionalism whereby procurement staff plays a big role in ensuring that all procurement activities comply with professional standards and public procurement legislation.

4.2.2 Influence of Legal Frameworks on Inventory Management

The second objective of the study was to establish the influence of legal framework on inventory management at Arusha Central Police Station. With respect to the objective, legal frameworks are important in ensuring public procurement is practiced in public institutions appropriately in order to ensure value for money as indicated in Table 8.

Table 8: Compliance with Procurement Legislation

	Responses	Frequency	Valid Percent	Cumulative Percent
Valid	Strong agree	3	5.0	5.0
	Agree	11	18.3	18.3
	Neutral	7	11.7	11.7
	Disagree	7	11.7	11.7
	Strong disagree	32	53.3	53.3
	Total	**60**	**100.0**	**100.0**

Source: Field Data, 2018

Results in Table 8 showed that 23.3% of respondents agreed on compliance with procurement legislation; 11.7% of respondents were neutral in their views while 65% of respondents disagreed on compliance with procurement legislation. This implies that the police station did not comply with existing laws guiding procurement, inventory management in particular.

Table 9: Relationship between Influence of Legal Frameworks and Inventory Management (N=60)

Variable	Correlation	Influence of Legal Frameworks	Inventory management
Influence of Legal Frameworks	Pearson Correlation	1	*0.70*
	Sig. (1 tailed)		.305
	N	60	60
Inventory management	Pearson Correlation	*0.70*	1
	Sig. (1 tailed)	.305	
	N	60	60

Source: Field Data, 2018

However, in determining the relationship between influence of legal frameworks and inventory management, correlation for independent variables and dependent variable was computed as shown in Table 9.Study results showed that there was correlation r (60) = 0.70, p= .305 between influence of legal frameworks and inventory management. Essentially, public procurement in the United Republic of Tanzania is guided by the Public Procurement Act, 2011; for instance, section 37 (1) articulates that there shall be established in every procuring entity a Procurement Management Unit staffed to an appropriate level, section 37 (2) highlights that the Procurement Management Unit shall consist of procurement and other technical specialists together with the necessary supporting and administrative staff. These legal frameworks really bring to light the adherence with establishment of the Procurement Management Unit, staffing and codes of conduct. Section 35(3) of the Public Procurement Act, 2011 and Regulation 55 of the Public Procurement Regulations, 2013 articulate approval of tenders by the Tender Boards but audit reports indicate by audit reports by United Republic of Tanzania (2016) revealed that a number of entities (institutions) procured some goods and services prior approval of their established tender boards or made payment without deliverables by suppliers contrary to the procurement legislation. This empirical study is in line with the agent-principal theory which is useful in explaining the relationship between the Government (principal) and the state corporation (agent) in compliance to the procurement legal framework. According to Muranda (2006), the agency theory explains how the actions of the state corporations affect the Government and other stakeholders; for example, when state corporations make non-optimal decisions concerning the utilization of public funds. And this affirmation is supported by Alchian and Demsetz (1972) that to speak of managing, directing, or assigning workers to various tasks is a deceptive way of noting that the employer continually is involved in renegotiation of contracts on terms that must be acceptable to both parties.

4.2.3 Involvement of Top Management

The third objective was to examine how involvement of top management influences inventory management as revealed in Table 10.

Table 10: Involvement of Top Management

	Responses	Frequency	Valid Percent	Cumulative Percent
Valid	Strong agree	9	15.0	15.0
	Agree	5	8.3	8.3
	Neutral	2	3.3	3.3
	Strong disagree	44	73.3	73.3
	Total	60	100.0	100.0

Source: Field Data, 2018

Findings indicated that 23.3% of respondents agreed on involvement of top management in managing inventory; 3.3% of respondents were neutral in their views; and 73.3% of respondents disagreed on involvement of top management in managing inventory. This implies that there was little involvement of top management in managing inventory in the surveyed police station.

Table 11: Relationship between Involvement of Top Management and Inventory management (N=60)

Variable	Correlation	Influence of Top management	Inventory management
Influence of Top management support	Pearson Correlation	1	*0.92*
	Sig. (1 tailed)		.305
	N	60	60
Inventory management	Pearson Correlation	*0.92*	1
	Sig. (1 tailed)	.305	
	N	60	60

Source: Field Data, 2018

Nevertheless, in examining the relationship between involvement of top management and inventory management, correlation for independent variables and dependent variable was computed as presented in Table 11.Findings on how involvement of top management influences inventory management in the surveyed area indicated that there was a positive collection r (60) = 0.92, p= .305 between involvement of top management and inventory management. This relationship is in line with empirical literature that public procurement is one of the government activities most vulnerable to corruption, based on the volume of transactions and the financial interests at stake, corruption risks are exacerbated by the complexity of the process, the close interaction between public officials and businesses, and the multitude of stakeholders (OECD, 2016). Ketchen and Hult (2007) stress that the strategic choice theory views managers as personnel who are downstream decision makers directing decision and changing processes in the organization. It is also submitted by Omitoogun and Hutchful (2006) that from the perspectives of public policy and budgetary process, the military sector shares many of the characteristics of other sectors of government. This means that the citizens of any country will benefit from a military sector that is subject to the same broad set of rules and procedures that are applied to other sectors. It is therefore essential to give a high priority to principles such as transparency, accountability to appointed civil authorities and comprehensiveness of budget coverage. In that respect, military budgeting should be no different from budgeting for

other governmental sectors (Omitoogun and Hutchful, 2006). However, due to nature of operations of the security organs, it is obvious that there must be proper inventory planning in order to justify for value for money as per public procurement legislation

4.2.4 Effect of ICT on Inventory Management

The fourth objective was to find out how Information and Communication Technology affects inventory management at Arusha Central Police Station. Development of technology has increased efficiency in many institutions which have already started to automate their daily activities to include staff payroll, information sharing such e-government, and procurement, inventory management in particular. In finding how ICT affects inventory management, the sought information relating to availability of ICT facilities as shown in Table 12.

Table 12: Availability of ICT Facilities

	Responses	Frequency	Valid Percent	Cumulative Percent
Valid	Yes	15	25.0	25.0
	No	45	75.0	75.0
	Total	**60**	**100.0**	**100.0**

Source: Field Data, 2018

Findings in Table 12 showed that 25% of respondents agreed on availability of ICT facilities while 75% of respondents disagreed on availability of ICT facilities. This implies that the surveyed police station had not automated its activities because of lack of ICT facilities.

Table 13: Relationship between Application of ICT and Inventory management (N=60)

Variable	Correlation	Application of ICT	Inventory management
Application of ICT	Pearson Correlation	1	*0.86*
	Sig. (1 tailed)		.241
	N	60	60
Inventory management	Pearson Correlation	*0.86*	1
	Sig. (1 tailed)	.241	
	N	60	60

Source: Field Data, 2018

Nevertheless, in examining the relationship between effects of ICT and inventory management, correlation for independent variables and dependent variable was computed as shown in Table 13.Findings on the effect of ICT on inventory management established that there was correlation r (60) = 0.86, p = .241 between effect of ICT and inventory management as shown in Table 13. Application of ICT is significant in the public procurement, especially when procurement transactions are done online under the concept e- procurement; yet, many public institutions have not been able to apply this technology in procurement processes. This affirmation is supported by Banda (2009) that many procuring organizations have staff that do not have the right competence needed for good procurement management. But Barsemoi *et al.* (2014) found that most of the personnel carrying out procurement functions in the local authorities in Kenya have not been sensitized on procurement regulations. Efficiency in inventory management was attained by substituting inventory with information through automated replenishment programmes, where the seller uses information regarding product usage and inventory levels

provided by the buyer to determine replenishment quantities (Daugherty *et al*., 1999). On the other hand, Cachon and Fisher (2000) find that information technology contributed effectively to lead time and batch size reduction, costs were reduced through information sharing across the supply chain. Lack of professionalism has been explained as a cause of non-compliance to procurement laws (De Boer and Telgen, 2006).

5. Conclusions and Future Work

Even though Tanzania Police Force is legally bound by national laws such as Public Procurement Act, 2011, and Public Finance Act, 2004 as well as Budget Act No. 11 of 2015; yet, procurement procedures and standards are not effectively complied in this armed force. There is no participatory approach in budget preparation right from user departments; the budget is prepared at top level. By putting altogether these challenges, police stations do not have adequate resources to include storage facilities, skilled staff, ICT facilities and equipment which attribute to poor inventory management. With respect to findings of the study, the government is advised to ensure that top management of Tanzania Police Force complies with laws guiding public procurement through frequent audits by Controller and Auditor General, and similarly, there should be participatory budget preparation approach which will assist in budget allocation attributing to appropriate use of public funds. Also storage and ICT facilities must be available at police stations in order to store inventories resulting from normal procurement of materials and those maintained as exhibits, found properties and others, and making sure that automation of some key activities is done in order to streamline information sharing and comply with electronic government policy. In additions, there must be skilled procurement staff to carry out procurement functions, inventory management in particular. This can be accomplished if there will be awareness raising on the need of procurement management units at police stations and ensuring that there are skilled procurement staff either by direct employment or making needs assessment for short or long term training in areas requiring competence building. Further research work can be done to determine influence of good governance on inventory management in defence and security organs.

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Legislations

The Public Procurement Act, 2011 of the United Republic of Tanzania

The Public Procurement Regulations, 2013 of the United Republic of Tanzania

Republic of Kenya, the Public Procurement and Disposal Act, 2015 and the Procurement Regulations of 2014

United Republic of Tanzania, the Budget Act No.11 of 2015