Improving accountability for public fixed assets using enhanced management system: Technical and procedural requirements, a case study of Tanzania

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Abstract

Fixed asset management framework is not advanced in developing countries resulting to inefficient recording and accountability of fixed assets. Evidence is derived and shown from Tanzania annual audit reports .The study analysed different fixed asset management policies and procedures from South Africa, Palestine, Canada, US, India and Tanzania. Some of the areas were identified which require improvement to enhance the fixed asset accountability. The study was also carried out at Tanzania Local Government Authorities where the data were collected and analysed to verify the areas of improvement identified from the previous study. The results showed that areas which require improvements are tracking of fixed assets; maintenance alert and integration with other systems. The improved framework was proposed in high level use case diagram and developing and evaluating the IS prototype to see to what extent the accountability has been improved were the proposed proceeding study after this.

Introduction

Public Fixed Assets in Tanzania Local Government Authorities are very important as they deliver important services to the public. Their importance can't be over emphasized as they require a lot of money during their initial investment or during their purchasing hence the sustainability for the fixed assets is needed. According (Hanis, Trigunarsyah, & Susilawati, 2010) public asset management framework is not advanced in developing countries resulting to inefficient recording and accounting for public assets. According to Kuhn *et al.*, (2011) the growing number of public assets results into increase in demand for accountability, which increase the system complexity since the system has to address the growing demand for fixed assets accountability.

On reviewing the Tanzania annual audit reports from 2007-2012 it shows that the assets worth ~75 billion are not being accounted for which will results into loss of the assets and decline of services they provide respectively. The following data were obtained from the Tanzania Annual Audit Reports which shows the amount of fixed assets which were not accounted.

Table 1: Values of fixed assets not accounted

ANNUAL AUDIT REPORT	AMOUNT
2007/2008	73,880,624,912.00
2010	7,981,000,000,000.00
2010/2011	70,891,520,213.00
2011	70,854,983,288.00
2012	73,880,624,609.00

Source: Utouh's audit report 2007/2008, 2010, 2010/2011, 2012

Table 2: Number of fixed asset not accounted

No of unserviceable assets	103
No of assets not revalue	200

Source: Utouh's audit report 2012

The study has analysed the procedures and policies for fixed asset management requirements in both Tanzania Local Government Authorities and other countries in order to come up with a framework and IS prototype requirements for improving fixed asset accountability.

Materials and Method

The study has been conducted through reviewing the procedures and policy documents from other countries and through visiting selected LGAs in Tanzania to analyse the existing fixed assets management procedures and policies which guide the control of fixed assets at Local Government Authorities.

Some documents were reviewed example Local Authority Financial Memorandum of 2010, Local Authority Accounting Manual 2010 and Local Government Act of 1982 which contain

the procedures and policies for fixed asset management at the LGAs in Tanzania. The procedures and policies from other countries were also reviewed like Local Government Capital Asset Management Guideline for South Africa 2008, Fixed Asset Guidelines for Memorial University of Newfoundland Canada 2010, The College of William and Mary Fixed Assets Procedure Manual 2011, General Financial Rules 2005(Amended 2010) Ministry of Finance Gov. Of India and Asset Management Systems Guideline for the application of ISO 55002 2014.The challenge experienced during this study is that some procedures and policies for fixed asset management in Tanzania are included in other separate documents where it was a challenge to explore all the other Governments policies and procedures documents. The researcher has focused on the available main documents at the LGA's containing the procedures and policies for fixed assets for Tanzania local government authorities.

The study was also carried out by visiting six Local Government Authorities' in Tanzania i.e. Arusha, Babati, Moshi, Arumeru, Dodoma and Hai out of 134 Local Government Authorities. These LGAs were selected because of their nearest to Arusha town where the research is mainly being carried out and due to challenge in availability of funds in travelling to far LGAs, the selected LGAs represent all the LGA's in Tanzania as the procedures and policies are similar and applies to the entire Tanzania Local Government Authorities. The questionnaires were distributed to these LGAs and several people were interviewed including normal staff, supplies office, internal auditor and accountant   regarding how the fixed asset management procedures and policies are being implemented at the LGAs.

Different procedure and policy documents were analysed under the fixed asset management requirements and the results are presented in the Table3. These fixed asset management procedure and policy documents were from South Africa, India, Palestine, Canada, US and Tanzania. The analysis showed that there are some areas in fixed asset management which require improvements as shown in Table3.

The data were also collected at 6 LGAs out of 134 LGAs to confirm the areas in fixed asset management which require improvement. The data were analysed using SPSS statistical tool for analysing data. Descriptive and frequency analysis were used and the results were presented in tables and later in bar chart using Excel as shown in Figure1 and Figure2 .

Results

Through the study of the existing different procedures and policies the author has developed some key requirement procedures for fixed asset management. These were Fixed Asset Recording, Tracking fixed Assets Information, Maintenance schedule alert for fixed Assets, Calculate Depreciation/Valuation of fixed assets, Disposal option, Fixed Asset Reporting and Integration with other IS. The policies and procedures from documents existing from different places such as United States, Palestine, South Africa, India, Canada and Tanzania were analysed under the mentioned previous requirements to determine the accountability of fixed assets. The following is the table showing comparison results between different policies and procedures from the different mentioned nations and states examined under the accountability requirements.

**Table 3: Accountability procedures compared from different document sources**

Accountability procedures	Local Government Capital Asset Management Guideline 2004-South Africa	General Financial Rules 2005.Amended 2010.Ministry of Finance Gov. Of India	Revised Fixed Asset Policy and Procedure Manual 2008 – Palestine	Fixed Asset Guidelines 2010-Memorial University of Newfoundland Canada	Fixed Asset Procedure Manual 2011–The College of William and Mary Virginia Texas US	Local Authority Financial Memorandum 2010-Tanzania
Fixed Asset Recording i.e. tag number, specification, Location, ownership cost, date and maintenance date	✓	✓	✓	✓	✓	✓
Tracking fixed Assets Information	✓	Not specified	Not specified	✓	Not specified	Not specified
Update Fixed Asset Register (details, location transfer or any changes)	✓	✓	✓	✓	✓	✓
A tool for Maintenance schedule alert for fixed Assets (alert when the maintenance schedule is due)	Not specified	Not specified	✓	✓	Not specified	Not specified
Calculate Depreciation/Valuation of fixed assets (Calculate Depreciation and the current value of an asset)	✓	✓	✓	✓	✓	✓
Disposal option (reuse, resell, recycle or redeployment)	✓	✓	✓	✓	✓	✓
Fixed Asset Reporting (Give general asset information details required by the user	✓	✓	✓	✓	✓	✓
Integration with other IS	✓	Not specified	✓	Not specified	Not specified	Not specified

The Local Government Capital Asset Management Guideline 2004-South Africa has not included the maintenance schedule alert for fixed asset in the procedures. There is also no tracking of fixed asset in the guideline, Maintenance schedule alert, Tracking of fixed Assets and Integration with other IS were not included in General Financial Rules 2005 (amended in 2010) Indian procedure. The tracking of fixed asset information is not included in the Revised Fixed Asset Policy and Procedure Manual 2008 –Palestine procedure. Also Integration with other Information System is not included in Fixed Asset Guidelines 2010-Memorial University of Newfoundland Canada procedures. Tracking fixed Assets Information, Maintenance schedule alert for fixed Assets, Integration with other IS not included in the Fixed Asset Procedure Manual 2011–The College of William and Mary Virginia Texas US procedures and lastly tracking fixed Assets Information, Maintenance schedule alert for fixed Assets and Integration with other IS were not included in the Tanzania's Local Authority Financial Memorandum 2010.

The study was also conducted in six LGAs which are Arusha, Moshi, Hai, Meru, Babati and Dodoma regarding the implementation of the mentioned procedures for fixed assets management and accountability. The questionnaires were distributed to at least two representatives of each department which deals with fixed asset management; these were procurement, accounts, land and auditing departments. The following were the results obtained from the study.
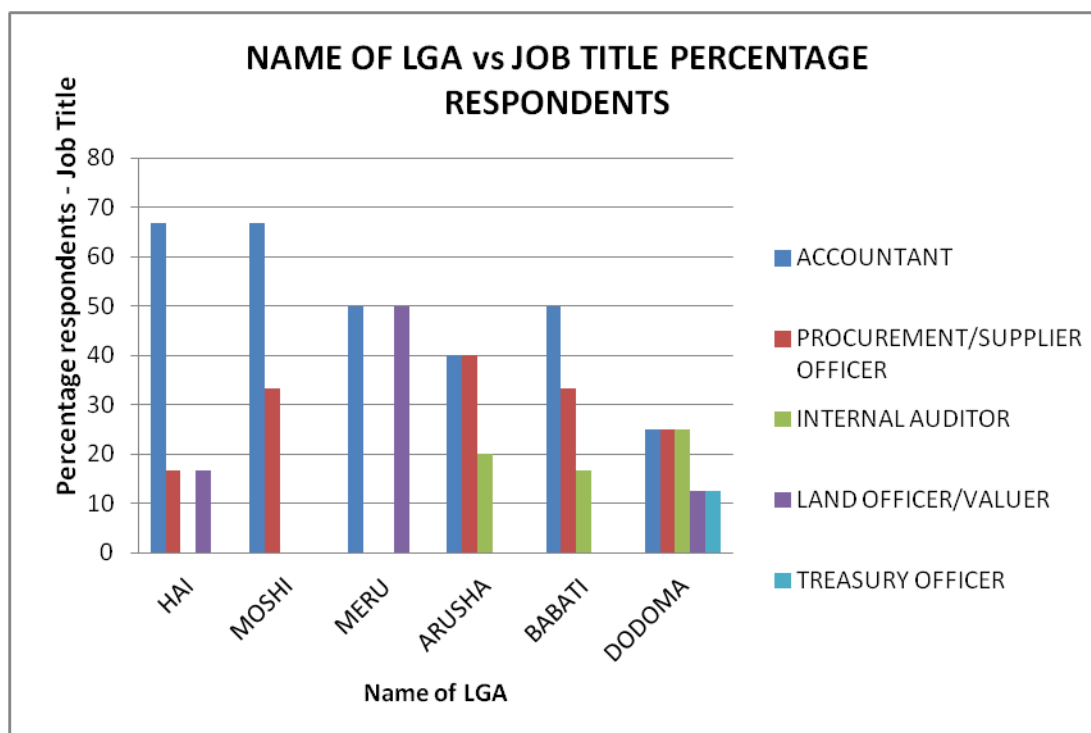
Figure 1: PERCENTAGE RESPONDENTS IN EACH LGA.
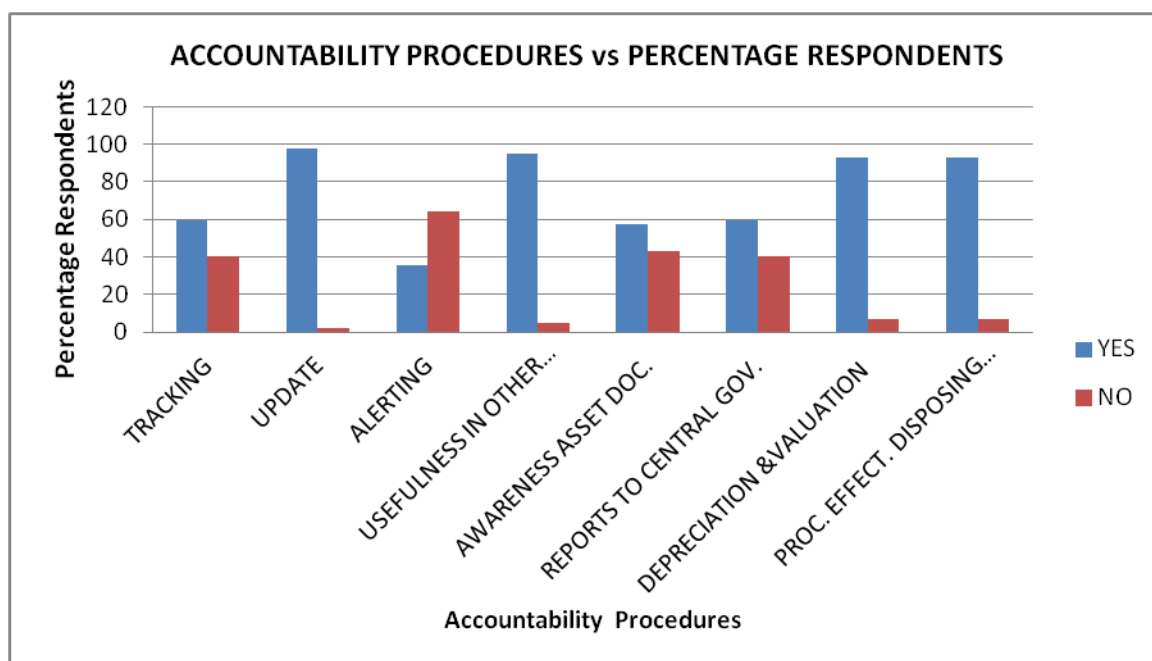
**Figure 2: PERCENTAGE RESPONDENTS FOR ACCOUNTABILTIY PROCEDURES.**

Figure1 shows the percentage respondents in each of the LGAs were as follows:-
At HAI LGA Accounts Dept. were 67%, Procurement 17%, Internal Auditor 0%, and Land Officer 17%, Treasury Officer 0%. At MOSHI LGA Accounts Dept. were 67%, Procurement 33%, Internal Auditor 0%, and Land Officer 0%, Treasury Officer 0%. At MERU LGA Accounts Dept. were 50%, Procurement 0%, Internal Auditor 0%, and Land Officer 50%, Treasury Officer 0%. At ARUSHA LGA Accounts Dept. were 40%, Procurement 40%, Internal Auditor 20%, and Land Officer 0%, Treasury Officer 0%. At BABATI LGA Accounts Dept. were 50%, Procurement 33%, Internal Auditor 17%, and Land Officer 0%, Treasury Officer 0%. At DODOMA LGA Accounts Dept. were 25%, Procurement 25%, Internal Auditor 25%, and Land Officer 12.5%, Treasury Officer 12.5%.

Also the results shows that 38 respondents out of 42 which is 90.5% uses Asset Register Book in recording fixed assets while the remaining 4 respondents which is 9.5% uses Computer System. Figure2 shows that in Tracking Fixed Assets the respondents who answered "YES" were 59.5% while those answered "NO" were 40.5%. In updating the register those who answered "YES" were 97.6% while those answered "NO" were 2.4%. In alerting procedure those who answered "YES" were 35.7% while those answered "NO" were 64.3%. In updating the register those who answered "YES" were 97.6% while those answered "NO" were 2.4%.In calculating depreciation and valuation those who those who answered "YES" were 92.9% while those answered "NO" were 7.1%. In implementing procedures and policies for disposing fixed asset those who answered "YES" were 90.5% while those answered "NO" were 9.5%.In assessing for awareness of fixed asset management documents those who answered "YES" were 57.1% while those answered "NO" were 42.9%. In assessing whether the reports are being sent to the central government for accountability

those who answered "YES" were 59.5% while those answered "NO" were 40.5%.

The study conducted at the Queensland University of Technology in Australia shows that there are some parts which require improvements in Asset Management Systems the improvement required because of constant shifting of user needs due to changes in factors such as technology, culture, competition and regulation. Technology change influences demands for Asset Management System improvement due discover of high performance, reliable and more effective technologies which will respectively add values to these systems. Change in culture especially in organizations creates a demand for system improvement since the system has to support or manage the people's new ways of doing things. Competitive advantages especially for Asset Management Systems market create a demand for system improvement in order to continue to survive in competitive market. The change of regulations and policies create a demand for system improvement because the system has to address the organization policies and regulations .The following are the data which shows the areas requiring system improvements.
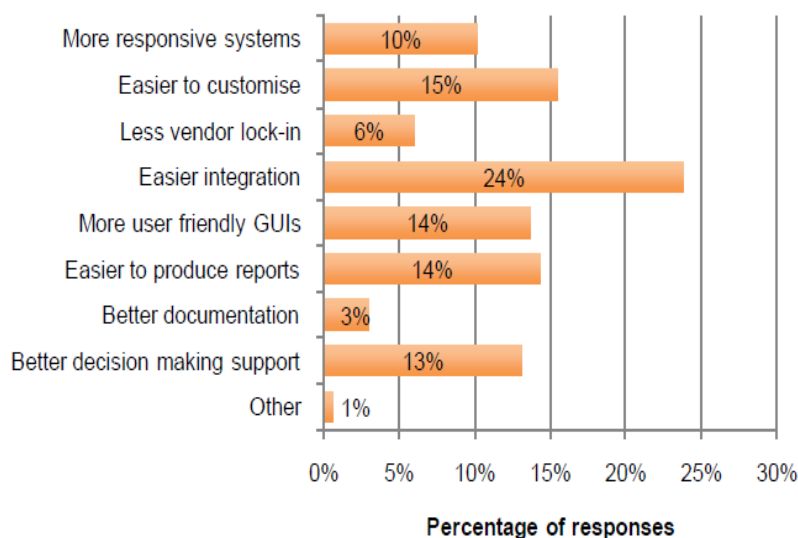
Figure 3: Areas which require improvements in asset management systems.

Source: Mathew et al., (2008)

Easier Integration requirement is greater than the rest of the improvement requirement which is 24% responses. Something has to be done on this and that is the reason for identifying it as the part of the system requirement on the above procedures.
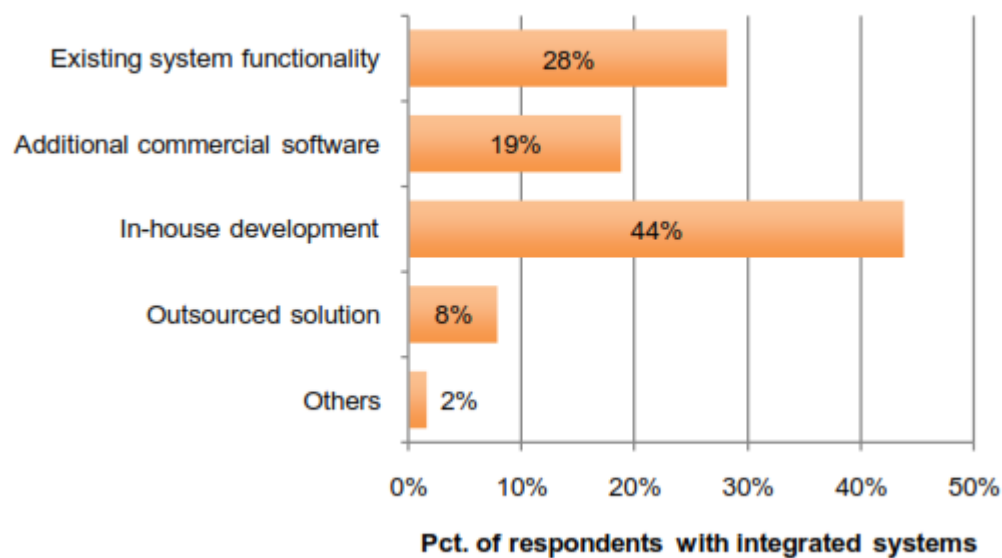
Figure 4: Methods of System Integration in Asset management Systems.

Source: Mathew et al.,   (2008)

This study was conducted at the Queensland University showing various methods of system Integration and results shows that the In house development integration ranks higher 44% showing that it is the most effective way for developing the system for easier Integration.

Due to the above findings the following requirement list and use case was developed in order to enhance fixed asset management accountability in the Local Government Authority and central government in Tanzania.

Table 4: Requirement list showing use case and actor(s)

No.	Requirements	Use Case(s)	Actor(s)
1.	Fixed Assets Recording (Register new Asset in Inventory with their no/tag, ownership, date, specification, maintenance date and cost)	Categorise the type of fixed asset extends to:- • Buildings • Land • Motor Vehicles • Infrastructure Assets • Equipments • Furniture and Fixtures Register new Asset in Inventory include:- • register asset no/tag • register date of purchase • register ownership • register location • register specification • register asset cost • register maintenance date -	Data entry clerk
2.	Tracking the fixed Asset(status, ownership, location)	Track Fixed Asset(Using asset Tag)	Asset manager or Data entry clerk
3.	Update Fixed Asset Register (If details/location changes/transfer)	Re-categorise the type of fixed asset extends to:- • Buildings • Land • Motor Vehicles • Infrastructure Assets • Equipments • Furniture and Fixtures Update the Register Inventory details include:- • register asset no/tag • register date of purchase • register ownership • register location • register specification • register asset cost	Data entry clerk

		Alert for maintenance due date	System
4.	Maintenance for fixed Assets (alert when the maintenance schedule is due, specify maintained/repaired parts)	Record the maintained specific parts Specify the repair or maintenance costs	Data entry clerk
5.	Calculate Depreciation/Valuation of fixed assets (Calculate Depreciation and the current value of asset)	Calculate the depreciation of fixed assets Calculate the current value of fixed asset	Data entry clerk or Asset Manager
6.	Disposal option (reuse, resell, recycle or redeployment)	Record dispose an asset by reselling Record dispose an asset by recycling Record dispose an asset by redeploying	Data entry clerk
7.	Fixed Asset Reporting (Give general asset information details required by the user	Specify the category of fixed asset requiring a report. Print the fixed asset report details.	Data entry clerk and Asset Manager
8.	Integration with other Information System	Integrate with other Information System	Other Information System

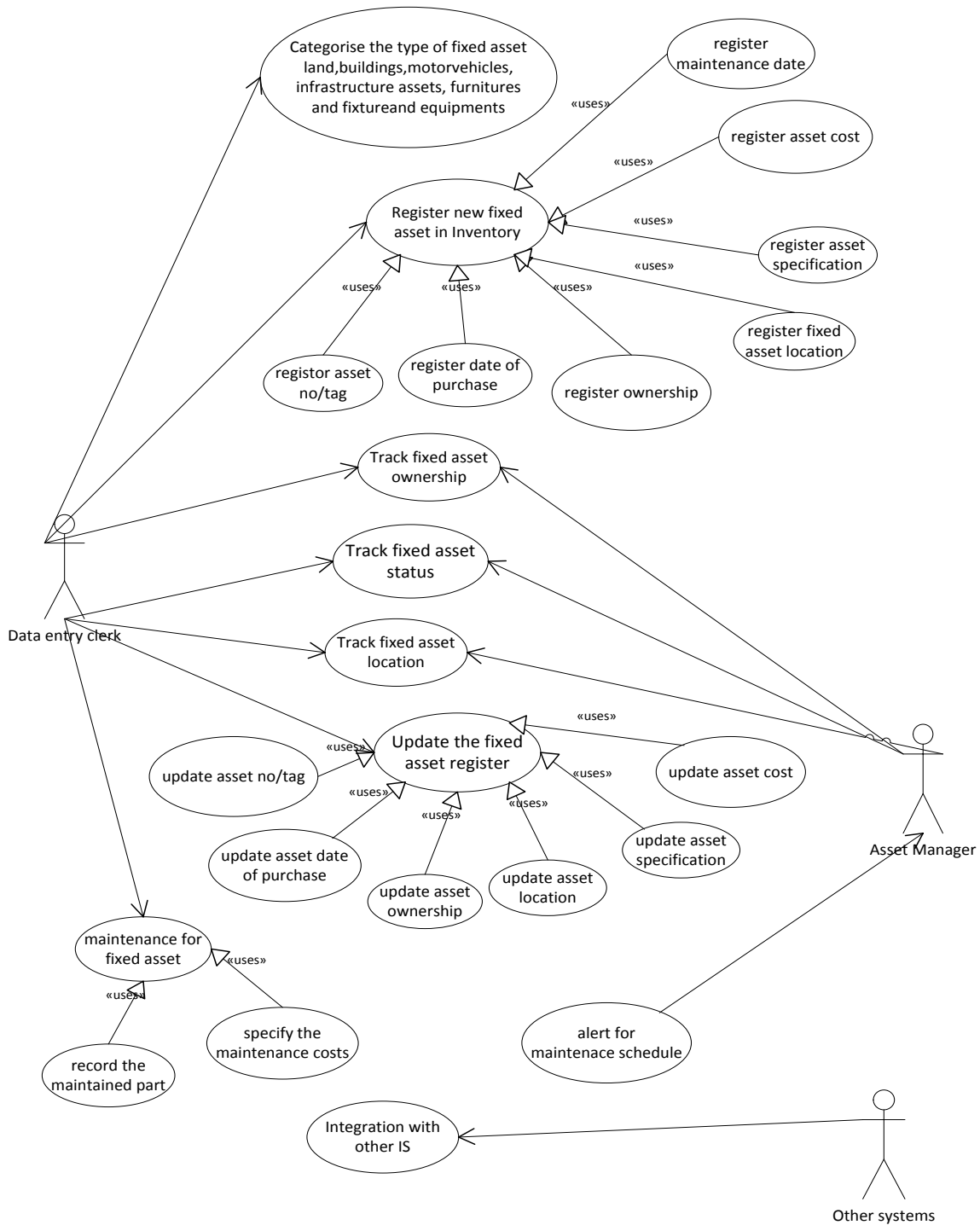USE CASE DIAGRAM FOR FIXED ASSET MANAGEMENT FRAMEWORK

Figure 5: Use Case Diagram for fixed asset management framework.

Discussion

The tracking of fixed asset is not included in Tanzania fixed asset management procedure. It is only done during the annual auditing which is conducted once every year which is not an effective way of managing fixed assets as an asset can get lost or misallocated during that time of one year before the auditing exercise. Also maintenance schedule alert is not included in Tanzania Local Government Authority procedures which are important in alerting whenever the asset maintenance schedule is due as specified by the manufacturer of asset or stated by the policy; this will enhance the sustainability life of an asset so that it may continue to deliver its services. There is no integration between asset management system and other systems, data or information has to be extracted manual. The depreciation and valuation of fixed asset is normally calculated during semi annually or annually which is a challenge in getting the actual value of a fixed asset in the period before the auditing or stocking taking session.

The study was carried in six LGAs i.e. Hai, Arusha, Moshi, Babati, Meru and Dodoma with the total number of 42 respondents. The study was carried in five departments which are accounts, procurement, land, treasury and auditing department as these are the departments dealing with fixed asset management. From data analysis it shows that more respondents which is 47.6% are from accounts department which may be the challenge in managing fixed assets as the accounts department focuses more on financial matters, therefore the procedures and system need to be effective and easy to use in order to enable them to easily manage and accounts for fixed assets. Figure2 shows 25 which is 59.5% respondents agree that there is a asset tracking procedure and 17 which is 40.5% disagree, the interview shows that the tracking procedure is there however it is not effective since it is only done annually during stock taking period which imply an asset information or details may be missing for the entire year until stock taking period is when revealed which may not be healthy for fixed asset accountability. The tracking system is required such that anytime an asset information is required can be retrieved easily. Figure2 shows that 27 respondents which is 64.3% disagree that there no maintenance or repair alert for the fixed asset while 15 respondents which is 35.7% agree that there is maintenance, therefore the maintenance alert is required to alert the repair or maintenance of fixed asset based on the repair time so that fixed asset life span will increase. Figure2 shows that more respondents which is 97.6% agree that fixed asset register is being updated; however the procedure is not much effective as it is updated annually and not when there is a change of asset status or relocation of asset, the more effective procedure is required to do the regular update whenever there is a change in fixed asset status. Figure2 shows 95.2% of the responds agreed that information is useful in other departments or ministry therefore there is a need for data integration as system needs to communicate or share data with other systems. Figure2 shows that 59.5%   of the respondents agree that the report is sent to central government for accountability and the remaining 40.5% disagree, the interview shows that the LGAs has been given their own mandate for management from the Tanzania constitution so they are independent entity since they have their own audit committee and District Executive Director (DED) is the chairman. They normally send the reports to central government to show how the money has been used but fixed assets are managed internally. Figure2 shows 57.1% are aware of fixed asset management documents while the remaining 42.9% are not aware of the documents, this brings a serious concern since all the accountability policies are in government documents, if they are not aware it means the policies for accountability may not be implemented effective with this percentage respondent.

The study conducted at Queensland University of Technology in Australia shows that one of the areas which require improvement is easier integration ranking 24% which is the highest. The improvement requirements arise due to constant changes in the needs caused by some factors changes such as technology, competition, regulations and culture Mathew et al., (2008)**.**This shows that it is important to include this requirement in our framework so that the system share the data easily with the other Information Systems due to the changes in the above mentioned factors. The list of system requirements were developed in Table 4 in order to address the procedures for enhancing the accountability of fixed assets in the local government authority in Tanzania and finally the use case design diagram was developed to show the proposed system requirement analysis at higher level of abstraction.

The proposed fixed asset framework analysis will enhance asset accountability by providing easy, reliable and quick data inventory platform reducing the challenges of the manual system in register recording because it is slow, data may be redundant as there is no control for redundancy, registers may be misplaced and become difficult to find and other challenges such as data backup in the manual system. The tracking of fixed asset module will enhance the fast tracking of fixed asset information by just searching the asset using the asset tag number or asset name to overcome the existing challenges of finding the information manually on the registers which may be a very slow and unpredictable process as some information may be missing in the asset register which may hinder the effective fixed asset accountability. Updating fixed asset is another requirement in the framework to make sure that any change of information in the fixed asset is updated in the inventory. The current manual system is facing challenges in updating as the registers are many and finding the required register takes time and some register may miss some information. This requirement will simplify the updating of inventory by searching for an asset through the system and updates the information and therefore enhance asset accountability. Alerting for fixed asset maintenance is another important requirement as it will enhance asset maintenance and increase the fixed asset life time as currently this part is conducted manually and it is not very effective, this framework will alert for fixed asset maintenance schedule and reminds about maintenance schedule, therefore increase the sustainability of fixed asset. Calculating depreciation and valuation, disposal of asset status and fixed asset reporting are important requirements which will be developed for the calculating depreciation, valuation, recording the disposal status and fixed asset reporting. This will be easier than existing manual practice as the system can calculate and generate the report easily and more accurate compared to manually calculation and manual preparation which is subject to many errors. These requirements in this framework will enhance the fixed asset accountability.

The study conducted at the Queensland University shows that asset management system requires improvement in the areas of easier integration ranking the highest 24%. In Tanzania most of the Government Institutions have implemented the Information Systems such as accounting system e.g. epicor, pastel, quickbook e.tc. This framework will be required to integrate with other system now or in future in order to facilitate information or data sharing with other Information System which is why this requirement has been included in this framework.

The reliability of the respondents (education level) were not examined in this study since the areas for the improvements were already identified from the previous study of examining the

procedures and policies documents under the specified requirements. This is left for future the future study.

The IS prototype for this framework will be developed and evaluated to see to what extent has accountability been achieved.

Conclusion and Recommendation

The government should include the missing procedures in their documents in order to enhance fixed asset accountability. The missing procedures are tracking of fixed asset, maintenance schedule alert and integration with the other systems. The framework resulting to an information system addressing these procedures should be developed and implemented to ensure that these procedures are implemented easily. By including these procedures in government documents and developing the Information system, the government will enhance fixed asset accountability from local government authorities and increase the sustainability of fixed assets. The government should increase the awareness among the LGAs staff about the government procedures and policies for managing fixed assets through training. Reliability testing from the respondents was not conducted in this study as the study were carried initially from the analysed documents then at LGAs was to prove the results. This part of reliability testing is open for future research study.

Acknowledgements

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