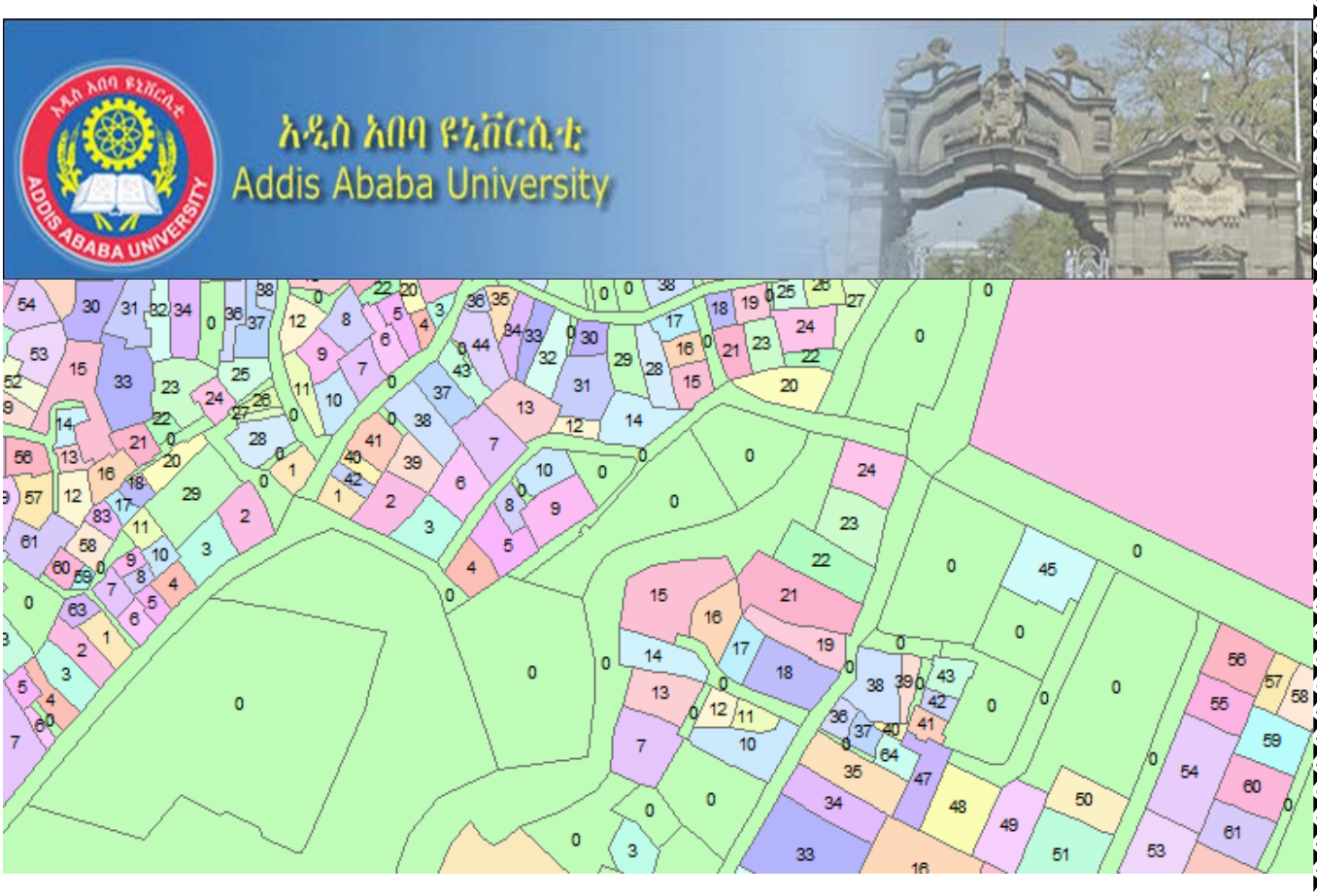

POST PROJECT SUCCESS EVALUATION:

IN THE CASE OF ADDIS ABABA CITY ADMINISTRATION REAL PROPERTY REGISTRATION SYSTEM

BY

BIZUWORK FEKIBELU

JUNE, 2017
ADDIS ABABA, ETHIOPIA

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A Research Project Submitted to Addis Ababa University School of Commerce in Partial Fulfillment of the Requirement for Master of Arts in Project Management (MAPM)

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BY

BIZUWORK FEKIBELU BELIHU

Approved By Board of Examiners

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Advisor _____ Signature _____Date _____

DECLARATION

I declare that the research project work named “POST PROJECT SUCCESS EVALUATION: IN THE CASE OF ADDIS ABABA CITY ADMINISTRATION REAL PROPERTY REGISTRATION SYSTEM” is my own work and that all the sources that I have been indicated and acknowledged by means of complete references.

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Bizuwork Fekibelu Belihu Date

CERTIFICATE

This is to certify that this project work, " **POST PROJECT SUCCESS EVALUATION: IN THE CASE OF ADDIS ABABA CITY ADMINISTRATION REAL PROPERTY REGISTRATION SYSTEM**" undertaken by Bizuwork Fekibelu Belihu in Partial fulfillment of the award of Master's degree in Project Management at Addis Ababa University graduate school, is an Original work and not submitted earlier for any degree either at this University or any other University.

_____

Teklegiorgis Assefa (Asst.prof).

Project Work Advisor

ABSTRACT

Urban Land management in Ethiopia is in transition and faces many interrelated challenges simultaneously. Urbanization, globalization, sustainable development, technology, and micro economic reforms are the main drivers of change. The government of Ethiopia is attempting to replace the old system of urban land tenure (the "permit" system) by a more market-oriented system of long-term leases. As result, Addis Ababa City Administration decided to contract an international consultant (Hansa Luftbild) a German based geo-information, and mapping company, to establish a modern property registration and land information system. Evaluation of the end- user's level of agreement on the land registration system in Addis Ababa, Ethiopia and factors affecting the overall real property registration system success dimensions and associated system challenges are the focus of this study. Targeting land- related professionals as end-users of land services, a survey was conducted to extract data on their level of agreement on overall system success. The frequency distribution and the percentage of the answers to the questionnaire on success evaluation dimensions using the 5-point Likert scale shows ***56 %*** *of responses positively agree on the eight dimensions of system success. Even though, the majority of responses show somewhat positive agreement on the evaluation dimensions, the number 56% is very far from 100% and there is no full confidence to say that the system satisfies all users' needs. The positive responses however, is an indication that if Addis Ababa city administration works on the limiting factors the work of the city administration can be enhanced.*

Key words: *system quality, information quality, success dimensions, cadaster, real property, land administration, project, evaluation*

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ABBREVIATIONS AND ACRONYMS

AACA- Addis Ababa City Administration

AA-CADIS- Addis Ababa Cadastre Information System

AA-LIS- Addis Ababa land Information System

IPRIA- Immovable Property Registration and Information Agency.

ISO- International Organization for Standardization

LLRAS- Land and Land Related Administration Sector

PCA - Principal Component Analysis

RECS - Real Estate Cadastre System.

RPRS - Real Property Registration System.

TOR-Terms Of Reference.

PMBOK - Project management body of knowledge.

IT - Information Technology.

GIS - Geographic Information System.

ICT - Information Communication Technology.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Evaluation is becoming an increasingly important activity in project management. The emphasis placed on evaluation by policy makers, funding bodies, strategists, and practitioners is at an all-time high. Requests for funds must compete with those of other agencies, and new projects and programs must be justified, while old projects and programs must be shown to have been efficient and effective. The term evaluation has been used for studies to judge and assess the impact and success of intervention programs, projects, services, or policies in order to make recommendations for change. In a more informal sense, evaluation can be a kind of informal subjective assessment that people make in the course of their everyday collection and analysis of information about the content, structure, and outcomes of programs, projects and planned interventions (Clarke and Dawson, 1999).

As Clarke and Dawson (1999) summarize, evaluation is "a form of applied social research, the primary purpose of which is not to discover new knowledge, as in the case of basic research, but to study the effectiveness with which existing knowledge is used to inform and guide practical actions." The most important purpose of evaluation is not to prove, but to improve, and unlike basic sciences, evaluation does not aim for truth or certainty; its aim is to help improve programming and policy-making. Evaluation is also very much action-oriented, mainly to identify recommendations for programs, policy, and decision-making.

Although different types of project evaluation types, in this study, we focus on ex-post evaluation. Ex-post evaluation can be described as an evaluation of an intervention (in our case, a project) after the intervention has been completed. In addition, ex-post evaluation is conducted after a certain period following the completion of a target project, with emphasis on the effectiveness and sustainability of the project outcomes. Such evaluations aim to derive lessons and recommendations for the improvement of future projects and programs (OECD, 2002). Ex-post evaluation is often considered the weak connection in the planning, implementation, and operation of public projects. To date, the assessment methods have tended to rely on ex-ante appraisal, making predictions of how a scheme or policy might perform, rather than being based directly on

the outcomes of past decisions (Worsley, T. 2014, A. Arviansyah, T. Spil, and J. Hillegersberg,2015). Worsley, T. (2014) mentioned that ex-post evaluation could serve multiple purposes, of which the two primary ones are learning and/or improvement and accountability and/or control.

Urban Land management in Ethiopia is in transition and faces many interrelated challenges simultaneously. While the state retains public ownership of land, the government is attempting to replace the old system of urban land tenure (the "permit" system) by a more market-oriented system of long-term leases. The process is phased and introduces the new system gradually, starting with selected cities first (Addis Ababa city) and planning to expand (incorporate) the rest over time depending upon the positive scores registered in the acceptance and subsequent popularity of the reform package among the general public . This is the main aim of this study to check whether positive scores registered or not on cadaster project. Most of the city administrations (municipalities) in Ethiopia are finding it increasingly difficult to cope with the demand for registering the process of land transactions as well as the rapidly changing patterns of land use associated with the accelerated urban growth. Because of this, a number of other problems, such as inability to increase their revenue base, distortion of urban land market and delays in the implementation of urban development projects emerge. Moreover, the absence of reliable information especially land related is the most critical impediment for the preparation and implementation of urban plans in many urban centers. Thus, the establishment of an up-to-date and efficient Cadastre and registration systems can do much to alleviate these and other related problems.

In September 2009, the Addis Ababa City Administration decided to deal with urban land management problems, such as informal property settlement, land invasion, and inadequately secured land records, which were hindering the city's further development. As a result, Hansa Luftbild, a German based, geo-information and mapping company, was contracted to establish a modern property registration and land information system, based on efficient business processes. The contract included supporting the setting up of a real property registration agency, and drafting the necessary legal framework. A major part of the project was the development and implementation of a technical infrastructure to support cadastral processes.

The main purpose of this study is to assess the level of agreement of system users on the developed real property registration system success. Which is the outcome of the project and to identify the factors that affect the different system success dimensions like system quality , user quality , information quality and net benefit of the system and to gather the lessons learned so that they could be applied to similar projects in the future. For this study, both primary and secondary data were used and the research approach was mixed. Survey questionnaire on the system quality, user quality, information quality which is generated from the system, information use, user satisfaction and benefits of the system on individual, organization and on the society was collected and interview informants from Addis Ababa city administration was carried out.

1.2 Statement of the Problem

Urban Land management in Ethiopia is in transition and faces many interrelated challenges simultaneously. Urbanization, globalization, sustainable development, technology, and micro economic reforms are the main drivers of change. While the state retains public ownership of land, the government is attempting to replace the old system of urban land tenure (the "permit" system) by a more market-oriented system of long-term leases. The process is phased and introduces the new system gradually, starting with selected cities first (Addis Ababa city) and planning to expand (incorporate) the rest over time depending upon the positive scores registered in the acceptance and subsequent popularity of the reform package among the general public.

As result of the contract agreement mentioned on the background of this study, the project contractor (Hansa Luftbild) conducted pre project assessment. The assessment concludes that the existing land administration system and organizational structure in the city of Addis Ababa do not fulfil the requirements of a modern land administration. Because of lack of clear organisational responsibility, lack of consistent and defined data sets, lack of consistent applications to support the land administration processes.

The main objective of the project was to develop a modern, future-oriented, sustainable, traceable, transparent, accurate and reliable system by taking due attention to the country context. The project has two main components, phase one, and phase two. In the first Phase of the project the following works where included: - Updating Cadastral Map, Supporting the Establishment of Municipal Real Property Registration Offices, Requirements Analysis, Design and Specification of Real Property Registration and Land Information (Cadastre) Systems and Development of

Addressing System and the second Phase of the project includes the **main work of developing and Implementing the real Property registration and Land Information** (Cadastre) Systems and the current status of this project is completed. However, currently there is complains in the land administration system efficiency and effectiveness by different stakeholders. It is not known where the problem is and to whom it accounts to. As result, the researcher wants to assess the level of user agreement on the success of the developed system and to identify the factors that affect the system success dimensions as well as the current challenges that hinder the system performance. As a researcher knowledge is concerned, this research is the first in its kind (specifically for Addis Ababa real property registration system) and the study helps the land administration stakeholders of Addis Ababa city to know the level at which the system users agree on the functionality of the system and its importance. Besides the study, helps to know the current challenges that hinder the proper functioning of the system and to take appropriate actions accordingly.

1.3 Research Questions

- What is the level of agreement of Addis Ababa land registration or real property registration system users on the system success dimensions (system quality, user quality, information quality, user satisfaction, information use, and net benefit of the land registration system for individual, organization, and society)?
- What are the factors that affect the Addis Ababa land registration system quality, user quality, information quality, and net benefit?
- What are the challenges that hinder the function of AA-CADIS?

1.4 Research objectives

1.4.1 General objective

The main purpose of this research is to evaluate Addis Ababa real property registration system post project success.

1.4.2 Specific objectives

- To assess user level of agreement on Addis Ababa land registration (real property registration).
- To identify factors affecting Addis Ababa land registration system.
- To identify challenges that hinder the normal function of AA_CADIS.

1.5 Significance of the study

The result of the study would contribute meaningfully to the implementation of real property registration system success evaluation by pinpointing possible evaluation dimensions and techniques, as real property registration system is a continuous process. The real property registration system implementers and the management of the land administration with an understanding of the real property registration system acceptance criteria have a higher chance of success. It will make advancement in the existing volume of knowledge regarding real property registration system outcome evaluation and user acceptance test of developed IT systems. It is important in identifying the bottleneck problem of real property registration system quality factors.

1.6 Scope of the study

The scope of this study limited geographically by the boundary of Addis Ababa city administration, which is the capital city of Ethiopia. The focus of this study is to evaluate Addis Ababa immovable property registration system project outcome success or level of acceptance by the end users. The study try to show Addis Ababa land administration managers and workers view of the developed real property registration system acceptance level, impact of the developed system on individual users, on organization effectiveness and on the society at large and the factors that affect the system quality ,user quality, information quality and net benefit to city administration. The study also identifies current challenges that hinder the functioning of the system.

1.7 Limitations of the study

This study as general limitations of the research affected by the limitation of the inherent research design approaches and research strategies. Besides financial as well as time, constraints forced the researcher to limit the scope of the study in Addis Ababa city.

1.8 Organization of the study

With the purpose of providing readers a clear and logical approach to the research topic, the study divided into five chapters as below:

Chapter 1: Introduction: This chapter sets the general research interest and background of the study. The research question and research objectives provided following by the overall structure of the thesis.

Chapter 2: Literature review: The theoretical background on project evaluation, land registration, cadaster, land administration, urban land governance, Addis Ababa real property registration project historical background, and IS success evaluation dimensions are reviewed.

Chapter 3: Research Methodology: The research approach and strategy applied by the study are identified. This chapter further explains how the data are collected.

Chapter 4: Data analysis and Result Discussion: This chapter provides the empirical data collected through semi-structured interviews and survey questioners and discusses the empirical findings in connection to existing theory to address the main purposes of the study that clarified in chapter

Chapter 5: Conclusion and recommendations: This chapter provides the key findings related to main purpose summarized ending with the answer to the research question.

CHAPTER TWO

LITERATURE REVIEW

INTRODUCTION

This chapter discusses four main parts of the research question from academic point of view. The first section offers specific review on the project evaluation field. The second one gives insights to the concept of Land registration, cadaster, land administration system and urban land governance processes and the third one is the targeted project (Addis Ababa cadaster project) objectives, expected outcomes and the status of land administration system of Addis Ababa city before the project implementation. Finally, reviews of information system outcome success evaluation dimensions.

2.1. Project evaluation

This section divided into two parts. The first part gives an overview of the project evaluation process, critical activities included in the process as well as a discussion on the purposes of project evaluation from various points of view. The second part classifies project evaluation into three categories based on different stages of the project life cycle, and summaries typical features of three types of project evaluation.

2.1.1 Project evaluation overview

a. The project evaluation process

According to Steven et al. (1993), project evaluation is a combination of a number of activities ranging from setting indicators, developing model, defining measurable outcomes, identifying key stakeholders and their interests, selecting methodology for evaluation, collecting information, analyzing data, and disseminating evaluation results for further learning. The evaluation process therefore concerns very much on data gathering and information analysis. Sustainability of the project success includes risk analysis and assumption analysis during the evaluation process. Many organization uses logical framework to evaluate project success and this approach has many advantages it uses the matrix structure to check the cause- effect relationship between goals, outcomes, immediate results, impacts and activities, indicators, means of verification, assumptions.

b. The purposes of Project Evaluation process

It is found from literature that the evaluation process plays an important role in the success of projects. One of the major purposes of evaluation is to determine the worth or merit of projects, process or products under both internal and external constraints. Regarding to Ye and Tiong (2000), financial appraisal techniques in evaluating projects offers quantitative information to justify investment, particularly in high level of finance and political risk projects such as infrastructure.

Frechtling (2002) mentions two reasons for conducting evaluation which are (1) 'it provides information to help improve the project, information on whether the goals are being met and on how different aspects of a project are working are essential to the continuous improvement process; (2) provides new insights or new information that was not anticipated' (p.11). He also stresses the role of evaluation process in facilitating information flows among stakeholders of organization. It enhances the feedback and feed forward mechanism through reports, questions that are delivered within the evaluation period. Agreed upon this point, Caulley (1993) suggests that evaluation could provide objective information, supply credible answers, and identify the reasons for success or failure. The insight of the project progress achieved through evaluation process allows management to take proper actions during the implementation of projects. Banwell et al. (2003: 79) further illustrates the role of project evaluation as a toolkit that 'helps managers to guide and benchmark the development of organizations' in the relation to the adoption of the project.

Evaluation also considered as knowledge construction and capacity building by some authors (Vakola, 2000; Segone, 1998). The APM body of knowledge (2006) discusses that project evaluation reviews take place to check the likely or actual achievement of projects plan and to ensure the benefits of organization. Agreed with previous academic literature, it is also emphases that evaluation should be undertaken throughout the project life cycle.

2.1.2 Project evaluation Classification

The evaluation process influenced pretty much by the project life cycle, it is reasonable to classify project evaluation base on the life cycle. Steven et al. (1993) categories project evaluation into three phases, which are planning phase, formative phase, and summative phase. Later, McNamara (1997) expresses this consideration in another way with three major types of project evaluation:

goal-based, process-based and outcome- based evaluation. The following categories named as suggested by Steven et al. (1993).

2.1.3.1 .Planning project evaluation

Planning project evaluation at the very beginning of the project and prior to the project implementation, gives justification to choose projects among many others. Many authors consider this process similar to the investment decision-making, as project actually is an investment. On one hand, the literature of project evaluation has placed a significant effort on providing various financial techniques that support the process. Some traditional methods used in project appraisal such as net present value (NPV), internal rate of return (IRR), Payback period, discounted cash flow (DCF) analyzed by many authors (Ballantine and Stray, 1998; Small, 1998; Müller, 2003). Small (1998) showed the role of these financial methods in evaluating projects, in particularly the carefully considered during the evaluation process. Small (1998) shows the role of these financial methods in evaluating projects, in particularly the cost and benefit analysis. The tradeoff between accrued cost and future benefits related to all stakeholders should be carefully considered during the evaluation process.

2.1.3.2. Formative project evaluation

The second phase of project evaluation also called as formative evaluation, regards the progress and implementation evaluation. The purpose of evaluating projects in such a phase is to enable the company to decide whether it is worth going ahead or is it better to kill the project. There are different methods used to evaluate this phase of the project. Most of the academic and practitioner literatures suggest the use of financial analyses such as cost-benefit analysis, ROI techniques as they provide important information to evaluate the ongoing progress of a project and take the right decision. According to APM Body of Knowledge (2006), the evaluation of the ongoing phase of the project considered as addition to ongoing monitoring and control process. According to PMBOK the evaluation of the ongoing phase, considered also as monitoring and control, provides feedback in order to undertake actions that can correct or prevent deviations from project management plan.

2.1.3.3. Summative project evaluation

The third phase of project evaluation is done after project completion. Even though it is important to evaluate projects after their completion, not much literature can be found. Therefore, the study

on this phase is limited to few researchers. Summative phase is called as 'ex-post' evaluation by Grabe (1983:14) who argues that the main objective of such evaluation is 'to determine a starting point for further activities in the same field, to explore the relative cost, effectiveness and impact of alternative approached, to identify common mistakes in comparable projects and to quantify such effects and impact patterns'. It could be said that this evaluation can be considered as learning tool for the company such as improvement in productivity or career patterns in employment. Referencing to Vakola, (2000) and Scriven (1967) it could be said that the evaluation after project completion makes an overall judgment about the effectiveness of a given project/programme Uhl (2000) categorizes summative evaluation into two phases such as 'testing phase' aimed at confirming effectiveness of final version and 'routine phase' aimed at emphasizing quality assurance. Despite this sub-categorization, Crawford and Bryce (2003:363) claim that evaluation after the project/program is valuable 'to mitigate poor project performance, demonstrate accountability, and promote organizational learning for the benefit of future projects'. It ensures alignment of the performance measures with the project strategy. While Greene (1988) sees evaluation as program improvement.

This study is belonging to ex-post category of project evaluation, as the researcher wants assessing whether the contractor adequately carried out the goals and objectives of the work to the level that the end users agree on the quality of outcomes. The purpose is to determine if the participants' needs were met, if the problem was solved, if the project was efficient, if recipients of results were satisfied, what directions new programs might take.

2.2 Land administration overview

Land administration is defined as "the processes of recording and disseminating information about the ownership, value and use of land and its associated resources" (UNECE 1996). The definition shows the cadastral system is central for the broader purposes of the land administration system: both the spatial and attribute information in the cadastral system are pertinent in land administration functions: they support the establishment of tenure security, land and property taxation, land market monitoring, land dispute reduction, urban planning, and infrastructural development projects, amongst other activities (c.f. Williamson et al. (2010), Zevenbergen et al. (2013) and Henssen (2010a). Generally, land Administration Systems are the basis for conceptualizing rights, restrictions, and responsibilities related to people, policies, and places.

The broader land administration system in general and its core component, the cadastral systems in particular, are subjected to continuous evolution and reform (c.f. Steudler (2004). This is because the people-to-land relationships are continuous and dynamic: this is more pronounced in the urbanized setting. The interests of the people in urban land are also changing. The land administration system, thus, should respond to contemporary and anticipated future people-to-land relationships (c.f. Bennett et al. (2010). In response, different cadastral and land administration theories and models have evolved over time. These refine understandings of both conceptual and technical designs. Some of these theories include the land management paradigm (Enemark 2005), the multi-purpose cadastre (McLaughlin 1975), cadastre 2014 (Kaufmann and Steudler 1998), and the 'fit-for-purpose' land administration (Enemark 2014).

2.2.1 Land registration and the Cadastre.

All countries have to deal with the management of land. They have to deal with the four functions of land tenure, land value, land use, and land development in some way or another. According to the 1995 FIG statement, a modern cadastre is defined as "a parcel based, and up-to-date land information system containing a record of interests in land (e.g. rights, restrictions, and responsibilities). It usually includes a geometric description of land parcels linked to other records describing the nature of the interests, the ownership, or control of those interests, and often the value of the parcel and its improvements. It may be established for fiscal purposes (e.g. valuation and equitable taxation), legal purposes (conveyancing), to assist in the management of land and land use (e.g. for planning and other administrative purposes), and enables sustainable development and environmental protection" (FIG 1995). Two main compartments exist in this definition. The first is the geometrical part, which records the geometry or territory of the urban land parcels and the second is the registration part, which records attribute information regarding the urban people and the legal aspects of its interaction with the urban land. Van der Molen (2014) points out that the recognition of urban people-to urban land relationships through systems of cadastre, land registration and land administration is an important aspect of dealing with the issues of slums, informal settlements, and arbitrary evictions.

Land registration and cadastre is the core component of land administration system, which is aimed to record and archive land information (Williamson, 2001). The terms of land registration and cadastre has to be distinguished to avoid the confusion (Zevenbergen, 2002). McLaughlin and

Nichols (1989) define land registration as "**the process of recording legally recognized interests in land**," and cadastre is defined as "an official record of information about land parcels, including details of their bounds, tenure, use, and value." The foundation of a successful land administration system is reliable land records. The important land attributes such as **ownership, value, and land use** has to be carefully recorded and archived. Each of the attribute of land has its own necessity. The record of land ownership is the basic evidence of protecting tenure security, which is the most important function of land registration. The record of land value can ensure the equity of land taxation and land acquisition; the record of land use can be used to guarantee the efficiency of resource administration (Feder & Nishio, 1998).A similar conception is applied throughout the entire course of this study.

Despite the efforts, the functionalities of cadastral systems, the status of cadastres are at different levels of technical design, system administration, and practical function in different countries. The economic, political, technical, institutional, and administrative capacities of nations are crucial to success (Zevenbergen 2002). For example, in developed countries, such as the Netherlands, 100 percent of the land is formally registered (c.f. Zevenbergen (2002)). Meanwhile, in Sub-Saharan countries, over 70 percent of the land is not formally recorded (Enemark 2014, Augustinus 2010). This shows that the operation of the cadastre is poor and encounters failures. For example, attempts at building a multipurpose cadastre in Ethiopia failed to reach objectives (Alemie et al. 2015a). This implies that decision making for dealing with the people-to-land relationships in these regions is not supported by reliable information. This has implications for the quality of decision-making and ultimately the resolution of broader societal problems. To close several of these gaps, a fit-for-purpose cadastral theory that takes into account the contemporary technical, administrative and socio-economic capacities of developing countries has been suggested (c.f. Enemark (2014). The flexible nature of the fit-for-purpose concept seeks to respond to immediate societal needs for a given socio-economic situation. In this way, information can be made more quickly available to decision making processes, and ultimately governance can be improved.

Contemporary literature argues these cadastres are one prerequisite for economic, social, and environmental development under any form of land tenure regime (Deininger and Feder 2009, Deininger 2003). For example in Ethiopia, though land is owned by the state, private uses of urban land, along with the bundle of rights, is provided for a defined time through a lease system.

Recording the boundaries of the plot, its value, and its uses are useful for both the leaseholder and the government. For the leaseholder it can support increased confidence that eviction will not occur. For the government it helps in the monitoring of land use and the charging of appropriate land taxation.

2.2.2 Urban land Governance

Governance is underpinned on institutions, actors including organizations and the processes involved. Land governance refers to "the policies, processes, actors and institutions by which land, property and natural resources are managed through decisions on access to land, land rights, land use, and land development" (FIG/World Bank 2009). In the context of urban land, it is about determining and implementing urban land policies and establishing a strong relationship between urban people and urban land. Governance deals holistically with the roles and responsibilities of different actors including government, civil society, and the local community. These actors are involved in decision making during land policy and law formulation, and implementation. The outcomes of the policy objectives depend on the quality of decision making and the processes involved. For example, if decision-making is transparent, participatory, and accountable, it will lead to improved land governance and benefits citizens including the urban poor.

In Ethiopia, urban land is governed and administered by the urban land leasehold law, which has been subjected to improvement three times since its first application in 1993. The first urban land leasehold law (proclamation 80/1993) was endorsed in 1993 (TGE 1993) and the second urban land leasehold law (proclamation 272/2002) was issued in 2002 (FDRE 2002a). These two laws were issued without an underlying urban land policy even though the need for a policy framework was discussed in different works (c.f. Rahmato (2009)). Meanwhile, the third urban land leasehold law (proclamation 721/2011) (FDRE 2011a) was issued following the acceptance of the first urban land management policy (FDRE 2011b). The presence of management in the naming of the 2011 urban land management policy creates a growing concern among policy analysts and researchers that the policy still maintains a management approach, whilst, contemporary literature supports the shift towards a governance philosophy. The aim of the urban land management policy, as mentioned in the document, is to create a transparent and accountable lease tender and land delivery system to make tenders in accordance with the prevailing land values, and for urban development to be guided by land use plans (FDRE 2011b). The policy also mentions that these

were lacking in the previous proclamation. Overall, improving urban land governance with the support of a land information system underpins the policy objectives i.e. to achieve improved urban land management. The preliminary results subsequent to implementation demonstrate that transparency is improving, organizational reforms are given attention, the roles and responsibilities of actors are elicited, and integrated operations are visible for example in the legal cadastre development (see also Alemie et al. (2015a). Overall, the discussion so far created a conceptual basis in land administration system , land registration, cadastre, and urban land governance, especially in the context of urban land.

2.3 Land registration system in Ethiopia

According to alemi (2015), the Transitional Government of Ethiopia (TGE) introduced an urban land leasehold system for the first time in 1993 by proclamation 80/1993 (TGE 1993). The urban land leasehold law allowed the sale, transfer, mortgage, and rent of urban land. This law was consecutively altered by proclamation 272/2002 (FDRE 2002a) and proclamation 721/2011 (FDRE 2011a). The latter provided more focus on improving urban land governance. In the EPRDF regime, three different attempts were made to introduce modern urban cadastral systems to Ethiopia's major cities and towns.

The first attempt was subsequent to the issuance of the first urban land leasehold law. Multipurpose urban cadasters were intended to be developed for major regional capitals. This was coordinated nationally by the newly established Urban Development Support Service (UDSS) and was supported technically by the then German Technical Support (GTZ). Four regional capitals, namely Mekelle (1998), Bahir Dar and Hawassa (1999), and Adama (2000), were the considered pilot areas (c.f. Abebe ,2006).

A second attempt was made in 2008 some years after the issuance of proclamation 272/2002: a multipurpose urban cadastre system was also intended. Financial support was granted from the World Bank for some cities and towns in the Amhara region including Bahir Dar city.

The third attempt was the contemporary situation (post 2010), a switch in design emphasis occurred: the federal government focused on developing a legal cadastre. The process started in 2011: a comprehensive analysis at this initial stage is difficult; however, an observation is made on recent policy and legal changes, and some initial ongoing design processes. The change in focus was driven by the recommendations of DHV, a private Dutch consulting company

(Woldemicheal 2011). Development of legal cadastres for 23 major cities and towns were commenced in 2012, following proclamation 721/2011.

2.4 Land registration system in Addis Ababa

2.4.1 Project background

Addis Ababa land registration system project was a pilot project, it is taken as a blue print for the national level, and efforts are being executed to extrapolate it to major cities and towns.

According to assessment made by the project contractor (Hansa Luftbild) in its requirement analysis document part one concludes that the existing land administration system and organizational structure in the city of Addis Ababa do not fulfil the requirements of a modern, future-oriented, sustainable, traceable, transparent, accurate, and reliable land administration system. The land administration is not qualified enough to support the business processes for cadastre, real property, and general land administration. It lacks organisational responsibility, consistent and defined data sets, and consistent applications to support the processes.

2.4.2. The Project Objectives

The main objectives and the expected outcomes of Addis Ababa cadaster project as stated on the terms of reference (TOR)) was to address land and land related challenges. This can be achieved by updating the cadastral map, reorganization, /establishment of institutions and organizations and implementation of secured and sustainable municipal level ICT based real property registration and land information (cadaster) system to improve development and good governance. The Specific objectives was

- Update the cadastral (parcel, building street administrative divisions and topography) map of the city and develop cadaster database the can support the municipal data needs.
- Study, design, develop, and put in place a functional and reliable real property registration systems and organizations.
- Study, design, develop and put in place a functional and reliable land information (cadaster) system that support land administration and building permit, land development and valuation, land use planning and taxation.

- Propose design and produce international level addressing system (including street coding and link with existing street names) that considers the city's administrative boundaries.

The outcomes expected by the client (AACA) among others, where

- Secured land and property rights registry.
- Facilitated and reliable property transaction.
- Secured up to date reliable and accessible land and land related information.
- Significant reduction of data collection expenses.
- Improved land use planning, building permit and inspections services
- Informed valuation and taxation
- Secured and up to standard ICT based information systems

The project was a two-phase project phase 1 and phase 2. In the first Phase of the project, the following works where included - Updating Cadastral Map, Supporting the Establishment of Municipal Real Property Registration Offices, Requirements Analysis, Design and Specification of Real Property Registration and Land Information (Cadastre) Systems and Development of Addressing System. The second Phase of the project includes the main work of Developing and Implementing the Real Property Registration and Land Information (Cadastre) Systems. To achieve the above goals and to solve the existing problems Hansa Luftbild (contractor) recommends the establishment of the new systems with clearly defined responsibilities and accurate data for cadastre and real property registration related issues. Overall, contractor has identified three main fields of work:

- Establishing a clear organisational structure
- Establishing a new technical system for real property registration and cadastral issues.
- Establishing an infrastructure to support general land management processes.

As the contractor strategy, first the new organisational structure of the LLRAS (land and land related administration system) must be defined. Addis Ababa city administration (AACA) has attempted to restructure the sector by establishing the Immovable Property Registration and

Information Agency (IPRIA). Therefore, the new proposed organisational structure will be based on this agency. Currently this agency is known as Land holding registration and information agency (LHRIA). LHRIA must be responsible for all real property and cadastral issues. The processes of LHRIA must be implemented in a real property registration and real estate cadastre system. This system is to be called AA-CADIS, the official Real Estate Cadastre Information System of Addis Ababa. In addition to the software implementation of AA-CADIS, some existing and updated data has to be imported into this new system. The real estate cadastre and the real property registration system will work on a common database called Common Cadastre Database (CCDB). In addition to AA-CADIS, there will be an infrastructure to support the general land administration issues. This infrastructure will be called AA-LIS. The following figure gives an overview of the proposed systems' structure.

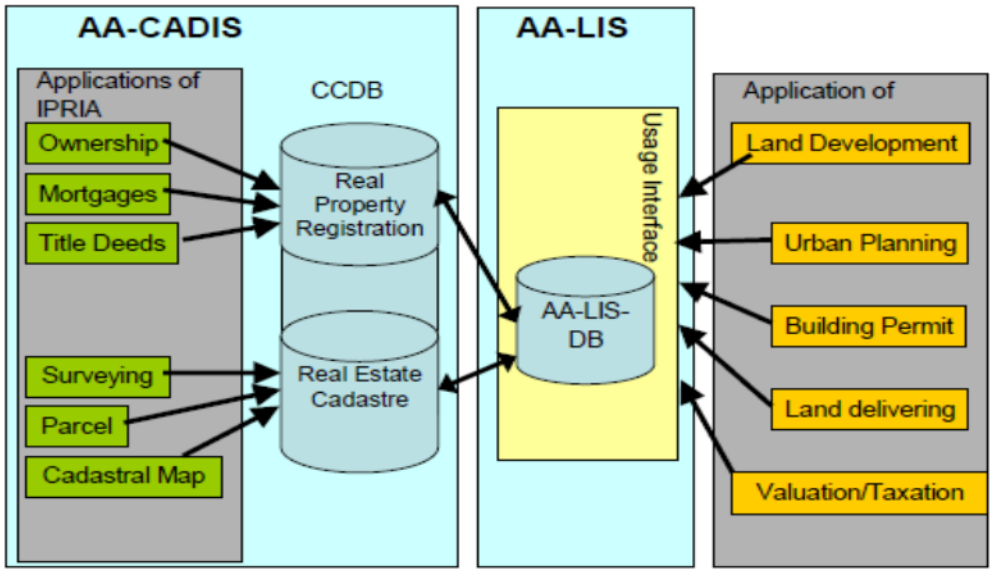

Figure 2.1:-the system proposed for Addis Ababa by Hansa Luftbild after requirement analysis

. Source: Hansa Luftbild requirement analysis document part one.

2.4.3 AACA Weaknesses before the project implementation

Hansa Luftbild (project contractor) has describe the following picture after evaluating and assessing the current situation at Addis Ababa. Different and badly connected systems and processes for land and land related issues are everywhere within the LLRAS. There is a manual real property registration system with the "Big Books" and with the tenure archive system at each Land Administration and Building Permit Office at sub-city level to handle real property related

issues. There are individual and not connected GIS/CAD software systems in each sub-city and the municipality. In addition, independent GIS/CAD software systems are available at the LLRAS departments of each sub-city and at the municipality. For the different software systems, various datasets are used. There are multiple spatial data sets. All these data sets are maintained completely independently of each other although they have a common content such as the parcels and the buildings. This means that operations on parcels must be carried several times at several organisational units in order to obtain the identical information level. In addition to the spatial data, there exist different non-spatial data sets, such as the FoxPro data set and the CIS data set. These datasets exist also in different versions. From the organizational view, the responsibility for the data maintenance tasks is not clearly defined. Hence, different organizations are responsible for similar processes and the work is repeated at each organization. The processes themselves are not documented in the organizations.

2.5 Information system success model

DeLone and McLean IS success models (1992, 2003) are built upon the taxonomy developed by both Shannon and Weaver (1949) and Mason (1978) which considered that a message in a communication system could be measured at different levels including: the production level, the product level, and the influence level. The production level is the accuracy and efficiency of the system, which produces the information. The product level is the success of the information in conveying the intended meaning. The influence level is the effect of the information on the receiver. The influence level is presented as a hierarchy of events taking place at the receiving end of an information system; these events are receipt of the information; influence of the information on the receiver; and the influence of the information on the performance of the system. The concept of levels of output from communication theory demonstrates the serial (process) nature of information (i.e., a form of communication). The IS creates information which is communicated to the recipient who is then influenced (or not) by the information. In this sense, information flows through a series of stages from its production through its use or consumption to its influence on individual and/or organizational performance (DeLone, W.H. and McLean, E.R. 1992).The following are the success dimensions stated by (Eldrandaly, K.A., Naguib, S.M. and Hassan, M.M. (2015).

a) **System quality**: system quality dimension measures the success of the technical aspects of the system. System quality has been represented in many studies by functionality, response time, system reliability, user friendless, error recovery, database content.

b) **User quality**: user quality dimension represents the quality of system users in terms of spatial abilities and self-efficacy. In IS field, Bonner (1995) revised the DeLone and McLean model and introduced user quality in terms of knowledge skills and abilities. His recognition of the people element was a welcome addition to the model. In addition, the recognition of the importance of human factor in evaluating system performance was first initiated by (Nedovic-Budic, Z.1999) who stated that people, not the computerized equipment, make a system success or fail.

c) **Information quality**: information quality dimension is the quality of information provided to the organization using system, in the form of maps, tables, charts, and reports. The information quality dimension measured by accuracy, completeness, ease of interpretation, relevancy, reliability, timeliness, and clarity.

d) **Information use**: information use is a broad construct that is frequently used in measuring the utilization of IS. Information use dimension measures to what extent the system output is being used in the decision making process. Clapp et al. (1989) mentioned that, the system can provide the capability to obtain all desired information, but for some reasons, the information is not used in the decision process whether private or public. In this case, the system will fail due to lack of utilization. Use can be based on objective measures such, number of functions used, frequency of access, and amount of connecting time (Chein, S. and Tsaur, S. 2007) .Questions about who uses the system, levels of use, motivations for and voluntariness of use, and the purpose and nature of system use are also relevant (Nedovic-Budic, Z.1999).

a) **User satisfaction**: this dimension measures system user's level of satisfaction with the system. User satisfaction was traditionally employed as the most common measure of IS success. The most widely used user satisfaction instruments are End User Computing Support (EUCS) (Doll, W.J. and Torkzadeh, G. 1988) instrument and User Information Satisfaction (UIS) (Ives, B., Olson, M. and Baroudi, J.J. 1983).Both the EUCS and the UIS instruments contain items related to system quality, information quality, rather than only measuring overall user satisfaction with the system. Because of this, some researchers have chosen to parse out the

various quality dimensions from these instruments, and use a single item to measure overall satisfaction with an IS(Petter, S., DeLone, W.H. and McLean, E.R. 2008).

b) **Net benefits to individuals**: this dimension summarizes benefits that can be gained by users when using system such as enhanced decision-making, time saving, increase the understanding and awareness of problems(Akingbade, A., Navarra, D. and Georgiadou, Y. 2009)

c) **Net benefits to organization**: this dimension summarizes the benefits that organization derives from using system, which refers to efficiency and effectiveness criteria. Efficiency is the degree to how system operates with minimum waste, duplication, and expenditure of resources, and can be expressed as cost savings, cost avoidance, or productivity gains. Efficiency may also result in the generation of revenue. Effectiveness involves generating a product of better quality or accomplishing an intended purpose (Nedovic-Budic, Z. 1999).

d) **Net benefits to society**: based on the study of "The impact of GIS technology" conducted by (Nedovic-Budic, Z. 1999). "Societal impact" dimension has been proposed as a further variable to the lists of six DeLone and McLean's IS success dimensions. Societal impact is important to be considered in the evaluation of system success because the ultimate goal of all technologies introduced in the public sector agencies is to benefit society. Many researchers reported the benefits of system on broad societal objectives such as, citizen-public sector interactions, individual integrity, economic benefits, distribution of wealth and fulfillment of human aspirations, and equity.

2.6 Factors related to Real property registration system success

While the FIG-Statement on the Cadastre (FIG, 1995) recognizes that success may be a relative term, it states that there are a number of well-recognized criteria for measuring the actual or potential success of a cadastre. These criteria include:

a) Security: The system should be secure such that a land market can operate effectively and efficiently. Financial institutions should be willing to mortgage land quickly and there should be certainty of ownership and parcel identification. The system should also be physically secure with arrangements in place for duplicate storage of records in case of disaster and controls to ensure that unauthorized persons cannot damage or change information**.**

b) **Clarity and Simplicity**: To be effective the system should be clear and simple to understand and to use. Complex forms, procedures, and regulations will slow the system down and may discourage use of the system. Simplicity is also important in ensuring that costs are minimized, access is fair, and the system is maintained.

c) **Timeliness**: The system should provide up-to-date information in a timely fashion. The system should also be complete; that is all parcels should be included in the system.

d) **Fairness**: In development and in operation, the Cadastre should be both fair and be perceived as being fair. As much as possible, the Cadastre should be seen as an objective system separated from political processes, such as land reforms, even though it may be part of a land reform program. Fairness also includes providing equitable access to the system through, for example, decentralized offices, simple procedures, and reasonable fees.

e) **Accessibility**: Within the constraints of cultural sensitivities, legal and privacy issues, the system should be capable of providing efficient and effective access to all users.

f) **Cost**: The system should be low cost or operated in such a way that costs can be recovered fairly and without unduly burdening users. Development costs, such as the cost of the adjudication and initial survey, should not have to be absorbed entirely by initial users. Low cost does not preclude the use of new information technologies, as long as the technology and its use is appropriate.

g) **Sustainability**: There must be mechanisms in place to ensure that the system is maintained over time. This includes procedures for completing the Cadastre in a reasonable time frame and for keeping information up-to date. Sustainability implies that the organisational and management arrangements, the procedures and technologies, and the required educational and professional levels are appropriate for the particular jurisdiction.

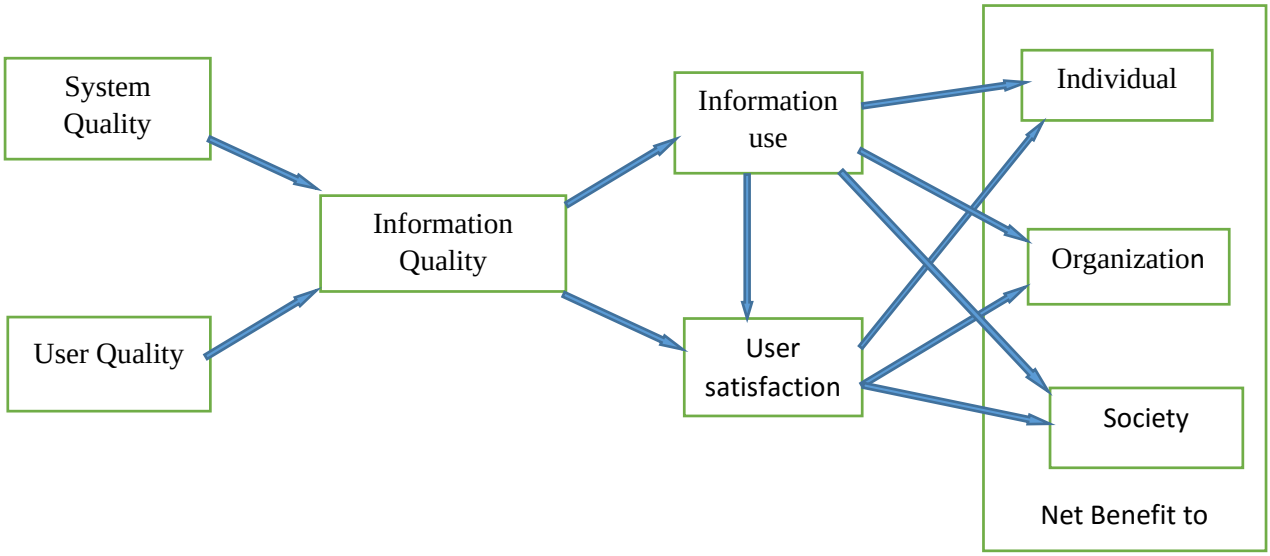

Figure 2.2-Logical framework for success evaluation

Source: - K. A. Eldrandaly et al (p.332)

CHAPTRE THREE

RESEARCH METHODOLOGY

3.1 Description of the study area

This research was conducted in Addis Ababa, city Administration. Addis Ababa lies 9°1′48″N latitude and 38°44′24″E longitude. The city is located at the heart of the country at an altitude, ranging from 2,100 meters at Akaki to 3,000 meters at Entoto Hill in the North. The city divided in to ten sub-cities. In terms of area coverage, Bole is the largest sub-city followed by Akaki-Kality and Yeka. Addis ketema is the smallest and followed by Lideta and Arada Sub-cities. The sub-cities also divided in to weredas, which are the smallest administrative unit in the city. However, for land adjudication purpose weredas in turn divided in to ketena (consist of maximum of 1000 parcels or 5 sefers) and ketena in turn divided in to sefers (maximum of 200 parcels). There are 116 weredas in the city administration. The number of weredas varies based on their size.

According to the World Bank group, report (2015) on Social, Urban, Rural, and Resilience Addis Ababa's economy is growing annually by 14%. The city alone currently contributes approximately 50% towards the national GDP, highlighting its strategic role within the overall economic development of the country Recognizing the strategic importance of Addis Ababa, the government is taking steps to address important urban issues such as improved land-use and transportation planning, the development of low-income housing, expansion of wastewater collection and treatment facilities, efficiency enhancements to the water supply system, and establishment of an urban safety net.

Addis Ababa city is selected for this study purposively. Addis Ababa cadaster project is pilot project, it is now taken as a blue print for the national level, and efforts are being executed to extrapolate it to major cities and towns. Thus, knowing if the participants' needs were met, if the problem was solved, if the project was efficient, if recipients of results were satisfied, helps what directions new programs might take. These are the reason for selection of Addis Ababa for the study.

3.2 Research Approach

As suggested by Saunders et al., (2007), research approach that deals with the way the study is going to be designed should be clearly defined at the beginning of the research project. It concerns the relationship between theory and research, whether the research should use the deductive or inductive approach (Bryman and Bell, 2003). The choice of research approach depends on the philosophy chosen by researchers. This study research approach is mixed method i.e. qualitative and quantitative approach.

The quantitative paradigm adopts an empirical view that seeks direct experience and objective reality when conducting an evaluation. This means that the evaluation is conducted through measuring the effects of the intervention against quantitative indicators. Quantitative approaches often result in generalized conclusions that emerge from evaluations. The quantitative approach adopts a representational emphasis when developing findings. The qualitative paradigm emphasizes the meaning and subjective experience of the intervention. It operates from the basis of reviewing the participant's experience of the intervention. The qualitative approach adopts an evaluative emphasis in developing findings. In spite of the paradigms that exist in an evaluation, it is important to note that both qualitative and quantitative approaches can be used in this evaluation.

3.3 Research design

This research starts with literature review, which aims to explore current problem and methods of evaluation, to understand previous findings, and to extract new ideas then data collection instruments was designed. Then the fieldwork was conducted to collect data for analysis. The data was collected using five point Likert scale survey questionnaire. The collected data was analyzed to extract useful information for the verification of indicators.

3.4 Target Population

In this research, the target population is Addis Ababa city administration employees who work on developed land registration system in the ten sub cities and one head quarter. Data was gathered from both employees and administrative staff through open and closed questions rated from 1 to 5 Likert scale. These Likert scales are commonly used in attitudinal measurements. This type of scale uses a five-point scale ranging from strongly disagree, disagree, neither agree nor disagree, agree, strongly agree to rate employee's agreement level on system quality and benefit.

3.5 Data sources and Methods of data collection

In order to answer this research, question the researcher decide to collect both qualitative and quantitative data through methods such as semi-structured interview, reviews project document, survey questionnaire and observation. The evaluation used both primary data and secondary data. The primary data was collected by fieldwork in Addis Ababa through interviews with selected government employee and questionnaire survey with city land administration workers at different levels. Survey research design is the main research method in quantitative research. Creswell (2009: 145) stated, "a survey design provides a quantitative or numerical description of trends, attitudes, or opinions of a population by studying a sample of that population". The questionnaire survey was conducted in ten sub cities and one head quarter of Addis Ababa. The main purpose of this research is assessing the level of system user's agreement on information system success dimensions and factors affecting Addis Ababa land registration system quality, user quality, information quality, and net benefit of the system for individuals, organization, and the society. During the period of fieldwork, secondary data also collected from municipality such as project document, brochures of project, published book, article in journal, and project report. Others secondary data is collected by literature review through scientific paper and published books.

The population size of this study is only 60 as it considered only Addis Ababa city administration employees who is working on land registration system. As the size of the population was small, the researcher used census method of data collection. There were five employees in each sub city except the head quarter, which is 10. Questionnaires were distributed according to these numbers of employees.

3.6. Instrument of Data Collection

Questionnaire, both close and open-ended were used as instruments of data collection. The questions were prepared in a manner that every respondent understands and offer answer. Questionnaire except respondent profile contains 47 items under different dimensions (10 items on system quality, 4-items on user quality, 7-items on information quality, 4-items on information use, 3- items on user satisfaction, 6-items on net benefit for individual, 8-items on net benefit for organization, and 5- items on benefit for the society). For the study 5-point Likert scale was used starting with 1- strongly disagree, 2-disagree, 3-nether agree nor disagree, 4-agree, and 5-strongly agree to assess the level of agreement on the system success dimensions.

CHAPTER FOUR

DATA ANALYSIS AND RESULT DISCUSSION

INTRODUCTION

To complete this study properly and in order to answer the research questions, it is necessary to analyze the data collected. As already indicated in the preceding chapter, data is interpreted in a descriptive form. This chapter comprises the analysis, presentation, and interpretation of the findings resulting from this study. The analysis and interpretation of data is carried out in two phases. The first part, which is based on the results of the questionnaire, deals with a quantitative analysis of data. The second, which is based on the results of the interview and open ended questions.

In this section the result and discussion of finding was organized by using descriptive statistics, such as frequency, percentage, mean etc. The data obtained through interview and questioners were analyzed by using quantitative and qualitative method. The quantitative data gathered through questionnaire were analyzed by employing the computer software known as Statistical Package for Social Science (SPSS version 22). The evaluation of Addis Ababa land registration system users level of agreement on information system success dimensions were described by using descriptive statistical methods such as frequency, percentage and mean. Principal component analysis (PCA) method was used to identify factors affecting each success dimensions with percent of variances explained by each factor and factor components with their loading factors. The data obtained through interview were analyzed qualitatively and the result is summarized.

The reliability of the questionnaire for this study also tested. Reliability refers to the consistency or stability of the questionnaire results. Fewer errors lead to a higher level of reliability. In other words, a better reliability measurement will result from the consistency and stability of results. The present study measured the questionnaire reliability and the consistency of the items using Cronbach's alpha. A reliability coefficient of .70 or higher is considered acceptable in most social science research. The Cronbach's alpha of this study on 47 items is 0.939, which is above the accepted values of 0.70.

4.1 Profile of the Respondents

The study covered the land registration system users in Addis Ababa city administration. Sixty people who have relation with the developed land registration system and working on the system from ten sub cities and from one head quarter were participate in the survey. A total of 34 completed survey questionnaires were collected, representing 10 geographically distinct sub cities and one head quarter and resulting in a response rate of 56 %. Respondents were given the choice to complete the survey in English language. 5.9 % of respondents were female and 94.1 % respondents were male. This shows that female participation is much lower. In the case of respondent's age category 64.7 % are from 21-30 years old and the rest 35.3 % are from 31-40 years old. Majority of the respondents' age are in 21-30 years old category. Regarding to respondents' educational level 5.9 % were diploma holders, 82.4 % were first-degree holders and the rest 11.8 % were master's degree holders. This shows that majority of respondents where bachelor degree holders .Similarly, 76.5 % of respondents have 1-5 years' work experience and the rest 23.5 % have 6-10 years' work experience that means majority of respondents have 1-5 years' work experiences. In the case of respondents job title the highest number of respondent where IT managers (47 %) followed by Gis managers (20.6%) and GIS technicians (17.6%). The following tables show details of respondents' profile.

Table 4.1:-The respondents profile

Respondents Job title	Frequency	Valid Percent
Decision maker	1	2.9 %
Gis technician	6	17.6 %
Gis manager	7	20.6 %
Surveyor	1	2.9 %
IT Manager	16	47.1 %
Lawyer	2	5.9 %
Other	1	2.9 %
Total	34	100.0 %
Respondents working sub city	**Frequency**	**Valid Percent**
Head Quarter	4	11.8 %
Akaki Kality	5	14.7 %

Nifassilk Lafto	5	14.7 %
Bole	3	8.8 %
Arada	3	8.8 %
Yeka	4	11.8 %
Addis Ketema	4	11.8 %
Kolfe Keraniyo	4	11.8 %
Gulele	2	5.9 %
Total	34	100.0 %
Respondents sex	Frequency	Valid Percent
Male	32	94.1 %
Female	2	5.9 %
Total	34	100.0 %
Respondents Age category	Frequency	Valid Percent
21-30 Year	22	64.7 %
31-40 Years	12	35.3 %
Total	34	100.0 %
Respondent Work experiences	Frequency	Valid Percent
1-5 Years	26	76.5
6-10 Years	8	23.5
Total	34	100.0
Respondents educational level	Frequency	Valid Percent
Diploma	2	5.9
Bachelor Degree	28	82.4
Master	4	11.8
Total	34	100.0

Source: own survey, 2017

4.2 Descriptive statistics

The eight core questions prepared for users of Addis Ababa city land registration system to assess the level of agreement or disagreement on the quality of the system dimensions are AA-CADIS system quality (SQ), User quality(UQ), Information quality generated from the system (IQ), Information use (IU), User satisfaction (US), Net benefit to individuals (NBI), net benefit to

organization(NBO) and Net benefit to society(NBS). Table 4.2 below shows the frequency distribution and the percentage of the answers to the questionnaire on eight success evaluation dimensions using the 5-point Likert scale. The result shows that 2.8% responses strongly dis agree, 15.9% of responses dis agree, 25.9 % of responses nether agree nor disagree, 50.5% of responses agree and 4.9% of responses strongly agree. From this statistics if we sum agree and strongly agree becomes 55.94 % and dis agree and strongly dis agree becomes 18.71% and neither agree nor disagree (25.9%). In conclusion, the majority of responses show positive agreement on the 8 success evaluation dimensions. The frequency distribution and the percentage of the answers on individual dimension is found at the appendix table 21. The total number of response is equal to number of respondent * number of items. For example in table 4.2 total =34(respondent)*47 items =1598. The same is true for each dimension of success.

Table 4.1:- Level of satisfactions on success dimensions

		Responses	
		N	Percent
Respondents response on all 8 Evaluation dimensions	Strongly Disagree	45	2.8%
	Disagree	254	15.9%
	Neutral	414	25.9%
	Agree	807	50.5%
	Strongly Agree	78	4.9%
Total		1598	100.0%

Source: own survey, 2017

The information System could be measured at different levels including: the production level, the product level, and the influence level. Information flows through a series of stages from its production through its use or consumption to its influence on individual and/or organizational performance. Addis Ababa real property registration system user's agreement average rating from highest to lowest are presented in table 4.3. The result ranges from user quality (3.6176) which is highest to system quality, which is the lowest in user's level of agreement (3.1634).

Table 4.2:- Average Importance Rating

Rank	Attributes	Average Rating (in 5)	Std. deviation
1	User quality	3.62	.572
2	Net benefit to the organization	3.54	.640
3	Information quality	3.46	.511
4	Net benefit to the society	3.44	.620
5	User satisfaction	3.41	.696
6	Information Use	3.37	.511
7	Net benefit to individual	3.30	.725
8	System quality	3.16	.512

Source: own survey, 2017

Table 4.3:- system quality attributes

System quality Performance	Mean score	Std. deviation
Database content security	3.56	0.93
Contain all the features and functions	3.44	0.99
user-friendly	3.44	1.11
Data accuracy	3.32	1.04
completeness of the database data	3.26	0.90
hardware and operating system response time	3.00	1.07
Easy to recover from errors encountered	2.94	1.07
Data backup	2.94	0.98
Database content is regularly update	2.82	1.14
server, network, and software failure	2.68	1.07

Source: own survey, 2017

The result in table 4 showed that most the criteria got around average and below average scores, which means the system quality on those criteria was more or less dissatisfactory to the user. The average highest score was 3.56 out of 5, in the case of database content security, which followed

by Contain all the features and functions (3.44), user-friendly (3.44), Data accuracy (3.32), completeness of the database data (3.26) , hardware and operating system response time (3.00) which is neutral. The rest the system is easy to recover from errors encountered (2.94), Data backup (2.94) ,Database content is regularly update (2.82) , server, network, and software failure (2.68) are below neutral level(3.00) which means the system user are dissatisfied with the system quality. In comparison to other dimensions of success system quality has got least score particularly Easy to recover from errors encountered, Data backup, Database content is regularly update and server, network, and software failure respectively.

Table 4.4:- User quality attributes

User quality	Mean score	Standard deviation
The user understands what to do	3.91	.830
the user is capable to do the required task	3.76	.819
confidence while using the AA-CADIS software	3.59	.821
comfort while using the system	3.21	.845

Source: own survey, 2017

The result in table:4.5 showed that most the criteria got above average so system users are more or less showed positive response on system user quality criteria relative to the neutral sore, which is 3.00. Maximum score is given to the user understands what to do (3.93) and least score is given to comfort while using the system (3.21).

Table 4.5: - system Information quality attributes

system Information quality	Mean score	Std. deviation
The information on the map is easy to understand.	3.68	.638
The information on digital or hardcopy maps are clear	3.59	.743
The AA-CADIS provides accurate information you need	3.50	.826
The system provides reliable information	3.47	.825
The system provides sufficient information	3.44	.927
The system provide up to date information	3.32	.945
The information provided meet your needs regarding your questions or problems	3.21	.845

Source: own survey, 2017

The result in table: 4.6 shows the information quality dimension measured by accuracy, completeness, ease of interpretation, relevancy, reliability, timeliness, and clarity. The result showed that most of the criteria got a score above the neutral value. This indicates that system users agree positively on these criteria as compared to neutral value, which is three. From the criteria that scores maximum is the information on the map is easy to understand (3.68) followed by the information on digital or hard copy are clear and the criteria which got least score is the information provided by the system meets user needs(3.21).

Table 4.6:-User satisfaction attributes

User satisfaction	Mean score	Std. deviations
You are willing to use the system	3.76	.654
You like to use the system	3.53	.929
Overall, how would you rate your satisfaction with the system	3.24	.890
You are pleased with the system	3.12	.913

Source: own survey, 2017

The user satisfaction dimension measures system user's level of satisfaction with the system. In Table 4.7 the criteria, which got maximum score, is the users are willing to use the system (3.76) followed by the user likes to use the system(3.53), over all user rate of satisfaction scored (3.24) and the criteria that got minimum score is the users are pleased with the system (3.12).

Table 4.7:- The system Information use attributes

The system Information use	Mean Score	Std. Deviation
What is the level of importance of decisions affected by the system information	3.50	.826
To what extent do you actually use the reports	3.41	.743
To what extent could you get along without the use of the system	3.21	.845

Source: own survey, 2017

The Information use dimension measures to what extent the system output is being used in the

decision making process. Table: 4.8 shows that users positively agrees on the system information use dimension. The criteria, which got maximum score, is the level of importance of decisions affected by the system information (3.50) followed by the extent of use of the reports (3.41) and the extent at which system users get along without the use of the system(3.21).

Table 4.8 :-Net benefit to individuals

Net benefit to individuals	Mean score	Std. deviations
improved the quality of decisions	3.47	.748
set priorities in decision making	3.44	.824
save time required for making decisions	3.41	.988
Enhancing problems understanding	3.35	.917
Increases the speed at which decisions analyzed	3.12	.844
Enabling timely problem recognition	3.03	1.000

Source: own survey, 2017

The net benefit to individual dimension measures benefits that can be gained by users when using system such as enhanced decision-making, time saving, increase the understanding, and awareness of problems. **Table:4.9** shows that the system users agree positively compared to the neutral level of agreement. The measure criteria that got maximum score is improve the decision making process (3.47) followed by set priority in decision making process (3.44), time required to make decision (3.41), enhancing problem understanding (3.35), Increases the speed at which decisions analyzed (3.21) and Least scored criteria is Enabling timely problem recognition (3.03).

T*able 4.9*:-Net benefit to the organization

Net benefit to the organization	Mean Score	Std. deviation
Improves information sharing and flows to management and between departments	3.79	.592
Reduces risk in the decision making process	3.62	.779
Enables a new range of output (maps, tables, lists, etc.)	3.59	.783
increases the organization profitability	3.53	.992

improves the organization's competitive position	3.53	.896
save cost in information production and provision	3.50	.826
helps the organization to achieve its goal	3.44	.860
Provides the organization with better motivated workforce	3.32	.878

Source: own survey, 2017

The net benefit to the organization measures the benefits that Addis Ababa city administration derives from using the system, which refers to efficiency and effectiveness criteria. Table 10 shows results of system user level of agreement on these criteria, system users agree positively on the net benefit of the system for organization. The maximum scored criteria is system Improves information sharing and flows to management and between departments (3.79), followed by the system reduces risk in the decision making process (3.62), Enables a new range of output (maps, tables, lists, etc.) (3.59), increases the organization profitability (3.53), improves the organization's competitive position (3.53), save cost in information production and provision (3.50), helps the organization to achieve its goal (3.44). The criteria that got minimum score is the system provides the organization with better-motivated workforce (3.32).

Table 4.10:- Net benefit to the society

Net benefit to the society	Mean score	Std. Deviation
increases the economic benefits to the society	3.53	.706
improves the standard of health and safety in the society	3.50	.615
provides better service to public/citizens	3.44	.927
provide equal availability of information to citizens when needed and equal ease of access	3.38	1.015
enables participation by public in decision process (enhancement of principles of a democratic society)	3.35	.774

Source: own survey, 2017

The net benefit to the society dimensions measures benefits of system on broad societal objectives such as, citizen-public sector interactions, individual integrity, economic benefits, distribution of wealth and fulfillment of human aspirations, and equity. Table 4.11: shows results of system user level of agreement on these criteria, system users agree positively on the net benefit of the system

for the society. The maximum scored criteria is for increases the economic benefits to the society (3.53) followed by the system improves the standard of health and safety in the society (3.50), the system provides better service to public/citizens (3.44), provide equal availability of information to citizens when needed and equal ease of access(3.38). Least scored criteria from this dimension is the system enables participation by public in decision process (enhancement of principles of a democratic society) (3.35).

4.3 Factors affecting real property registration system success dimensions.

This study performed the principal component analysis (PCA) with Varimax rotation to extract Addis Ababa city administration real property registration system quality factors, system user quality factors, Information quality factors, and net benefit to organization factors that determine the real property registration system success. PCA is used in those instances when the primary concern is to determine the minimum number of factors that would account for maximum variance in the data (Malhotra 2004). In order to measure the appropriateness of the factor analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was examined for all the dimensions separately since the sample size not enough to treat all variable at once so the factors are identified for each success dimension. The value of KMO for each dimension is presented in the table 4.12 below, which is an indication of sampling adequacy for each dimension and all KMO value are above the acceptable limit of 0.5. According to Aaker & Day (1990), factor loading represents the correlations between the variables and the resulting factor and loadings factor greater than 0.5 collectively construct the factor. In this analysis, all factors that have factors loading below 0.5 are ignored.

Table 4.11:- Sampling adequacy for all dimensions of success

Dimensions for which factors are analyzed		**KMO value**
1	system quality	0.583
2	User quality	0.547
3	Information quality	0.650
4	Information use	0.535
5	User satisfaction	0.742

6	Net benefit to individual	0.800
7	net benefit to organization	0.817
8	net benefit to society	0.698

According to the factor analysis, four factors identified for system quality, two factors for user quality, three factors for information quality, two factors for net benefit to organization and one factor for the rest user satisfaction, information use and net benefit to individuals and the society.

4.3.1 Factors affecting system quality

According to the factor analysis, four factors affect the system quality of real property registration system. These are system geodatabase, system performance, system security, and system network. **Table 4.13** shows that the Eigen value of geodatabase Factor is 2.457, which implies that the variance explained by the first factor was 24.568%. The system Performance Factor explained 15.502% variances, the system security Factor explained 13.967% variances, and the system network Factor explained 12.842% variances. The result of the factor analysis shows that these four factors collectively produce about 66.879% variance in the system quality data set.

Table 4.12:- Factors affecting system quality

Factors	Name of factors	Rotation Sums of Squared Loadings		
		Eigen value	% of Variance	Cumulative %
1	System Geodatabase	2.457	24.568	24.568
2	System performance	1.550	15.502	40.070
3	System security	1.397	13.967	54.037
4	System network	1.284	12.842	66.879

Extraction Method: Principal Component Analysis. Rotation Method: Varimax

A. **Components of Geodatabase factors**

The geodatabase Factor had six elements; those were Data accuracy, database content regular update, contain all the features and functions, user-friendly, easy to recover from errors encountered and Data backup.

The associated factor loading of the first element, contain All the features and functions, was 0.842 (see Table 14), which implies that it was highly correlated with the first factor (geodatabase).

Factor loading represents the correlations between the variables and the resulting factor and loadings greater than 0.5 collectively construct the factor (Aaker & Day 1990).

Table 4.13: System quality Rotated Component Matrix

	Component			
	1	2	3	4
Contain All the features and functions	.842			
Database content is regularly updated	.775			
Data accuracy	.612			
completeness of the database data	.513			
Data backup				
system hardware and operating system response time		.814		
Easy to recover from errors encountered		.628	.521	
database content security			.858	
server, network, and software failure				.831
user-friendly				.578

Extraction Method: Principal Component Analysis. Rotation Method: Varimax

A. Components factor of system performance

The second factor system Performance Factor was the result of two elements or variables. These were system hardware and operating system response time with factor loading 0.814 and easy to recover from errors encountered with factor loading of 0.628. Easy to recover from errors encountered is also components of system security as it is related with both the factors (see table 4.14 above).

B. Components of system security

The third factor system security factor was the result of two elements or variables. These were Easy to recover from errors encountered with loading factor of 0.521 and database content security with loading factor of 0.858 (see table 4.14).

C. Components of system network

The third factor system network Factor was the result of two elements or variables. These were Server, network, and software failure with factor loading 0.831 and user-friendly with factor loading of 0.578 (see table above 4.14).

4.3.2. Factors affecting user quality

According to the factor analysis, two factors affect the user quality of real property registration system. These are understanding-confidence, and comfort-capability. Table 4.15 shows that the Eigen value of understand-confidence Factor is 1.663, which implies that the variance explained by the first factor was 41.579%. The Comfort-capability Factor explained 33.462% variances. The result of the factor analysis shows that these two factors collectively produce about 75.041% variance in the data set.

Table 4.14:- Factors affecting User quality

Factors	Factors Name	Rotation Sums of Squared Loadings		
		Eigen value	% of Variance	Cumulative %
1	Understand-confidence	1.663	41.579	41.579
2	Comfort-capability	1.338	33.462	75.041

A. Components of understand-confidence factor

The Understand-confidence Factor had two elements; those were understanding what to do with factor loading of 0.910 and confidence while using the system with factor loading of 0.888 (see table 4.16 below). This factor loading tell us these two elements are highly correlated with the first factor understand-confidence factor.

Table 4.15:- User quality Rotated Component Matrix

	Component	
	1	2
You understand what you do	.910	
confidence while using the system software	.888	
comfort while using the system		.851
capable to do the required task		.763

Extraction Method: Principal Component Analysis. Rotation Method: Varimax

B. Components of comfort-capability factor

The comfort-capability factor had two elements. These are comfort while using the system with

loading factor of 0.851 and capable to do the required task with loading factor of 0.763(see table 4.16).

4.3.3. Factors affecting information quality

According to the factor analysis made, three factors affect the Information quality of real property registration system. These factors are data quality, and satisfy user needs and visual clarity. Table 4.17 shows that the Eigen value of data quality Factor is 2.342, which implies that the variance explained by the data quality factor was 33.458%. The Satisfy user needs Factor explained 20.506% variances and the Visual clarity factor explained 16.011% variances. The result of the factor analysis shows that these three factors collectively produce about 69.974% variance in the data set (see table 4.17).

Table 4.16:- Factors affecting information quality

Factors	Factors Name	Rotation Sums of Squared Loadings		
		Total	% of Variance	Cumulative %
1	Data quality	2.342	33.458	33.458
2	Satisfy user needs	1.435	20.506	53.963
3	Visual clarity	1.121	16.011	69.974

Extraction Method: Principal Component Analysis. Rotation Method: Varimax

A. Components of data quality factor

According to this analysis, the real property registration system data quality factor had four elements. These where the system provides the information needed with loading factor of 0.843 , the system provides reliable information with loading factor of 0.796 , the system provides sufficient information with loading factor of 0.721 and the system provides up to date information with loading factors 0.649 (see table 4.18).

Table 17:- Information quality Rotated Component Matrix

Information quality factors	Component		
	1	2	3
The system provides accurate information needed	.843		
The system provides reliable information	.796		
The system provides sufficient information	.721		

The system provide up to date information	.649		
The system information meet users' needs		.879	
The information on the map is easy to understand.		.746	
The information clarity on digital or hardcopy maps			.962

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

B. Components of satisfies user need factor

The satisfy user need factor had two components. These where the system information meet users' needs and the information on the map is easy to understand with their factor loads 0.879 and 0.746 respectively.

C. Components of visual clarity factor

According to this analysis the identified component of visual clarity was only one .This component was the information clarity on digital or hardcopy maps.

4.3.4. Factors affecting user satisfaction

According to the factor analysis made, only one factors affect the user satisfaction of real property registration system. This factor is user satisfaction. The Eigen value of user satisfaction factor is 2.707, which implies that the variance explained by the user satisfaction factor was 67.679%. The components of this factor are Users like to use the system (.905), Overall rate of user satisfaction with the system (.836), user willingness to use the system (.820) and the users pleased with the system (.719).

4.3.5. Factors affecting information use

According to the factor analysis made, only one factors affect the information use of real property registration system. This factor is Information use. The Eigen value of information use factor is 1.214, which implies that the variance explained by the information use factor was 40.457%. The components of this factor are the extent of users actually use the reports produced from the system (.708), extent of users get along without the use of the system (.659) and the level of decisions affected by the generated information (.528).

3.4.6. Factors affecting net benefit to individuals

The analysis made shows that, only one factors affect the net benefit to individuals of real property registration system. This factor is net benefit to individual. The Eigen value of information use factor is 4.084, which implies that the variance explained by the net benefit to individual's factor was 68.069%. The components of this factor are the system save time required for making decisions (.782), the system helps the user to set priorities in decision-making (.888), the system improves the quality of decisions making by individual (.885), the system increased the speed at which the individual analyzes decisions (.872), the system enhances the understanding of the problems (.787) and the system enables timely problem recognition (.723).

3.4.7. Factors affecting net benefit to organization

According to this factor analysis, two factors affect the net benefit to organization of real property registration system. These are Efficiency-effectiveness, and Better services. Table 4.19 shows that the Eigen value of Efficiency and effectiveness Factor is 3.715, which implies that the variance explained by the first factor was 46.438%. The system Performance Factor explained 15.502% variances, the system security Factor explained 13.967% variances, and the Better services Factor explained 26.838% variances. The result of the factor analysis shows that these two factors collectively produce about 73.276% variance in the data set (see table 4.19).

Table 18:- Factor affecting net benefit to organization

Factors	Factors Name	Rotation Sums of Squared Loadings		
		Eigen value	% of Variance	Cumulative %
1	Efficiency and effectiveness	3.715	46.438	46.438
2	Better services	2.147	26.838	73.276

Extraction Method: Principal Component Analysis. Rotation Method: Varimax

A. Components of efficiency and effectiveness factor

According to this analysis, efficiency-effectiveness factor had six elements. These where the system provides the organization with better motivated workforce (.887), the system helps the organization save cost in information production and provision (.817), the system reduces risk in the decision making process (.767),The system improves the organization's competitive position

(.740), the system increases the organization profitability (.711) and the system helps the organization to achieve its goal (.692) with their respective factor loadings (See table 4.20).

Table 4.19:- Net benefit to organization Rotated Component Matrix

Factors affecting net benefit to organization	Component	
	1	2
The system provides the organization with better motivated workforce	.887	
The system helps the organization save cost in information production and provision	.817	
The system reduces risk in the decision making process	.767	
The system improves the organization's competitive position	.740	.508
The system increases the organization profitability	.711	.573
The system helps the organization to achieve its goal	.692	
The system enables a new range of output (maps, tables, lists, etc.)		.770
The system improves information sharing and flows to management and between departments		.757

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

B. Components of better service factor

As result of this analysis, better service factor has four elements. The elements where the system improves the organization's competitive position (.508), the system increases the organization profitability (.573), the system enables a new range of output (maps, tables, lists, etc.) (.770), the system improves information sharing and flows to management and between departments (.757) with their respective loading factors.

3.4.8. Factors affecting net benefit to the society

The analysis made shows that, only one factors affect the net benefit to the society of real property registration system. This factor is net benefit to society. The Eigen value of information use factor is 3.019, which implies that the variance explained by the net benefit to individual's factor was 60.371%. The components of this factor are the use of the system improves the standard of health and safety in the society (.879), the system enables participation of public in decision process

(enhancement of principles of a democratic society)(.872), the system provide equal availability of information to citizens when needed and equal ease of access (.741), the system provides better service to public/citizens (.685), the use of the system increases the economic benefits to the society (.684) with their respective loading factor.

4.4 Current Addis Ababa real property registration system challenges

Currently there are many challenges that hinder the proper function of Addis Ababa realproperty registration system. For the purpose of this study the challenges that hinder the normal functioning of Addis Ababa real property registration system classified in to four groups as it is obtained from interviews, open ended questions and reports .These are challenges associated with system hardware's , challenges associated with software, challenges associated with spatial data and challenges associated with management.

1. Hardware challenges

Addis Ababa real property registration system has the following hardware related challenge

- System batteries have problem almost all sub- cities(serious challenge)
- Some servers have problem especially at the head quarter
- Small number of hard disks this leads to insufficient input/ output operation (IOPS). This in turn leads to queued iops and latency.

2. Software challenges

- No proper network bandwidth for spatial data transfer between head quarter and sub cities (this also associated with network devices performances) this is the main bottleneck
- Antivirus licenses are expired and the number of firewall licenses are not enough at head quarter
- Back up is not functional

As result of the above two challenges the system stack usually, system response delay, unsatisfactory user experience due to delays and unresponsiveness and low performance.

3. Data challenges

- In some sub-cities there is a shift between line map data in the system and survey data collected by surveyors
- Large volume of owner files to copy and to take field during adjudication and sometimes missing the files
- Lack of appropriate number of GCP (ground control points), some are destroyed.
- Spatial data needs large space to store and large bandwidth of network to transfer.

4. Management challenges

- Lack of physical protection like door access control not working, some cables are damaged with rat
- Lack of organized training on the system leads to knowledge gap on RPRS, RECS and basic knowledge on computer
- Lack of proper integration between right creator (land development and management office) and land holding registration and information agency (LHRIA). As result the right creator uses old area photo (1997) whereas the adjudication team uses relatively new aerial photo (2003) except kolfe keranio sub- city.
- The problem with condominium in the RPRS there is no registering problems because each house registered as BA (basic administration unit).However, in RECS it is not clear by what name it has to be registered ether by block number or site name.
- Problems associated with external factors especially those that are not participated in land administration directly however their services and activities affect the land administration. Among these organizations, one is Ethiopian telecom. As it is stated on the requirement document prepared by project contractor the system requires high bandwidth network as the system is state of the art technology. This indicated that the project did not considered the capability of the project owner country (Ethiopia) .The project participants from the local people (Addis Ababa city administration) where optimistic in the design phase of the project.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

The overarching goal of designing and Implementing appropriate land and land related property registration and information systems is to make land management and administration more effective, efficient, harmonized, and essentially contributing toward implementation of public policy goals set by the government regarding economic development, urbanization, and decentralization.

The absence of reliable information especially land related is the most critical impediment for the preparation and implementation of urban plans in many urban centers. Thus, the creation of an up-to-date and efficient Cadastre and registration systems can do much to alleviate these and other related problems.

Land that is registered is easier to transfer and therefore more saleable. It can also be important source of revenue to the Municipality. Once facts are recorded and individuals are given titles or documents, land will be bought and sold with fewer obstacles and helping the phase of development. This is possible with the system set up to issue documents quickly and efficiently. On the other hand, more people get access to credit as they could produce the documents they need for collateral.

Evaluation of the end- user's level of agreement on the land registration system in Addis Ababa, Ethiopia and factors affecting the overall real property registration system success dimensions is the focus of this study. Targeting land- related professionals as end-users of land services, a survey was conducted to extract data on their level of agreement on overall system quality. The frequency distribution and the percentage of the answers to the questionnaire on eight success evaluation dimensions using the 5-point Likert scale shows around 56 % of responses positively agree on the eight dimensions of system quality. Even though, the majority of responses show somewhat positive agreement on the evaluation dimensions; the number 56% is very far from 100% and there is no full confidence to say that the system satisfies all users' needs. The positive responses however is an indication that if Addis Ababa city administration works on the limiting factors, the work of the city administration can be enhanced.

According to the factor analysis, four factors affect the system quality of real property registration system of Addis Ababa. These are system geodatabase, system performance, system security, and system network. The geodatabase Factor had six elements; those were Data accuracy, database content regular update, contain all the features and functions, user-friendly, easy to recover from errors encountered and Data backup. The second factor system Performance Factor was the result of two elements or variables. These were system hardware and operating system response time and easy to recover from errors encountered. The third factor system security factor was the result of two variables. These were Easy to recover from errors encountered and database content security. The fourth factor system network Factor was the result of two elements; these were Server, network, and software failure and user-friendly. In comparison to other dimensions of success system quality has got least score particularly Easy to recover from errors encountered, Data backup, Database content is regularly update and server, network, and software failure respectively.

Two factors affect the user quality of real property registration system of Addis Ababa. These are understanding-confidence, and comfort-capability factors. If the users of the system understands and develop confidence to use the system at the same time the system is comfortable and users develop capability to perform tasks 75% user quality can be achieved or system user quality can be explained by these factors.

Three factors affect the Information quality of Addis Ababa real property registration system. These factors are data quality; satisfy user needs and visual clarity. The data quality answer the questions whether the system provides the needed information, is the information reliable, sufficient and up to date. Satisfy user need factor includes the elements information meet users' needs and the information on the map is easy to understand and visual clarify factors contain the element information clarity on digital or hardcopy maps is clear.

Factors affecting user satisfaction of land registration system explained by one factor that contains the following elements Overall rate of user satisfaction with the system, user willingness to use the system and the users pleased with the system.

Addis Ababa real property registration system has the following benefits to the individual system users.

- The system save time required for making decisions,
- The system helps the user to set priorities in decision-making,
- The system improves the quality of decisions making by individual,
- The system increased the speed, at which the individual analyzes decisions,
- The system enhances the understanding of the problems and
- The system enables timely problem recognition.

Addis Ababa real property registration system helps the city administration to be efficient and effectives and to give better service to the end users. Besides the system has the following benefits to Addis Ababa city administration.

- The system provides the organization with better-motivated workforce ,
- The system helps the organization save cost in information production and provision,
- The system reduces risk in the decision making process,
- The system improves the organization's competitive position,
- The system increases the organization profitability and
- The system helps the organization to achieve its goal.

Addis Ababa real property registration system has the following benefits to society

- The system improves the standard of health and safety in the society,
- The system enables participation of public in decision process (enhancement of principles of a democratic society)
- The system provide equal availability of information to citizens when needed and equal ease of access,
- The system provides better service to public/citizens
- The use of the system increases the economic benefits to the society

RECOMMENDATIONS

In overcoming the challenges, the study recommends as follows:

- In overcoming the challenges, the paper recommends as follows:
- All land registration operations should be carried out in coordination and cooperation of all other concerned organizations and agencies for example Ethio-telecom in providing appropriate network band width to the land administration because land administration uses spatial data which requires much band width than other service providing agencies.
- Similarly, Ethiopian electric power corporation should provide uninterrupted power supplies to the system to be effective.
- In the case of technical universities, it is essential to improve teaching orientation, in particular the collection of spatial data, their computerized processing, visualization, interpretation, and distribution.
- In the case of law universities, it is essential to improve teaching orientation for cadastral proceedings, to strengthen disciplines in favor of the real estate cadastre.
- Proper change management is critical coordinate different stakeholders and to make the system acceptable by users.
- The city administrators should increase the number of GCP points and make appropriate protection.
- The city administration must double efforts in overcoming problems so the level of task fulfilment will not generate dissatisfaction of society with the cadastral activities.
- The city administration should conduct Periodic evaluation on proper functionality of the system so that it will be possible to adopt the necessary correctives according to the assessment periods.
- Transparent and clear procurement management is needed to obtain timely, efficient, and quality devices such as batteries, servers, hard disks, and other network devices that are compatible with the existing system.
- The land registry should be financially empowered to make decisions and be able to quickly respond to challenges and Special precaution is necessary for devices and cables used for this land administration system not to be damaged.

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APPENDIXES

I. Responses frequency distribution on each dimensions of success

Table 4.20:- Responses frequency on each dimensions of success

		Responses	
		N	Percent
Responses on system quality aspects	Strongly Disagree	23	6.8%
	Disagree	82	24.1%
	Neutral	77	22.6%
	Agree	140	41.2%
	Strongly Agree	18	5.3%
Total		340	100.0%
		Responses	
		N	Percent
Responses on user quality aspects	Strongly Disagree	2	1.5%
	Disagree	15	11.0%
	Neutral	29	21.3%
	Agree	77	56.6%
	Strongly Agree	13	9.6%
Total		136	100.0%
		Responses	
		N	Percent
Responses on Information Quality aspects	Strongly Disagree	2	0.8%
	Disagree	37	15.5%
	Neutral	58	24.4%
	Agree	132	55.5%
	Strongly Agree	9	3.8%
Total		238	100.0%
		Responses	
		N	Percent
Responses on user satisfaction aspects	Strongly Disagree	3	2.2%
	Disagree	20	14.7%
	Neutral	38	27.9%
	Agree	68	50.0%
	Strongly Agree	7	5.1%
Total		136	100.0%
		Responses	
		N	Percent
Responses on Information use aspects	Strongly Disagree	1	1.0%
	Disagree	14	13.7%

	Neutral	37	36.3%
	Agree	46	45.1%
	Strongly Agree	4	3.9%
Total		102	100.0%
		Responses	
		N	Percent
Responses on net benefit for individual	Strongly Disagree	5	2.5%
	Disagree	37	18.1%
	Neutral	61	29.9%
	Agree	93	45.6%
	Strongly Agree	8	3.9%
Total		204	100.0%
		Responses	
		N	Percent
Responses on organizational benefit	Strongly Disagree	6	2.2%
	Disagree	28	10.3%
	Neutral	65	23.9%
	Agree	159	58.5%
	Strongly Agree	14	5.1%
Total		272	100.0%
		Responses	
		N	Percent
Responses on benefit to the society	Strongly Disagree	3	1.8%
	Disagree	21	12.4%
	Neutral	49	28.8%
	Agree	92	54.1%
	Strongly Agree	5	2.9%
Total		170	100.0%

II. Research questionnaires

Dear respondent

Thank you for agreeing to complete a questionnaire as part of my research. Attached is a copy of the questionnaire. I would be very grateful if you would complete and return it to me as soon as possible. It should take no longer than 20 minutes to complete.

The title of my research project is **POST PROJECT SUCCESS EVALUATION: IN THE CASE OF ADDIS ABABA CITY ADMINISTRATION REAL PROPERTY REGISTRATION SYSTEM).** I am a graduate student in Addis Ababa University schools of commerce in **MA in project management** and I am interested in exploring the system quality, the information quality generated from the system, user satisfaction, impacts and status of Addis Ababa real property registration system. Before you complete the enclosed questionnaire, I wish to confirm that:

- Addis Ababa city administration has given permission for this research to be carried out.
- Your privacy will be maintained and no comments will be ascribed to you by name in any written document or verbal presentation nor will any data be used from the questionnaire that might identify you to a third party.
- You are free to withdraw from the research at any time and/or request that your questionnaire be excluded from the findings.
- All data collected will be securely held and destroyed on completion of the research.
- If you have any queries concerning the nature of the research or are unclear about any question, please contact me at bizuworkf@gmail.com. Tele :-0912689895

Finally, may I thank you for taking the time to help me with my research. It really is much appreciated.

Yours sincerely,

Bizuwork Fekibelu

Section I: Respondents Profile

1. What is your Job Title? Please circle one

1.Decition maker	3.GIS manager	5.IT manager	7.Geologist	9.urban planner
2.GIS technician	4.Surveyor	6.Lawyer	8.Geography	10.Other please specify it

2. Currently, in which sub city, are you working? Please circle one

1. Akaki Kality	3. Bole	5. Lideta	7. Addis Ketema	9. Cherkose
2 .Nifasilk Lafto	4. Arada	6. Yeka	8. Kolfe keraniyo	10. Gulele

3. What is your Gender?

1.Male 2.Female

4. What is your age category?

1. 21 - 30 years
2. 31 - 40 years
3. 41 - 50 years
4. Over 50 years

5. What is your land administration related Work Experience?

1. 1 - 5 years 2. 6 - 10 years 3. 11 - 15 years 4. 16 - 20 years 5. Over 20 years

6. What is your Education Level?

1. Diploma 2. Bachelor degree 3. Master 4. PHD

Section II

For each of the following questions below, circle the response that best characterizes how you feel about the statement on AA-CADIS , where: **1= Strongly Disagree, 2= Disagree, 3= Neither Agree nor Disagree, 4= Agree, 5 =Strongly Agree.**

ITEMS	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1) System quality					
SQ1: The AA-CADIS contains all the features and functions required to perform the required land administration tasks.	**1**	**2**	**3**	**4**	**5**
SQ2: The AA-CADIS hardware and operating system response time are acceptable.	**1**	**2**	**3**	**4**	**5**
SQ3: All failures of AA-CADIS the (including server, network, and software) are less than 40 hours downtime per year.	**1**	**2**	**3**	**4**	**5**
SQ4: AA-CADIS is user-friendly.	**1**	**2**	**3**	**4**	**5**
SQ5: It is easy to recover from errors encountered while using AA-CADIS.	**1**	**2**	**3**	**4**	**5**
SQ6: The AA-CADIS database content is secured.	**1**	**2**	**3**	**4**	**5**
SQ7: The AA-CADIS Data backup is maintained throughout the city regularly.	**1**	**2**	**3**	**4**	**5**
SQ8: The AA-CADIS database content is regularly updated throughout the city.	**1**	**2**	**3**	**4**	**5**
SQ9: The AA-CADIS database contains accurate data.	**1**	**2**	**3**	**4**	**5**
SQ10: The AA-CADIS database contains all the needed data for land administration related tasks.	**1**	**2**	**3**	**4**	**5**
2)User quality					
UQ1: You feel comfort while using the AA-CADIS	**1**	**2**	**3**	**4**	**5**
UQ2: You are capable to do the required task	**1**	**2**	**3**	**4**	**5**
UQ3: You understand what you do	**1**	**2**	**3**	**4**	**5**
UQ4: You feel confidence while using the AA-CADIS software	**1**	**2**	**3**	**4**	**5**
3) Information quality					
IQ1: The AA-CADIS provides accurate information you need	**1**	**2**	**3**	**4**	**5**
IQ2: The AA-CADIS provides sufficient information	**1**	**2**	**3**	**4**	**5**

IQ3: The information on the map is easy to understand.	**1**	**2**	**3**	**4**	**5**
IQ4: The information provided meet your needs regarding your questions or problems	**1**	**2**	**3**	**4**	**5**
I**Q5**: The AA-CADIS provides reliable information	**1**	**2**	**3**	**4**	**5**
IQ6: The AA-CADIS provide up to date information	**1**	**2**	**3**	**4**	**5**
IQ7: The information on digital or hardcopy maps are clear	**1**	**2**	**3**	**4**	**5**
4) User satisfaction					
US1: You are pleased with the AA-CADIS	**1**	**2**	**3**	**4**	**5**
US2: You like to use the AA-CADIS	**1**	**2**	**3**	**4**	**5**
US3: You are willing to use the AA-CADIS	**1**	**2**	**3**	**4**	**5**
US4: Overall, how would you rate your satisfaction with the AA-CADIS?	**1**	**2**	**3**	**4**	**5**
5) Information Use					
IU1: To what extent do you actually use the reports or the output generated by the AA-CADIS?	**1**	**2**	**3**	**4**	**5**
IU2: To what extent could you get along without the use of the AA-CADIS?	**1**	**2**	**3**	**4**	**5**
IU3: What is the level of importance of decisions affected by the generated information?	**1**	**2**	**3**	**4**	**5**
6) Net benefits to individuals					
IND1: Using AA-CADIS save time required for making decisions	**1**	**2**	**3**	**4**	**5**
IND2: As a result of AA-CADIS, I am better able to set my priorities in decision making	**1**	**2**	**3**	**4**	**5**
IND3: AA-CADIS has improved the quality of decisions I make in this organization	**1**	**2**	**3**	**4**	**5**
IND4: As a result of AA-CADIS, the speed at which I analyze decisions has increased	**1**	**2**	**3**	**4**	**5**
IND5: AA-CADIS enables timely problem recognition.	**1**	**2**	**3**	**4**	**5**
IND6: AA-CADIS enhances the understanding of the problems	**1**	**2**	**3**	**4**	**5**
6) Net Benefit to the Organization					

ORG1: The AA-CADIS helps the organization save cost in information production and provision	**1**	**2**	**3**	**4**	**5**
ORG2: The AA-CADIS increases the organization profitability	**1**	**2**	**3**	**4**	**5**
ORG3: The AA-CADIS improves the organization's competitive position	**1**	**2**	**3**	**4**	**5**
ORG4: The AA-CADIS helps the organization to achieve its goal	**1**	**2**	**3**	**4**	**5**
ORG5: The AA-CADIS enables a new range of output (maps, tables, lists, etc.)	**1**	**2**	**3**	**4**	**5**
ORG6: The AA-CADIS provides the organization with better motivated workforce	**1**	**2**	**3**	**4**	**5**
ORG7: The AA-CADIS improves information sharing and flows to management and between departments.	**1**	**2**	**3**	**4**	**5**
ORG8: The AA-CADIS reduces risk in the decision making process	**1**	**2**	**3**	**4**	**5**
8) Net benefits to Society					
SOC1: The AA-CADIS provide equal availability of information to citizens when needed and equal ease of access	**1**	**2**	**3**	**4**	**5**
SOC2: The AA-CADIS enables participation by public in decision process (enhancement of principles of a democratic society)	**1**	**2**	**3**	**4**	**5**
SOC3: Using the AA-CADIS improves the standard of health and safety in the society	**1**	**2**	**3**	**4**	**5**
SOC4: Using the AA-CADIS increases the economic benefits to the society	**1**	**2**	**3**	**4**	**5**
SOC5: The AA-CADIS provides better service to public/citizens	**1**	**2**	**3**	**4**	**5**

Section III

1. What are the current challenges and limitations in the system that hinder the full usage of the system?
2. What must be done to make the system successful?

Thanks for your cooperation!