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"Public Administration Re-engineering (PAR): A Case of Land Administration in Kenya"

BY

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DECLARATION

The research as presented in this report is my original work and has not been presented for any other university award.

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ABSTRACT

Public administration all over the world is under pressure to improve its effectiveness by providing better services to the public. The pressure to provide timely services has been attributed to public demand and minimal resources. In Kenya, land administration has not met the expectation of an ordinary Kenyan; many reports have been written to communicate this dissatisfaction from the public through government initiated forums e.g. the Njonjo Commission, National land policy.

Ministry of Lands in Kenya is mandated to provide land administration services to the public. But the public who expect cheap, convenient and effective services has not been satisfied with the services and this has resulted in public complaints which have impacted negatively on the image of the Ministry. In order to address these problems, researchers have prescribed public administration re-engineering facilitated by use of information communication technology.

As part of this study, field visits were made to land and survey departments of the Ministry of lands to analyze the current situation of land administration as well as identify user requirements for a re-engineered land administration system. The finding shows that the system is basically manual, inefficient, bureaucratic, customer unfriendly and marred with a lot of fraudulent dealings.

This study identifies the need for public administration re-engineering to address the problems of public administration and introduces the concept of Public administration Re-engineering to fulfill this need in Land administration.

This research project aims to propose a re-engineered land administration system that addresses the need of the customers based on the analysis of the current land administration system. The proposed re-engineered system is based on re-engineered business processes and using ICT as an enabler for the re-engineered system which will be customer friendly in terms of improved services.

The research also proposes a Land Information Management System architecture which will ensure customer satisfaction, transparency accountability, effectiveness and productivity of staff involved in land administration.

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ABBREVIATIONS

BPR	Business Process Re-engineering
CKRC	Constitution of Kenya Review Commission
CLBs	County Land Boards
CoL	Commissioner of Lands
CSO	Customer Service Officer
DLBs	District Land Boards
DoS	Director of Surveys
FIG	International Federation of Surveyors
GIS	Geographic Information System
GOK	Government of Kenya
ICT	Information Communication Technology
IPS	Intrusion Prevention System
IT	Information Technology
LAA	Land Administration Agency
KNSDI	Kenya National Spatial Data Infrastructure.
LADM	Land Administration Domain Model
LAS	Land Administration Model.
LIMS	Land Information Management System
ILIMS	Integrated Land Information System
LPRC	Land Policy Research Centre
LRTU	Land Reform and Transformation Unit
PA	Public Administration
PAR	Public Administration Re-engineering
RDBMS	Relation Database Management System
SDI	Spatial Data Infrastructure
SMS	Short Messaging Service
UML	Unified Modelling Language
UN	United Nations
UNECE	United Nation Economic Commission for Europe
VPN	Virtual Private Network

CHAPTER 1

INTRODUCTION

1.1. Background

Public administration is often seen as a set of State institutions, processes, procedures, systems and organizational structures, practices and behavior for managing public affairs to serve the public interest.

During the past few years significant changes are taking place in public administrations (PAs) all over the world. Citizens in all countries are calling for better services at lower cost, responsiveness in an ever changing political, economic, societal, technological environment and administrations closer to their every-day life, acting primarily proactively rather than reactively. Public Administrations in their quest to satisfy the aforementioned recent societal needs have borrowed management methodologies and practices that have been successfully tested in the Private Sector during the last two decades: Total Quality Management, Business Process Reengineering, Learning Organization, Activity-Based Costing e.t.c. For Public Administrations following these trends and applying them, Information Technology has become a significant leverage factor.

Business Process Re-engineering is no more an alien concept in modern world and is best understood as a never-ending process of improvement in performance. Most of the organizations, public as well as private, still stick to old ways of doing things. Traditional bureaucratic procedures are in place which hinders the performance and productivity level in the enterprises. Business processes are not customer oriented. These are costly and time consuming resulting in inefficiency and ineffectiveness. There is a desperate need to thoroughly analyze and reengineer the old-fashioned and obsolete processes to improve performance in most public organizations.

Like any other public administration organization, land administration organizations need to improve performances and this could mean the improvement in the context of cost effectiveness and efficiency. Global drivers such as sustainable development, globalization, micro-economic reform and technology are changing the way humankind relates to land. This changing relationship requires new land administration infrastructures and tools. As a result existing land administration systems are being re-engineered. Ministry of Lands as a land administration organization is not an exception of this globalization. The Lands and survey departments as usually are the organizations within the ministry of lands that of interest for the improvement due to their direct contact to customers who need services and the performance of the Ministry is largely influenced by their performance.

This study focuses on analyzing and re-engineering the land administration system. The study attempts to identify the bottlenecks in business procedures in the Ministry of Lands, Survey and Land Departments. Second, it endeavors to redesign and reengineer the land administration processes in these departments so as to realize a system wherein speed, transparency, quality and economy become the hallmark of all provisioning actions to deliver efficient and cost effective services to the public.

1.2. Problem Definition

The public sector accounts for a sizable chunk of any country's Gross Domestic Product but little is done about improving performance and productivity in this sector. Traditionally governments have avoided the use of measures of public output and outcome, preferring instead to use measures of input, which are usually restricted to spending and/or employment. Increasing demand and shrinking government resources have led to a growing emphasis on the output and outcomes dimension of public sector productivity. The public sector is faced with challenges to deliver services on different fronts. The major challenge is that, despite this intense endeavor directed to improving service delivery, lack of or mediocre delivery continues to plague this sector. Lack of motivation and inability to implement plans and policies as intended are some of the problems frustrating all levels of society. Numerous high flying consultants are being paid large amounts of money to craft visions, missions and strategies for the different government delivery agencies. Despite strategic planning and policy implementation endeavors, government continues to be unable to deliver services efficiently and effectively. In a quest to improve service delivery, government is slowly borrowing techniques of Business Process Re-engineering from the private sector.

For a long time, Business Process Re-engineering projects have been undertaken in profit-oriented organizations, therefore most methodologies for business re-engineering have been proven for this type of organizations. But non-profit organizations such as public sector organizations have some specifics, which make Business re-engineering significantly different. There are four major characteristics that should be considered in BPR planning Project radicalness, process structuredness, customer focus, and the potential for IT enablement.

By analyzing a typical BPR project in the public sector according to the above mentioned criteria, the following characteristics can be observed:

1. Although it would be possible to radically change some (or most) of the processes in the public sector, readiness for such radical changes is currently very low in most of the public sector institutions. The organizational structures are rigid, resources are scarce, the ingenuous senior management commitment is usually difficult to achieve, several processes are predominantly intra-functional, culture supports status quo etc. All these characteristics support the belief that radical changes impose high risks.

2. Processes are mostly well structured; some of them are even governed by laws (e.g. administrative processes). However, many of them are partially semi-structured or not structured, for example some professional activities and judgments.
3. Customer friendliness and simplification of procedures is the imperative of the government and administration. Very often this is the main motive for business process change in the public sector. However, in most cases the goal is not to attract new customers and keep the current ones. Customers are very often obligated to use these services.

Land administration is the process of registration and dissemination of information in relation to land transactions. A good land administration system should provide land title guarantee and land tenure security, supports the process of land taxation and land development, and guides land transactions. There is no debate that land administration and land rights delivery in Kenya has not met the expectations of the ordinary Kenyan. Reports from the various government commissions (Njonjo Commission, CKRC), regional workshops that were held in all the provinces of Kenya, and consultative group meetings in relation to National Land Policy pointed out that on a general scale there has been a systematic breakdown in the management and land administration and land delivery procedures throughout Kenya over time with structures that are over-centralized at the Ministry of Lands and over-concentration of key functions on the state. The existing land administration and land rights delivery systems are bureaucratic, expensive in terms of transaction costs, undemocratic and prone to abuse, resulting into inordinate delays in the administration of land. This has made the ordinary Kenyan unable to access the relevant information necessary in land transactions and subsequently land ownership.

In addition, there is inadequate participation by communities in the governance and management of land causing confusion and conflict especially in trust land areas by allowing the involvement of unauthorized persons in land administration.
Furthermore the land administration processes are haphazard, expensive, too lengthy, and cumbersome, littered with bureaucratic red tape and time consuming and cannot afford the majority of the Kenyans access to land. This unsatisfactory land administration system is caused by land speculation, lengthy procedures, unprofessional practices by personnel, corruption, political interference, excess powers of those mandated to manage land, and the organization of the land registries, particularly retrieval of necessary information which is an important component in the operation of land market.

1.3. Objectives

1. The main objective of this study is to carry out an analysis of the current land administration system in Kenya with a view to recommending a re-engineered system so as to realize a system wherein speed, transparency, quality and economy become the hallmark of all provisioning actions to deliver efficient and cost effective services to the public.

Specific objectives

1. To investigate the current status and identify the bottlenecks in Land administration system in Kenya.
2. To redesign and reengineer key Land administration processes.
3. To propose a conceptual land information management system.

1.4. Project Justification

The Kenyan administration through the e-government strategy has pledged to deliver a better life for Kenyans through services in a better, convenient, and cost effective way. E-government is the use of IT to provide government services and to provide investment in people, tools, policies, and processes (GOK, 2004).

As envisioned in Kenya Vision 2030 (GOK, 2007), Kenya intends to attain the status of a newly industrializing, middle-income country providing a high quality of life to its citizens by the year 2030. The Vision is based on three pillars: Economic, Social and Political. The economic pillar aims to improve the prosperity of all Kenyans through an economic development programme, aiming to achieve an average Gross Domestic Product (GDP) growth rate of 10% per annum. The social pillar seeks to build a just and cohesive society with social equity in a clean and secure environment. The political pillar aims to realize a democratic political system founded on issue-based politics that respects the rule of law, and protects the rights and freedoms of every Kenyan.

According to (Ting & Williamson, 1999), land administration trends have followed a course mapped by dynamic changes in societies and their increasingly complex attitudes to land as personal security, wealth, as an expendable commodity, as a scarce community resource, in support of environmental survival and sustainable development. As a result land administration systems can no longer rely on manual processes or traditional structures that supported individual economic or taxation imperatives in the past. Stand alone or isolated approaches that supported individual purposes where data and processes were maintained separately, such as land valuation and land titling, are no longer sustainable.
A re-engineered Land administration system is therefore required to ensure maximum return on investment and increased efficiency and effectiveness in services delivery.

CHAPTER 2

LITERATURE REVIEW

2.1 Business Process Re-engineering (BPR)

Hamper and Champy (1993) defines the business process reengineering as "*The fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed*". Business process reengineering involves the thorough analysis of the current business processes and redesign to improve performance. The importance of BPR is crucial for public sector but it is difficult to deploy BPR efforts in public organizations, the government organizations are usually attached to many other departments and ministries. The change in one unit requires change in other interlinked organizations. It is therefore necessary to handle all these problems to successfully implement the BPR strategy in the public sector organizations.

The business processes consist of different activities which define the pattern of work in the organizations (Sethi and King, 2003). The efficient processes serve to satisfy the customers by converting input resources to desired output (Fields, 2007; Hammer and Champy, 1993; Harrison and Pratt, 1993).
Evans (1993) signifies the importance of analyzing the existing business processes in organizations to identify bottlenecks in systems. He translates this phase as 'As Is' step of BPR. The other important phase is 'To Be' which describes the desired performance achievement level of business process. BPR attempts to fill the gap between these two organizational situations. Business process analysis attempts to achieve operational efficiency by reducing time and cost factors (Davenport, 1993; Muthu, Whitman and Cheraghi, 1999).

Fitzgerald and Murphy (1996) suggest four crucial phases for successfully implementing the BPR strategy in the organizations. First, the core business processes to be redesigned should be selected. Second, the process team should be established to reengineer the core business processes. Third, the current business processes may be analyzed and examined to find out bottlenecks in the systems. This phase also determines the satisfaction level of stakeholders with process outcomes. The last phase encompasses the strategy to reengineer the process to improve performance.

Hamper and Champy (1993) emphasizes on critical performance measures which should be achieved during the reengineering process. Cost and speed of process are two important aspects which determine the efficiency of processes.

2.1.1 Relation between BPR & Information Technology

Hammer (1990) considers IT as the key enabler of BPR which he considers as *"radical change."* He prescribes the use of IT to challenge the assumptions inherent in the work processes that have existed since long before the advent of modern computer and communications technology. He argues that at the heart of reengineering is the notion of discontinuous thinking or recognizing and breaking away from the outdated rules and fundamental assumptions underlying operations. These rules of work design are based on assumptions about technology, people, and organizational goals that no longer hold. He suggests the following "principles of reengineering":

a) Organize around outcomes, not tasks;
b) Have those who use the output of the process perform the process;
c) Subsume information processing work into the real work that produces the information;
d) Treat geographically dispersed resources as though they were centralized;
e) Link parallel activities instead of integrating their results;
f) Put the decision point where the work is performed, and build control into the process; and
g) Capture information once and at the source.

BPR takes a broader view of both IT and business activity and of the relationships between them. IT should be viewed as more than an automating or mechanizing force: to fundamentally reshape the way business is done. Business activities should be viewed as more than a collection of individual or even functional tasks in a process view for maximizing effectiveness. IT and BPR have recursive relationship. IT capabilities should support business processes, and business processes should be in terms of the capabilities IT can provide.

Business processes represent a new approach to coordination across the firm; IT's ultimate impact is to be the most powerful tool for reducing the costs of coordination. IT's role in BPR include; Transactional, Geographical, Automatic, Analytical, Informational, Sequential, Knowledge Management, Tracking.

2.1.2 BPR and performance improvement

Business process re-engineering's main goal is to support the organization's mission and reduce costs. Reengineering starts with a high-level assessment of the organization's mission, strategic goals, and customer needs. Basic questions are asked, such as "Does our mission need to be redefined? Are our strategic goals aligned with our mission? Who are our customers?" An organization may find that it is operating on questionable assumptions, particularly in terms of the wants and needs of its customers. Only after the organization rethinks what it should be doing, does it go on to decide how best to do it.

Within the framework of this basic assessment of mission and goals, reengineering focuses on the organization's business processes the steps and procedures that govern how resources are used to create products and services that meet the needs of particular customers or markets. As a structured ordering of work steps across time and place, a business process can be decomposed into specific activities, measured, modeled, and improved. It can also be completely redesigned or eliminated altogether. Reengineering identifies, analyzes, and redesigns an organization's core business processes with the aim of achieving dramatic improvements in critical performance measures, such as cost, quality, service, and speed.

Reengineering recognizes that an organization's business processes are usually fragmented into sub-processes and tasks that are carried out by several specialized functional areas within the organization. Often, no one is responsible for the overall performance of the entire process. Reengineering maintains that optimizing the performance of sub-processes can result in some benefits, but cannot yield dramatic improvements if the process itself is fundamentally inefficient and outmoded. For that reason, reengineering focuses on redesigning the process as a whole in order to achieve the greatest possible benefits to the organization and their customers. This drive for realizing dramatic improvements by fundamentally rethinking how the organization's work should be done distinguishes reengineering from process improvement efforts that focus on functional or incremental improvement.

2.2 Public Administration Re-engineering

Public administration is often seen as a set of state institutions, processes, procedures, systems and organizational structures, practices and behavior for managing public affairs to serve the public interest.

Engineering may be defined as the systematic design and building of a process or artifact from a concept that has been converted into an implementable specification with the application of science and mathematics. Re-engineering, thus, involves taking an already-existing process or artifact and improving it for better quality, price/performance, and flexibility. Business re-engineering (BPR) represents an integrated programme and perspective on organizational change focusing on business processes rather than business functions in order to improve significantly their performance in terms of their efficiency and effectiveness. It involves the restructuring of organizational processes through the innovative use of information systems and technology. The aim of BPR is to refit or revamp the organization to survive today's economic downturn and to emerge, refreshed and revitalized, to meet its social obligations and accept its economic challenges into the future. BPR provides a way to enhance the efficiency as well as effectiveness while resources are declining. It is a powerful change approach that can bring about radical improvement in business processes.

According to (Davenport and Stoddard, 1994), the five primary concepts that make up re-engineering are:

- A clean slate approach to organizational design and change.
- An orientation to broad cross-functional public administration processes, or the way administration work is done.
- The need for, and possibility of, radical change in process performance.
- Information technology (IT) as an Enabler of change in how work is done.
- Changes in organizational and human arrangements that accompany change in technology.

BPR is common in the private sector, and the public sector cannot insulate itself from new management cultures that evolve from innovative practices. However because of the differences in the nature of private and public sectors, the BPR concepts as applied in the private sector may need some modifications before they could be applied to the public sector. The application of these modified re-engineering concepts to public administration is hereby referee as Public Administration Re-engineering.

2.2.1 Characteristics of Public Administration

In the past, Business process re-engineering projects have been undertaken in profit-oriented organizations. But non-profit organizations such as public sector organizations have some specifics, which make Business re-engineering significantly different. Re-engineering public administration requires innovative management and a willingness to change. Unfortunately the nature of public administration itself is so different from business administration that it may inhibit the re-engineering effort. This is due to the following characteristics of public administration:

1. Although it would be possible to radically change some (or most) of the processes in the public sector, readiness for such radical changes is currently very low in most of the public sector institutions. The organizational structures are rigid, project resources are scarce, the ingenuous senior management commitment is usually difficult to achieve, several processes are predominantly intra-functional, culture supports status quo etc. All these characteristics support the belief that radical changes impose high risks.
2. Processes are mostly well structured; some of them are even governed by laws (e.g. administrative processes). However, many of them are partially semi-structured or not structured, for example some professional activities.
3. The concept of a customer is hard to define in public administration. However, customer focus is more emphasized in the public sector. Customer friendliness and simplification of procedures is the imperative of the government and administration. Very often this is the main motive for business process change in the public sector. However, in most cases the goal is not to attract new customers and keep the current ones. Customers are very often obligated to use these services, e.g. when someone

wants to found a sport society it has to be registered by the state. Also their needs are divergent and the government has to deliver a service or product that reflects an uneasy comprise. Thus customer focus becomes problematic (K.C.B Saxena, 1995)

4. Benefits of PAR derive from thinking and acting horizontally rather than vertically. Unfortunately administrations bureaucracies have only known vertical hierarchies and all the procedures are based on super ordinate-subordinate links. This makes it hard for them to perceive the concept of organizational processes, and even harder for them to define them.
4. Public administration is more resistant to change.
5. Public administration institutions are typically paid out of an allocated budget which is not based on their results and performance. Thus, there is apparently no pressure on them to perform better.
6. Public administrators are not free to enact management in the way managers in private are. This is due to political control as politicians do not necessarily restrict themselves to policy-making but also involve themselves in the execution of policy.

In addition to the above characteristics, lack of popularity of PAR in developing countries can be attributed to the following reasons:

- Relative cost of the high technology in comparison to that of human labor.
- Lack of perceived need for PAR if a developing country is less integrated in the international community, e.g. through international trade.
- Low level of standardization in the public administration which may make implementation of PAR even more difficult; and
- Poor technological infrastructure, especially the telecommunication infrastructure, which may hamper IT-enabled public administration process re-engineering.

2.2.2 Component of Public Administration Reengineering (PAR)

PAR is not an easy concept to apply due to the absence of forces which promote mechanisms for change in the private sector environment. To realign operations, administration, management or inter-organizational relationships with "process" requires a fundamental shift in the way the entire public administration in a country thinks and works. Thus the concept of PAR should be treated as an evolving and holistic concept which has four key elements: (Saxena K.B.C, 1995)

- Strategy
- Organizational structure
- Information technology, and
- Culture

Any reengineering should be congruent for all of these elements

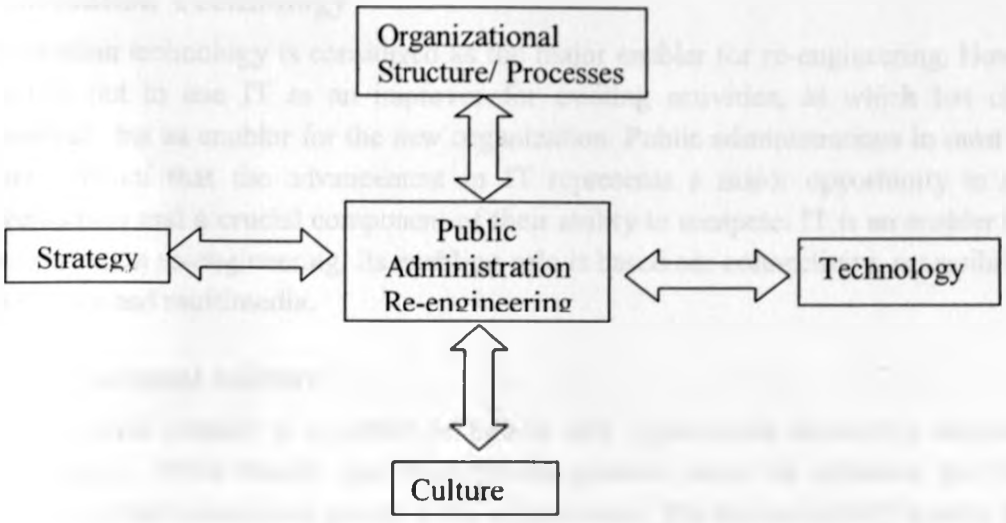

Figure 1: Scope of Public Administration Re-engineering

Strategy

This is the critical element in PAR, as it gives a purpose and sets the direction for public administration. PAR is seen as a mechanism to realize an organizational architecture which aligns the organizational processes with the strategy. It is the foundation of PAR.

Strategy is planned by establishing a vision and objectives and then a high-level course of action to achieve these strategic objectives. A vision is not a specific commitment, but a subjective, impressionistic idea of what lies on the horizon. Vision provides a broad-directive target to help countries plan when they cannot easily predict

Organization structure

In a traditional and bureaucratic view of public administration, the management has the highest organizational authority and status, and the staff forms the base. The concept of a customer hardly exists in public administration, but even if it is introduced, it is the management which is supposed to know the needs of the customers; the staffs are merely supporters of what management is striving for. However the concept of a customer is at the heart of any re-engineering effort. Further reengineering is aimed at putting workers closest to the customers, as only the workers could help improve the effectiveness of the administration processes. Thus the re-engineering tends to invert the traditional control structures as the management is supposed to support the workers by understanding the details of their internal working practices and problems by helping in removing the barriers to improvement, and by listening carefully to the workers' ideas in improving the efficiency

and/or effectiveness of the process. This inversion control structure is a real challenge to PAR.

Information Technology

Information technology is considered as the major enabler for re-engineering. However, the point is not to use IT as an improver for existing activities, as which has often been conceived, but as enabler for the new organization. Public administrations in most countries share a belief that the advancement in IT represents a major opportunity to accelerate development and a crucial component of their ability to compete. IT is an enabler for public administration re-engineering. Its enabling role is based on; connectivity, accessibility, inter-operability and multimedia.

Organizational culture

Organizational culture is a pattern of beliefs and expectations shared by members of an organization. These beliefs and expectations produce rules for behavior that shape the behavior of individuals and groups in the organization. The human activity system within the organization is the most critical factor for reengineering. While top management support for reengineering efforts is rather simple to ensure, the real change agents, middle management are far harder to win due to the fact that they have to identify change opportunities and perform them, while they are the group facing most threats, as BPR often is used for cutting hierarchies and reducing the work force. Also most public organizations have a range of professional specialism with their own identities. These professionals may be assertive and protective of their own work areas, and may not facilitate the type of co-operation and cross-functional working arrangements which are required by PAR.

2.3 Using Technology as a Tool for Change

Effective management of the Government's technology is an essential prerequisite for Public administration. In the context of achieving service transformation, government needs to maximize the strategic value of its technology investments.

It will not be possible to move towards a transformed service delivery environment without the coordinated and efficient use of technology across the government.
There is a range of economic imperatives for government to move to more efficient service technologies, not least of which is the fact that the cost of traditional service delivery methods is continually increasing. Labour and resource intensive delivery channels such as counter and postal services are becoming increasingly unsustainable for government.

Technology plays a significant part in ensuring that the public sector has undergone the future proofing needed to support the State's service delivery needs into the future. Therefore, for government to provide services that meet customer expectations into the future

it must capitalize on existing technologies and coordinate the migration to new technology platforms.

2.4 Customer satisfaction

As earlier pointed out, the concept of a customer hardly exists in public administration. However, any re-engineering has its focus on the customer. In order for an organization to perform well, it needs to constantly get customer feed backs and timely information about the market. Opportunities and threats continuously change due to the emergency of new technology, more by stakeholders and competitors as well as shift in customer preferences and behaviors.

Market orientation also promotes the acquisition of information on customers, competitors, suppliers and environmental forces in such a way that all this information can be treated collectively by the organization, with the end of creating and maintaining an offer that generates greater value. It is also considered that effective communication between the parties possesses a market orientation culture in building satisfaction, and combination of market orientation and non-coercive strategies would require effective communications with customers as shown in the figure below (Sanzo et al, 2003).

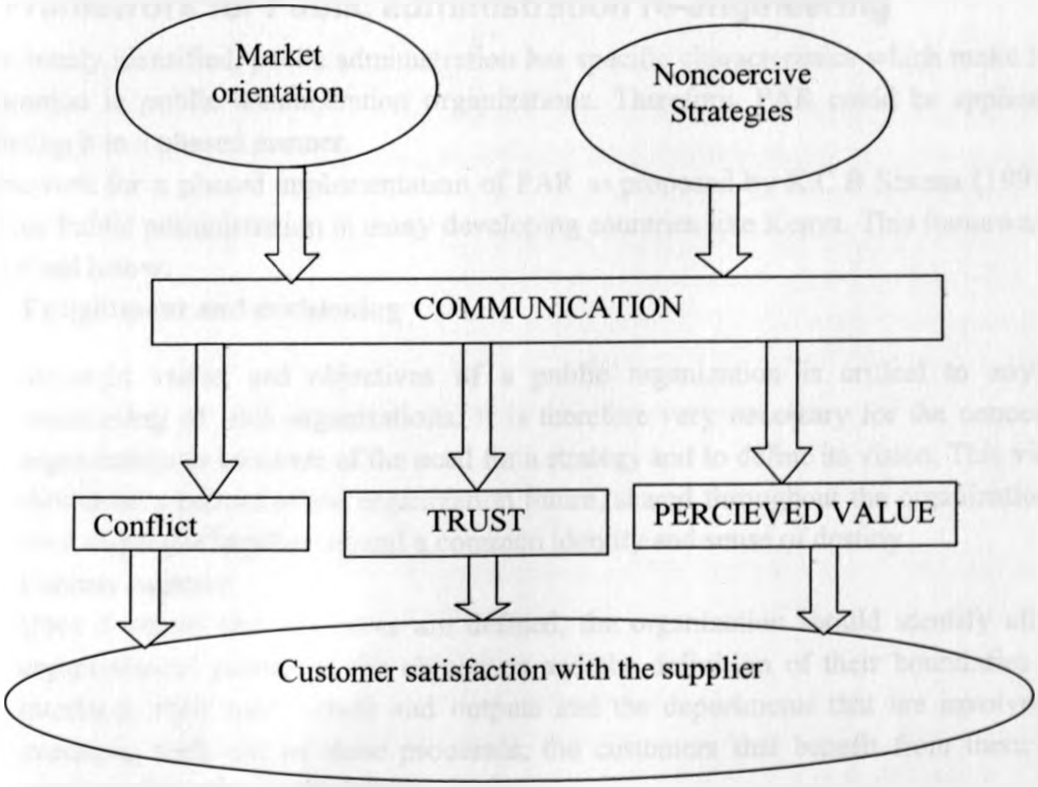

Figure 2: Satisfaction model relating market orientation (Adopted from Sanzo et al, 2003)

In order to create a long-term relationship for the customer satisfaction an effective communication system needs to be placed. The roles of each participants (including customers and suppliers, must be clearly specified taking all the aspects that may potentially create occasions for conflict. Such initiative should lie with both suppliers and customers; the leaders in both parties involved in the relationship must fulfill an absolutely essential role in putting this strategy into effect and minimizing the level of conflict that may occur. To be more effective the contacts must involve all levels of organizations. For all, it is absolutely essential to have efficient management system and databases focusing on the customer needs and services e.g. electronic front office system. In addition, intra-organizational communication with each respective organization is required for effective inter-organizational communication.

The value perceived by the customers increase satisfaction, similarly trust is also a contributing factor to satisfaction. The maintenance of open lines of communication with the customer, a service guarantee and a higher standard of conduct contribute to the degree of trust.
Similarly, the effective communication contributes to achieving higher perceived value at all the levels of organizations.

2.5 Framework for Public administration re-engineering

As previously identified, public administration has specific characteristics which make PAR not common in public administration organizations. Therefore, PAR could be applied by introducing it in a phased manner.
A framework for a phased implementation of PAR as proposed by K.C.B Saxena (1995) is useful for Public administration in many developing countries like Kenya. This framework is as described below:

1. **Enlightment and envisioning**

   Strategic vision and objectives of a public organization is critical to any re-engineering of such organizations. It is therefore very necessary for the concerned organization to be aware of the need for a strategy and to define its vision. This vision should be a picture of the organization future, shared throughout the organization to bind its people together around a common identity and sense of destiny.

2. **Process capture**

   Once a vision and objectives are defined, the organization should identify all the organizational processes, the objectives and the definition of their boundaries and interfaces their main inputs and outputs and the departments that are involved in executing each one of these processes, the customers that benefit from them and suppliers that provide the inputs.

   Once all the processes are mapped, the core processes should be identified. These are those processes which directly affect the organizational strategy. These processes are candidates for re-engineering.

The choice of the processes to be re-engineered is based on re-engineering need, resource requirements, and level of risk. This may also guide the organization as to whether it should be merely improved or fully re-engineered.

3. **Process redesign.**
   Having chosen a process for re-engineering and defined its broader terms, it is necessary to model the process in considerable details. Modeling involves constructing a graphical representation of the process. After modeling the process is analyzed for its weakness and problems. The analysis is based on identifying and measuring performance indicators of the process. Based on the assessment of the deficiencies of the existing process, the process is redesigned depending on the need and available resources. The re-engineering of the process may involve changes in the organizational structure, culture as well as information technology support.
4. **Process Implementation.**
   The re-engineering process is operationalised by making the necessary changes in the organizational structure, IT-based systems and if necessary its culture.
5. **Process Evaluation**
   The implemented new system is continually evaluated to ensure that the deficiencies have been removed. The new process may also require improvements if its performance does not meet the requirements.

2.6 Land administration

Land administration is the process of registration and dissemination of information in relation to land transactions. A good land administration system should provide land title guarantee and land tenure security, supports the process of land taxation and land development, and guides land transactions. A cadastre, defined as a parcel based and up-to-date land information system containing a record of interest in land is the core or basis of a land administration system. On the other hand, land rights delivery is a process, which entails the mobilization of institutional mechanisms and personnel for ascertainment of rights, registration, planning, demarcation and/or survey, and the preparation of cadastres.

2.6.1 Evolutions in Land Administration

Land administration systems, and in particular their central cadastral components are essential elements of countries' national infrastructures (UN-FIG, 1999). The United Nation-Economic Commission for Europe states in their *Land Administration Guidelines* that "these systems are concerned with the administration of land as a natural resource to ensure its sustainable use and development and are as such concerned with the social, legal, economic and technical framework within which land managers and administrators must operate" (UN-ECE, 1996).

The context, in which land administration systems and the central cadastral component are operating, is increasingly evolving. Not only were traditional cadastral systems slow in

responding to the changing needs of society (Dale and McLaughlin, 1988), but also the relationship of humankind to land became more dynamic over the last few decades and particularly the last decade. This evolution is reflected in the resolutions of the successive efforts of the International Federation of Surveyors (FIG): the *Statement on the Cadastre* (FIG, 1995), the *Bogor Declaration* (UN-FIG, 1996), *Cadastre 2014* (Kaufmann and Steudler, 1998), and the *Bathurst Declaration* (UN-FIG, 1999). The Bathurst Declaration concludes that sustainable development requires a sound land administration system.

In their paper on cadastral trends, Ting and Williamson (1999) identify different phases in the humankind to land relationship depending on the different rates of development of countries.
They established a cumulative model of cadastral developments:

(i) land as wealth,
(ii) land as commodity,
(iii) land as scarce resource, and finally
(iv) land as a scarce community resource.

They conclude that "each of these phases in the humankind/land relationship elicited a corresponding layer of complexity in the function of cadastral systems from a simple record of ownership and fiscal tool, to a cornerstone of land markets and then increasingly detailed land use planning"; and that "the world is at different points in the continuum.
Many developing countries are only just establishing more formal cadastral records for fiscal and also land market purposes while western nations are rushing to create multi-purpose cadastres that take a community approach to sustainable development issues whilst maintaining private ownership."
Cadastres are evolving into broader land administration systems addressing a diversity of issues, ultimately supporting not only land ownership and land markets, but increasingly also sustainable development.

2.6.2 Properties of a Good Land Administration System

A good land administration system supports sustainable development. It will guarantee ownership and security of tenure; support land and property taxation; provide opportunities for investment; develop and monitor land markets; protect land resources and support environmental monitoring; facilitate the management of State-owned land; reduce land disputes; facilitate rural land management; improve urban and rural planning and infrastructure development; provide statistical data in support of good governance; and provide a foundation for spatially enabling government, business and wider society. It should be affordable and open to everyone, meeting the needs of all its users, and must be sustainable. Good practice in land administration means:

- The law should define the nature of land, the form and nature of ownership, the legally recognized forms of tenure and the rights, restrictions and responsibilities that must be registered;
- The land administration system should be run on business lines, often in partnership with the private sector, with a long-term financial model and an appropriate regulatory framework and management system that focuses on meeting customer demands;
- The operations of the land administration system must be transparent, with safe and easy access to the land market and affordable for all participants;
- The efficiency, integrity and transparency of the land administration system must be constantly measured and monitored, through performance indicators relating for example to the time and cost of each transaction, and customer satisfaction;
- In order to add value to the basic information, records of ownership, value and use of land should be spatially enabled and integrated either by having one organization responsible for their maintenance or through several organizations sharing data through an e-government strategy;
- Land administration records should be based on a common referencing system such as coordinates on a geocentric datum and street addresses, as part of a spatial data infrastructure and an e-government strategy.

2.6.3 Improvements in land administration systems

The necessity for improvements in land administration system is highlighted in many reports and statements and is a growing focus for organizations such as the United Nations, the World Bank and the International Federation of Surveyors, (Cadastre 2014, the MOLA Land Administration Guidelines, The Bogor Declaration, The Bathurst Declaration). From these literature the following have been identified as key issues which can assist in improving Land administration systems

- The creation of a vision and road map to support long term planning and implementation;
- Developing a National Land Policy that addresses land-related issues in a holistic way and provides a foundation for economic development, ensures all have access to land and protects women and vulnerable groups;
- Taking action to improve the legal and institutional framework for land-related activities;
- Making land-related information more open, transparent and accessible for the public;
- Speeding up the processes of core land activities (registrations, Survey, valuations, etc.) through process re-engineering, computerization and closer co-operation between all land-related agencies;
- Developing an Information Policy to provide a framework for the sharing of data between agencies as part of an e-government strategy and, as appropriate, with the public;

- Using Business Process Re-engineering (BPR) as an integral component of the introduction of Information and Communications Technology (ICT) to facilitate the modernization of land administration systems;
- Strengthening the SDI within the general ICT Strategy as a key component of land administration;
- Ensuring appropriate institutional and technical arrangements are in place to facilitate the integration of cadastral and topographic data within spatial data infrastructures (SDI) to support sustainable development;
- Strengthening the relationship and understanding between the land administration and financial sectors;
- Improving the system of land valuation by adopting international standards and adopting a system of fair and equitable land taxation;
- Improving procedures for sharing the cost and risk in land development;
- Strengthening the capacity inside as well as outside government agencies and in universities and initiating research in land administration, spatial data infrastructures and spatial enablement;
- Encouraging participation in the land administration system through public awareness campaigns both within government and wider society and streamlining procedures to facilitate participation; and
- Co-operating with international organizations such as the UN-supported groups and the International Federation of Surveyors in the sharing of knowledge and understanding of issues related to land.

2.6.4 Re-engineering Land Administration Systems

According to Ting & Williamson (1999), much change in the broad land administration area in many countries focuses on technology and does not take a broad view of land administration reform. They prescribe three related perspectives in implementing change in land administration. First is an appreciation of the global drivers for change. Next is an analysis of the impact of these drivers on the design of land administration systems. This in turn identifies implementation issues with a focus on technical and administrative tools, which support these trends and developments, such as spatial data infrastructures and the Internet. All the changes proposed by the Bathurst Declaration are categorized into these perspectives.

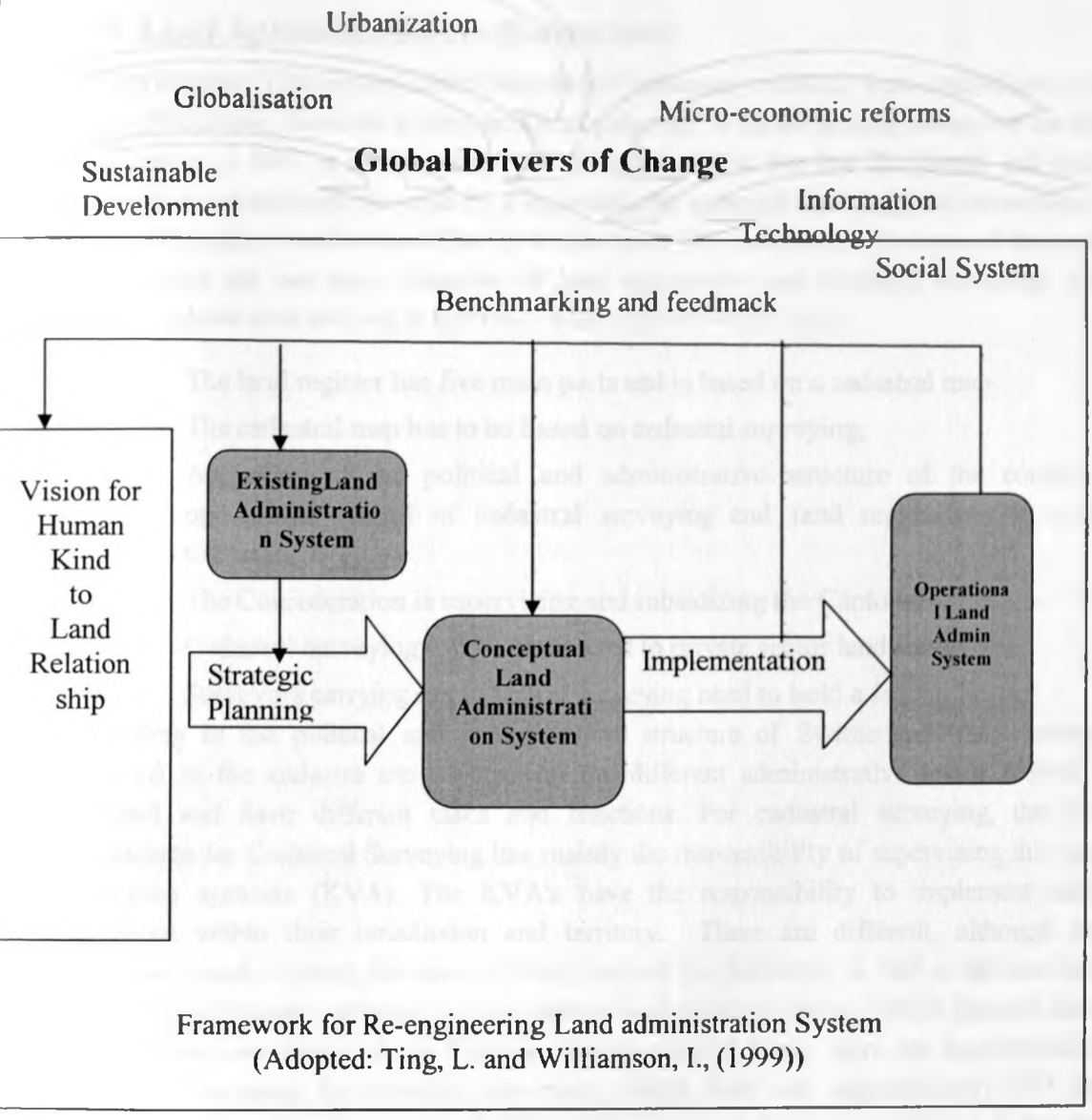

Figure 3: Framework for Re-engineering Land administration System

In the above framework, global drivers' impact on the whole social system, this comprises the re-engineering process. The framework shows that through a strategic planning process, the vision of a new humankind-land relationship, together with the existing land administration system, results in the development of a conceptual land administration system. Through an implementation process, an operational land administration system is developed. Through benchmarking and feedback, the vision and conceptual system will be continually refined.

2.7 Land Administration in Developed countries

2.7.1 Land Administration in Switzerland

During the early 19th century under Napoleonic influence, cadastres were established in many of the 26 Cantons; however mainly for fiscal purposes. With the putting in force of the federal constitution in 1847, a modern state with a stable rule of the law developed, and with the industrial developments, the need for a legal cadastre emerged, securing land ownership rights and enabling land transactions. The Civil Law from 1912 constitutes the basis of the cadastral system with the two main elements of land registration and cadastral surveying. Several principles have been defined at that time, which are still valid today:

- The land register has five main parts and is based on a cadastral map;
- The cadastral map has to be based on cadastral surveying;
- According to the political and administrative structure of the country, the operational control of cadastral surveying and land registration is with the Cantons;
- The Confederation is supervising and subsidizing the Cantons;
- Cadastral surveying can be contracted to private sector land surveyors;
- Surveyors carrying out cadastral surveying need to hold a federal license.

According to the political and administrative structure of Switzerland, the organizations involved in the cadastre are situated on the different administrative levels federal and cantonal and have different tasks and functions. For cadastral surveying, the Federal Directorate for Cadastral Surveying has mainly the responsibility of supervising the cantonal surveying agencies (KVA). The KVA's have the responsibility to implement cadastral surveying within their jurisdiction and territory. There are different, although similar solutions in each Canton, but most of them contract the fieldwork as well as the maintenance of surveying data and cadastral maps to private land surveyor offices, which then are acting as public agents on behalf of the Cantons. On the federal level, there are approximately 15 employees working for cadastral surveying, while there are approximately 300 on the cantonal level, and approximately 3,000 on the municipal level most of them in the private surveying offices

For land registration, the regulations, set-up of offices and districts, the appointment and the compensation of land registrars lie in the competence of the Cantons. The Confederation supervises the Cantons through the "Federal Office of Land Registration and Land Law" with approx. 5 employees. Some of the smaller Cantons maintain a single cantonal land registry office, while in 18 Cantons; there are offices per one or several districts, or even per municipality resulting in a total of approx. 350 cantonal or regional land registry offices.

The involvement of the private sector in cadastral surveying is a normal practice since the establishment of the cadastral system in the early 1900's; it carries out 80- 90% of the total work. The private sector is commissioned with projects through a tendering process for

data acquisition, upgrading, and updating.

There is a long established and accepted system, through which the private sector is mandated with data updating and maintenance procedures. As such, the private surveyors are acting as public agents providing decentralized services close to customers. With the availability of digital data, Cantons and municipalities are introducing their own land information systems and private surveying offices quite often support such projects either by contract or by consulting.

With the introduction of the land registration system in 1910, the Confederation also introduced a regulation for the licensing of cadastral surveyors. Only licensed land surveyors can carry out cadastral surveying. Although they are mostly operating in the private sector, they are public agents, bound by regulations and contracts.

2.7.2 Land Administration System in the Nordic countries

Cadastral systems have a long history in the Nordic countries. Historically the purpose of the cadastre was to collect land taxes. Today the cadastre has a much broader objective, and it is accepted that when cadastral information is a part of integrated information systems, it can improve the efficiency of the land transfer process as well as the overall process of land management. The structure of the cadastral systems, however, varies between the Nordic countries according to the cultural and judicial setting of the individual country. The key characteristics of the systems are presented in the figure below (Enemark,1998*b*).

Country	**Denmark**	**Norway**	**Sweden**	**Finland**
Area	43,000 sq. Km	324,000 sq. Km	450,000 sq. km	337,000 sq. Km
Population	5.2 mill	4.2 mill	8.6 mill	5.0 mill
Properties	About 1.5 mil	About 2 mil	About 8.6mil	5.0 mil
National Authority	National Survey and Cadastre under the Ministry of Housing	National Mapping Authority under the Ministry of Environment	National Land Survey under the Ministry of Environment	National Land Survey under the Ministry of Agriculture
Cadastral Surveys	Licensed surveyors in private practice	Municipal Survey Authorities; Licensed surveyors in private practice will be introduced	State Survey Authorities at county level; and some Municipal Survey Authorities	State Survey Authorities in rural districts; and some City Survey Authorities
Property register Authority(Land Parcels)	National Survey and Cadastre maintaining the cadastral register and the digital Cadastral maps.	Municipal Survey Authorities; and the National Survey Authority maintaining the GAB-register	County and Municipal Survey Authorities; and the National Land Survey maintaining the Land Data Bank System	District and City Survey Authorities and the National Land Survey maintaining the Real Estate Register

Land Register Authority (Title and Mortgage)	Local district courts (Ministry of Justice)	Local district courts (Ministry of Justice)	Local district courts (Ministry of Justice)	Local district courts (Ministry of Justice)
Land Information System	Interactive subsystems linked together through a Cross Reference Register	GAB – register linked with the Land Book	Land Data Bank System	Central Information System on Real Estate Data

Table 1: Land administration in the Nordic countries

The Danish and Norwegian systems are similar, just like the systems in Sweden and Finland are rooted in the same tradition. However, as a common trend in all the Nordic countries there is a development towards a multipurpose use of computerized cadastral information through interactive GIS-systems and through the Internet.

The problem of maintaining the digital cadastral map is one example of the complexity of the digital spatial information environment. Another example is the efforts to establish a concept for digital lodging of the survey plans and cadastral information from the private surveyor in case of subdivision or change of boundaries. This problem is currently addressed in Denmark and Finland using different approaches based on the cultural and judicial setting of the systems.

2.8 Land Administration system in Kenya

In Kenya like any other Sub Saharan country land administration does not function adequately or solve land conflicts, and are not useful to most people. Registering a title can take between 6 months and 10 years, records are poorly kept, most people do not have title deeds, and millions of titles await registration.

The current arrangements for the land administration system is haphazard, expensive, too lengthy, and cumbersome, littered with bureaucratic red tape and time consuming and cannot afford the majority of the Kenyans access to land. This unsatisfactory land rights delivery system is caused by land speculation, unprofessional practices by allocation personnel, corruption, political interference, excess powers of those mandated to manage land, and the organization of the land registries, particularly retrieval of necessary information which is an important component in the operation of land market.

Table 2 below outlines the current steps taken to register a title.

Stages		Boundary Type	Land category and estimated % coverage of the total land area		
			Government Land (10%)	**Private Land (20%)**	**Trust Land (70%)**
1	Initial action	Fixed	Request for planning of land to facilitate allocation made to the Director of Physical Planning	Application for Planning approval to proposed subdivision scheme	"Setting apart" procedure for allocation of Trust Land (occasional)
		General	Request for a team to identify occupants for allocation (mainly Coast province)	Application for Planning approval to proposed subdivision scheme	Decision to carry out formalization process.
2	Approval of plans, letters of allotment application of adjudication Statutes	Fixed	Letters of allotment issued by the Commissioner of Lands	Approval of the proposed scheme plans	Letters of allotment issued by Commissioner of lands for land "set apart"
		General	Letters of allotment issued by the Commissioner of Lands	Approval of the proposed scheme plans	Declaration of Adjudication area(s) and appointment of officers. Wide publicity.
3	Field Survey, adjudication and demarcation	Fixed	Field survey and demarcation by government surveyors or licensed surveyors	Field survey and demarcation by government surveyors or licensed surveyors	Field survey and demarcation by government surveyors or licensed surveyors
		General	Field survey and demarcation by government surveyors	Field survey and demarcation by government surveyors or licensed surveyors	Adjudication and demarcation by surveyors from Dept of Land Adjudication & Settlement, supervised by Director of Surveys
		Fixed	Survey records	Survey records	Survey records

Stages		Boundary Type	Land category and estimated % coverage of the total land area		
			Government Land (10%)	**Private Land (20%)**	**Trust Land (70%)**
4	Examination of Survey records		submitted for examination (checking) by the Director of Surveys	submitted for examination (checking) by the Director of Surveys	submitted for examination (checking) by the Director of Surveys
		General	Director of Surveys examines (to relaxed standards) field sheets and prepares Registry Index Map	Director of Surveys examines (to relaxed standards) mutation forms and amends Registry Index Map	Director of Surveys examines (to relaxed standards) field sheets and prepares Registry Index Map
5	Registration of Title	Fixed	Registration carried out using documents derived after the Examination process (Deed plans or Registry Index Maps)	Registration carried out using documents derived after the Examination process (Deed plans or Registry Index Maps	Registration carried out using documents derived after the Examination process (Deed plans or Registry Index Maps
		General	Registration carried out using Registry Index Maps after the Examination	Registration carried out using amended Registry Index Maps	Registration carried out using Registry Index Maps after the Examination

Table 2: Title Registration Processes

2.8.1 Statutes that deal with Land Registration in Kenya

Currently Kenya has two systems of substantive land law and five systems of registration. The substantive land laws are the Indian Transfer of Property Act and the Registered Land Act. Conveyancing legislation includes the Land Titles Act, the Government Lands Act and the Registration of Titles Act. Registration systems are governed by the Registration of Documents Act, the Land Titles Act, the Government Lands Act, Registration of Titles Act

and the Registered Land Act (Njenga, 1978). Njenga (1978) further states that it is the objective of the government to make the Registered Land Act the system for substantive law, conveyancing and registration in the country.

The Registration of Documents Act, 1901

This Act provided for deeds registration and did not mention priority though there was a requirement for registration within two months of execution. A copy of the registered documents was retained in the Registry and an index of names kept. This statute was ineffective since it did not have survey plans or any effective manner of identifying and indexing parcels. Under this system, the proprietor must trace, to the satisfaction of the intending purchaser, his proprietorship to a good root of title.

Two registers were established under this Act: the "A" register which was compulsory and the "B" register which was voluntary. Register "A" recorded all transactions in land and immovable property while the register "B" was used as a public record of any deeds or other instruments which might otherwise be accidentally lost. The Principal Registrar of Documents administers this Act.

Land Titles Act, 1908

This Act was enacted to facilitate adjudication of claims to ownership of land within the ten (10) nautical-mile Coastal Strip of Kenya. Unclaimed land and land with regard to which claims were unsuccessful were deemed Crown Land in areas where this Act was applicable. A Land Registration Court that was presided over by a Recorder of Titles granted Certificates of Title to those people whose claims were successful. This process was slow and laborious and was suspended between 1922 and 1933.

An amendment in 1910, set up a Deeds Registry that was indexed by parcels, which were defined on official survey plans, examined by the Director of Surveys. The practice has been that these surveys are submitted to the Director of Surveys for checking (examination). This Act is administered by the Principal Registrar.

Government Lands Act, 1915

The purpose of this Act was to make further and better provisions for leasing and other disposal of Government Lands. The registration part of this Act provided for land that was granted to be registered under a system of deeds registration supported by a survey and using signed and sealed deed plans. Under this Act, three registers were opened: one in Mombasa and two in Nairobi. One of the registers in Nairobi was for land within Nairobi and its environs while the other register was for land in the European settlements in the White Highlands. Investigation to the root of title was still necessary. The registrar does not accept a deed plan unless he considers it correct enough for registration. These certified deed plans are issued after approval of the survey by the Director of Surveys. Deeds are noted in folios of the register, with one folio being devoted to each parcel of land. Indexing is done by parcels. This statute is administered by the Principal Registrar of Government Lands.

Registration of Titles Act, 1919

This statute introduced title by registration based on the Torrens System. It was intended to eliminate the need to investigate into the root of title and to provide a State guarantee of title. Application of this statute replaced the registration part of the Government Lands Act. Upon first alienation of any plot, a grant is issued by the government. The original grant and the copy are endorsed with the index number of the title. When a transfer is registered, a new title is created so that for the purposes of prescription, time must start to run again from the time of registration. However, since transference to the register under this statute was voluntary, there are parcels of land that are registered under the earlier statutes that dealt with deeds registration.

Copies of all registered documents in relation to a parcel of land are kept in deed files (there is a deed file for each parcel of land). Registration of land under this Statute requires a deed plan that is signed and sealed by the Director of Surveys. Deed plans are prepared after authentication of the particular survey by the Director of Surveys. This Act is administered by the Principal Registrar of Titles.

The Registered Land Act, 1963

As stated earlier, it is the objective of the Government of Kenya that this statute will eventually replace the other statutes that deal with registration of title to land in Kenya (Njenga, 1978). The statute provides for registration of title to land supported by fixed boundary surveys or general boundary surveys; whenever it is applied to areas where boundaries of land parcels have been previously surveyed under fixed boundary legislation, the fixed boundaries are deemed to have been fixed under section 22 of the Act. It contains a complete code of substantive law with detailed provisions regarding leases, charges, easements, trusts and many other transactions that apply to land.

This Act was aimed at achieving security and proof of title and creation and transfer of interests in land. The title of the person named in the Register is guaranteed and there is no need to trace to the root of title (section 39).

This statute has been implemented on a large scale in the development of individual ownership and interests in land in Kenya and is administered by the Chief Land Registrar.

2.8.2 The Registry Index Map and Deed Plans

Jackson (1988) mentions that unlike the Government Lands Act, the Land Titles Act, and the Registration of Titles Act, which require that all titles and documents transferring a subdivision be attached to a survey deed plan of the piece of land in question, the Registered Land Act makes provision for the preparation of a Registry Index Map.

The Registry Index Map

Under Registered Land Act, a Registry Index Map or a series of maps is prepared by the Director of Surveys in respect of an individual Registry District. Section 18(1) of the Registered Land Act gives the responsibility of maintenance of the Registry Index Map to the Director of Surveys. The Land Registrar is required to have a Registry Index Map, which is kept at the Registry for his Registry District. The map is divided into Registration Sections, which are identified by distinctive names. The Sections are further subdivided into blocks, with distinctive numbers or names or a combination of numbers and names. Blocks are subdivided into parcels, which are numbered consecutively. Each parcel is identified by a number, which is a combination of district, section, block and parcel number. Survey procedures that produce a registry map for first registration are required to be of sufficient accuracy to identify a plot that appears on the register on the ground, assist in relocation of a boundary, enable subdivisions to be effected and be useful for calculation of plot areas.

Deed plans

Deed plans are direct tracings of individual plots from the Surveyor's authenticated original plans and contain enough information to describe the property without including all the technical data from the survey plan. Deed plans contain the following information:-

i. Property boundaries with lengths and bearings.
ii. Area of the plot.
iii. Locality information. District and township names, which are given on the deed plans, are the officially gazette names. The Meridional district number is the same as that given on the survey plan and refers to the standard Kenya map sheet lines.
iv. The scale of the deed plan and date.
v. The land reference number and the deed plan number.
vi. The name of the Surveyor (if licensed).
vii. Signature of the Director of Surveys or the person authorized by him in writing.

Registered Land in Kenya

According to Syagga (2006), by the year 2004, public land in Kenya comprised of 12.99%, Trust land 66.84% and private land 18.28% of the total area. The author further mentions that of the total land area in Kenya, registered private land amounts to 18.64%, un-alienated public land to 5.71%, unregistered Trust land to 65.41% and Parks and Reserves to 10.24%.

2.8.3 Current Land Administration processes

Land administration processes in use are based on manual systems. In order to enhance efficiency in service delivery the Ministry of Lands has had a number of initiatives in the recent past in its effort to address land information management using modern information technology (IT). Also the cabinet through a consultative forum has enacted a national land policy to guide in reforming the land sector.

Currently a number of processes are associated with land administration in Kenya. Figure 4 below shows an overview of these processes.

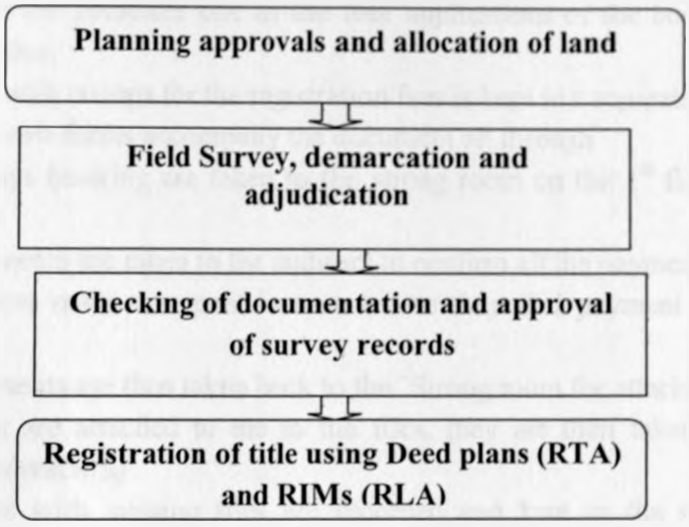

Figure 4: An overview of the processes in land administration in Kenya

Key Business Processes in Land administration

A business process (BP) is a series of activities within the organization that produces a product, service or business deliverable of value. In examining land administration systems it is more important to examine the key processes within the systems which are associated with allocating, registering, transferring and sub-dividing land rights, rather than looking at a free standing concept of a cadastre (Williamson, 1995). According to Tuladhar (1999) the main processes and sub-processes in land administration can be mentioned as:

- **Property Registration**: first registration of data, transfer registration, lease registration, encumbrances registration; appealing on decisions.
- **Surveying and Mapping**: Geodetic control, parcel demarcation and surveying, cadastral mapping, parcel mutation, map updating.
- **Fiscal registration**: Objects definition, inventory of objects.
- **Information exchange**: Data supply to users, data entry to the system, updating and maintaining.

A land administration system may consider the Cadastre system as a whole Business Process, supported by a robust infrastructure (processes, organizations, IT, strategy etc) that provide the complete and consistent outputs meeting the user requirements, even though some of the processes are performed by different jurisdictions.

The key processes for this study are survey process, registration process and transfer process.

Land Registration Process

The following steps are followed in registering a right to rand in Kenya

1. Receiving documents at the counter (at ground floor)
2. Confirm payment of registration fee

3. Confirm the attached supporting documents
4. Give serial numbers for each and every document
5. Give back the presenter one of the four applications of the booking form with the serial number.
6. The form with stamps for the registration fees is kept in a separate file
7. The other two forms accompany the document all through
8. All the days booking are taken to the strong room on the 1st floor for safe keeping overnight
9. The documents are taken to the auditors to confirm all the payments
10. The auditors make comment in case where they find payment where not properly done.
11. The documents are then taken back to the "Strong room for attaching of deed files.
12. Once they are attached to the to the files, they are then taken to the registration superintendent(R/S)
13. Documents with missing files are recorded and kept in the strong room for the officers to continue using looking for files.
14. The RS marks the documents in a register referred to as 'A' book. (This is a register to show the movement of various documents)
15. The RS marks the documents to various registration / investigation officers
16. The registration officers check the documents
    i.) Whether all the necessary supporting documents are attached.
    ii.) Whether the documents are technically drawn.
    iii.) Properly executed and attested by advocates as required in case of a document with deed plans the officers mark them to survey for verification.
    iv.) Documents which are not compliant are rejected.
    v.) Those which are compliant are then passed for registration.
    vi.) The registration officer then does the entries and then both the registered and rejected documents are marked to the various registrars to sign and confirm the rejection.
17. Once the registrar finalizes with the document they are brought back again to the registry for sorting.
18. The rejected documents are recorded and taken to the counter for the owners to collect.
19. The registered documents are taken to the officer dealing with copying.
20. Once copied the documents which do not require sealing are recorded and taken to the counter for dispatch and the ones which require the sealing are then sealed by the RS and then sorted and taken to the counter for the owners to collect (sorting means putting the copies in the deed files). The figure 5 below describes the current land registration process in Kenya;

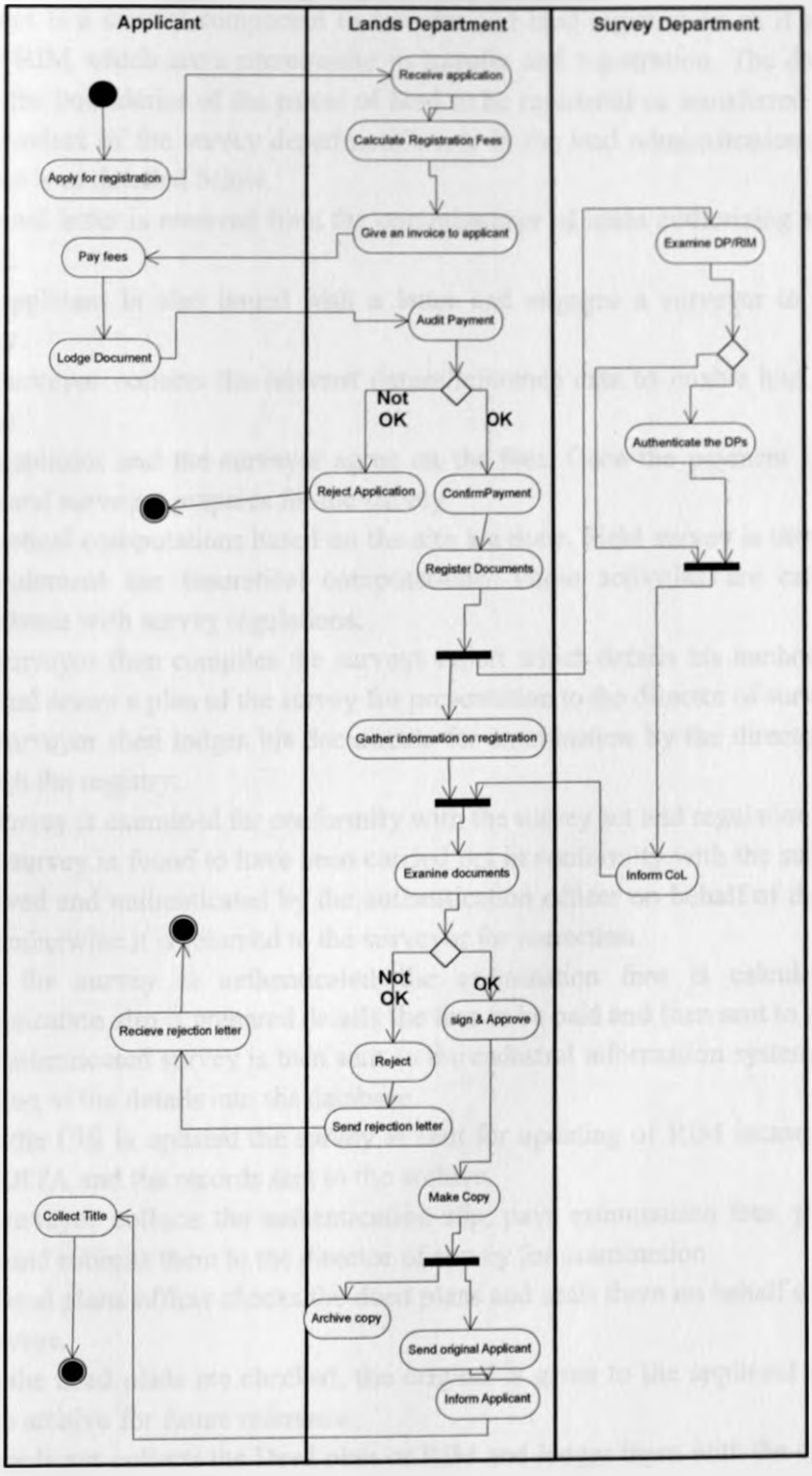

Figure 5: Land registration process

The survey Process

Survey process is a crucial component in transfer and land registration as it produces the deed plan or RIM which are a prerequisite in transfer and registration. The deed plan and RIM defines the boundaries of the parcel of land to be registered or transferred. These two are the end product of the survey department's role in the land administration system. The survey process is as detailed below.

1. A formal letter is received from the commissioner of lands authorizing survey of the parcel.
2. The applicant is also issued with a letter and engages a surveyor to conduct the survey.
3. The surveyor collects the relevant datum/reference data to enable him conduct the survey.
4. The applicant and the surveyor agree on the fees. Once the payment is made they agree and surveyor prepares for the survey.
5. Theoretical computations based on the site are done. Field survey is then carried out to implement the theoretical computations. These activities are carried out in accordance with survey regulations.
6. The surveyor then compiles the surveys report which details his methodology, field note and draws a plan of the survey for presentation to the director of survey.
7. The surveyor then lodges his documents for examination by the director of surveys through the registry.
8. The survey is examined for conformity with the survey act and regulation.
9. If the survey is found to have been carried out in conformity with the survey act, it is approved and authenticated by the authentication officer on behalf of the director of lands otherwise it is returned to the surveyor for correction.
10. Once the survey is authenticated the examination fees is calculated and an authentication slip is prepared details the fees to be paid and then sent to the surveyor.
11. The authenticated survey is then sent to the cadastral information systems section for updating of the details into the database.
12. Once the CIS is updated the survey is sent for updating of RIM incases of the land under RTA and the records sent to the archive.
13. The surveyor collects the authentication slip, pays examination fees, prepares deed plans and submits them to the director of survey for examination.
14. The Deed plans officer checks the deed plans and seals them on behalf of the director of surveys.
15. Once the deed plans are checked, the original is given to the applicant and the copy sent to archive for future reference.
16. The applicant collects the Deed plan or RIM and lodges them with the commissioner of lands for registration and issuance of certificate of title.

Figure 6 below describes the work flow in the survey process.

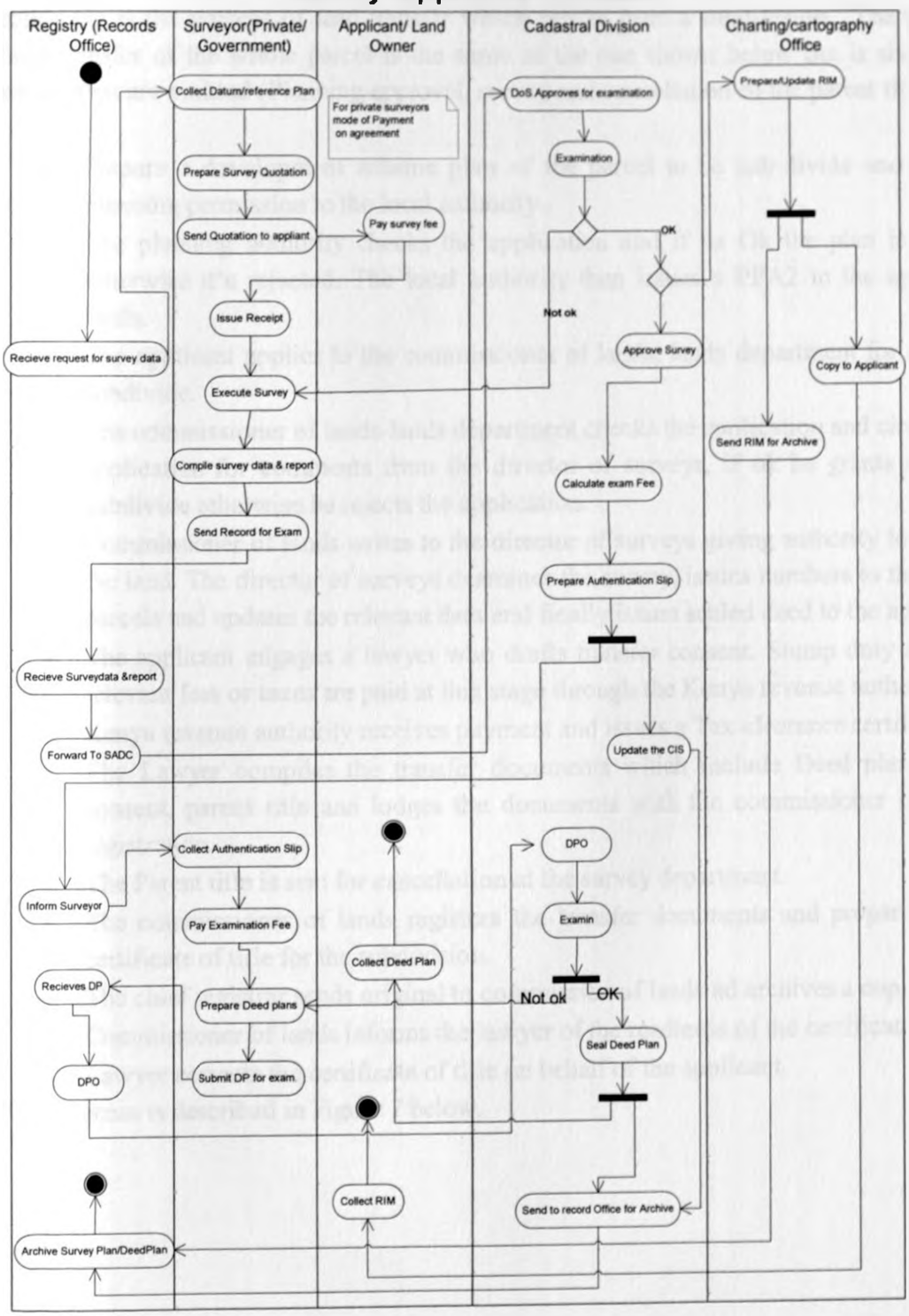

Figure 6: Survey Process

Transfer Process.

Registered land is subject to changes in ownership. The changes in ownership may be for a whole parcel or part of the parcel which results from a subdivision of the parcel of land. The following is the process of land transfer which results from a subdivision. The process of land transfer of the whole parcel is the same as the one shown below but is shorter since some steps are omitted (Planning approval, survey and cancellation of the parent title.)

- Prepare a development scheme plan of the parcel to be sub-divide and apply for planning permission to the local authority.
- The planning authority checks the application and if its Ok the plan is approved otherwise it's rejected. The local authority then issues a PPA2 to the applicant of lands.
- The applicant applies to the commissioner of lands, lands department for consent to subdivide.
- The commissioner of lands-lands department checks the application and circulates the application for comments from the director of surveys, if ok he grants consent to subdivide otherwise he rejects the application.
- Commissioner of lands writes to the director of surveys giving authority to subdivide the land. The director of surveys examines the survey, issues numbers to the resultant parcels and updates the relevant data and finally issues sealed deed to the applicant.
- The applicant engages a lawyer who drafts transfer consent. Stump duty and all the relevant fees or taxes are paid at this stage through the Kenya revenue authority.
- Kenya revenue authority receives payment and issues a Tax clearance certificate.
- The Lawyer compiles the transfer documents which include Deed plan, Transfer consent, parent title and lodges the documents with the commissioner of land for registration.
- The Parent title is sent for cancellation at the survey department.
- The commissioner of lands registers the transfer documents and prepares separate certificate of title for the subdivision.
- The chief registrar sends original to commission of lands ad archives a copy.
- Commissioner of lands informs the lawyer of the readiness of the certificate of title.
- Lawyer corrects the certificate of title on behalf of the applicant.

This process is described in Figure 7 below.

Land Transfer process

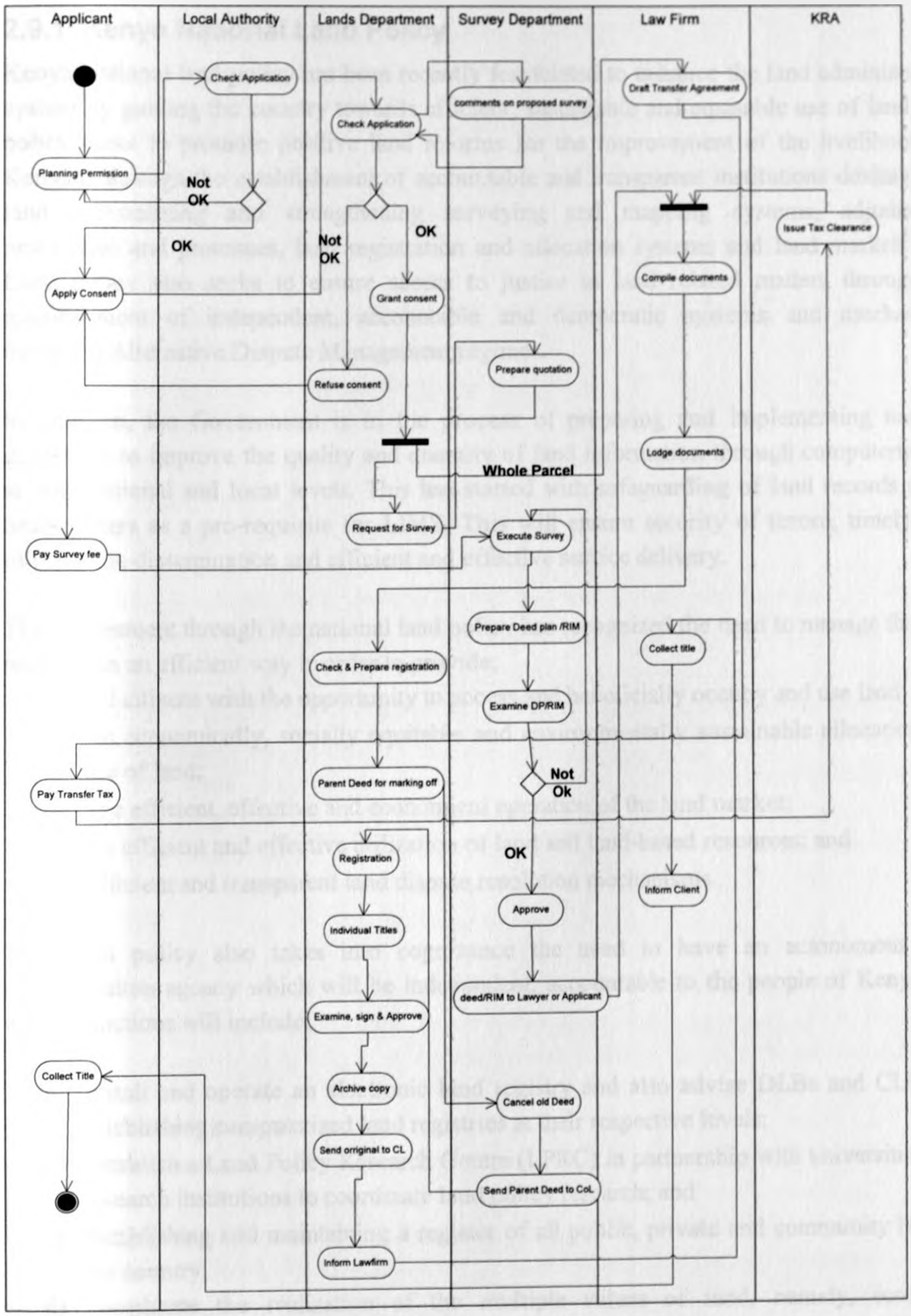

Figure 7: Transfer Process

2.9 Current Reforms in Land administration in Kenya

2.9.1 Kenya National Land Policy

Kenya National land policy has been recently formulated to enhance the land administration system by guiding the country towards efficient, sustainable and equitable use of land. The policy seeks to promote positive land reforms for the improvement of the livelihoods of Kenyans through the establishment of accountable and transparent institutions dealing with land, streamlining and strengthening surveying and mapping systems, adjudication procedures and processes, land registration and allocation systems and land markets. The Land policy also seeks to ensure access to justice in land related matters through the establishment of independent, accountable and democratic systems and mechanisms including Alternative Dispute Management regimes.

In addition, the Government is in the process of preparing and implementing national guidelines to improve the quality and quantity of land information through computerization at both national and local levels. This has started with safeguarding of land records at the headquarters as a pre-requisite for LIMS. This will ensure security of tenure, timely land information dissemination and efficient and effective service delivery.

The government through the national land policy has recognized the need to manage the land resource in an efficient way in order to provide;

a) All citizens with the opportunity to access and beneficially occupy and use land;
b) An economically, socially equitable and environmentally sustainable allocation and use of land;
c) The efficient, effective and economical operation of the land market;
d) An efficient and effective utilization of land and land-based resources; and
e) Efficient and transparent land dispute resolution mechanisms.

The Land policy also takes into cognizance the need to have an autonomous land administration agency which will be independent, accountable to the people of Kenya and whose functions will include;

a) Install and operate an electronic land registry and also advise DLBs and CLBs on establishing computerized land registries at their respective levels;
b) Establish a Land Policy Research Centre (LPRC) in partnership with universities and research institutions to coordinate land policy research; and
c) Establishing and maintaining a register of all public, private and community land in the country;
d) Coordinate the realization of the multiple values of land, namely, economic productivity, equity, environmental sustainability and conservation of indigenous culture;
e) Levy, collect and manage all land tax revenues

The policy seeks to accord the land agency financial autonomy which will ensure enough funding for its operations unlike in the current centralized budgeting. Though non- profit making, the agency be run in a customer focused manner.

2.9.2 Land Reform Transformation Unit (LRTU)

The Ministry of Lands has established a LRTU to prepare for the implementation of the land reform programme as defined by the Land policy.

Currently the LRTU has been accorded decision making autonomy to enable it perform its functions which include;

a) Facilitating the drafting and enactment of the legislation necessary to implement this Policy;
b) Facilitating the establishing of relevant institutions;
c) Facilitating the recruitment and training of required personnel;
d) Facilitating the mobilization of financial and other resources;
e) Facilitating the organization of civic education; and
f) Ensuring a smooth transition to land Policy.

2.9.3 Current computerization Efforts in the Ministry of Lands

The current processes of land transfer, survey and subdivision have been inefficient due to use of manual systems. In order to enhance efficiency in service delivery the Ministry of Lands has had a number of initiatives in the recent past in its effort to address land information management using modern information technology (IT). However, these initiatives have been departmental specific and largely uncoordinated leading to un-sharable, stand-alone land data sets this has resulted into inefficiencies in service delivery and costs duplication. Due to the inter-linkages and inter-dependence, the Ministry Departments are expected to collaborate with one another to function efficiently and effectively.

The Ministry of Lands is in the process of automating land records in order to enhance service delivery to the citizens. There are a number of automation projects which have been initiated in the recent past to help in enhancing service delivery. These projects include:

a) **Land Rent Information System**

This system is used for handling payment of land rent e.g. issuing demand notices to land rent payers.

b) **Settlement Fund Trustee (SFT) Billing System**

This is a system intended to automate the billing and accounting processes for all settlement schemes in the country. Its objectives include: Printing of settlers' bill statement on time; Recovery of SFT land and development loans; Enhancement of revenue collection; Management of settlers accounts and records; Timely production of final accounts; Assist in management and decision making on settlement schemes for

overall efficiency in service delivery.

c) **Establishment of Kenya National Spatial Data Infrastructure (KNSDI).**
The primary aim of KNSDI is enabling a platform of discovery and access of spatial information to facilitate data sharing through internet. KNSDI Web Site has been established and KNSDI Standards are being developed

d) **File Tracking System**

A File Tracking System for Settlement Plot Files (FTS_SPF) has been developed into which 89,778 (90%) out of the 110,000 settlement plot files have been captured. All the attributes for the 140 staff and 4388 General files at the Ministry Headquarters have been captured into the file tracking systems. The System displays the current location of the file and history of the movement of the file in the list. This system is in the process of being duplicated in all the other departments.

In addition the Ministry has deployed in the main registry a FTS for correspondence files developed by the Ministry of state and public service to track the files. The marking officers are able to monitor the files and ensure they are on timely.

CHAPTER 3

RESEARCH METHODOLGY

3.1 Introduction

This chapter explains the methodology applied in this research. Land administration is considered as a case study in this study. User requirement are identified from the case study. The current situation of the Land and survey department are discussed. The user requirements are then discussed based on reviewed literature on good Land administration systems. The major processes in the two departments are redesigned and a conceptual system architecture proposed based on the user requirements.

Case study

Land administration like any other aspect of public administration means that the government is managing the land resources on behalf of the public. Currently the two main areas of concern is safegaurging the land rights to ensure security of tenure. This can only be possible if these rights are recorded legally as a starting point. Land registration process is paramount but the registration cannot be possible before the boundaries are marked hence the choice of the survey process. These processes are currently manual and they make administration of the land resource quite hectic. Deed plans and titles are issued from these offices.

3.2 Procedures for introduction of a Land Administration System

According to the UN land administration guidelines (1996), a land administration system involves the determination and recording of up-to-date information about rights in land. It must operate within both a technical and institutional framework and address not only the mechanics of setting out, surveying and recording land parcels but also the legal, financial, administrative, social and political issues that are associated with the management of land.

A land administration system does not necessarily have to be computerized. Many such systems are increasingly making use of computer technology but the fundamental problems are of an institutional rather than a technical nature. To establish an efficient and effective system, the guideline suggests a series of operations which, although they may not be carried out precisely in the sequence suggested, must all be addressed at one time or other. These operations include;

- The determination of user needs.
- The creation of new administrative and organizational structures so that the system can respond to market needs.
- The preparation of new legislation that covers the management of land and of land information.
- The surveying of land and property boundaries to ensure that land and property boundaries are clearly identifiable and surveyed to appropriate standards.

- The management of land information to provide easy access to the data within the system.
- The establishment of financial management procedures to ensure cost-effectiveness of the system.
- Developing awareness in the user community by publicizing the way the system works and its benefits.

The research followed the United Nation Land administration guidelines (1996) recommendations. The guidelines were instrumental in designing the research questionnaires used to determine user needs.

3.3 Methodology for Re-engineering

Re-engineering methodologies vary according to philosophical and situational differences. For the purpose of this research, the following methodology for Public administration re-engineering as prescribed by (Saxena, 1995) was followed:

- **Definition of the organisation as a system**. The current situation of the land administration was analysed in line with the strategic vision and the objectives of the Ministry of Lands. The national land policy was also instrumental as it gives the land administration systems vision and strategy.

- **Identify key processes to be redesigned**. From the researcher's point of view, the most important processes key to the business vision of the Ministry of land are; transfer, registration and the survey process. These processes will be considered in this study.

- **Analyse existing processes**. The understanding of the existing processes in order to determine the mistakes and the way to avoid repeating them, and provide a base for improvements.

- **Redesign/re-engineer processes.** The processes are modelled and analyzed for weakness and problems. Based on the assessment of the deficiencies of the existing process, the process is redesigned to align it with efficient delivery of services and customer satisfaction.

3.4 Data Collection Methods

The following methods were used to collect user requirements for re-engineering the business processes.

A. **Interviews:** Interviews are an extremely flexible way of collecting data. Interviews are a two way communication between the interviewer and the interviewee and can

be done at any stage of the research process. Discussions and informal interviews of the Ministry officials were carried out during the fieldwork. The discussions were used to correct vital information on the current situation and processes of land administration.

B. **Questionnaire:** four types of questionnaires were administered to the stakeholders of land administration system who included operation officials, Survey firms, landowners /general public. These questionnaires were designed to collect information about the land administration processes, services provided and general user requirements. The questionnaires were administered by the researcher through hand delivery and via email. Follow up was also done through phone.

C. **Observation:** This was done through actual visits to the sections concerned with the processes of interest in this study which included survey examination and land registration. The technology in use at the working environment was also observed.

D. **Focus group:** Members of the Ministry's LIMS team under LRTU were interviewed on various occasions and their input on computerization of the Ministry of Lands was put into consideration during this research.

Secondary data was mainly collected from review of related literature which begun from the onset of this research at proposal. Literature related with Public administration re-engineering, Business process reengineering, current trends in land administration, best practices in the developed countries and UML modeling. Information was also collected from the internet.

Other information relevant to land administration in Kenya was collected from the following sources.

- Organizational charts and workflow diagrams.
- Laws and regulations relating to land.
- Inventory of existing software's and equipments.
- List of products and services offered by the Ministry of Lands.
- Ministry of Lands Website.

The number of respondents to the questionaires is as given in table 3 below

Groups	Target	Responses
Operation officers Lands department	40	28
Operation officers Survey department	40	23
Survey firms	80	47
Land Owners/General public	150	83

Table 3: Responses to Questionnaires

Resources used during the research

The following resources were used during the study.

- Hardware: One personal computer whose specifications included 40 GB Hard Disk space, 256 MB Memory, 2.0 GHz processor, CD-RW drive and 4 USB ports, and NIC, printer.
- Software: Windows XP, Ms Office 2003, Ms Visio 2003 and SPSS

3.5 Data analysis

The user requirements based on collected data from questionnaires give general requirements from different groups of internal stakeholders who are involved in the daily operation of the sytem and the management who are involved in policy decision making and external stakeholder who are involved in the system.

Different respondents have expressed the problems they have faced in the existing system of land administration and their requirements in different ways. Their responses include;

3.5.1 The information requested by Land owners/public and survey firms

	Information Requested	Land owners (%)	Surveyors (%)
(a)	Topographical	50.6	51.1
(b)	Cadastral maps /Information	60.2	68.1
(c)	Land registration/Property related information	62.7	51.1
(d)	Land registration and cadastral	47	55.3
(e)	All the above	73.5	76.6
(f)	Topographical and cadastral		74.5
(g)	Ownership details	86.7	72.3
(h)	Size of parcel	83.1	70.2
(i)	Value	78.3	38.3
(j)	Mortgages	74.7	40.4
(k)	Rights	75.9	31.9
(l)	Restriction	68.7	59.6
(m)	Transfers	72.3	48.9
(n)	Leases/Sub-leases	78.3	44.7
(o)	Land allocation	24.1	68.1
(p)	Fees-land rent/ground rent	81.9	42.6
(q)	Boundary information	83.1	85.1
(r)	History/Background	69.9	31.9
(s)	Encumbrances	51.8	
(t)	Closeness to amenities	47	89.4
(u)	Land use	1.2	70.2

(v)	Whether in Ndungu report	1.2	
(w)	Whether part of public utility	1.2	
(x)	Whether on road reserve or in Ndungu report	6	
(y)	Bankruptcy notes		23.4
(z)	Inheritance		48.9
(aa)	Court Judgment		25.5

Table 4: Information Requested

From the 83 members of public/land owners surveyed 81.9% were male, 10.8 % were female and 7.2 % represented companies. Most of the owners have acquired the land through purchasing. The research shows that only 53% have officially registered their property with some having share certificate and agreement contracts as prove of ownership and others with noting at all to prove ownership.

As revealed from the survey the information requested by the members of the public and surveyors was as follows;

3.5.2 Source of information

The respondents identified the following organizations as their main source of information;

Source of information (Department)	Percentage (%)
Survey of Kenya	68.7
Lands Department	80.7
Local Authorities	45.8
Ministry of Roads	1.2

Table 5: Sources of Information

3.5.3 Accessibility of information

78.3 % said that the information was not easily accessible. Also 88 % said the information on procedures, fees and taxes was nor easily accessible. 89.2 % of the respondents felt that if they had an option they would not wish to visit the organization again. They gave their reasons of not willing to visit the organization as;

Reasons for not willing to re-visit	Percentage (%)
Information not accurate/useful	9.6
Delays in delivery of services : taking too long	89.2
Office not easily accessible	61.4
High costs	10.8
Staff lacks courtesy	80.7
Poor quality of service	47
corruption	56.6

Table 6: Reasons for not willing to re-visit

The respondents expressed their desired mode of service delivery as follows;

Data Format	Percentage (%)
In digital form	27.7
In analogue form	12
Both analogue and Digital	60.2

Table 7: Desired data/service delivery format/mode

3.5.4 ICT and use of computers

From the survey, 79.5% of respondent can use computers with 75.9 having access to computers either at home 27.7%, at work 48.2%, at home & work 62.7% and in cyber cafes 90.4%. Most of the respondents were familiar with online delivery of services (97.6%) and they also have access to internet (88%).

89.2 % of respondents thought that computerization of survey and registration processes would make the process easier and faster.

81.9 % of respondents were no satisfied with the present level of service delivery at the Ministry of Lands. And that they had to visit many offices in order to get the services. The 92.8% of the respondents prefer to have the tasks accomplished in a single office or room. The respondents also expressed their desire to have the information on land readily available, and to reduce the processes. They also said that the survey of Kenya was too far and that they would wish to register their land at the district instead of having to travel to Nairobi.

3.5.5 Surveyors/Survey Firms

The survey involved 47 survey firms/surveyors. All the survey firms are fully private funded by the market. The surveyors require spatial/ geo referenced data for their daily activities. The surveyors' requirements of spatial data as identified from the surveys are as follows;

DATA	%
Topographical data	51.1
Cadastral	68.1
Topographical & Cadastral	74.5
Land registration	44.7
Land registration& Cadastral	59.6
All the above	78.7

Table 8: Spatial Data requested by surveyors

74.5% of the surveyors indicated that this data is very crucial to their organizations and that they use it on a daily basis. The surveyors get most of their data from Ministry of Lands,

survey of Kenya (Sok), Ministry of Roads, Local authorities and regional centre for mapping and resource development.
To the 91.5% of surveyors, SoK was the most important organization for them because it is the only source of information/data that they require (85.1%) others said it is cost effect (12.8%). Only 2.1% of the surveyors felt that the services are prompt and efficient.

The surveyors also require the following cadastral data and services for their activities;

Data/Services	**%**
Large scale survey plans	83
Medium scale cadastral maps	78.7
Small scale cadastral maps	59.6
Survey plans of individual parcels (Deed Plans)	46.8
Survey plans of adjoining parcels	72.3
Layout and development plans	80.9
Registry Index Maps (RIMs)	74.5
Survey Job registration and authentication	70.2
Director of survey's approval	63.8
Coordinates and beacon numbers	68.1

Table 9: Other services & data requested by surveyors

The official cost of these data and services range from KShs. 150 and KShs 1,000. From the survey, most surveyors (61.7%) would not want price changes, 36.2% would like to pay less with only 2.1% willing to pay more.
The surveyors also require land related information from the lands department. The results of the survey are as indicated in table 1 above.

From the survey results the surveyors would like to receive the information/services as follows;

Format	**%**
In analogue form only	4.3
In digital form only	10.6
Both Analogue & Digital	85.1

Table 10: Desired format/Mode of data& service delivery by surveyors

When asked whether they have the necessary software and hardware available in their organizations, 55.3% had while the rest 44.7% did not have the necessary software and hardware.

The surveyors also said that there would be improvements in their firms if they were able to get the information/services in an appropriate format.

The surveyors also identified the following as problems in land administration system.

Problems with current Land administration system	%
Bureaucratic administration processes	80.9
Personnel	68.1
Old methods and technology of approving surveys	48.9
Little or no funding from the government	23.4
Customers unwilling to pay for services	27.7
Undefined processes and no quality control measures	48.9
Un official land Market	21.3
Ineffective regulations and laws	12.8
Bribery and corrupt dealings	19.1

Table 11: Problems in Land administration in Kenya- Surveyors

From the survey, the surveyors also identified the following as the possible solutions to the Land administration system in Kenya.

Possible solutions	%
Reduce or merge some steps in the process	83.0
Use new information technology in the survey process	68.1
Improve funding from the government	57.4
Train or hire trained personnel	55.3
Provide information or services online	74.5
Amend laws and regulations to facilitate service delivery	78.7
Private public partnerships	83
Improve quality control measures in the survey process	70.2
Sensitize the public on the land administration processes	89.4

Table 12: Solutions to Land administration problems- Surveyors

3.5.6 Staff members

Responses from the members of staff were as follows;

Lands

Members of staff in Lands department indicated that all their processes are manual and they use manual records in carrying out their duties. However, there has been digitization of records going on for the last two years though this is still ongoing. The staffs feel that computerization of the records will ease their work. Currently, the staffs depend with survey

department in certifying the Deed plans and RIM. 53.6% of the staff felt there was need to merge survey and lands registration department to make the registration efficient.

82.1% of the staff would prefer to work in a computerized system. Though the department of lands has internet connectivity and network in place within headquarters, the internet is not used for official work.

The staff also indicated the duration taken to retrieve documents from the archives/strong room as follows;

Duration	Lands officers (28)		Survey officers (23)			
	Deeds Respondents %	Ownership	Deed plans	Survey plans	Computation report	Correspondence file
Minutes	3.6	10.7	30.4	30.4	34.8	34.8
Hours	71.4	60.7	39.1	34.8	21.7	30.4
Days	14.3	7.1	13	21.7	13	26.1
Months	10.7	21.4	17.4	13	30.4	8.7

Table 13: Time taken to retrieve records from archive.

The 46.4% of the respondents feels that computerization will ease their work. 82.1% of the respondent also felt that the current registration process is not efficient. Officers from survey department felt that computerization will ease their work (65.2%) and 73.9% of the survey officer indicated that the survey process was not efficient.
The Ministry of Lands officials also identified the following as the main problems they encounter in carrying out their duties;

Problems in Land administration	%Land officer	Survey officers
Inadequate space	78.6	58.5
Missing/worn-out records	71.4	69.6
Difficulty in retrieving records	85.7	73.9
Frequent transfers	39.3	39.1
Lack of stationery and tools	71.4	30.4
Influence from management	35.7	26.1
Lack of computerization	50	52.2
Rigid procedures	75.0	60.9
Lack of motivation	67.9	69.6
Intimidation	10.7	34.8

Table 14: Problems in Land administration in Kenya- Staff

They Ministry officials identified the following as possible solutions to the above problem.

Solution	Lands	Survey
Administrative re-organization	75	60.9
Training	42.9	30.4
Telecommunication	50	30.4
ICT	53.6	82.6
Better office space	64.3	73.9
Provision of stationery and tools	42.9	65.2
Staff motivation	46.4	56.5
Improved funding	39.3	65.2
Cooperation with other organization/departments	57.1	60.9

Table 15: Solutions to these problems- Staff

3.6 Discussion on user requirements

The user requirements identified from the case study are discussed based on land administration principles as identified from the literature review. These requirements are considered while re-engineering the land administration system. According to the analysis of the collected data from questionnaires, the following requirements are identified.

- **Services from one place/One click.**

  Users prefered to get the services from one room instead of moving into different rooms seeking the services. Dale and McLaughlin (1998) have also recommended a one stop shoping facility where customers can obtain information as a good practice for effective land administration system.

- **Integration of Land administration Services**

  Users preferred to get both survey and registration services and information from a single point. Currently they have to travel from Lands department at Upperhill region to survey department at Ruaraka to have their deed plans sealed, this wastes alot of time. Also the UN Land admnistration guidlines recommend that the two processes be merged into one in order to reduce duplication of efforts as well as shortening the process of Land administration.

- **Removing some steps.**

  The users noted that some steps were unnecessary and that some steps need to be done away with or merged to make the system short and efficient. From observation the long steps also encouraged payments of commissions which in turn taint the

image of the Ministry of Lands, this makes the users lack confidence in the land administrtion system.

- **Digital/ Electronic Services Information.**

  Users prefeered to get land related information and services digitally as compared to the current manual system. According to (UN Economc commission for Europe,2005) use of ICT can improve service delivery in government and result in a more efficient, transparent, less corruption , and less labour intensive services to the public. Kenya through the directorate of e-government pledges to make life easier for the citizens by providing services electronically. In this case, electronic land administration services will make the land transactions simple and reliable. The national land policy also proposes use of new technology in enhancing service delivery.

- **Combine Regulations and Laws.**

  There are regulations and procedures that affect Land administration in Kenya. Many procedures are also governed by Law and any re-engineering on this process will require ammendments to the Law.
  Currently there is no Law that governs direct electronic transactions as relates to land administration. Also electronic access to information may require regulation by law in order to mitigate any conflict that may arise as citizens have a right to privacy and its also the responsibility of the governemt to manage land in a transparent way.
  Some of the Laws may require unification in order to ease their implementation in land administration.

- **Organizational Structure**

  From observation, the Lands and survey departments complement each other . One user requirement was to integrate land administration services. Cadastre 2014 also advocates for a unified land information system. There may be need to have an autonomous Agency whose core function is providing Land administration services. According to United Nations Guidelines on Land administration (1996), Land administration should be under one body whose lead role is to coordinate various processes in land administration. In many developed countries, land administration operate on business lines with active participation of the private sector in maintenance of their operations through fees levied to the services provided.

  In Kenya, the existing organization structure leads to duplication of work, lack of coordination, inefficiency, long and complex procedures which are a burden to the public. In this case a single department or agency that integrates survey and Lands department will solve some of the problems currently encountered. The Land Agency

will need to include the elements of customer satisfaction as a part of their organizational strategies.

Accoring to (K.C.B Saxena, 1995), the benefits of re-engineering derive from thinking, acting and organising horizontally rather than vertically. The organisation structure should put the workers closer to the customers as only the workers can help improve the effectiveness of administration processes. This will necesitate for an inverted organisation structure whereby customers are at the top followed by workers and the managers at the bottom. In this structure the managers are supposed to support the workers by understanding the details of their internal working practices and problems, help in removing barriers to improvement and by listening carefully to workers ideas on improving the efficiency and /or effectiveness of the processes.

- **Personnel**

Currently the ICT department oversees computerization and ICT support to Survey and Lands department in the Ministry of Lands. This leads to delay in work because of the few ICT staff designated to these departments. There is need to build capacity in the fields of ICT as well as hire trained manpower in the fields of Survey and Lands department. All the staff involved in the land administration need to be computer literate.

As earlier discussed PAR advocates for staff empowerment through reversed organisation structure, this reverses the practice and may be resisted. Also traditional public administration sees paper as the only medium for carrying messages or transactions and the electronic form of the same which could provide information not only intime but ahead of time may not be easily accepted. To facilitate acceptance of the re-engineered system, the staff should be sensitized to ease change management.

- **Customer satisfaction**

From the survey most clients said that the staff were unfriendly this may be attributed to the fact that the concept of a customer is not common in the public administration. In most cases customer needs are not understood by staff. This leads to misunderstandings between Ministry of Lands officers and the customers. According to (Sanzo et al, 2003), there is need to continuously survey the market with a view to acquire information on customers and environmental forces in such a way that all this information can be treated collectively by the organisation, with the aim of offering a better services to the customer. It is also considered that effective communication between the customers and staff possesses a business oriented culture. This will help to foster a long term cutomer relationship. There is therefore need to have a cutomer information management system to ensure open communication with the customers.

- **Inter and Intra-Communication**

  Many departments/organizations are involved in land administration processes. Coordination within land administration departments will be more effective with their integration. The integrated agency will also ensure inter cordination with other government bodies e.g the local outhorities, Ministry of public works, Nema etc. The United Nations Economic commission for Europe (2005) recommends establishing a high level Land administration coordination board to ensure closer coorperation between government bodies. The national land policy has also proposed the same.

  In addition, intra-organizational communication with each respective organization is required for effective inter-organizational communication.

- **Land Related Information**

  Many users required both cadastral as well as owner information. And the two are also a pre-requisite for any land transaction. In Kenya, registration involves the parcel as well as the ownership details. The survey department defines the parcels and the lands departments register owners of these parcel. The Land administration in kenya has emphasized registration of persons holding the right to land mainly for fiscical purposes. More emphasis should be on registering the land, this gives more security of tenure than the later. In the title system it is the parcel of land that is registered. This would make the data integration based on a unique parcel easier than person based. Title system is prefered worldwide as it gaurantees security of tenure.

- **Computerization of the processes**

  Computerization of information and services is essential for efficient service deliverly. Acording to Dale and Mclaughlin (1998) computerization allows traditional processing; gathering, storing, retrieving, and disseminating land related data to be undertaken more quickly with in-built quality controls. Also it reduces storage space and provides backup facilities in case of disaster. Cadastre 2014 also advocates for elimination of paper based systems and computerization of land records and processes. In Kenya, the computerization of Land records has already started, this forms a basis for ICT enabled processes envisaged in this research.

- **Integrated Land Information Management sytestem (ILMIS)**

  The users have desire to get all land related information from one office as a result an integrated information system will be of necessity. This would integrate all the land

administration process and organizations with a view to facilitate provision of land service and information from one office.

- **Internet/Online Services and information**

  Users prefer to get the information online. Currently they have to visit various offices during working hours of 8-5pm but with online acess they can acess the information 24/7, this saves time and cost to users. United Nation Economic commission for Europe (2005) also recommends electronic services for land administration. The e-government strategy also envisages access to information 24/7.

- **Data/Document Transfer**

  Currently, the land owners,brokers, Lawyers and even staff transfer deed plans and transfer documents which are in paper form from one office to another. This may bring about loss or even forgery of the same. Digital document transfer would mitigate against this.

- **Software in User**

  The softwares in use at the Miistry of Lands include ArcGIS, MySQL and Access databases. The ArcGIS at the survey department is not effectively used for cadastral services. The MySQL and Access databases are also not effective for an integrated database system. A high capacity Relational Database Mmanagement System (RDBMS) with a spatial component is recommended for land administration in Kenya.

- **Land Survey and approval Methods**

  Currently the land survey methods and instruments in use vary, surveyors are embracing technology as many of them use instruments that facilitate transference and processing of the field survey data in the office. However, they have to process the data manually in order to conform with the required formats for data presentation.

  This is because the survey examination and approval process is done manually using old technology. Some users were also concerned that the survey records do not conform with the ground situation. In order to ensure that the maps represent the ground the integrated land Agency would be required to carry out field verification of the surveys. The survey and mapping should be based on a sound geodetic framework.

3.7 SWOT Matrix

Based on the data collected and observation, the SWOT matrix of internal strengths and weaknesses against external opportunities and threats shown in table 16 below provides various strategies which can be used to improve service delivery in land administration. These strategies act as inputs to the proposed re-engineered land administration system modeled in the next chapter.

INTERNAL FACTORS / EXTERNAL FACTORS	STRENGTHS	WEAKNESSES
	• Land Administration Procedures in practice • Well laid down structures and frameworks • Well trained and skilled manpower • Taskforce on automation of all the Ministry Land records in place • A wealth of land data • On-going public sector reforms • Political Goodwill • Vision 2030,Country Vision • Training opportunities in GIS based LIMS • There is Donor support. • Infrastructure (LAN) already exists in Ardhi House • Existence of e-Government that supports computerization in the Government • Existence of a National Land Policy • Increased demand for land information and services • Availability of modern technology in Information management.	• Records are manual, vulnerable to wear and tear • Lengthy, slow and cumbersome processes • Inefficient monitoring and evaluation system • Duplication of land records • Non sharable analogue data • Poor storage and tedious retrieval of land data • Existing computer based information systems are stand-alone. • Inadequate funding. • WAN not yet developed to allow data sharing • Inadequate human capacity • Insufficient hardware and software for digital data processing • Limited skills and awareness on modern Information Management Technology • Failure to keep pace with the fast changing technology. • Use of obsolete equipments • cases of missing files • Lack of back-up for both manual and digital records • Poor attitude towards change • Forgeries
OPPORTUNITIES • Increasing land resource market and awareness • Public monopoly of land administration	A. Carry out user requirements surveys to derive specific personnel and equipment needs. B. Set up a structured approach to inter and intra organizational interactions based on regulated standards.	A. Develop clearly defined and published strategic plans B. Recruit technology conscious professionals and encourage team work C. Integrate business processes and ensure

• Co-operation with private sector • Government policy of e-government • Conscious of the need to integrate with other organizations/departments.	C. Policy on public private partnerships on service delivery. D. Capacity building in relation to ICT in the government.	transparency D. Produce spatial data based on User requirements.
THREATS • Declining government funding. • Poor communication infrastructure and network • Centralized government funding. No direct access to internally generated revenue. • Bad Public image of the Ministry	A. Gradual shift to non-profit oriented agency governed by public law but funded by the market. B. Utilization of mobile telephony and internet for communication. C. A less hierarchical organizational arrangement with well-defined responsibilities. D. Regular surveys and evaluation of customer satisfaction	A. Semi autonomous agency with sole responsibility of survey and registration. B. Re-engineer the current processes. C. Develop realistic communication plans. D. Develop realistic service charter.

Table 16: SWOT Matrix

CHAPTER 4

CONCEPTUAL LAND ADMINISTRATION SYSTEM

4.1 Introduction

Objective three of the study is to propose a re-engineered Land information management system. Chapter three documents a detailed analysis of the user requirements based on the data collected from the Ministry of Lands officials, and other actors in Land administration . In this chapter, a conceptual Land Information Management System is designed based on the identified user requirements and best practices using UML, re-engineered business processes are proposed. Class diagram for the database based on LADM and system architecture based on the models of the system are also presented in this Chapter.

The computerisation of re-engineered land administration processes will require digital archives of key land records as a prerequisite. This research assumes that digital archive of the key records is inplace in the Ministry of lands.

The proposed re-engineered system is expected to increase accessibility of land administration services and land information. The integration of lands and survey departments will reduce the steps in the process and hence reduce cost. Digitization of records will protect the records from tear and ware and even damage, reduce space for archiving and avoid duplication. This will also ensure customer or user satisfaction.

System Modelling

Modelling is essensial in system design. To be able to express and communicate the characteristics of a system that are relevant in a design project it is necessary to create system models. A model is a conceptual representation of a real-world system or part there of. The model of a system considers some characteristics of the system, and ignores others. A model can be created using different alternative representation depending on the purpose.

Domain Modelling

Domain model refers to the treated features and concepts, which are related to the problem that an information system is designed to solve. Domain modelling discovers objects, their classifications and further defination of their properties and relations. Domain Modelling forms the foundation for the defination of the static aspects of an information system that is expressed as a data model

Use case modeling

A use case is a functional model of an information system that derives from the use case analysis, which works in word from the defined and documented users requirements. The

objective of use case analysis and modelling is to capture all important user requirements of a new information system by detailling the possible scenarios that the users will perform. The result is a use case model ,which is the external view of the system. The external model also drives all further development stages and has a strong influence on the data model. The outcome of the use case should be that all the required system functionality is described in the use cases.
A use case model consists of related use cases and actors or users of the system. A use case describes a sequence of actions that an actor performs within a system to achieve a particular goal provided by the system as a service.

4.2 Process Modeling using UML

The key business processes were identified as transfer, survey and registration processes. UML activity diagrams are used to model these processes. The models help in understanding the processes and parties involved thus giving a good overview of the system, which is to be understood and enhanced.

The current and proposed situation was analyzed and modeled using UML. The existing processes were modeled using activity diagrams thus revealing the present circumstances which were re-engineered to provide an improved model of these processes. Activity diagrams provides a convenient tool for modeling workflows, they show the flow of activities within a system and models the function of a system.

Use case diagrams

The use case diagrams for the survey and registration processes based on user requirements and conceptual ideas of an integrated system integrating land and survey department is described in this section.
The following are the main actors in the general lands administration system in Kenya.

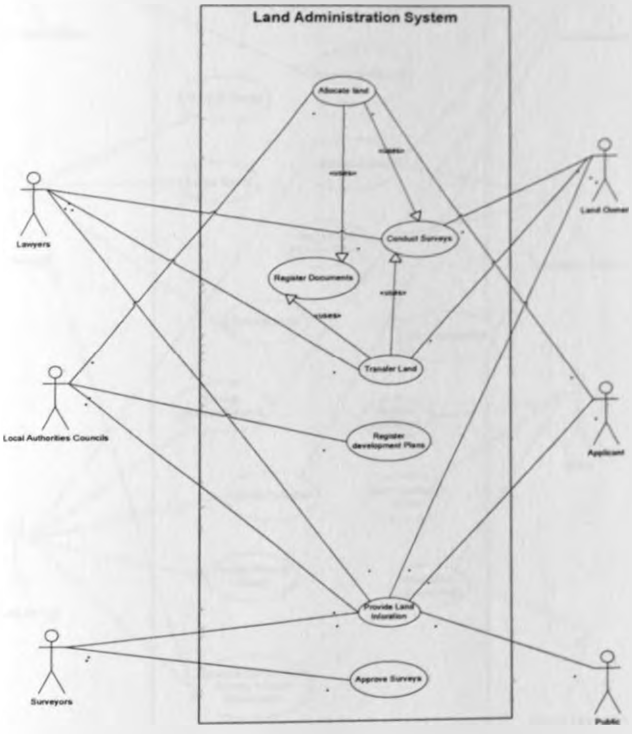

Figure 8: Actors in Land administration system

The proposed information system processes of survey and registration will involve.

- Application for services by customer.
- Preparation and survey by a government or private surveyor.
- Submit survey for examination
- Authenticate and approve the survey by the director of surveys.
- Update cadastral records/data.
- Apply for registration of lands
- Verification and inspection of application.
- Issuance of certificate of title.

A detailed use case diagram of the land information system envisaged in this research is a shown in table 9 below.

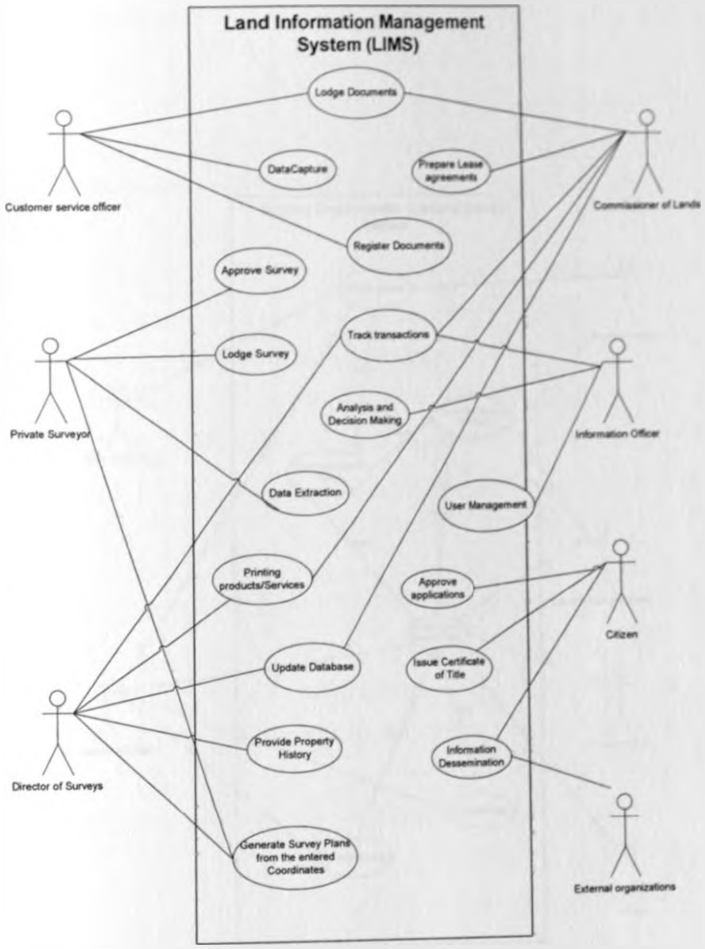

Figure 9: Use case diagram for LIMS

Use Case Diagram for the Survey department

The following are the main actors in the survey department cadastral section

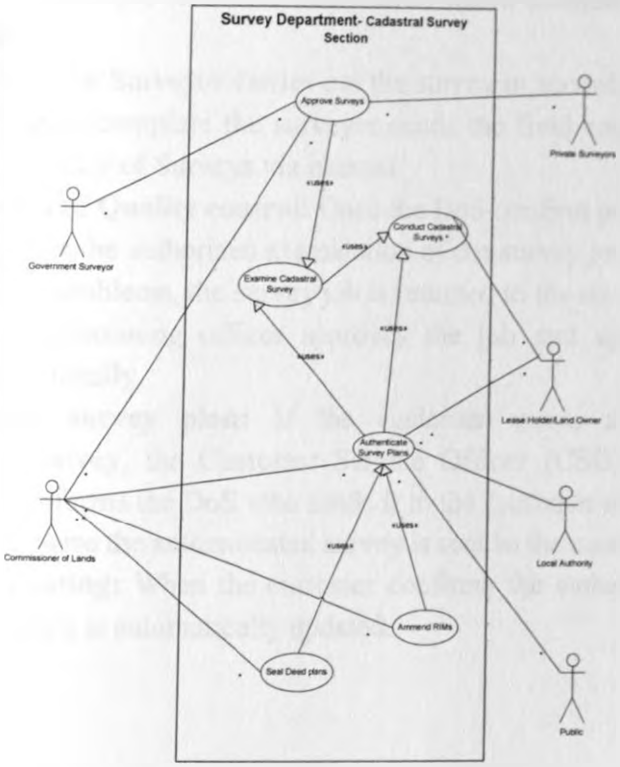

Figure 10 Use case Survey department- Cadastral section.

4.2.1 Proposed Re-engineered Survey process

The activity diagram of the re-engineered Survey subdivision process and detailed activities are described here below.

Application: The customer makes an application for approval of subdivision and development on land by filling an online application. The customer service officer books the application and confirms receipt automatically.

Verification: On receipt of the application the CS officer checks the cadastral information and verifies that the application abides by all the regulations and laws. If the request does not conform to regulations/laws it is stopped otherwise approval is granted.

Payment: If the request conforms to regulations, the customer service calculates all in one fees and charges it to the customer. The survey fees are negotiated by the customer and the private surveyor. Otherwise, the customer engages the government surveyor through the Director of Surveys to carry out the survey, in this case the survey fees are calculated by the customer service officer and charged to the customer.

Survey Reference data: Once the customer engages a private surveyor, the surveyor requests for the reference data by filling an online application. The Customer Service Officer calculates the fees and sends it to the surveyor via email and /or SMS. Once the customer service confirms payment, he permits the surveyor to extract the reference information which includes the reference plan, control points.

Field Survey: The Surveyor carries out the survey in accordance with the survey regulations. Once complete the surveyor sends the field computations and field book to the Director of Surveys via internet.

Examination and Quality control: Once the DoS confirm payment of the survey examination fees, he authorizes examination of the survey job for quality control. If there are any problems, the survey job is returned to the surveyor for correction; otherwise the examining officer approves the job and updates the cadastral database provisionally.

Authenticated survey plan: If the customer wants a hardcopy of the authenticated survey, the Customer Service Officer (CSO) charges it on the customer and informs the DoS who sends it to the customer upon confirmation of payment; otherwise the authenticated survey is sent to the customer via e-mail.

Database Updating: When the customer confirms the authenticated survey, the cadastral database is automatically updated.

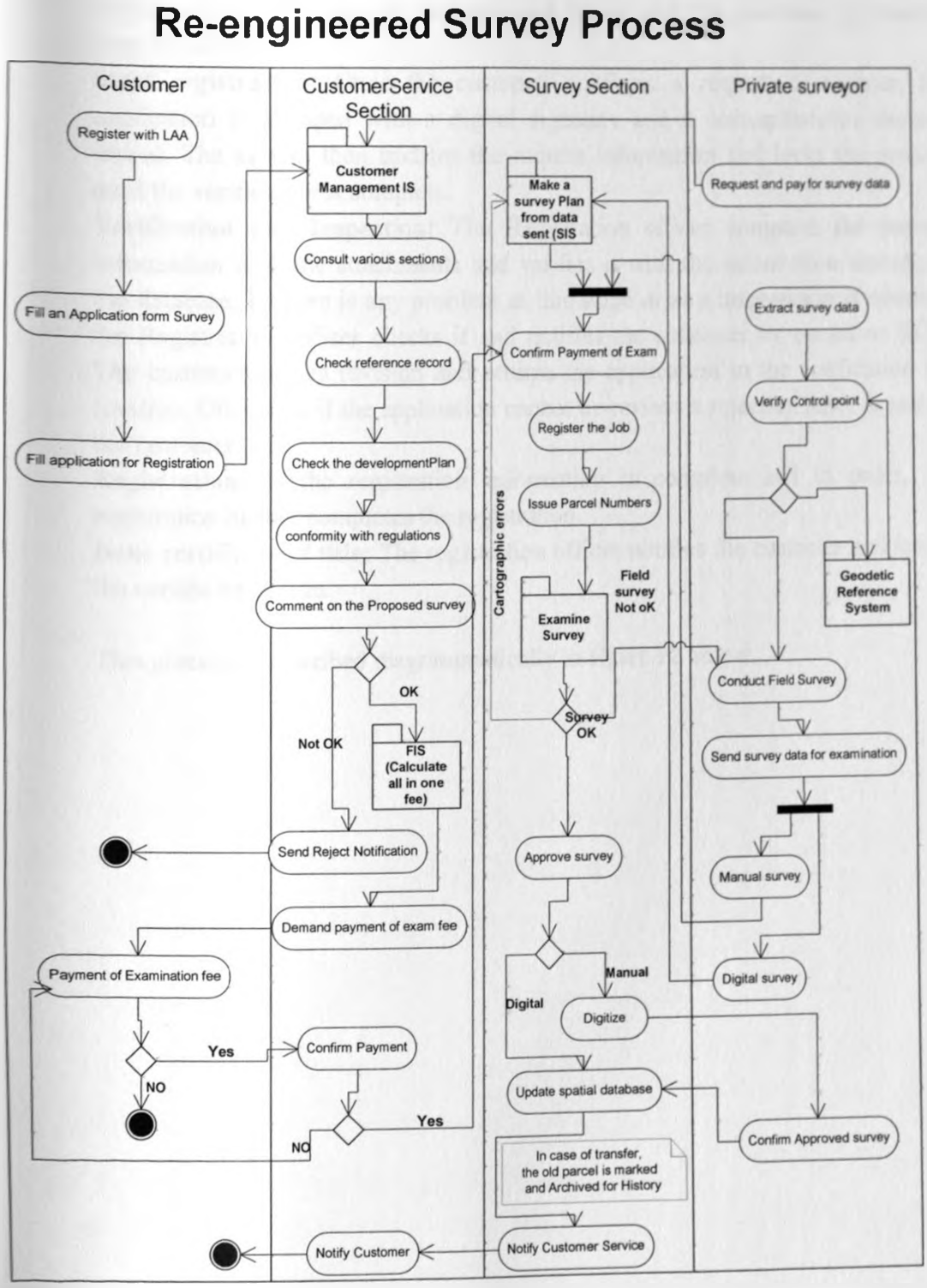

Figure 11: Re-engineered Survey Process

4.2.2 Proposed Re-engineered Registration process

Application for Registration: Once the survey is authenticated, the request to register land is done automatically and confirmed by the customer. The

registration is based on the authenticated survey and the customer application form filled initially.

Start registration: Once the customer confirms a request to register, the application is stamped with a digital signature and a correspondence number issued. The system then updates the request information and locks the process until the verification is complete.

Verification and Inspection: The Registration officer compares the request information with the attachments and verifies it with the information already in the database. If there is any problem at this stage or any information is missing, the Registration Officer checks it and notifies the customer by e-mail or SMS. The customer makes revision and returns the application to the verification for revision. Otherwise if the application cannot be revised a rejection letter is sent to the customer.

Registration: If the registration information is complete and in order, the registration officer completes the registration.

Issue certificate of title: The registration officer notifies the customer and issues the certificate of title.

This process is described diagrammatically in figure 12 below.

Re-engineered Registration Process

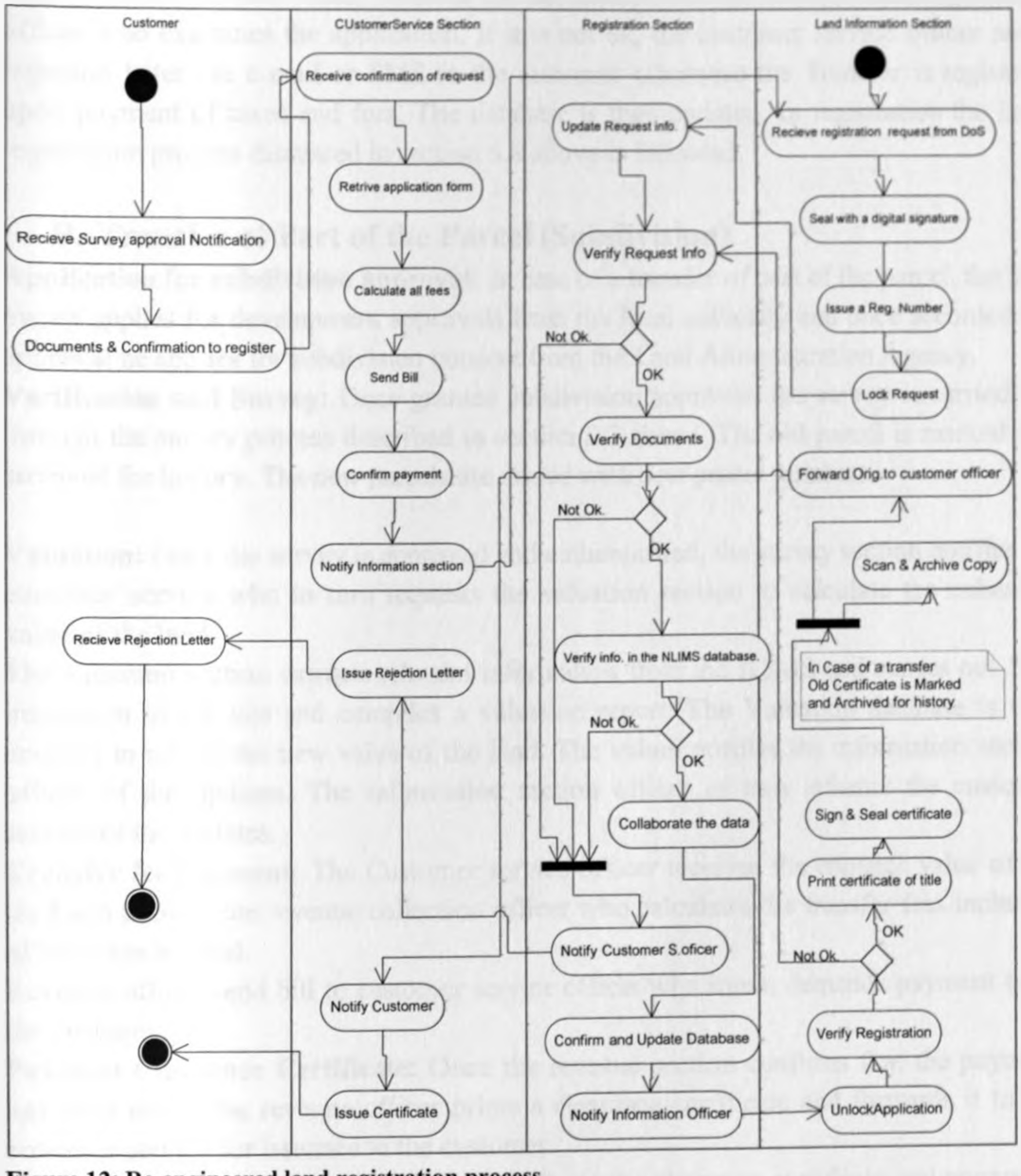

Figure 12: Re-engineered land registration process

4.2.3 Proposed Re-engineered Transfer process

Transfer of land may arise as a result of a whole parcel of land or subdivision of a parcel of land.

A. Transfer for a whole parcel

Verification of Parcel

In case of a whole parcel, the buyer and seller agree and initiate a transfer process. The seller shows the title, the buyer examines and verifies the title with LAA by searching in the database.

Prepare Transfer Agreement.

The buyer and seller consult a lawyer to prepare a transfer contract then submit the transfer application to the Land administration agency.

Verification of Application and Registration

The Customer service officer receives the application and notifies the land registration officer who examines the application, if it is not ok, the customer service officer sends rejection letter via e-mail or SMS to the customer otherwise the Transfer is registered upon payment of taxes and fees. The database is then updated. In registration the Land registration process discussed in section 5.8 above is followed.

B. Transfer of Part of the Parcel (Subdivision)

Application for subdivision approval: In case of a transfer of part of the parcel, the land owner applies for development approvals from the local authority and once accorded the approval he applies for subdivision consent from the Land Administration Agency.

Verification and Survey: Once granted subdivision approval, the survey is carried out through the survey process described in section 5.7 above. The old parcel is marked and archived for history. The new parcels are issued with new parcel numbers.

Valuation: Once the survey is approved and authenticated, the survey section notifies the customer service who in turn requests the valuation section to calculate the enhanced value of the land.

The valuation section extracts relevant information from the ILIMS and carries out field inspection of the site and compiles a valuation report. The Valuation database is then updated to reflect the new value of the land. The valuer notifies the information section officer of the updates. The information section officer in turn informs the customer service of the updates.

Transfer fee Payment: The Customer service officer receives the enhance value of the land and notifies the revenue collection officer who calculates the transfer fees inclusive of the taxes on land.

Revenue officer send bill to customer service officer who intern demands payment from the customer.

Payment Clearance Certificate: Once the revenue section confirms that the payment has been made, the revenue officer prints a clearance certificate and forwards it to the customer service for issuance to the customer.

Registration of Transfer: The customer collects the clearance certificate and engages a lawyer to draft transfer consent for registration. The lawyer submits the transfer consent to the customer service for registration.

The registration for transfer is carried out through the registration process discussed earlier in section 5.8 above.

Figure 13 below describe the transfer process in details.

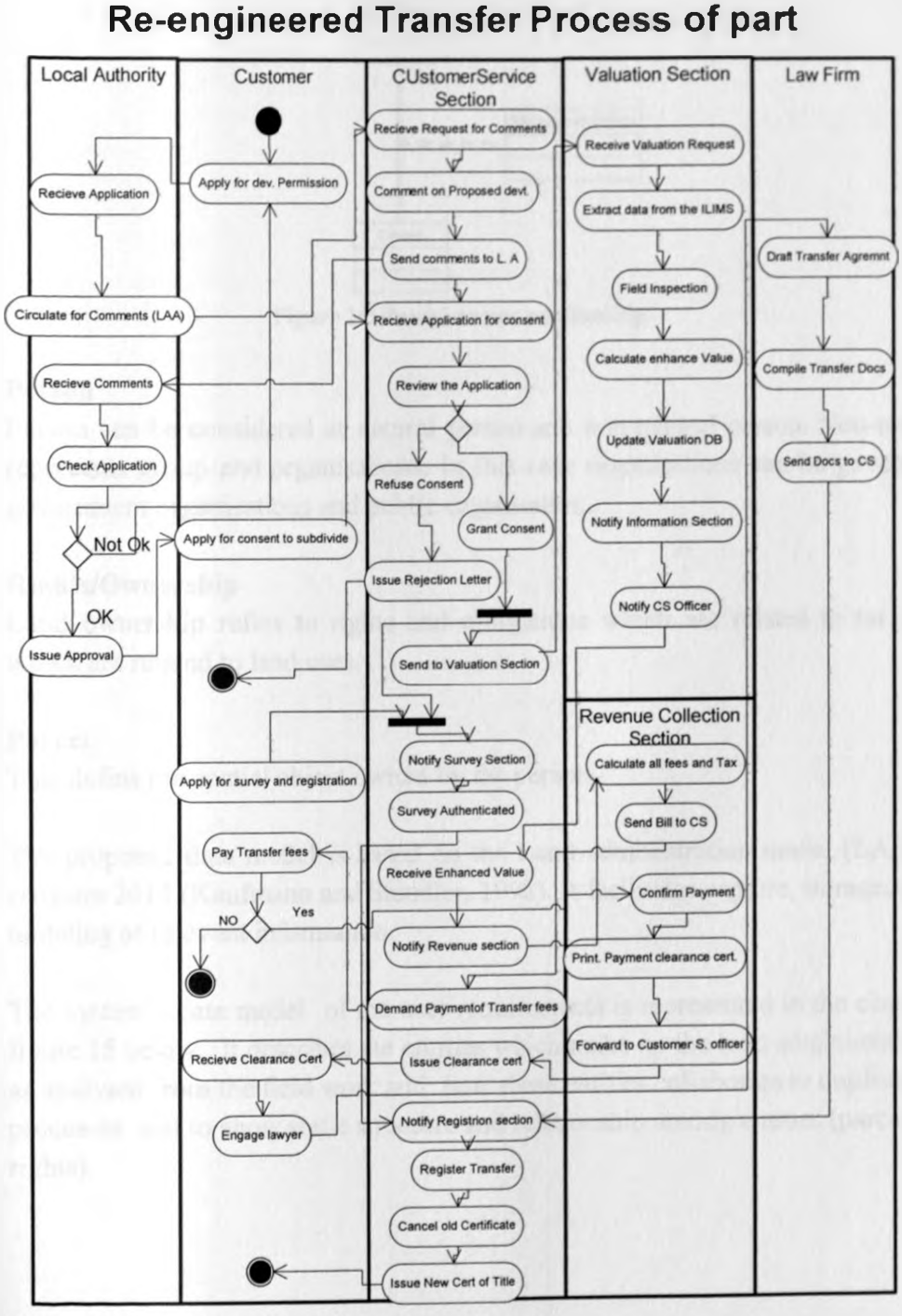

Figure 13: Re-engineered transfer process

4.3 Proposed Data Model

The proposed land information management system is GIS-based and includes tabular and spatial data. These includes data about the land, owner of land and information about

rights, restriction and responsibilities the owner has on land. The relationships between these three components forms the basis of a land administration system. Figure 14 below describe this relationship.

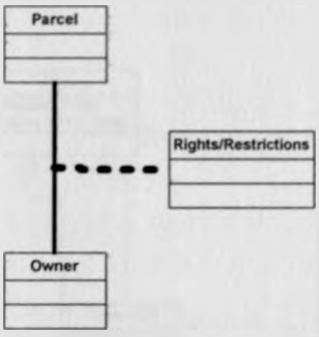

Figure 14: Parcel-owner relationship

Person

Person can be considered as natural person and non-natural person. Non-natural person represents group and organisations. In this case organisations can be government, non-government organisations and public organisation.

Rights/Ownership

Land ownership refers to rights and obligations which are related to tax, legal rights which are related to land uses.

Parcel

This define the spatial object owned by the person.

The proposed data model is based on the Land administration model (LADM) and the cadastre 2014 (Kaufmann and Steudler, 1998). It facilitates capture, storage, retrieval and updating of relevant information.

The system's data model of the user requirements is represented in the class diagram in figure 15 below. It describes the entities which make up the land administration in kenya as analysed from the field work and how these entities collaborate to implement business processes, and to show static structure and relationship among entities (parcel, owner and rights).

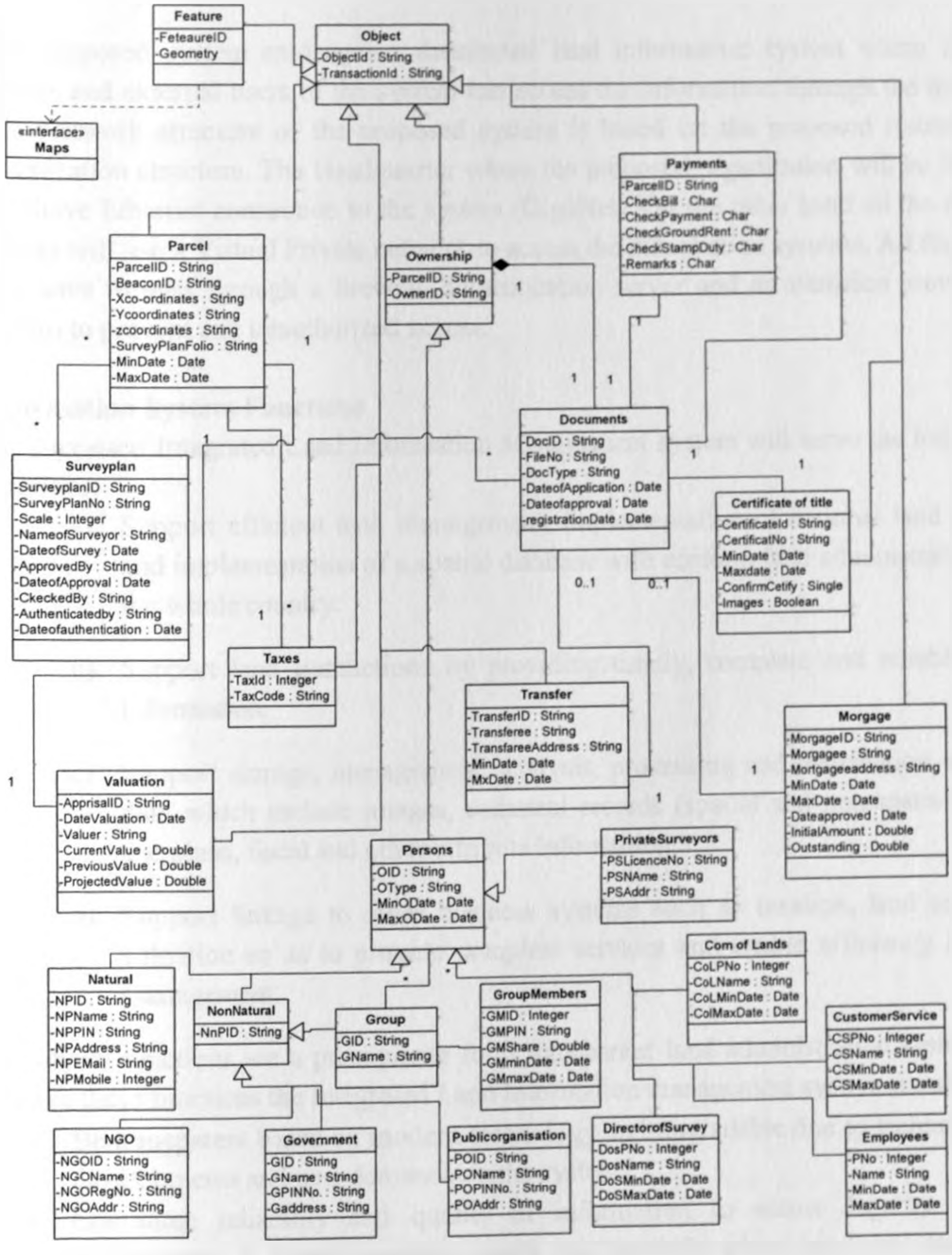

Figure 15: Proposed Data Model

4.4 Proposed Land Information Management System

The land administration system in Kenya is centralized at the head quarters with a network of district offices. The Information system will be based on a three tier Client/Server architecture which allows for logically centralized but physically

distributed databases or data sets. For instance, multiple servers can accommodate the receipt, storage, distribution and tracking of information. These servers will have operating systems which can control user access to specific data, facilitate auditing of access and modifications to data, and are able to automate event/trigger actions such as emails and SMS when certain files change status.

The proposed system envisages a distributed land information system where district offices and external users of the system can access the information through the internet. The Network structure of the proposed system is based on the proposed restructured organization structure. The Headquarter where the proposed organization will be located will have Ethernet connection to the system (GigaNet). On the other hand all the district offices will use a Virtual Private network to access the information systems. All the users will have to pass through a firewall, authentication server and an intrusion prevention system to prevent any unauthorized access.

Information System Functions

The proposed Integrated Land Information Management system will serve the following functions:

a) Support efficient land management, implementation of national land policy and implementation of a spatial database with uniform land administration for the whole country.

b) Support land transactions by providing timely, complete and reliable land information.

c) Support storage, management, analysis, processing and distribution of land data which include images, cadastral records (spatial and non-spatial), land use plans, fiscal and other attribute information.

d) Support linkage to other business systems such as taxation, land rent and valuation so as to provide complete services and enable efficiency in land management.

The above functions are a prerequisite for a transparent land administration system. To achieve these functions the Integrated Land Information management system should;

- Be transparent based on modern technology and upgradable due to technological developments and new demands on the system.
- Guarantee reliability and quality of information to ensure legality of the information. It should maintain itself and upgrade when legal and technical changes are made.
- Fulfill users' requirements for data searching and dissemination. It should be optimal, flexible and aimed at fulfilling users' demands.
- Ensure completeness of information.
- Ensure up to date information. Temporal nature of land information should be captured to reflect all changes in time and update then in the spatial database.

- Secure to ensure protection of information and hardware. This will include
    - Confidentiality- Protecting sensitive information from unauthorized disclosure and intelligible interception.
    - Integrity – Safeguarding the accuracy and completeness of information and computer software.
    - Availability - Ensure information is available to users when required.
- Simple to use and operate.
- Ensure disaster recovery measures are put in place.
- Be interactive with the stakeholders and customers should be updated about the progress in services delivery instead of having to keep visiting the offices.

4.4.1 Proposed system architecture

The proposed integrated land administration information system will be an automated system based on automated processes but will also allow for analogue based services as identified from user requirements. The system will ensure accessibility by all stakeholders countrywide through the internet.

All Internal users accessing the system will have to be authenticated through the authentication server before they can get access to the system. Similarly all other external customers will have to have an account in the system to facilitate authentication into the system.

The system architecture designed below will ensure accessibility of the system by the stakeholders through the internet. The system should have the following aspects

- High Security Levels using encryption, VPN and Firewall systems
- Validation rules for detecting obvious errors.
- On line data matching and error detection.
- Friendly user interface
- Online Certificates

System Information System overview

The figure 16 below describes an overview of the system architecture of the proposed Land administration informationinf system. It describes the intereactions of the users of the system in a single Portal.

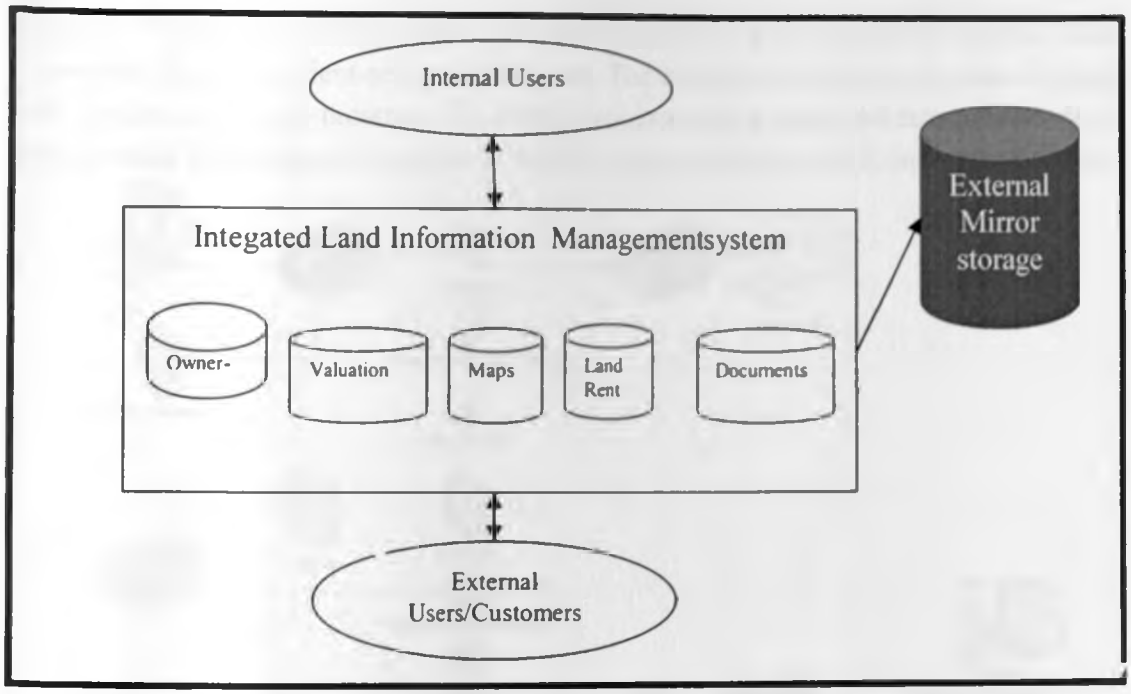

Figure 16: Proposed information system overview.

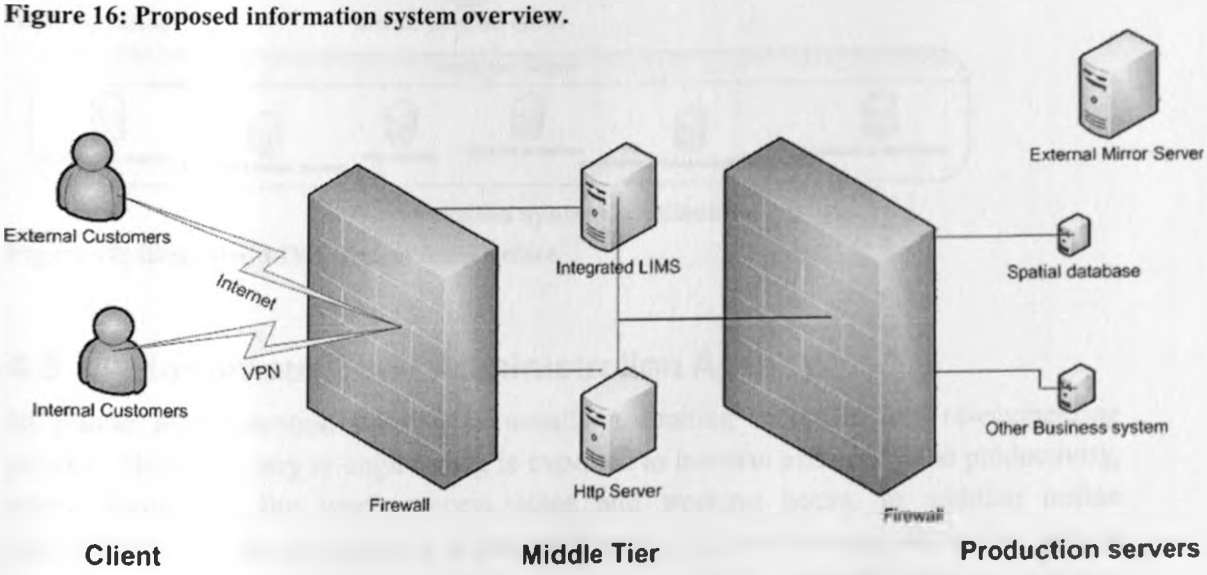

Figure 17: Three- Tier architecture overview.

The growing use of the internet in our daily lives has made the internet more significant in government service delivery . The internet is likely to play prominetnt roles no presently recognised because the accessibility of the internet is increasing on a daily basis. The falling cost of connection has also made it posible for people to connect to the internet in their offices as well as home. On the other hand online delivery of land information services is becoming increasingly popular in technologically advanced

countries. Customers can now access land information services through the internet. This is possible through a client-server architecture. The customer can submit requests for data and queries to the web browser. The server processes the request and returns a result to the customer on the remote machine. A detailed system architecture is in figure18 below.

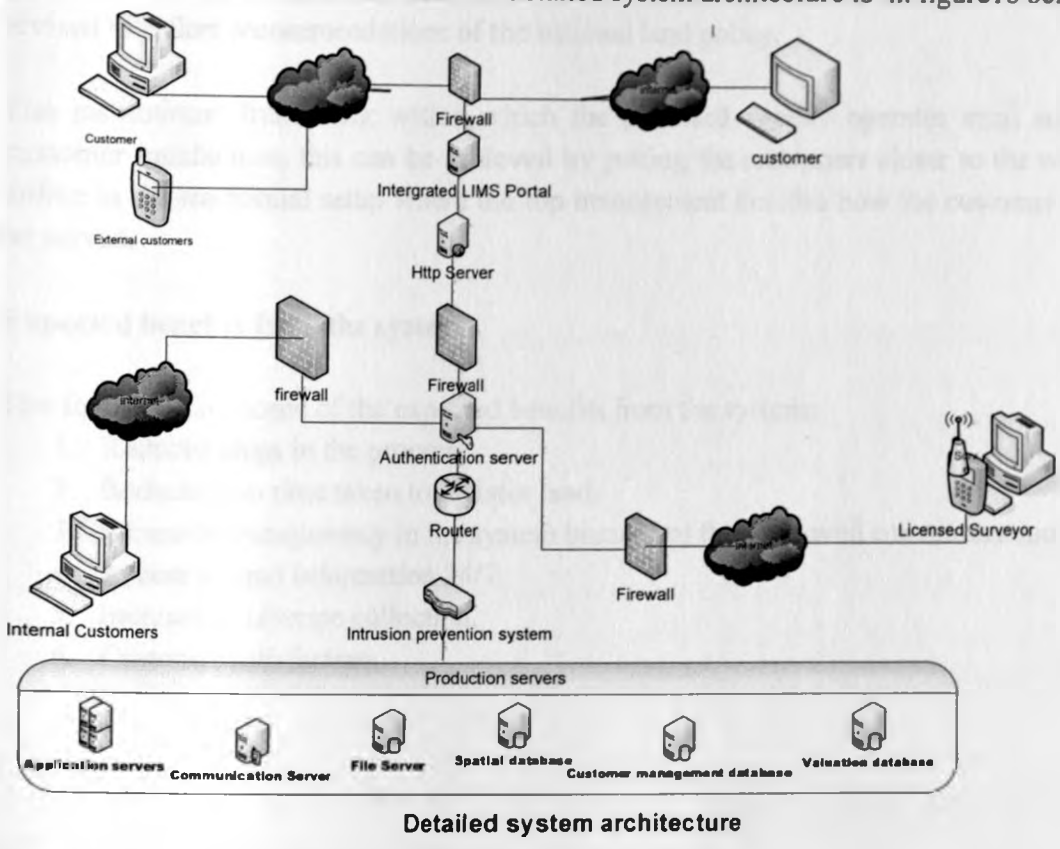

Figure 18: Integrated LIMS System Architecture

4.5 Autonomous Land Administration Agency

In public administration funding is usually a limiting factor in any re-engineering process. However, any re-engineering is expected to increase efficiency and productivity, while decreasing the work process steps and working hours. In addition online information systems are expected to increase demand for products and services as well as decrease transaction costs. This will also ensure accessibility of land information which will ensure transparency as well as provide support to legal security of rights of persons

Currently Land administration by the Ministry of lands is funded through annul government allocation budget. Usually this budget is based on recurrent expenditure and revenue which can be limiting when considering re-engineering. In most cases the focus of the budget funding system is to ovoid overspending of the budget ceilings. In order to ensure the envisaged efficiency and effectiveness the land administration agency should be autonomous funded by market with a cost recovery vision which guides its own long term financial management. This will ensure that the organization maintains its budget by avoiding deviation of true costs. The agency will then be able to determine the pricing of its products and services since it is driven by the market.

To foster transparency and safeguard legal rights in land the land administration agency should have transparent public administrative structures and legal framework upon which it operates as has been defined in the national land policy. The current laws should be revised to reflect recommendations of the national land policy.

The institutional framework within which the proposed agency operates must ensure customer satisfaction; this can be achieved by putting the customers closer to the works unlike in the traditional setup where the top management decides how the customer will be served.

Expected benefits from the system

The following are some of the expected benefits from the system;

1. Reduced steps in the process.
2. Reduction in time taken to register land.
3. Increased transparency in the system because of the improved communication.
4. Access to land information 24/7.
5. Increase in revenue collection.
6. Customer satisfaction.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

The conclusions drawn from this research and recommendations for further research are presented in this chapter.

5.2. Conclusion

Public administration in many countries is facing pressure to provide efficient and cost effective services with no additional budget. Many countries are responding to this pressure by redesigning their business processes, reorganizing their organizations and adopting ICT in order to increase efficiency in their service delivery.

Technology has had a huge impact on the society that we live in, and it is important that we do not resist the change that is brought about by technology. Although it may seem that systems that were designed for society 100 years ago are still suitable for today, it must be asked whether our quality of life can be improved by upgrading or even changing these systems altogether. And often the answer is yes.

For the purpose of this research a case study of Land administration system was considered.

The main objective of this study is to analyze of the current land administration system in Kenya with a view to recommending a re-engineered system so as to realize a system wherein speed, transparency, quality and economy become the hallmark of all provisioning actions to deliver efficient and cost effective services to the public. This has been achieved and the following conclusions may be drawn from the study

1) Land administration system in Kenya is a vital component in poverty eradication, national healing and Cohesion as well as promoting sustainable development and should operate efficiently. Land administration process has been attributed to causes of poverty in Kenya.

2) Most land owners are aware of the importance of registration of their properties and are willing to do so but the process of registration is discouraging.

3) The value of a land register is heavily dependent upon its further maintenance. If the register lacks to reflect the true ownership on the ground then its value reduces.

4) There are major concerns regarding the time taken in the processes, as reflected in the views of users. This view has previously been reflected in the National Land Policy Document and the Report of the Commission of Inquiry into the Land Law System of Kenya (Njonjo Report) (Government of Kenya, 2002).

5) The Land administration system in Kenya has not kept pace with changes in technology. The power of Information technology as an enabler is not adequately addressed in current procedures and processes of Land administration in Kenya.

6) There is willingness and anticipation for change to the land administration processes from all the stakeholders as well as the staffs. This provides an opportunity to introduce reforms in the land administration system

5.3. Recommendations

This research makes a number of recommendations that can be used to address a number of weaknesses in the current land administration system in Kenya

1. The study only focused on three processes, survey registration and transfer in the lands and survey department. There is need to study all the process in the Ministry of lands departments.
2. Considering this research study as a foundation to implement the re-engineered land administration system. A detailed research on how to implement the information system is recommended.
3. Involve all the stakeholders at an early stage of the development work.
4. Improvement of the institutional arrangements in the Ministry of lands to favor integration of information from one department to the other easily.
5. Strengthen the technical skills of staff. The staff should particularly be made computer literate. A detailed analysis of training requirements is recommended.
6. It may also be worthwhile to consider introducing some incentives for individuals to register their land. The incentives may include reduction of registration fees. The registration of property is followed by paying of stamp duty and property tax. There should be grace periods from property taxation and legal assistance to low-income groups. Property owners need to be sensitized on the importance of registration. They should be motivated to do so by speeding up the process
7. It is also recommended that a review of the system of registration by Registered land Act should be done and also a research done to evaluate why the conversion from registered titles Act to Registered land Act has been slow despite the many advantages associated with latter that includes a higher speed of registration process.
8. This research proposes an autonomous land Agency which will be funded by the market through cost recovery. A research is recommended to come up with cost recovery measure probably using all indicators for allocation of financial

requirements as input for the cost recovery approach since the organization is going to be self-supporting.

9. The proposed system is a conceptual model. The system has not been prototyped due to time constraint. It is recommended to design and prototype the system before implementation.

10. The Proposed system factored reduced steps in the processes as well as integration of the departments. This will necessitate restructuring the organization as well as the organizational structure. A research is recommended to find out how to restructure the organization and also a cost based analysis of the proposed process should be carried out in order to measure the efficiency of the proposed system processes. The implementation of this system will necessitate for institutional restructuring. Thorough research need to be done on how to implement a friendly organization structure which puts the customer at the top and closer to the workers.

11. A national wide information infrastructure should be established to cover the whole country. The cost of establishing such an infrastructure in terms of network and data conversion is beyond the scope of this research. These issues are recommended for further research.

12. Restructuring some departments and processes in land administration will require amendments in the laws currently governing them. Integration of Land related Laws is also proposed in the research. This study recommends a further research to identify which laws to revise integrate or introduce.

13. Re-engineering public administration can be complex due to special characteristics that define a public administration. This research recommends that a team be set up to oversee the reengineering of Land administration.

14. Acceptance of the proposed system may be low as it deviates from the organizational culture, measures should be taken to address the change management issues.

15. There should be a clear IT-Strategy guiding the implementation of the system and the hardware and software to be used now and in the future. This will give a clear direction and can help avoid frequent changes in the system which are often time consuming and costly.

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APPENDICES

Appendix I: Questionnaire to Landowners, Individuals and Citizen

Questionnaire to Landowners, Individuals and Citizen

This survey is intended for frequent and occasional users of cadastral and land information services. Such users may be citizen, Land owners or corporate organizations that requests for cadastral and land information services once in a while. The primary aim of this survey is to obtain information on the needs of users of land information in Kenya to serve as input in re-engineering land administration to make it effective and efficient. The users' requirement survey is purely for research and academic purposes. Nevertheless, responses will be treated with utmost privacy and answers will only be used as part of the input or contribution into the research. It would be highly appreciated if you could please study the questions carefully and provide answers accordingly. If the space provided to answer any question is not sufficient, please write at the back of the page. Thank you for sparing your precious time in answering the questions.

1. Name (optional) .....
2. Gender of participant:

   Male ☐ Female ☐

3. Total number of plots owned.....
4. Type of ownership:
   a) Joint ☐
   b) Single ownership ☐
   c) Ownership in common ☐
5. How did you obtain the plot
   a) Purchase ☐
   b) Lease ☐
   c) Inheritance ☐
   d) Occupational ☐
   e) Other----------
6. What document do you have to support your ownership?
   a) Title ☐
   b) Contract ☐
   c) Share certificate (deed) ☐
   d) None ☐
   e) Other.....
7. Have you performed any of the following in your plot?
   a) Subdivision ☐
   b) Sale ☐

c) Mortgage ☐
d) Lease ☐
e) None ☐
f) Other.....

8. Did you register the transaction in the national registry?

Yes ☐ No ☐

If No, why didn't you register the transaction?

.....

.....

If yes how did you do it?

a) On my own ☐
b) Through my advocate ☐
c) Through a land consultant ☐
d) Through a broker ☐
e) Other ☐

9. How long did the process of survey take (To get deed plan).

a) Less than a week ☐
b) Two weeks – 3 Months ☐
c) 3 months- 1 year ☐
d) More than 1 year ☐

10. How long did the process of Registration take (To get certificate of title).

a) Less than a week ☐
b) Two weeks – 3 Months ☐
c) 3 months- 1 year ☐
d) More than 1 year ☐

11. What length of time do you think is reasonable?

a) Less than a week ☐
b) Two weeks ☐
c) 3 months ☐
d) At most 1 year ☐

12. For which task/activity/Process do you spend More time

a) Obtaining approvals ☐
b) Obtaining Deed plans for Parcel ☐
c) Registration ☐

13. What did it is cost you to register your Land in Kenya Shillings;

a) Official charges to the government.....
b) Official charges to professionals (Surveyors, Lawyers).....
c) Others, (that include Favors and commissions to officials to follow up the registration) .....

14. What is your opinion of the total cost (tick where appropriate):

A. Official to the government

a) too low ☐
b) low ☐
c) average ☐
d) high ☐
e) too high ☐

B. Official to Professionals

a) too low ☐
b) low ☐
c) average ☐
d) high ☐
e) too high ☐

C. Other costs (unofficial)

a) too low ☐
b) low ☐
c) average ☐
d) high ☐
e) too high ☐

15. Do you use/ require any type of Land related information Listed below?
Select (tick) from below

a) Topographic only ☐
b) Cadastral maps/ information ☐
c) Land registrion/Rroperty related information ☐
d) Land registration and cadastral ☐
e) All the above ☐
f) Other, Please specify

.....

.....

16. Select any of the following land information/ services that you have used or requested for in the past.

a) Ownership (Name of owner) ☐
b) Size of parcels ☐
c) Value ☐
d) Mortgages ☐
e) Rights ☐
f) Restrictions ☐
g) Transfers ☐
h) Leases / Sublease ☐
i) Land allocation ☐
j) Fees, such as ground rent ☐
k) Boundary information ☐
l) History / background ☐
m) Encumbrances ☐
n) Closeness to amenities, e.g. school, hospital, crèche, etc ☐

o) Others, Please list below other parcel related information or land registration services that you have requested for or used in the past, but are not listed above

.....

.....

.....

17. From which organization(s) did you request for or receive the services selected in questions 16 above?

a) Survey department? ☐
b) Lands Department? ☐
c) Other, please specify? .....

18. Was the information requested easily accessible?

Yes ☐ No ☐

If No, please explain?

.....

.....

19. Is the information about procedures,/fees/tax easily available?

Yes ☐ No ☐

20. If you had an alternative would you like to request for these services from the organization(s) again or repeat your visit?

Yes ☐ No ☐

If No, why? (You may select more than one option, please)

a) Information / products are not accurate/useful ☐
b) Delays in delivery of services: too long time ☐
c) Office cannot be easily reached ☐
d) High cost ☐
e) Staff lacks courtesy ☐
f) Poor quality ☐
g) Corruption ☐
h) Others, please specify.....

21. How would you like to receive land and property-related information and services?

a) In digital form only ☐
b) In analogue form only ☐
c) Analogue & Digital ☐
d) Others please specify:.....

22. Can you use a computer?

Yes ☐ No ☐

23. Do you have access to a computer?

Yes ☐ No ☐

24. If you have access to a computer, where?

a) At home ☐
b) At work ☐
c) Work and home ☐
d) Internet café ☐

25. Are you familiar with online (through internet) delivery of services?
Yes ☐ No ☐

26. Do you have access to the Internet?
Yes ☐ No ☐
If yes, kindly give the number of hours in a day that you access the Internet:
..... hours per day

27. Do you think the computerization of records and online Land Information Services will make the survey and registration processes easier and faster?
Yes ☐ No ☐

28. Are you satisfied and happy with the present level of delivery of services in the ministry of Lands (Cadastral and Registration)?
Yes ☐ No ☐
If no, suggest what has to be improved to accelerate the process:
.....
.....

29. How many offices/rooms do you have to visit to get information or have your property registered?
a) Less than Three ☐
b) Four ☐
c) Five ☐
d) More than Five

30. Do you prefer the task to be accomplished from a single office?
Yes ☐ No ☐

31. What other comments or suggestions do you have regarding the accessibility of Land (Maps and ownership details) information
.....
.....

Appendix II: Questionnaire to Survey firms and Surveyors

Questionnaire to Survey Firms

The primary aim of this survey is to obtain information on the needs of users of land information in Kenya to serve as input in re-engineering land administration to make it effective and efficient. The users' requirement survey is purely for research and academic purposes. Nevertheless, responses will be treated with utmost privacy and answers will only be used as part of the input or contribution into my Project. It would be highly appreciated if you could please study the questions carefully and provide answers accordingly. If the space provided to answer any question is not sufficient, please write at the back of the page. The research student will give more explanation where questions are not clear. Thank you for sparing your precious time in answering the questions.

1. Name of Respondent or Organization:
   .....
2. Position or rank of respondent:
   .....
3. How would you describe your Organization?

   a) Public (partial cost recovery & partial government funding) ☐
   b) Fully private (profit-oriented & completely funded by market) ☐
   c) Fully public (non profit-oriented& entirely funded by government) ☐
   d) Public (full cost recovery, no government funding) ☐
   e) Others please specify: .....

4. Does your organization use/require geographically referenced or spatially Land related data or information?
   Yes ☐ No ☐
5. If yes, which type / category? (*You may select more than one option, please*)
   a) Topographic only ☐
   b) Cadastral only ☐
   c) Topographic & cadastral ☐
   d) Land registration only ☐
   e) Land registration & cadastral ☐
   f) All of the above ☐
   g) Others please specify:.....
6. What is the level of importance of data or information selected in question 5 to your organization?
   a) Very crucial ☐
   b) Crucial ☐
   c) Indifferent ☐

d) Trivial ☐

7. Is your organization using cadastral and property-related information or land registration on a daily or regular basis?

   Yes ☐ No ☐

8. Please give the name(s) of the organization(s) from which you get your data or information.

   .....

   .....

9. Which of the organizations listed in questions 8 is the most important to you?

   .....

   .....

10. Why the organization is selected in question 9 the most important to you? (You may select more than one option, please)

    a) Prompt & efficient services ☐
    b) Cost effective ☐
    c) The only source of needed information (No alternative) ☐
    d) Others, please specify.....

11. Which cadastral products and services do you need and consider important for the activities of your organization? Kindly select all the products that you need and write others not in the list in the space provided.

    a) Large scale cadastral Survey plans (scale greater than 1: 5,000) ☐
    b) Medium scale cadastral Survey plans (1: 5,000 – 1: 10,000) ☐
    c) Cadastral Survey plans (scale less than 1: 10,000) ☐
    d) Survey plan of individual parcels only ☐
    e) Survey plan of individual and adjoining parcels ☐
    f) Layout and Development plans ☐
    g) Registration Index Maps ☐
    h) Survey authentication and registration ☐
    i) Director of Survey's Approval ☐
    j) Beacon numbers and coordinates ☐

12. Please give the present cost of these products /services in Kshs?

    a) Large scale cadastral Survey plans (scale greater than 1: 5,000)
       .....
    b) Medium scale cadastral Survey plans (1: 5,000 – 1: 10,000)
       .....
    c) Small scale Cadastral Survey plans (scale less than 1: 10,000)
       .....
    d) Survey plan of individual and adjoining parcels.....
    e) Property Search.....
    f) Registration Index Maps .....
    g) Survey registration and authentication .....

h) Director of Surveys' Approval.....

i) Beacon numbers and coordinates.....

13. Is your organization willing to pay the government more or less for the products and services listed above?

a) Will like to pay more ☐

b) Will like to pay less ☐

c) Does not want prices changes ☐

14. Which of the following property-related or land registration information and services do you need and consider essential for the activities of your organization? Select from below the Information and/or services that you need and write others not in the list in the space provided.

a) Ownership(Name, Address etc) ☐

b) Size of parcels ☐

c) Value ☐

d) Mortgages ☐

e) Rights ☐

f) Restrictions ☐

g) Transfers ☐

h) Leases / Sublease ☐

i) Use of land ☐

j) Land allocation ☐

k) Fees, such as ground rent ☐

l) Boundary information ☐

m) History / background ☐

n) Court judgements ☐

o) Bankruptcy orders ☐

p) Inheritances ☐

q) Closeness to amenities,e.g. school, hospital, crèche, etc ☐

r) Others, Please list below

.....

15. Please indicate the amount you are currently paying for the Information / services selected in question 14 and how much you would like to pay for the products / services.

a) Ownership (Name, Address etc).....

b) Size of parcels.....

c) Value .....

d) Mortgages .....

e) Rights .....

f) Restrictions .....

g) Transfers .....

h) Leases / Sublease .....

i) Use of land .....

j) Land allocation .....
k) Fees, such as ground rent .....
l) Boundary information .....
m) History / background .....
n) Court judgments .....
o) Inheritances .....
p) Closeness to amenities, e.g. school, hospital, crèche, etc.....
q) Other parcel related information or land registration products and services required but are not listed above

16. In a general sense, how would you like to receive the Information and services listed in 15 above?
    a) In analogue form only ☐
    b) In digital form only ☐
    c) Analogue & Digital ☐
    d) Others; please specify: .....

17. Are necessary hardware and software for accessing, viewing , processing and storage of digital spatial data available in your organization?
    Yes ☐ No ☐
    If yes, do they include the following?
    a) GIS softwares ☐
    b) Word processing software ☐
    c) Spreadsheet software ☐
    d) Graphics ☐
    e) AutoCAD ☐
    f) ArchCaD ☐

18. Would there be any improvement in the performance and/or profitability of your organization if you are able to get all the land information that you need in the format appropriate for your activities / operations?
    Yes ☐ No ☐

19. Will your Organization be able to pay the government higher prices for improved services and enhanced land registration and cadastral information?
    Yes ☐ No ☐

20. Please give a brief justification or explanation of your answer to question 19
    .....
    .....

21. Are you familiar with online (through internet) delivery of services and information?
    Yes ☐ No ☐

22. Do you have access to the Internet within your organization?

Yes ☐ No ☐

If yes, kindly give the number of hours in a day that the Internet in your organization is available for use:

..... Hours per Day

23. Would you like to receive Land Information /Services online?

Yes ☐ No ☐

24. If you would like to receive Services online, please specify level and type of services that you would like to receive online.

If you do not select complete online services (No. 1), you can select more than one option.

a) Complete online services (all aspects: ordering, information, delivery of digital products, electronic payment, processing, etc.) ☐
b) Submission of requests ☐
c) Submission of Survey for approval ☐
d) Confirmation of receipt ☐
e) Consents to Survey ☐
f) Request for information ☐
g) Downloading of application forms ☐
h) Others:

25. If your organization does not have internet facility, are you planning or proposing to have internet facility?

Yes ☐ No ☐

26. If your organization is planning to have internet facility, how soon?

a) 1 – 2 years ☐
b) 3 years or more ☐
c) Less than1 year ☐
d) Not clear yet ☐

27. What in your opinion are the problems associated with Land administration in Kenya? (You may select more than one option, please)

a) Excessive bureaucratic bottlenecks in administrative processes, ☐
b) Personnel (skill / manpower) ☐
c) Old methods and technology used to approve survey ☐
d) Little or no attention from the government ☐
e) Customers are not willing to pay more for products & services ☐
f) Processes are not well-defined and No Quality Control Measures ☐
g) Unofficial land market ☐
h) Ineffective regulations & law ☐
i) Bribery & corruption dealings ☐
j) Others Please specify.....

28. What are the realistic solutions to the problems listed in questions 27 above?

a) Reduce or merge some steps in the process ☐
b) Use new information technology in the Survey process ☐
c) Improve funding from the government ☐
d) Train or hire trained personnel ☐

e) Provide information or services online ☐
f) Amend laws and regulations to facilitate efficient service delivery ☐
g) Seek for private partnerships in the land administration process ☐
h) Improve quality control measures in the processes ☐
i) Sensitize the public on the land administration system ☐

29. What other comments or suggestions do you have regarding land administration in Kenya?

.....

.....

.....

Appendix III: Questionnaire to Ministry of Lands Officials – Lands Department

Questionnaire for Ministry of Land (Lands Department) officials

The primary aim of this survey is to obtain information on the needs of users of land information in Kenya to serve as input in re-engineering land administration to make it effective and efficient. The users' requirement survey is purely for research and academic purposes. Nevertheless, responses will be treated with utmost privacy and answers will only be used as part of the input or contribution into the research. It would be highly appreciated if you could please study the questions carefully and provide answers accordingly. If the space provided to answer any question is not sufficient, please write at the back of the page. Thank you for sparing your precious time in answering the questions.

1. Name of Respondent (Optional):
2. Rank or position of respondent in the organization:
   .....
3. What are your Duties and responsibilities?
   a).....
   b).....
   c).....
   d).....
4. How many hours do you need to work on a single registration file?
   a. Less than 1 hour ☐
   b. 1 hour ☐
   c. 4 Hours ☐
   d. 1day ☐
   e. More than 1 day ☐
5. Do you need to work on a same registration file more than one time?
   Yes ☐ No ☐
   If yes, how many times? .....
   Please specify the step. .....
6. Do you think the step can be merged with another step?
   Yes ☐ No ☐
   If yes which step? .....
7. Is the Registration process computerized?
   Yes ☐ No ☐
   If yes, in which system do you find easy to find Land information required for registration?
   Computerized ☐ Manual ☐
   In which system do you prefer to work?

Computerized ☐ Manual ☐

8. How do you transfer documents from one step to the next?
   a) With in Office? Manually ☐ Digitally ☐
   b) Between Lands & Survey Department? Manually ☐ Digitally ☐

   If manually who transfers the documents?
   a) Staffs ☐
   b) Clients ☐
   c) Lawyers ☐

9. In your opinion is it easy and secured to transfer the documents electronically than manually?
   Yes ☐ No ☐

10. Are you using intranet/Internet for official work?
    Yes ☐ No ☐

11. How do you archive the deeds and ownership record?
    a) Deeds Paper form ☐ Digital form ☐
    b) Ownership records Paper form ☐ Digital form ☐

12. On average, how long does it take you to get the data you require from your archive to do your work
    a. Deed ------ min/hrs/days/months
    b. Ownership ------ min/hrs/days/months

13. Do you think computerization of records will make your job easier?

    Yes ☐ No ☐

If No please Explain

.....

.....

14. Do you have formal training in ICT
    Yes ☐ No ☐
    If Yes, Which Computer packages are you Competent in?
    a) GIS Softwares ☐
    b) AutoCAD ☐
    c) ArchiCad ☐
    d) Database systems ☐
    e) Word Processing ☐
    f) SpreadSheet ☐
    g) Presentation ☐
    h) Internet ☐

15. In your opinion is the present process capable of providing registration services efficiently?

Yes ☐ No ☐

If no what should be improved?.....

16. What problems do you experience in carrying out your duties?

(You may select more than one option, please)

a) Inadequate storage and working space ☐
b) Missing and worn-out records ☐
c) Difficulty in retrieving records due to Large volumes ☐
d) Frequent transfers ☐
e) Lack of stationary and tools for the Job ☐
f) Influence from the Management ☐
g) Lack of computerization. ☐
h) Rigid procedures ☐
i) Lack of Motivation ☐
j) Intimidation ☐
k) Others, Please specify .....

17. In your own considered opinion, what are the realistic solutions to the problems listed in questions 16 above

a. Administrative re-organization (processes & people) ☐
b. Training ☐
c. Telecommunication ☐
d. Information Technology ☐
e. Provision of better office space ☐
f. Timely Provision of Stationary and tools ☐
g. Staff motivation ☐
h. Improved funding ☐
i. Cooperation with other organizations ☐
j. Others, please specify

18. What are your general remarks or comments or suggestions regarding your duties in registration?

.....
.....
.....

Appendix IV: Questionnaire to Ministry of Lands Officials – Survey Department

Questionnaire for Ministry of Land (Survey Department)officials.

The primary aim of this survey is to obtain information on the needs of users of land information in Kenya to serve as input in re-engineering land administration to make it effective and efficient. The users' requirement survey is purely for research and academic purposes. Nevertheless, responses will be treated with utmost privacy and answers will only be used as part of the input or contribution into the research. It would be highly appreciated if you could please study the questions carefully and provide answers accordingly. If the space provided to answer any question is not sufficient, please write at the back of the page. Thank you for sparing your precious time in answering the questions.

1. Name of Respondent (Optional):
   .....
2. Rank or position of respondent in the organization:
   .....
3. What are your Duties and responsibilities?
   a).....
   b).....
   c).....
   d).....
4. How many hours do you need to work on a single Parcel sub-division?
   a. Less than 1 hour ☐
   b. 1 hour ☐
   c. 4 Hours ☐
   d. 1day ☐
   e. More than 1 day ☐
5. Are the survey records and maps computerized?
   Yes ☐ No ☐
   If yes, which computer software are you using?
   a) GIS Software ☐
   b) AutoCAD ☐
   c) ArchiCad ☐
   d) Database systems ☐
6. In which system do you find easy to find Land information required for your duties?
   Computerized ☐ Manual ☐
   In which system do you prefer to work?
   Computerized ☐ Manual ☐
7. How do you transfer documents from one step to the next?
   a) With in Office? Manually ☐ Digitally ☐

b) Between Lands & Survey Department? Manually ☐ Digitally ☐

If manually who transfers the documents?

a. Staffs ☐
b. Clients ☐
c. Lawyers ☐
d. Private Surveyor ☐

8. In your opinion is it easy and secured to transfer the documents electronically than manually?

Yes ☐ No ☐ Don't Know ☐

9. Are you using intranet/Internet for official work?

Yes ☐ No ☐

10. How do you archive the survey record?

a) Deeds Plans Paper form ☐ Digital form ☐
b) Survey Plans Paper form ☐ Digital form ☐
c) Computation Files Paper form ☐ Digital form ☐
d) Correspondence files Paper form ☐ Digital form ☐

11. On average, how long does it take you to get the data you require from your archive to do your work

a. Deed Plans ------ min/hrs/days/months
b. Survey Plans ------ min/hrs/days/months
c. Computation Files ------ min/hrs/days/months
d. Correspondence files------ min/hrs/days/months

12. Do you think computerization of records will make your job easier?

Yes ☐ No ☐

If No please Explain

.....

13. Do you have formal training in ICT

Yes ☐ No ☐

If Yes, Which Computer packages are you Competent in?

a) GIS Software ☐
b) AutoCAD ☐
c) ArchiCad ☐
d) Database systems ☐
e) Word Processing ☐
f) Spreadsheet ☐
g) Presentation ☐
h) Internet ☐

14. In your opinion is the present process capable of providing survey services efficiently?

Yes ☐ No ☐

If No, what should be improved?.....

15. What problems do you experience in carrying out your Task?

(You may select more than one option, please)

a) Inadequate storage and working space ☐
b) Missing and worn-out records ☐
c) Difficulty in retrieving records due to Large volumes ☐
d) Frequent transfers ☐
e) Lack of stationary and tools for the Job ☐
f) Influence from the Management ☐
g) Lack of computerization. ☐
h) Rigid procedures ☐
i) Lack of Motivation ☐
j) Intimidation ☐
k) Others, Please specify .....

16. In your own considered opinion, what are the realistic solutions to the problems listed in questions 15 above

a. Administrative re-organization (processes & people) ☐
b. Training ☐
c. Telecommunication ☐
d. Information Technology ☐
e. Provision of better office space ☐
f. Timely Provision of Stationary and tools ☐
g. Staff motivation ☐
h. Improved funding ☐
i. Cooperation with other organizations ☐
j. Others, please specify

17. What are your general remarks or comments or suggestions regarding your duties in registration?

.....
.....
.....
.....