ELGEYO MARAKWET
County ICT Roadmap

November, 2015

Elgeyo Marakwet County

ICT Authority

Information Professionals Africa Ltd

SIGN-OFF AND APPROVALS

Project: County ICT Roadmap

Sign-off for: County ICT Roadmap Final Draft

County: ELGEYO-MARAKWET

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Sign-Off:	_____	Accepted with Modifications
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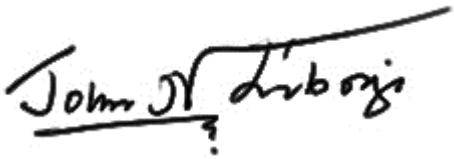
Signature:		*Accepted*
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While submitting the ICT Road Map, IPA Consultants take this opportunity to thank all stakeholders for the cooperation extended, timely inputs provided and hospitality extended, during the various stages of our assignment. We would like to acknowledge that the successful completion of our assignment is largely as a result of the stakeholder's level of commitment and involvement in understanding the purpose and importance of the assignment.

We are confident that the future of Policy formulation in Elgeyo-Marakwet County is in the hands of stakeholders who possess a sound understanding of the way forward. Most important is the clarity and unanimity that exists between the stakeholders, in recognizing the common objectives from a central viewpoint, that constitutes the prerequisite for success in achieving ICT Road Map objectives. We look forward to the opportunity of future interaction and guidance, if any is required from us by the stakeholders, as they move forward to undertake initiatives or realign projects already in progress, with the objectives of an integrated environment as per the National ICT master plan.

We are confident that the Elgeyo-Marakwet County is moving ahead with a clear vision and towards attaining objectives that will not only strengthen the functioning and efficiency of each stakeholder but will further enable the stakeholders to interplay effectively to position in attaining a unique and contributing position in the competitive regional environment, wider perspectives in facilitation and important long term programmes

IPA
Mr John Liboyi

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PREFACE

The world economy is experiencing the impact of rapid globalization, the emerging new information age and the dynamic Information and Communication Technology (ICT), which is bringing about a new global economic order to be dominated by information and knowledge-based economies.

The emerging information age is characterized by Information and Communication Technologies (ICTs), and it is having an impact on socio-economic development efforts in a number of countries as well as counties in Kenya especially those that are focused on ICT utilization and the development of ICTs. In the information age it is not possible for a given country to remain competitive, even in its traditional areas of comparative advantage, without using and developing ICTs to support its developmental process.

In Kenya, counties out of the capital city are confronted by new additional challenges as a result of the globalization process and the emerging new information age. Without an appropriate ICT Road Map, the counties risk worse socio-economic status that can be promoted by the digital divide.

Having recognized and accepted the importance and role of ICTs in Elgeyo-Marakwet socio-economic development, and the commitment to minimize the digital divide, the County Government of Elgeyo-Marakwet has developed this ICT Road Map to guide her utilization and development of ICTs for socio-economic development. To support implementation of the ICT Roadmap, there shall be a County Governance Planning Committee.

As part of this ICT Road Map commitment, special policy initiatives will be devoted to promoting foreign direct investment in the area of ICTs including financial and capital investments in the local communication sector; joint venture arrangements in developing the local ICT sector; technology transfer capital investment initiatives; and investments with research and development component as well as human resource development components in the area of ICT skills. Other ICT related skills to aid the socio-economic development process of Elgeyo-Marakwet County shall be developed.

I call upon all residents of Elgeyo-Marakwet County and our cooperating partners, to support my County Government's effort to promote the development and utilization of ICT.

H.E. The Governor Hon.Alex Tolgos

The Governor, Elgeyo-Marakwet County

ACRONYMS

CIDP	County Integrated Development Plan
CSFs	Critical Success Factors
GDP	Gross Domestic Product
ICT	Information Communication technology
IFMIS	Integrated Financial management Information System
IPPD	Integrated Personnel & Payroll Database
LAIFOMS	Local Authority Finance Operation Management System
LAN	Local Area network
M and E	Monitoring & Evaluation
MCAs	Members of County assembly
NGOs	Non-Governmental Organizations
PPPs	Public Private Partnerships
SMS	Short Messaging System
NOFBI	National Optic Fibre Backbone

EXECUTIVE SUMMARY

The ICT Roadmap for Elgeyo-Marakwet has been developed by the County Government of Elgeyo-Marakwet with help from ICT Authority, the World Bank and Information Professional Africa(IPA) Consultants, as a guide to how the County should design its ICT services and structures to deliver positive outcomes for its customers – Citizens, County Staff, Business Community and other stakeholders.

The principles within this Roadmap provide a framework for how ICT services will be designed, sourced, delivered and how digital services can support ways of working where the customer experiences real benefits – convenience of access to government services such as online and mobile access to government portals, improved experiences in customer care such as elimination of queues in government offices and extension of government services to underserved communities and rural areas.

This document proposes five key ICT focus areas geared towards addressing the County development agenda:

1. ICT Infrastructure development - especially last mile connection of the National Fibre Optic Cable for Local Area and Wide Area Network connectivity. Infrastructure development is essential in enabling the move to paperless office, access to information and devices sharing.
2. Service Delivery Mechanisms, this is the implementation and integration of ICT systems that deliver Government Services to Citizens and improve internal Government processes and communication
3. ICT Policy and regulation – This ICT strategy proposes the development and operationalization a Disaster Recovery plan, Information Security Policy, ICT Literacy Policy and acceptable use policy.
4. Staff training – aimed at increasing ICT literacy among the County Government Staff to enable them effectively use the proposed systems. The County CIDP identifies a number of challenges that affect the growth and uptake of ICT services such as lack of ICT instructors in youth polytechnics and low ICT skills among the population
5. COBIT Implementation – to enable the government measure and benchmark its ICT efforts.

To successfully implement the projects and systems proposed in this Roadmap, it is proposed that the County addresses a number of challenges which determine the success or failure of the ICT development agenda:

1. Policy and legislation: This is necessary to address concerns such as Cyber Security, Open Data, Service quality, funding and more;

2. Staff skills: Investments in continuous staff training to equip staff with skills such as customer care (improved service delivery), ICT Literacy;
3. Governance: In particular the creation of a project management unit and an ICT Governance Committee responsible for driving the ICT agenda within the County.

The Roadmap also proposes that Elgeyo-Marakwet should re-think how it procures and implements ICT systems. The Roadmap further proposes that the County should work with the neighbouring counties to formulate a roll out strategy for shared services such as:

1. Revenue Collection Systems
2. Health Information Systems
3. Infrastructure development. The County should consider offering extra capacity to neighbouring counties for services such as co-location as a way of investment and revenue generation.
4. GIS applications for resource mapping of the County which include planning for urban development, identification of tourist sites and other resources.

Finally, the document proposes a number of methods that can be used to fund or deliver the proposed systems.

1. There is need to fundraise regionally and pool resources for purposes of implementation of shared services, thus two or more counties can get together implement systems that are cross cutting and of value to all the regions concerned.
2. There is need to enact policies that are suitable, share costs and liabilities while promoting sustainable work methods such as service level agreements and public private partnerships.
3. Some projects such as the National Fibre Optic cable to Sub Counties, that capital intensive, the County could lobby the ICT Authority for support.
4. The County should explore partnerships with universities and youth polytechnics to offer training and ICT literacy Programs to staff and citizens.
5. There is need for a paradigm shift from owning infrastructure and capital intensive equipment to leasing out arrangements or a move to cloud services. Cloud infrastructure and use of open source software can help the County access infrastructure, services and skills at low costs using models such as pay as you go.

The document is organized as follow:

Part 1: This part presents the County profile, strategic direction, the organisational structure and also the current status of ICT in Elgeyo Marakwet County.

Part2: Presents the desired end state which indicates the identified gaps and closure strategies at Departmental and processes areas, projects are proposed to achieve the ICT vision of the County, priority projects to be implemented in the period of 6months to 1 year. Also considered is the shared services plan at various levels within the County, within the neighbouring counties, and at the National level. Critical success factors and guiding principles are also provided in this part.

Part 3: Presents the roll out strategy chart with twelve projects, based on prioritization for their implementation by Elgeyo Marakwet County.

LITERATURE REVIEW

Globally, ICT is recognised as a tool for social-economic growth and development, and as an enabler of service delivery. As a driver of the ICT industry, ICT has become a key catalyst for the emergency of a knowledge society and a knowledge economy. In the past, ICT innovation was mostly led and driven market changes. However, today as consumers become better informed we expect to see the industry become more consumer rather than technology driven. The latest ICT trends are set to drive strong GDP growth across the continent modernizing continent, modernizing and optimizing every sector of the economy and facilitating closer intra-Africa trade. Against this backdrop, those governments with relevant, effective national ICT policies will begin to dominate the economic landscape. Governments are increasingly using ICT as an enabler of service delivery, with e-government and m-government initiatives high on the agenda for addressing the challenges presented by rapid urbanization. Haphazard urban expansion serves as an obstacle to economic growth, so we expect more governments to pursue an integrated approach to urban development, with ICT playing an important role in ensuring good urban governance through smart grids utilities, water supply monitoring, safety and security, and video surveillance.

Globally, ICT has been shown to have impacts on economic and social development, and one of the indicators that have gained global recognition is the network Readiness Index (nRI), that includes skills as a critical pillar for nations to exploit ICT for development. According to the Global Information Report (2013), the skills pillar gauges the ability of a society to make effective use of ICT. It is thus critical to have the appropriate human capital and workforce for successful implementation of ICT products and services in Kenya. To achieve them, both the National and Counties' governments have to invest in hiring skilled ICT staff, continue to develop the current staff and build a training programme that will ensure the right skills are domiciled in both the at National level and County levels.

The National ICT Master plan was developed to actualise Vision 2030[1]as Economic Blue Print for Kenya; it identified E-government and ICT as a Driver of Industry as well as Developing ICT Business as key pillars that are essential to actualising the ICT Vision as a driver of economy. The embracing of ICT has in the past few years brought about noticeable growth in the ICT sector especially in the mobile sector, which rose to 31.3 million subscribers, resulting in a penetration of 76.9 per cent by September 2013. It also led to 25.1 million mobile money subscribers and an estimated 19.1 million Internet users with 47.1 per cent inhabitants having access to Internet services (CCK, 2014).

The E-Government by the National government is an initiative to use ICTs to transform both back-office and front-office government processes and provide services,

[1]The National ICT Master Plan, ICTA 2014

information and knowledge to all government customers, that is the public, businesses, government employees and other government agencies. E-Government services will continue to facilitate and transform service delivery while increasing value for money to the citizens through sharing common resources, elimination of duplication and uncontrolled redundancy.

The E-Government effort leverages on the use of the network developed under the Government Common Core Network (GCCN) services, this network will improve the quality of services. E-Government is segmented into what are known as primary delivery models. Some of the E-government services with limited availability and resources at the County include Huduma centre services, IFMIS and the national government owned eCitizen portal. The GCCN was developed to serve as a shared and secure interoperable Government-wide ICT architecture. This system will not only integrate work processes and information flows, but also improve inter-ministerial sharing of databases and exchange of information. This will ensure maximum access to information held by public authorities to all Kenyans and that public information is readily available through consolidated portals in an affordable and secure way.

The Kenya Vision 2030[2] has identified BPO as a priority sector under Economic Pillar. It is widely expected to create over 20,000 jobs and contribute over 10 per cent to GDP. The government is implementing various initiatives that include improving universal access to ICTs, promotion of the BPO/ITES, capacity building, development of digital content, roll out of e-government services and promotion of ICT based industries among others. During the First MTP, Kenya witnessed growth of key BPO companies such as KenCall, Safaricom, Kentech and Horizon. Other related industries such as computer hardware manufacturing, software development, information and broadcasting, filming and digital content development and mobile money applications have grown over time. The IBM science and technology research laboratory established in 2012, is also currently conducting both applied and exploratory research in the Country as well as a number of other initiatives focussing on finding local ICT solutions to local problems and challenges in the Kenyan business environment.

The current on-going Digital Migration brings huge opportunities to exploit in the ICT field. This will cover development of multimedia local content, e-government, e learning, tele-medicine, e-health, e-commerce, e-marketing etc. Development of e-commerce will enable entrepreneurs to obtain use of their ICT skills to sell their products and services over the internet and reach international markets while in the comfort of offices. Such business programmes will involve use of high-resolution GIS maps of all the inhabited areas of Kenya which will encourage and strengthen an innovative culture. In addition it will engage local entrepreneurs and innovators to develop solutions that will transform the current business markets, as we know them to new markets that will transform Kenyan markets to global markets.

[2]Vision 2030, Kenya Vision 2010

In conclusion, the National Government has initiated many ICT Flagship projects that have a direct impact on all Counties and how the Counties can tap in to these projects to drive their own ICT Strategies.

METHODOLOGY AND APPROACH

In order to carry out this project successfully the Consultants followed procedures embracing our understanding of the objectives of the assignment as outlined in the Terms of Reference (ToRs). In the following sections we expound on the technical methodology and approach we adopted for implementing the tasks for developing the County ICT Roadmap

Our Understanding of the Assignment Objectives

The general objective of the Consultancy assignment was to formulate a coordinated and coherent approach for ICT Road Map Development and Guidelines which will enable the County to provide High-Quality and Cost-Effective ICT-Enabled Services that meet the needs of the County residents.

The specific objectives were as follows:

1. *TO DEFINE THE CONDITIONS UNDER WHICH IT WILL BE POSSIBLE TO PROVIDE AN SHARED AND OPTIMIZED ICT INFRASTRUCTURE WITH APPROPRIATE USER SUPPORT AND STANDARDS FOR THE NATIONAL AND COUNTY GOVERNMENTS IN KENYA*

Accurate determination of return on investments in ICT infrastructure remains a mirage partly contributed by failure to optimize on the already installed ones. As part of solution or equipment life cycle, any ICT system requires retuning and optimization to meet the changing human needs and demand patterns. Sharing of ICT infrastructure will go a long way in optimizing their usage. The developed roadmap recommends that neighbouring counties should share some ICT resources in order to minimize the investment required and ensure higher usage. It's inevitable that counties will share some ICT resources either among themselves, neighbouring counties, or with the National government in order to make their investment viable. This is seen to include systems like Fibre Networks, Data Centres, and National Security Systems etc. The concept of infrastructure sharing brings forth adoption of standards in any systems in order to ensure inter-operability and systems synchronization. Thus in addressing this objective in our roadmap we put into consideration the capacity of systems to be adopted, existing ICT infrastructure nationally and regionally, usage capacity within various counties and the need to have ease of use, wider acceptability and adoption by all users.

2. *DEVELOPMENT OF COUNTY ICT STRATEGY ROADMAP FOR THE NEXT FIVE YEARS, IDENTIFYING.*

A road map is a process to connect vision, values and objectives with strategic actions that are required to achieve those objectives. The ICT roadmap is to provide an action plan for the County Governments and respective stakeholders. The goal is to identify initiatives of high-potential ICT-investments in the county Government structures. We realized that with limited resources and many projects to be implemented, we had to come up with an order of implementation i.e.

1. Short term quick wins
2. The priorities for investment;
3. The plans for development, deployment and support of ICT services and infrastructure which support the County's Citizen outreach, learning, and administrative activities; and
4. A change management plan, which details strategies for refinement and evaluation of performance, culture, communications, data reporting and any other strategic management identified issues necessary for successful implementation of the roadmap

The priority plan took into consideration the local requirements and investments as its initial focus. We identified the shared and Central ICT services that are essential for local services to operate effectively. Having evaluated the current situation we agreed on our target solution which was to formulate the desired state of ICT in the County. In this case we did a gap analysis and then subsequently developed the County ICT roadmap based on four (4) thematic areas: Connected County Government, Citizen Satisfaction, Connected Citizen and Connected Legislator.

Approach

The Consultants established guidelines and best practices to facilitate a disciplined process to provide a structured and balanced approach to understanding the current state of ICT infrastructure within the County, in order to achieve the desired results for the road development through an established and tested framework that comprised the following broad phases to facilitate a structured process. The main phases were:

1. Understanding the current state of the county ICT infrastructure as aligned to the development programs;
2. Definition of the desired end state;
3. Conduct a Gap Analysis exercise;

4. Prioritize the findings from the Gap Analysis exercise into a series of gap closure strategies;
5. Discover the optimum sequence of actions
6. Develop and Publish the Road Map.

Phase One

This phase constituted the designing of the instruments of work. The Consultants worked closely with each of the County personnel and relevant respective County stakeholders to develop a clear and unambiguous understanding of the current state of the business within the County. The understanding facilitated partly through design and use instruments that included questionnaires for data collection. The questionnaires were developed based on the COBIT framework to identity the ICT maturity levels within the County. In addition data collection tools included developing of needs evaluation tools to be administered to key identified stakeholders. Specifically, e-readiness and other relevant questionnaires were developed and tested. The outputs from these questionnaires were reinforced with quantitative data collected from existing systems, literature review and observations. Questionnaires, structured interviews, observations and focus group discussions were central in the data collection process.

Initial Meeting

To kick-start the consultancy process, a meeting was held which consisted of the top executive echelon of the county and the Consultants. After the formal project initiation procedures the Consultants commenced data collection in order to establish the current state of ICT in the County.

Phase Two – Defining the Current State

The objective of this phase was to develop a clear and unambiguous understanding of the current state using the instruments developed.

Data Collection and Collation

With the tools already designed and tested, the Consultants embarked on data collection from both the County offices and the field with instruments developed. Data was collected about both the internal and external operational environments of the respective the County, thus helping to define the current state in terms of the key ICT domains of each county. The domains were clustered according to COBIT framework as described later in the document.

Data Analysis

IPA's approach to data analysis was based on COBIT framework to assess the Information Maturity levels within the county based on ICT Governance & Management Framework i.e.

1. Strategy & Governance (7 Processes)

2. Financial Management (3 Processes)
3. Personnel & Resource Management (3Processes)
4. Service Planning & Architecture (6 Processes)
5. Infrastructure & Operations (6 Processes)
6. Security (6 Processes)
7. Applications (3 Processes)

In addition to using COBIT framework the SWOT analysis was a key process that the Consultants carried out as part of the project deliverables at the validation workshop. This task fell under the Service and IT alignment to the county vision. We used this approach to get the tone of the project as key in building acceptance within the user community.

Phase Three – Definition Of Desired End State

In this phase, the Consultants crafted a suitable desired End State definition, using the results from the Current State and move towards gap analysis. The major task was to organize the data obtained into what the County needs to be.

Armed with data analysis results, the Consultants were poised to craft a suitable desired End State definition. We used COBIT analysis of the Current State to define the Desired State. The intent here was to identify the difference between where the County currently stands, in terms of ICT domain and what it aspires to become. The findings from the previous stage were used as baseline data to identify what needs to be accomplished to meet the future ICT End State. The Desired End State was then defined in terms of initiatives and performance targets. Having evaluated the strengths, weaknesses, opportunities and threats, we now had the strategic data from the previous stage and needed to apply it to the desired state by aligning the findings with strategic goals and objectives of the County. This was done bearing in mind the fact that the desired end state would be reviewed and approved by all stakeholders when this activity gets underway at the *validation workshop.* However, in order to define both current and end state, reference was made on BENCHMARK state i.e. benchmarking targets, roles, processes, and critical success factors. Roles are what define the job or function that a person fulfils. Processes are what consume resources. Critical success factors are issues that must address success over the long-term in order to gain a competitive advantage. Benchmarking focuses on these things in order to point out inefficiencies and potential areas for improvement. Through COBIT framework the Consultants applied Benchmarking in response to needs that arise within needs assessment process of the County. This was triggered by the need to re-align the County strategic actions to the goals and objectives.

Validation Workshop

Besides the Consultants input, the process was validated by two (2) workshops attended by the key stakeholders and the Consultants. Defining the desired end state was collaborative effort between the key stakeholders and the consultants and was accomplished through a set of questions used to draw participants into the process to

meet our SMART objectives. The set of questions designed for the workshops were compiled, evaluated, and presented in a way that was easy to understand. The Consultant's goal here was to help stakeholders to immediately grasp where the true gaps or shortcomings exist and why this was happening when we get to the gap analysis phase.

Phase Four - Gap Analysis

The objective of this phase was to provide an in-depth understanding of how to close the identified gap and eliminate the risks to achieve the desired future state. The Consultants used the findings to begin developing strategy alternatives (and related initiatives) to address deficiencies, inefficiencies, risks and organizational challenges that had been uncovered during data analysis stage. This exercise was critical to identify the initiatives to be accomplished. The gap analysis leads to a well-organized set of alternative approaches and viable strategies to use to close the identified gaps.

Phase Five – Fit Analysis (Prioritization)

The Consultants used the results from Gap Analysis in order to prioritize the actions (projects) that had been identified to close the gap or difference from where the County is, to what it aspires to be. We performed this process by evaluating the relative business value and the technical complexity of the situation. It was important that stakeholders were engaged in the collection of the data points during the harmonization workshop. The Consultants helped in identifying what was feasible and what has the highest business value, balancing business need with the capability to execute.

Phase Six -Develop the County ICT Roadmap

The methodology identified specific actions, grouped into phases, using an overall pattern all roadmaps follow. We undertook the requisite activities in all. The phases/steps required to complete this work were to:

1. Develop a clear and unambiguous understanding of the current state
2. Define the desired end state
3. Conduct a Gap Analysis exercise
4. Prioritize the findings from the Gap Analysis exercise into a series of gap closure strategies
5. Discover the optimum sequence of actions (recognizing predecessor – successor relationships)

Equipped with the facts (current vs. desired end state), the prioritization effort (what should be done), and the optimum sequence (in what order), we to assembled a sensible, defensible Roadmap that describes what should be done and in what order. The reporting of findings has been presented in the drafting of E-Readiness, Draft 1, Draft 2, Daft 3 and finally this County ICT Roadmap Document.

PART 1: INTRODUCTION AND BACKGROUND OF THE COUNTY

1.1. County Strategic Direction

Strategic directions provide guidance for the County as it works to maximize its value to Its Citizens. The main purpose of this is to ensure all individuals and work groups within the County are working toward the achievement of the County's overall strategic direction. Elgeyo-Marakwet County mission and vision statements as per the County's CIDP are:

Vision:"A progressive County nurturing productive ventures and transformative services".

Mission:"To harness County potentials that enhance food security, capital investments and optimization of human capital in a stable, secure, equitable and sustainable environment".

1.2. County Profile

1.2.1. Governance Structure

The County Governor and the Deputy County Governor are the Chief Executive and Deputy Chief Executive of the County respectively. The Governor is designated to provide leadership in the County's governance and development. The County executive committees supervise the administration and delivery of services in the County and all decentralized unit s and e agencies in the County.

1.2.2. Strategic Focus Areas and Plans

The County has developed a County Integrated Development Plan 2013 – 2017, with priority areas for investment being in the departments of Tourism, Education, and ICT. The factors that will determine the success of these focus areas include

- Political goodwill
- Adequate personnel
- Adequate funding

1.2.3. County Socio-Economic Data

Location and Size

Elgeyo-Marakwet County covers a total area of 3029 .9 sq. km which constitutes 0.4% of the country's total area. It extends from latitude 0 degrees 20' to 1 degree 30' to the north and longitude 35 degrees 0' to 35 degrees 45' to the east. It borders West-Pokot County to the north, Baringo County to the east, Trans Nzoia County to the northwest and Uasin-Gishu County to the west.

Figure 1:Elgeyo-Markwet Map

Population

As per the 2009 Population and Housing Census, the total population of Elgeyo Marakwet County stood at 370,712 with an average density of 123 persons per sq. km. The 2012 population projection was 401,989 of which 200,066 were male and 201,923 female depicting a male and female ratio of almost 1:1. The inter-census population growth rate for the County is 2.7% per annum.

Under 1 year: The 2012 projected population is 25,292 which comprise 6.3% of the total population of the County. This population is expected to increase to 27,426 in 2015 and 28,947 in 2017.

Economic Drivers

Agriculture, livestock and fishery are the main drivers of the economy in the County with a crop acreage of 88,639.2Ha, with cash crops being 4,003.74Ha including tea, pyrethrum and coffee. Dairy breeds, Zebu, Boran and Sahiwals cattle types, Dorper sheep and Gala goats are the main livestock breeds. Aquaculture through fish ponds is the main fishing activity in the County with tilapia being the most prominently reared fish.

Culture, endowed with numerous artefacts, symbols and songs, has also been projected as one of the tourist components that will open up in the County. The County is

endowed also with different wild animals like elephants, baboons, antelopes, birds and snakes.

Mining of fluorspar at Kimwarer area of Keiyo South is ongoing and also exploration of oil and cement is in process and thus immense mining investments interest is building up. Rich limestone reserves with beautiful marble stones have been found in Kapkata area of Arror Ward.

Natural Resources

Indigenous and exotic forests are the main forest types in the County occupying a total area of 93,692.48Ha. There are a total of 16 gazetted forests in the County. The County is endowed also with different wild animals like elephants, baboons, antelopes, birds and snakes. Nonetheless, Fluorspar is currently being mined at Kimwarer, Keiyo South.

1.3. County SWOT Analysis

In evaluating both internal and external factors that are favourable and unfavourable in achieving the objectives of Elgeyo-Marakwet County, a SWOT analysis was done as illustrated in Table 1 below.

Table 1: County SWOT Analysis

County Strengths	**County Weaknesses**
• County is renowned because of athletic prowess • Good infrastructure in terms of health facilities • Political Goodwill • Skilled manpower • Availability of land • Existence of MFIs	• Insufficient marketing • Insufficient adoption of family planning services • Insufficient funds for tourism development & marketing • Insufficient employment opportunities • lack of proper land policies • Poor/Lack of market for local produce
County Opportunities	**County Threats**
• Enough employment opportunities created. • Enhance family planning services • Enhanced Agricultural productivity • Enhanced capacity on business skills • Capacity building on rural electrification Implementation of joint	• Intra and Inter community conflicts • Effect of climate change on rainfall patterns • High population pressure • Retrogressive cultural activities • Nomadic lifestyles • Destruction of forests and catchments • Idleness and dependency syndrome • Erosion of Culture

projects with neighboring communities. • Training opportunities to stakeholders on things like management of irrigation schemes, importance of conserving of natural resources etc.	• Poverty and Hunger • Cultural erosion • Lack of markets • Food insecurity

1.4. County Monitoring and Evaluation Systems

The County government plans to institute mechanisms to continuously monitor and evaluate the plan to determine the extent to which the established targets have been achieved quarterly, annually, and mid-term during the implementation period through the County Monitoring and Evaluation Committee (CMEC). Funds will be set aside for implementation, monitoring and evaluation as provided in the financial plan. Monitoring and evaluation units shall be inbuilt into all levels of the administrative and stakeholder structures. This will ensure decentralization of M&E and decision making are taken as close as possible to the activity. Action plans shall be developed from the implementation matrix and shall form the basis for annual performance contracts. The project activities shall be refined, and implemented as performance contract targets, and shall be reported adequately. Evaluation shall be conducted by the performance contracting team and the planning team, and shall be based on the indicators specified. It is expected that household variables of the target County residents are affected and/or changed by the investments and implementation of the projects during the 5-year period.

1.5. County Stakeholders Analysis

The purpose of Stake-holder analysis was to assess which individuals or groups are likely to support, resist, or remain neutral during the project implementation [3] . The process looks at why the stakeholders respond the way they do and how they may be influenced to ensure a response most favorable to achieving project goals.

The Stakeholders commitment can be rated by how favorable they currently view the project and to what extent they might support, resist or remain neutral to the project a scale of 1-5 is assigned to each stakeholder.

1= negatively, actively or subversively working against

[3]Savage, G.T., T. W. Nix, Whitehead and Blair (1991). "Strategies for assessing and managing organisational stakeholders.

2= moderately negative, passive resistance

3= Neutral

4= moderately positive, passive support

5= Active support, "All in"

The following table 3 below shows stakeholder matrix for Elgeyo-Marakwet County.

Table 2: Stakeholder Analysis Matrix

Stakeholder	Strategic Importance	Current Commitment	Involvement	Goals/Needs
ICT governance committee	Defines and prioritizes use of resources to drive transformation	5	Decision making	• Define key performance measures • Guide deployment of efforts • Implement strategy • Report on successes
Leadership	Provides resource support and endorsement for transformational leadership	5	Support/Endorsement	• Overview of key activities/ service issues • Overview of performance measures
Staff	Streamline process and increase capacity; improve service delivery	3	Feedback	• Demonstrate expected behaviours • Provide feedback on leading practices and experiences
Assembly	Provides checks and balances on excesses of the executive and legislate on projects issues	4	Oversight	Overview of project implementation in regard to policies and legislation
Citizens	Provide feedback on service delivery systems and citizen satisfaction	3	Public participation	Understanding of the project and its needs/effects of implementation

PART 2: CURRENT STATE

2.1. Current state of ICT in the County

Current state of ICT in the County was conducted by IPA constants in order to establish the E-readiness of the County. A comprehensive report was drawn from data collected across departments in the County, the County assembly and public service board. The following section gives a summary of the E-readiness report.

2.1.1 Current State of ICT in Departments

Agriculture, Livestock and Fisheries

Access to livestock markets is constrained by inadequate market information, disease outbreaks which result in the closure of livestock markets, poor infrastructure (especially roads, livestock holding grounds, and sale yards). Moreover processing facilities (milk processing plants, coolers, abattoirs, rural tanneries) are inadequate forcing farmers to sell their products with little value addition.

Health

Most of the disease management centers in the County lack the capacity to manage chronic diseases. It is therefore apparent that the County needs to make deliberate efforts to staff and equip the existing health service delivery facilities to address chronic diseases.

Finance & Economic Planning

It is proposed to employ IT for a start in the following revenue collection areas: Land Registry Transactions; Business Permits; licensing structures; Parking fees collection; and Defaulter fines.

Education, Culture, Social Services and Sports

In terms of current ICT capabilities, the County is indeed endowed with talented youth who are ICT compliant, having been trained at various universities and tertiary institutions. However, there is inadequate physical facilities and equipment for the provision of relevant Technical, Industrial, Vocational and Entrepreneurship Training (TIVET). There is also a plan to build capacity for teachers in ICT.

Land, Housing and Urban Development

There is an urgent need for an e-record system to lessen paper work and facilitate ease of retrieval of documents and deeds.

Trade, Industrialization, Tourism, Wildlife & Enterprise Development

Currently database on tourism is limited. It is therefore important that the County improve its research, intelligence gathering, and information management system in order to assist it in making informed policy decision and planning. There is a plan to Equip Business Information Centres with ICT facilities.

Human Resource Management

Currently there is a plan for automation of HR processes. Examples of technology needs include: end-to-end integration with and new applicant tracking system, completion of e-Forms, enabling workflow to support managers for HR policies and procedures.

Water, Energy, Environment and Natural Resources

The water reticulation system in Iten is particularly inadequate. Due to the need for building more reservoirs for storage of potable water, the strategy will entail conducting mapping of reservoirs to determine their location and capacities thus the need for efficient systems to do this.

ICT

Currently, the department has a goal to provide ICT infrastructure. This includes;

- Develop basic guidelines and operational policies to help users utilize ICT services and solutions;
- Establishing a modern Data Centre to host key server and storage facilities. Providing an area with appropriate conditions such as air-conditioning and alternative power sources will be a necessary element of the infrastructure.
- Provide staff with computers to access the central information systems. Youth in the County will also be encouraged to open and operate digital centres for access online to County services;
- Security measures to ensure that the IT assets are secured from damage and unauthorized access will be installed including; Firewall to reduce the impacts of threats to the County Network; Anti-virus to fight off any threat to the software; and Protection against any illegal use by County staff.
- Establishing appropriate maintenance contracts to ensure essential equipment operates optimally.

2.1.2 State of ICT in County Assembly

Paperless sections in the Assembly characterized by MCA's having laptops and Order papers being issued over Emails, presence of the County assembly website shows the

milestone the assembly has undertaken in achieving ICT compliance. In terms of infrastructure, structured cabling has already been done, wireless router already installed and also a new file and proxy server procured.

Although all these have been achieved, the need for capacity building amongst the MCA's and also hiring of personnel is still a challenge

2.1.3 State of ICT in Sub counties and Wards

ICT at the sub-County level is still the lower levels Internet connectivity has not been achieved fully in that staff use modems for internet connection. ICT general infrastructure has not been developed. Staff ICT skills also is a challenge and therefore there is need for capacity building and training.

2.2 County ICT Structure

2.2.1 Governance

ICT functions in Elgeyo Marakwet County fall under the department of ICT and Public Service board ICT headed by the CEC Member. The department also has an overall Chief Officer. The head of ICT is the Director of ICT. All the remaining sectors have personnel who perform ICT functions within the departments, among other functions.

2.3 County ICT M&E System

The ICT department currently does have any M&E framework but the projects at the department uses the NIMES framework which is part of the National Government M&E. The main aim of this framework is to improve the effectiveness and quality of tracking implementation of various projects, policies and also strategies.

2.4 County ICT SWOT Analysis

From the interaction of IPA consultants with the County staff and other respondents from the County of Elgeyo-Marakwet several aspects that are crucial to business planning where examined and an ICT SWOT analysis done and the results obtained are shown in the following table 3.

County Strengths	County Weaknesses
• Role of executive giving support • Presence of ICT structures • Staff dedication to work	• inadequate staff • Inadequate office space • Inconsistent power supply • Inadequate implementation of ICT policy
County Opportunities	**County Threats**
• The fiber optic project of national master plan • Available National ICT Policy • Availability of Internet and Cloud Computing technology.	• Fast-changing technology • Cyber security risks • Dynamism of ICT • Vandalism

Table 3: ICT SWOT Analysis

2.5 Current County Integration to National ICT Master Plan

2.5.1 National Fiber optic cable connectivity

One of the expected outputs of the National Fiber-Optic Cable Connectivity project is the synoptic observing stations (weather stations) in the County, and the Optic Fibre linkage, and RANET FM station establishment.

2.5.2 IFMIS, E-procurement integration and usage:

IFMIS system has been implemented in the finance department and other departments have also followed suit. The only major setbacks of the system are staff ability to handle all the modules of the system. A larger response of staff said that they needed capacity building on the use of the system.

2.6 Current state of County CT Maturity – COBIT

2.6.1 The ICT Governance & Management Framework

ICTs can be used as a tool to facilitate efficient delivery of services, improve accountability and transparency while increasing public participation in the political processes. However, successful implementation of ICTs in county governments faces many challenges and requires legislative, budgetary, and technical coordination as well as political support, without which the ICT opportunities will remain unrealized.

As a way of guiding the County through the above ICT challenges, Control Objectives for Information and Related Technology (COBIT) has been proposed as a framework for modelling of County ICT maturity. The COBIT Framework consists of linkages between organizational and ICT objectives, and provides a mechanism for continuous

measurement and maturity of ICT processes. These processes were customised to seven elements as listed below:

1. Strategy & Governance (7Processes)
2. Financial Management (3 Processes)
3. Personnel & Resource Management (3Processes)
4. Service Planning & Architecture (6 Processes)
5. Infrastructure & Operations (6 Processes)
6. Security (6 Processes)
7. Applications (3 Processes)

The COBIT framework proposes a systematic and coherent maturity of all the above seven elements as the basis for sustainable ICT development within a county. There are six levels (stages) of ICT maturity ranging from Level '0' through '5', with Level '1' being set as the BENCHMARK target.

The Elgeyo Marakwet County should aim to achieve Level '1' status by performing various activities under each listed process as defined in the Process-Activity Table in Annex I B. Once Level '1' status is achieved, the County embarks on refining and continuously improving on the execution of these processes as it matures through Level '2' and beyond. The proposed ICT Governance & Management Framework maturity Levels (0-5) map well onto the generic maturity model as proposed by ICT Authority and shown in Figure 2 below.

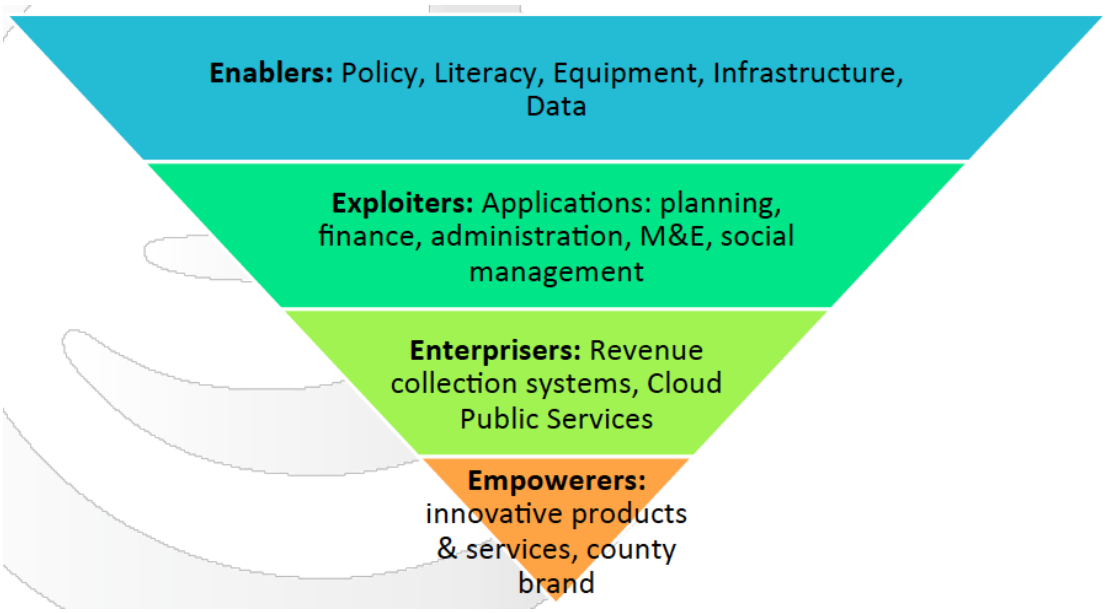


Figure 2: Generic ICT Maturity Level, source ICT Authority

The **Enabler stage** maps onto **Level 1** where basic ICT enablers are in place. The **Exploiter stage** maps onto **Level 2** where systems are implemented to deliver internal

efficiency. The **Enterpriser stage** maps onto **Level 3** where ICT infrastructure and applications deliver a good return on investment while supporting ICT businesses. Finally, the **Empowerer stage** maps onto **Level 4** where innovative ICT systems emerge and thrive - given the prevailing and highly mature ICT environment.

In establishing the Current State, IPA consultants reviewed and measured seven elements, i.e. Strategy & Governance, Financial Management, Applications, Security, Infrastructure& Operations, Service Planning & Architecture and People & Resources of the COBIT ICT Governance and Management Framework. The specific maturity level for each process for this County are indicated in *Annex 1 C*.

Figure 3 below summarizes the County performance along the seven elements of the ICT Governance & Management Framework. This ideally shows the maturity levels of the counties along the seven elements. The specific process performance levels for this County are as indicated in *Annex 1CB.*with their subsequent spider charts in *Annex 1 D.*

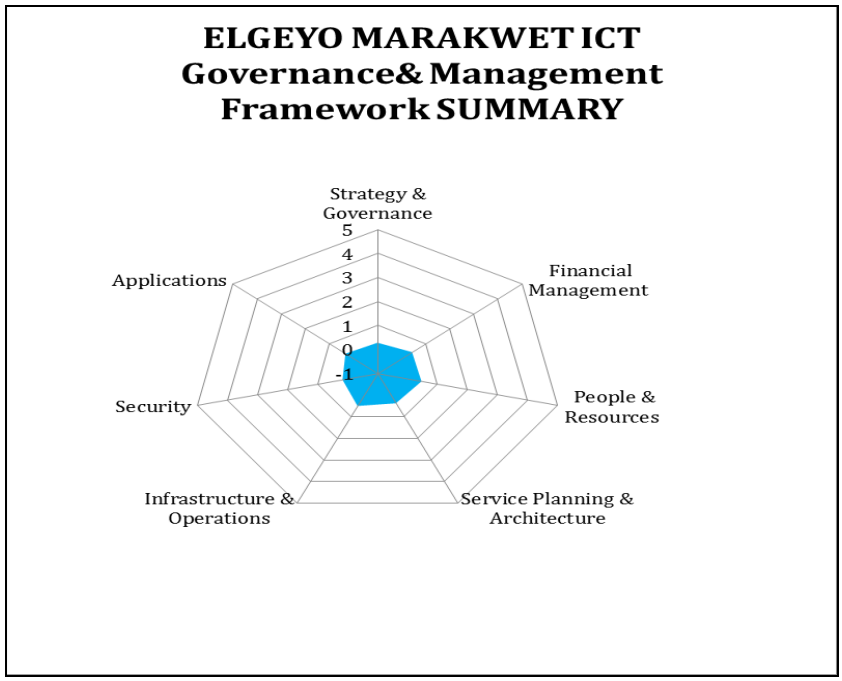


Figure 3: Current State

2.7 Financial Policy and Strategy for ICT

According to CRA- Commission on Revenue Allocation - County Budget Report 2013-14, Elgeyo-Marakwet County the ICT Budget was KES 49.6 million representing 1.84% of the total budget. Out of this, KES 24.6 million was spend on hardware & infrastructure KES 20 million on purchase of ICT equipment and KES 4 million on maintenance of ICT equipment and KES 1 million on Software. The County should target to increase their spending on ICT to at least 5% of the total budget in line with the national broadband strategy. This funding will be targeted at infrastructure, software, consultancy and training needed to move the Elgeyo-Marakwet County from current state to desired state as defined in the COBIT framework.

PART 3: DESIRED END STATE

3.1 Desired End State Description

The ideal, general state of ICT in a county can be realized through four main approaches: *Connected County Government Citizen Satisfaction*, *Connected Citizens* and *Connected Legislators*. These approaches constitute four thematic areas for the ICT road-map and are pertinent to the attainment of the desired ICT end state.

In addition to the above thematic areas, IPA used the COBIT framework for modelling the County ICT maturity. The model puts the County in a level on the basis of its maturity ranging from level '0' through '5' with level '1' being set as the BENCHMARK target. The framework aims at tasking the County to always aim at a level higher by performing activities under each process and in that way aiding at the desired state of ICT. The processes to be performed are shown in Annex 1B

In establishing the Current State, the Benchmark State and proposed Future State of the County using COBIT framework, IPA consultants reviewed and measured seven elements: Strategy & Governance, Financial Management, Applications, Security, Infrastructure& Operations, Service Planning & Architecture and People & Resources of the COBIT ICT Governance and Management Framework. The desired state of the County within the next five years therefore, places the County automatically one level above its current state and a summary of the desired state of ICT and governance and management framework with respect to current and benchmark states in the County is showed in the Figure 4 below.

The first theme, *Connected County Government,* seeks to ensure an ideal ICT environment for government-government interactions for the purpose of both national and County level development. The second theme *Citizen Satisfaction* is geared towards the ideal state of ICT in the County focuses on enabling connectivity between the government and its citizens. Thirdly, the *Connected Citizens* theme builds on the *Citizen Satisfaction* pillar focusing on enhanced citizen-citizen connectivity from government efforts in ICT and finally, The *Connected Legislators* theme looks at the ideal state of ICT at which the County facilitates the interactions of the County leaders with citizens.

In summary, the ideal description of the desired states along the thematic areas is illustrated in Figure 4 below.

Connected County Government

- Integrated ICT infrastructure
- Enhanced Information security
- Automated service delivery systems
- Effective and Efficient Service delivery
- Well-Defined ICT Strategic plan &policies
- Paperless Offices
- Adequate and well trained staff
- Better staff collaboration
- Data visualization dashboards

Connected Citizen

- Better security and surveillance systems
- Well Informed Citizenry
  - Broad-band connectivity
  - Radio and TV coverage
  - Toll free USSD's
- E-Citizen Portal for Information sharing
- ICT incubation and Innovation Hubs
- ICT literacy and empowerment Programs

Citizen Satisfaction

- Modern Information Centres/ ICT 'kiosks'
- Established Help Desks and call centres
- Digital Economy-Online payments of permits
- Online Job Applications
- Integrated Public Interaction systems such as Bulk SMS's, USSD's and E-portals
- E-learning systems

Connected Legislators

- Public Participation systems
  - Live Broadcast of county Assembly Proceedings
  - Web and Mobile technologies
  - Social Media
- Capacity Building of MCA's and other County Assembly staff
- Digital Record Management systems
- Electronic Voting systems

Figure 4: Desired States along for the 4 c's

3.1.1. COBIT Desired State

The desired state of the County within the next five years is automatically placed one level above its current state across all the 34 processes reduced to the seven elements. Figure 5 is a summary of the desired state of ICT Governance and Management Framework with respect to Current and Benchmark States in Elgeyo-Marakwet County.

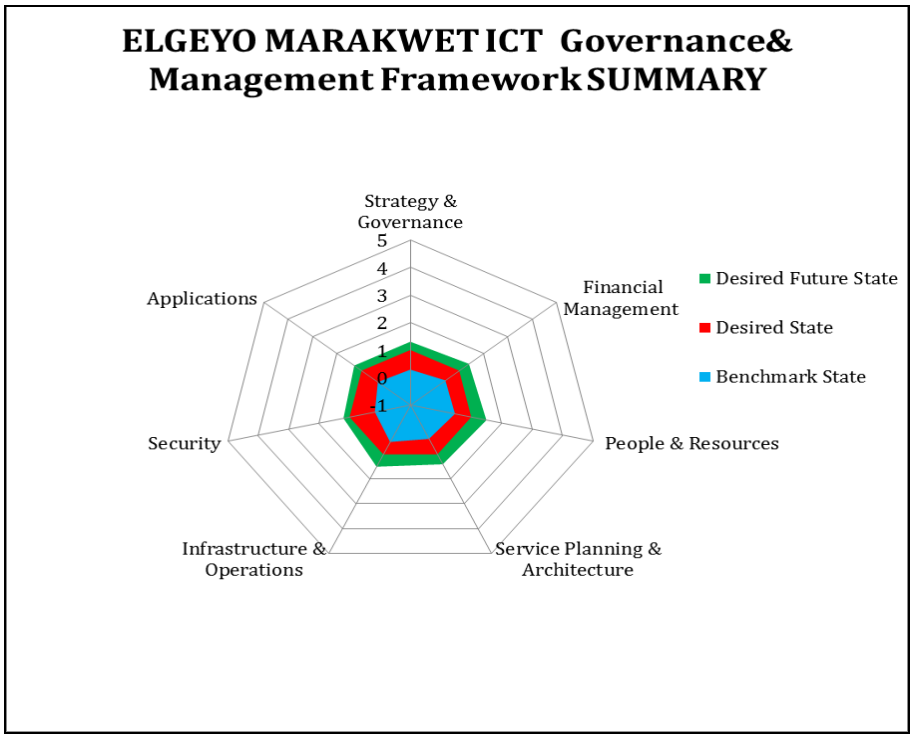


Figure 5: Desired State

3.2 Gaps Analysis and Closure Strategy

Gaps were identified by comparing the current state and desired state in each of the thematic areas, referenced to the COBIT processes. The analyses of these gaps pointed to innervations that culminated into projects and strategies needed to fill the gaps. The identified gaps are described in the followings sections and summarized in Tables 4 -7along the 5 thematic areas.

3.2.1. Connected County Government

Connected County theme for ICT development looks at ICT as driver of County productivity and internal business, shared services (email, VoIP communication, video conferencing, collaboration, and social media), and project management as shown in the Table 4below.

Table 4: Connected County Government Gap Analysis

Current State	Gap Identified	Strategies
Basic ICT connectivity in the HQs And some departments	Lack of an integrated ICT Infrastructure	Investment in an integrated infrastructure
ICT strategic plan is in development	Lack of an ICT strategic plan	Development or update of ICT strategic plans
Talents in sports especially athletics not fully optimised	Lack of sport tourism	Sponsor sport tourism in the County
Disintegration of the available systems	Lack of seamless communication	Development of integrated systems
Manual revenue collection systems	Lack of revenue collection systems	Automation of revenue collection systems
Manual document management characterised by paperwork in Land &Housing department	Lack of an e-record system	Investment in an e-record system or a document management system

3.2.2. Connected Citizens

This theme looks at ICT as a driver of business and industry as shown in Table 6. It entails the empowering of business people, youth, women and special groups, by availing data and information for trade and investment for citizens, providing data on business opportunities in the County, data on social economic status of the County, linkages of citizens to business, employment opportunities, etc. The connected citizen gap analysis is shown in Table 5.

Table 5: Connected Citizen Gap Analysis

Current State	*Gap Identified*	*Strategies*
Limited public participation on governance	Lack of automated public relations systems	Investment in CRM, call centres
Business opportunities are not fully optimized	Lack of business portals for e-commerce	Introduction of e-commerce to the County
Limited access of internet to the public	Lack of a free WIFI hotspots in the County	Investment in provision of free internet hotspots and subsidies on cyber cafés

3.2.3. Citizen Satisfaction

This theme considers delivery of E-government Services and use of ICT as a driver of the County ministries and departments, public service board, up to sub-county and ward level as shown in the Table 6 below.

Table 6: Citizen Satisfaction Gap Analysis

Current State	**Gap Identified**	**Strategies**
Bottlenecks in service delivery due to the use of manual systems at service delivery points	Lack of online systems	Development of online portals for service delivery
Education systems manual	Lack of an E-learning system	Investment of E-learning systems in learning institutions
Data of Individuals who are elderly and the disabled not fully documented	Lack of a social database of the special groups in the County (elderly and disabled)	Development of a database system that captures data for the elderly and the disabled persons
Disaster management and control mechanisms are manual	Lack of a free ISDN number for emergencies	Introduction of ISDN number for emergency services
Inadequate electronic processing of processes and business	Lack of e-readiness in the County	Investment and lobbying for a digital economy
Inadequate health management	Lack of integrated	Investment of integrated

systems	health management systems	health care systems

3.2.4. Connected Legislators

This theme includes strategies towards ICT being a driver of legislative assembly productivity, collaboration, communication and services to the electorate as shown in Table 7

Table 7: Connected Legislator Gap Analysis

Current State	Gap Identified	Strategies
No public participatory processes	Lack of an electronic public participation systems	Development of public participation electronic systems such as web, social media and mobile technologies and live broadcasting
Manual handling of documents and processing	Lack of document management and processing systems	Investment in Electronic document management systems
Slow uptake of technology amongst the MCA's	Inadequate training of MCA's	Establishment of ICT proficiency and capacity building programmes
No attendance register resulting to lack of quorum In passing bills in the Assembly	Lack of means to track MCA's attendance	Investment in Electronic clocking systems –Biometric systems

3.2.5. COBIT Gap Analysis

Table 8shows the gap analysis for the seven elements of the ICT Governance & Management Framework with respect to the desired state. As stated earlier, the process matures from current state to desired state with one level step function. Within each level, the maturity progression can be described as Not Achieved, Partially Achieved, Largely Achieved and Fully Achieved. In our case we need all the processes to be fully achieved for the desired state. The key to Table 8 entries is as follows:

Table 8: Gap Analysis

	ELGEYO-MARAKWET COUNTY RESULT SUMMARY					
		Achieved Capability Level				
Element	**0 Little/No Achievement**	**1 Performed**	**2 Managed**	**3 Established**	**4 Predictable**	**5 Optimising**
Strategy & Governance	**P**	**P**				
Financial Management	**P**	**P**				
Personnel & Resource Management	**P**	**P**				
Service Planning & Architecture	**P**	**P**				
Infrastructure & Operations	**L**	**L**				
Security	**P**	**P**				
Applications	**P**	**P**				

– Not Achieved **(0%-15%)**

– Partially Achieved **(15%-50%)**

– Largely Achieved **(50%-85%)**

– Fully Achieved **(85%-100%)**

	Current State
	Desired State

NOTE: The comprehensive processes to fill into the gap between the County's current state and the Desired state are detailed in ANNEX 1B..

In determining the specific processes to roadmap the County should follow the following guideline that indicates a summary of the purposes of the criterias in each of the six levels of the COBIT model. Idealy, the activities in level 1, which is the benchmark level detail the developmental criteria which the County shall build on using the guideline in the Table 9 below. The table also indicates the implications of each of the levels.

Table 9: Summary of the purposes of the criteria in each of the six levels of the COBIT model

Level	Process Attributes where gaps occur	Potential Implications for failing to achieve the level
Level 0 (Incomplete)	Proces is not implemented or fails to achieve its process purpose. At this level, there is little or no evidence of any systematic achievement of the process purpose.	The governance and management framework is not in existence.
Level 1(Performed)	Implemented processes (at level 0) is able to achieve its process purpose.	Missing work products Process outcomes not achieved
Level 2 (Managed)	Performance Management Work Product Management	-Cost or time overuns; innefficient use of resources; unclear responsibilities. -Uncontrolled decisions; uncertainity over whether time and cost objectives will met. -unpredictable product quality and integrity; uncontrolled versions; increased support costs; integration problems; increased rework costs
Level 3 (Established)	Process Definition Process Deployment	-Identified best practice and lessons leaernt from previous projects not defined, published and available within organizations. -No foundation for County wide process improvement. -Implemented process not incorporating

Level	Process Attributes where gaps occur	Potential Implications for failing to achieve the level
		identified best practice and lessons learnt from previous project; incosistent process perfromance across the County. -Lost opportunities to understand process and identify improvements.
Level 4 (Predictable)	Process Management Process Control	-No quantitative understanding of how well process performance objectives and defined business goals are being achieved. -No quantitative ability to detect performance problems early. -Process not capable and/or stable (predictable) within defined limits -Quantitative performance objectives and defined business goals not met.
Level 5 (Optimizing)	Process Innovation Process Optimization	-Process improvement objectives not clearly defined -Opportunities for improvement not clearly identified. -Inability to change process effectively to achieve relevant process improvement objectives - Inability to evaluate effectiveness of process changes

3.3 ICT Vision Roadmap and ICT Maturity

3.3.1. Connected County

As noted before the Connected County Government theme looks at ICT as a driver of the County productivity and internal business, shared services (email, VoIP communication, videoconferencing, collaboration, and social media), project management, etc. Table 10

below shows flagship projects, their objectives and the desired outcomes towards the development of the ICT roadmap.

Table 10: Connected County Government Flagship Projects

Flagship Projects	Objectives	Desired outcomes
➢ Information Centres at the sub-County and Ward levels ➢ Establish Incubation Centres ➢ E-learning systems ➢ Bulk SMS systems and USSDs and social media platforms to link the County government to the Citizens of Elgeyo-Marakwet ➢ Integrated health management system ➢ Connectivity of all administrative units ➢ Intranet and VoIP system ➢ National reserve system for managing the park (Rimoi)	➢ Infrastructure development such as office space and reliable electricity ➢ Purchasing of the appropriate hardware and software ➢ Lobby for the increase in the budgetary allocation to the ICT department ➢ Acquisition of an Integrated Health management system to link-up Hospitals ➢ Lobby for investors to invest in Elgeyo-Marakwet	➢ Enhancing efficiency in service delivery ➢ Provision of services to the public ➢ Promotion of ICT literacy to the public ➢ Digital presence for enhanced employee's productivity

3.3.2. Citizen Satisfaction

This theme considers delivery of E-government services and use of ICT as a driver of the County ministries and departments, public service board up to sub-County and ward level. Table 11 below shows the summary of Flagship projects, objectives and the desired under the citizen satisfaction theme.

Table 11: Citizen Satisfaction flagship projects

Flagship Projects	Objectives	Desired Outcomes
➢ Telemedicine for effective and efficient service delivery- Health care systems ➢ Tourism Website for ministry of tourism and specifically sports tourism ➢ Stimulation of the use of available mobile technologies for money transfers ➢ Youth empowerment projects ➢ Establishment of data centers for business people. ➢ E-learning systems and Education management systems for ECD centres ➢ Database of traders for Chamber of commerce ➢ Connectivity of all administrative units ➢ Citizen's website with information on the County (services by County government, business information, news, etc. ➢ Social databases of aged, disability and special needs people	➢ Identification and automation of all revenue points ➢ Automation of Elgeyo-Marakwet service delivery systems ➢ Increase of budgetary allocation to ICT ➢ Public sensitization on the use of the current available online platforms ➢ Sponsor sports tourism in the County especially Athletics ➢ Development of a database system to capture the old aged and the disabled	➢ Effective and efficient service delivery to citizens ➢ Easy access of information ➢ Security and road infrastructure ➢ Increased revenue collection due to automation ➢ Improved Sporting facilities ➢ Ease access to drugs. ➢ Integrated systems ➢ Effective and efficient service delivery ➢ Quality and affordable education and training ➢ Effective and efficient service delivery to citizens. ➢ Access of sporting activities by tourists Improved lives for the old and disabled

3.3.3. Connected Citizen

Under this theme, we look at ICT as a driver of business and industry. This entails the empowering of business people, youth, women and special groups, availing of data and information for trade and investment for citizens, providing data on business opportunities in the County, data on social economic status of the County, linkages of citizens to business or employment opportunities, etc. Table12below shows the Summary of Flagship Projects, objectives and the desired outcomes under the Connected Citizen theme

Table 12: Connected Citizens Flagship Projects

Flagship Projects	Objectives	Desired Outcomes
➢ Central ISDN number for emergencies(health, security and fire) and free call centre ➢ County press unit ➢ Equip ICT centers for entrepreneurs. ➢ Provide an equipped ICT center in each ward ➢ Youth empowerment centers ➢ Database of traders for Chamber of commerce	➢ Promote Entrepreneurship programs by providing subsidies for start-ups ➢ Lobby for the last mile connectivity of NOFBI to sub-counties and Wards ➢ Creation of ICT literacy programmes in the County ➢ Development of free ISDN number for emergencies ➢ Development of business portals	➢ An empowered citizen fully equipped with information ➢ ICT having fully promoted and stimulated entrepreneurship ➢ Empowered citizens in ICT literacy and connectivity ➢ Connected citizens with ICT ➢ Citizens fully empowered with ICT skills and knowledge on how to use and implement ICT projects ➢ Efficient management of disasters ➢ Easy marketing of business

3.3.4. Connected Legislator

The theme looks at strategies towards ICT being as a driver of legislative assembly productivity, collaboration, communication and services. Table 14 below shows a Summary of Flagship Projects, objectives and the desired outcomes under the theme of Connected Legislator

Table 13: Connected Legislators Flagship Projects

Flagship Projects	Objectives	Desired outcomes
➢ Committee management systems ➢ County news paper ➢ Biometric systems for check-in ➢ Web, Mobile and Social Media enabled system for citizens access and feedback ➢ Electronic Document Management System ➢ Integrated live Broadcast Technology System ➢ Incorporating Radio, TV, Internet and Mobile technologies ➢ ICT Proficiency Capacity Building Program for staff and all assembly members (MCAs)	➢ Introduction of trainings and capacity building to the members of the County assembly ➢ Set up an Integrated Live Broadcast System ➢ Install an integrated Public Participation System ➢ Employ electronic management and digitization of bills and legislative proposals	➢ Public participation on policy matters ➢ public awareness on the current issues affecting the citizens ➢ Efficient and flexible County assembly ➢

3.3.5. COBIT Implementation

The need for ICT Governance & Management (ICT G&M) is widely recognized by top leadership and management as an essential part of enterprise or corporate governance. Information and the pervasiveness of information technology are increasingly part of every aspect of business and public life. This has added pressure to drive more value from IT investments and manage an increasing array of IT-related risk.

Increasing regulation and legislation over business and public use of information is also driving heightened awareness of the importance of a well-governed and managed ICT environment.

ISACA[4] developed the COBIT framework to help organizations implement sound governance practices for the ICT domain. Indeed, implementing good governance is almost impossible without engaging an effective ICT governance framework. COBIT provides a framework, best practices and standards to support ICT governance.

However, frameworks, best practices and standards are useful only if they are adopted and adapted effectively. There will be challenges that need to be overcome and issues that will need to be addressed if ICT Governance & Management is to be implemented successfully.

COBIT: Implementation provides guidance on how to do this and covers the following subjects:

1. Positioning ICT G& Within an enterprise
2. Taking the first steps towards improving CT G& M
3. Implementation challenges and success factors
4. Enabling CT G& M-related organisational and behavioural change
5. Implementing continual improvement that includes change management and programme management
6. Using COBIT and its components

ISACA provides seven implementation steps to guide and facilitate the adoption of the COBIT framework within organizations as shown in Figure 6 below:

[4] ISACA-www.isaca.org

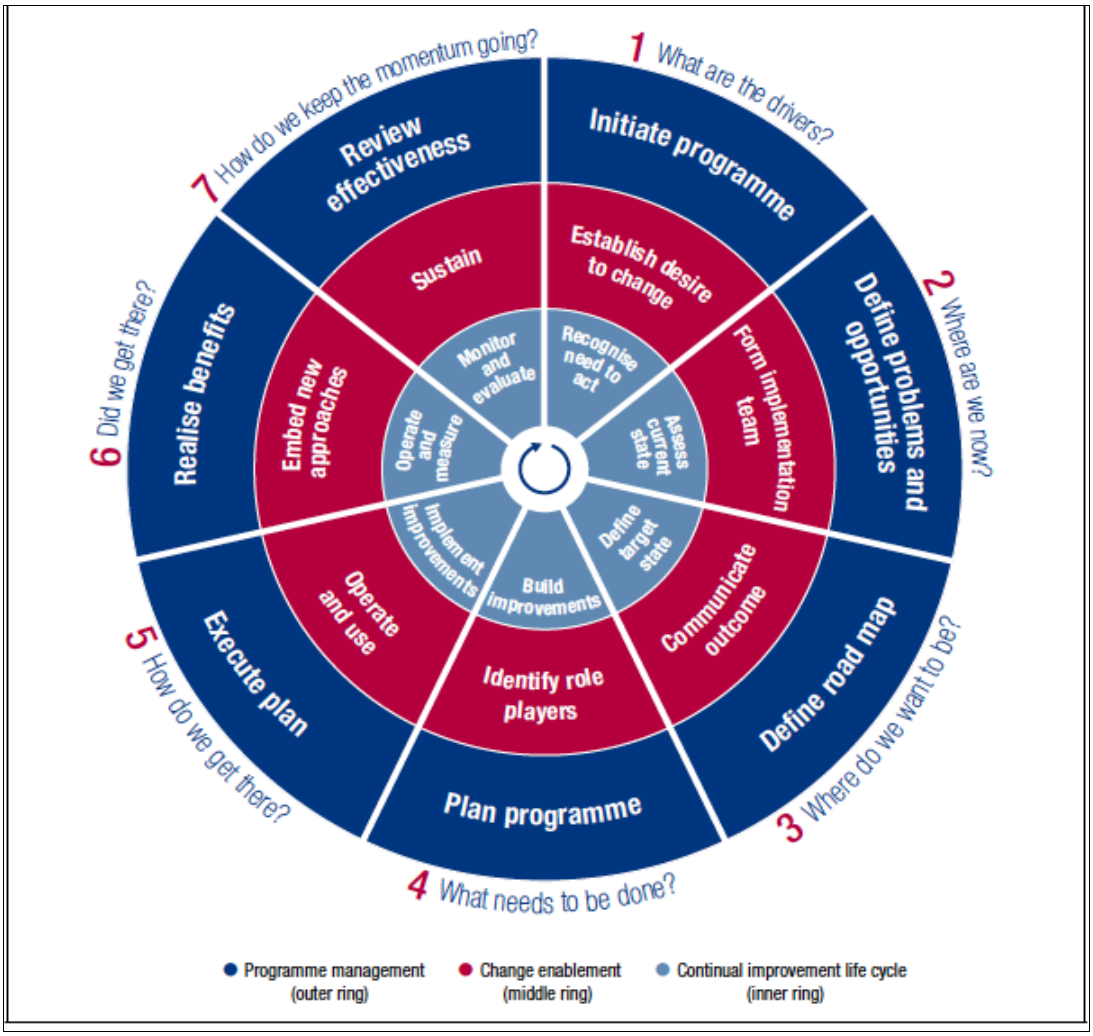


Figure 6: COBIT implementation Phases (source ISACA)

The County is advised to engage a qualified (certified) COBIT implementer from ISACA-KENYA Chapter (www.isaca.or.ke), to guide the COBIT implementation process. The typical activities, costs and timeframes are summarized in Annex 3.

3.4. Priority Projects for Quick Wins (6 Months to Year 1)

Projects for quick wins are derived from the process of selection and prioritization in draft 3 of which can be implemented within 6 months to one year. The projects are seen as the quick wins that the County can easily implement simply because they are not capital intensive. Figure 8 below shows the flagship projects that can be implemented within six months to one year.

Figure 7: Quick Wins

3.5. Shared Services Plan at The County Level

Shared Services can have a significant impact on improving services, reducing costs over time and increasing the transparency and effectiveness of County Government and its relationship with citizens. The successful deployment of Shared Services will also help propel the County into high performing and demonstrate the ability to receive and provide shared technology. Operational measures such as client computing and data centre costs consisting of IT spending in Government today, low spending on applications could strategically enhance business processing

3.5.1 Shared Services Plan at County Level

Sharing of Services can be done at Infrastructure Level (Data Centres, LANs, Internet Service, etc.), Hardware Level (Servers, Routers, etc.), and Application level (Software) as well as Technical Personnel levels. What can be shared will depend on the County departmental priorities. Once the top prioritized projects of each thematic area have been established an evaluation is done as shown in the Table 14below if there is possibility of sharing platforms (H/W, S/W, Network, etc. platforms)

Table 14: Shared Service Matrix for Elgeyo-MarakwetCounty

	Connected County Government	**Citizen Satisfaction**	**Connected Citizen**	**Connected Legislator**
	Development of an Integrated ICT Network Infrastructure	**Lobby for Legislation and Policy on official digital documents**	**County Information Centers/ Digital Literacy Program Centers**	**Public participation Systems**
Shared Server(Hardware)	YES	YES	YES	YES
Shared Database	NO	YES	NO	NO
Shared Network	YES	YES	YES	YES
Shared Data-Center	YES	YES	YES	YES
Shared Tech Personnel	YES	YES	YES	YES

3.5.2 Proposed Sharing Plan (Across neighbouring counties)

At this level, we are looked at Sharing of Services which cut across the neighbouring counties to Elgeyo Marakwet due to their geographical proximities.. Sharing can be done at Infrastructure Level, Hardware Level and Application level as well as Technical Personnel levels. What can be shared will depend on the County priorities. Once the top prioritized projects of each County have been established, the common projects between counties can then be established for areas of Shared Services.

Counties that are to share services need to agree on common objectives and share similar strategic vision. This calls for negotiations and agreements while focusing on the greater need for sharing to reduce on costs and at the same time increasing ICT capability for those counties that may choose to run their shared services in the cloud. The following Table 15below outlines the top priority projects by thematic areas for the counties i.e. Connected County, Connected Citizen, Citizen Satisfaction and Connected Legislator. The table gives the shared service across the neighbouring counties.

Table 15: Shared Services Matrix across Lot 3 counties

Lot 3 Counties	Top Priority Project by Thematic Area			
	Connect County Government	**Citizen Satisfaction**	**Connected Citizen**	**Connected Legislator**
Baringo	Development of an Integrated ICT Network Infrastructure	Last-mile connectivity of NOFBI to the Sub-County and Ward offices	County Information Centers/ Digital Literacy Program Centers	Public Participation System- Live Broadcasts of County Assembly proceedings
West-Pokot	Integrated ICT of all administrative units	Integrated health management Systems	Development and equipment of ICT center s for entrepreneurs	Public Participation System- Live Broadcasts of County Assembly proceedings
Uasin-Gishu	Government Administration Information Systems-GAIS	Last-mile connectivity of NOFBI to the Sub-County and Ward offices	ICT Incubation/Innovation Hubs	Public Participation System- Live Broadcasts of County Assembly proceedings
Trans-Nzoia	Development of an Integrated ICT Network Infrastructure	Last-mile connectivity of NOFBI to the Sub-County and Ward offices	Centre's of excellence ICT Incubation/Innovation Hubs	ICT Proficiency Capacity Building Program for staff and all assembly members (MCAs)
Elgeyo-Marakwet	Development of an Integrated ICT Network Infrastructure	Lobby National Broadband Connectivity, Implement last mile NOFBI to sub-counties	Integrated Health Management System	Integrated ICT Network Infrastructure at the County Assembly
Shared Service Plan(Most Common Systems proposed for Sharing)	**Development of an Integrated ICT Network Infrastructure**	**Last-Mile connectivity of NOFBI to Sub-Counties and Ward Levels**	**ICT Hubs for Entrepreneurs/Innovation centres'**	**Public Participation systems such as Live Broadcasting of Proceedings**

3.5.3 Shared Service Plan at National Level

At National Level, the County is already sharing the IFMIS and IPPD systems with other Counties. In healthcare, the DHIS is used across 47 counties in Kenya. The National Fiber Optic Network has been rolled to many towns in Kenya and will provide a set of core shared services to counties using virtual private networks. At policy and regulatory level, the County shares the National ICT Master plan and other National ICT Policies such as the open data policy. This proves that counties have many things to share if a common ground can be found.

To enhance sharing of ICT resources, including staff, service level agreements and systems, counties must find a common ground including common ICT standards and shared objectives such as lowering ICT costs. This roadmap proposes two strategies that will promote service sharing with other counties and with the National Government. These are:

- Shared institutions. A good example is the Council of Governors. Creating an ICT unit within this framework that is, at first, responsible for policy development will lay the foundation for shared services.
- Using National ICT flagship projects to identify core shared services and common areas of investment. Those projects such as e-learning, broadband infrastructure, teleconference services, policy, legal and regulatory frameworks should be shared by default. The projects identified as flagship projects by the National ICT master plan should be rolled out uniformly to all counties.

The National ICT Master plan identifies common areas where services can be shared. These are:

- Education and Training as envisioned under the ICT Human Capital and Work-Force Development. Counties can directly benefit from the flagship projects identified under this foundation. For example, the proposed Five Centres of Excellence in ICT Education and Training and the 1-2 Year Intensive Structured Training and Attachment Program Producing 500 High-End ICT Graduates per Year can add value to staff training. This roadmap therefore proposes joint development of E-Learning applications that deliver training courses to all counties. Given that this is a National Flagship project, the counties should only focus of developing joint HR and ICT courses while the national government rolls out the infrastructure and necessary training necessary to optimize e-learning for development.
- Broadband infrastructure such as the National Fiber Optic Cable. Developing a joint County Government Cloud comprising of both infrastructure and services will save counties a lot of money and time.
- Content Development is a common objective for many counties. This is variously described as setting up of incubation centres, development of mobile applications, business process outsourcing among others. The National ICT master plan identifies

content development as a priority area. Counties can come together to develop and equip joint ICT centres (or work with the National flagship centers of excellence) to increase capacity. This will make not just affordable but also provide opportunities for shared innovation, benchmarking and access to best practices.

Other areas of co-operation are in sharing of technical ICT staff. Using common ICT infrastructure and services offers counties the opportunity to access not just cutting edge technology but also staff skills that will otherwise be expensive to hire.

The following projects under Table 16 below are sponsored and driven by the national government and counties are expected to leverage on the same for better efficient use of resources.

Table 16: Shared Services Matrix at National Levels

PROJECTS	FOUNDATIONS
ICT Human Capital and Work-Force Development	1. Five Centres of Excellence in ICT Education and Training; 2. 1-2 Year Intensive Structured Training and Attachment Program Producing 500 High-End ICT Graduates per Year; 3. Research and innovation and emerging technologies 4. School Curriculum; 5. Presidential Digital Talent Programme
Integrated ICT Infrastructure	1. iTax 2. Border Control System 3. Registration of Persons
PROJECTS	**PILLARS**
E-Government Services	1. IFMIS and related modules 2. HUDUMA Centres 3. Assets Data Hub and Associated Systems 4. EMS 5. Recruitment and Selection

ICT as a Driver of Industry	1. IPPD National Payment Gateway 2. National Agriculture Commodity Ex-Change 3. National Spatial Data Infrastructure (NSDI) and Associated Systems
Developing ICT Businesses	1. Science & Technology Park 2. ITES enabled services 3. Call Centres

3.6. National ICT Master Plan Integration Plan

3.6.1. Introduction and Background

The National ICT Master Plan envisages Connected Kenya with regard to Information and Communications Technology (ICT) with a range of technologies for gathering, storing, retrieving, processing, analysing, and transmitting information. It recognizes that dynamic market and technology developments have led to convergence where boundaries between previously separate ICT services, networks, and business practices are converging into shared services. The Master Plan takes into account the local, regional and global changes that have an influence on the ICT sector. In the 47 County Governments, ICT infrastructure and services are prerequisites to development. It is now imperative that the role of ICT be noted as important not only at the National level, but at the County level with regard to the infrastructure and services. This Master Plan has three foundations and three pillars. The foundations are the critical things that need to happen in order to lay a basis of Kenya transitioning to a Knowledge Society and positioning the country as a regional ICT hub while the pillars are meant to facilitate the achievement of socio-economic growth and Vision 2030 targets.

3.6.2. National ICT Master Plan: Foundations and Pillars

Foundations

First, ICT human capital and workforce development ensures that ICT development, implementation and exploitation are integral and sustainable components of development.

Second, Integrated ICT infrastructure, which seeks to provide the integrated infrastructure backbone required to enable cost effective delivery of ICT products and services to Kenyans

Third, Integrated information infrastructure, these aims at improving the quality of e-Government services and enable the country to transition to a knowledge-based society through consolidated portals in an affordable and secure way.

Pillars

First, the E-Government services aim at ensuring provision of e-Government information and services as key to improving productivity, efficiency, effectiveness and governance in all key sectors.

Second, ICT as a driver of industry, aims at transforming key Vision 2030 targets, 2nd MTP economic sectors to significantly enhance productivity, global competitiveness and growth.

Third, Develop ICT Businesses that can produce and provide exportable quality products and services that are comparable to the best in the world.
The ICT County roadmap should be aligned to National ICT Master plan.

3.6.3. Broadband Strategy and Infrastructure Sharing Plan

The country is connected to the international broadband highway through the SEACOM, TEAMS, EASSY, and LION undersea fibre cables. Most major towns in Kenya are connected through the National Optic Fibre Backbone Infrastructure (NOFBI). The Government is making effort to extend fibre capacity to all parts of the country by reviewing NOFBI with a view of extending and building additional links to enhance redundancy

The Broadband Strategy is an important component of Vision 2030 that seeks to provide Kenyan citizens with a lifestyle and experience for a newly Industrialized Country by 2030. Further, the Government, having completed the 1st Phase of the National Optical Fibre Backbone Infrastructure (NOFBI) which covers major towns across the country, is now in the process of expanding (NOFBI Phase II) the network to cover more towns and strategic institutions including public, social and learning institutions. The private sector players have also complimented Government efforts by laying fibre to some parts of the country. But despite this significant progress having been made to provide broadband to all Kenyans, a large number of the population is still yet to be connected especially in the rural areas. In order to facilitate the last mile connectivity the Government invested in Government Common Core Network (GCCN) to connect all Government buildings in Nairobi. Leveraging on NOFBI, connectivity will be extended across the country thus enabling the Government to roll out e- services countrywide.

The Broadband connectivity is considered essential for socio-economic development and in several developed countries it is now a fundamental right for citizens. Although significant progress has been made to provide broadband to all Kenyans, a large proportion of the

population has yet to be connected, especially in the rural areas. The emergence and proposed deployment of LTE technology through a Government-led open access initiative could result in provision of broadband connectivity to the entire country. This initiative is driven by the need to roll out sufficient broadband connectivity countrywide and also the need to take advantage of the digital dividend that would accrue from analogue to digital migration of TV broadcasting. This will allow the freeing up of spectrum such as the 700-800MHz band to be utilized to roll out the wireless broadband network.

The strategy provides a roadmap for the citizens to derive the following thirteen (13) categories of benefits:

Economic growth and employment:

It has been shown that Broadband network enables access and economic growth and development as it lowers the cost of communication which is an enabling environment to attract investment particularly in rural areas for local economic development. Furthermore, Broadband networks have been shown to have a direct impact on employment – an increase in broadband penetration would result in additional job.

Promote IT enabled services

This refers to development broadband infrastructure and ICT skills within the country for the success of the IT enabled Services.

Business opportunities and investment competitiveness

Broadband is meant to establish ICT sector that provides a favorable environment for business incubators which will impact on entrepreneurial ventures for SMEs particularly in rural areas.

E-government

The National Broadband Strategy is meant to address issues related to efficient backhaul, last mile broadband network and end user devices to support an efficient e-government strategy.

National safety and security

Broadband can aid communication of national security alerts on security websites and other relevant agencies in order to protect the citizen, besides emergencies alerts and disasters.

Distance learning opportunities

National Broadband should enable citizen to undertake online learning and thus argument expanding education both particularly for those who may be unable to physically attend educational institutions.

E&M-Health

Access to internet via broadband will provide solutions to the constraints of healthcare delivery systems in the rural and other marginalized areas by facilitating roll-out of e-health applications in the country.

E&M-Education and training

Provision of education via e-platforms (e-learning) will enhance the National Education Transformation Program Policy to provide education-based Broadband Transformation.

Working and environmental benefits from telecommuting

Telecommuting is becoming a popular mode of working (at home) especially where Internet access is reliable and vehicle traffic (in urban areas) is in bad taste.

Efficient frequency spectrum use:

Frequency spectrum is a natural scarce resource that is required for wireless services. A coherent broadband plan in Kenya would greatly derive maximum benefits from efficient utilization of frequency spectrum by promoting sharing of infrastructure including spectrum and use of alternative technologies.

Broadband for People Living with Disabilities

This component of broadband strategy is for citizen inclusion in which people with disabilities will be provided with equal employment opportunities through distance education learning programs that provide job certification among other preparations.

Universal access

With increased infrastructure Telecommunication service providers are able to provide ICT services in the form of triple play services to a wider population.

Broadcasting services

Broadband connectivity will enable NBS particularly in rural communities who will be empowered to participate and contribute towards national socio-economic development and national cohesion.

3.6.4. Human Capacity and Work Force Development

The Government and the private sector have been investing heavily in the ICT infrastructure. However, there has comparatively been little investment in the human resources required to design, develop and operate this infrastructure and the associated e-applications. Therefore the increasing sophistication of ICT and its applications, high-end skill sets are increasingly required and availability presents a challenge to growth and to achieving the vision of the National ICT Master Plan.

3.6.5. Policy Environment and Legal Frameworks

The Government of Kenya has implemented electronic systems in various State Departments and other state-owned institutions, including national tax systems, immigration information system, legal information system, the integrated financial management system and education system. Most of these systems are to be found in the National Treasury, Kenya Revenue Authority, Home Affairs State Department and Immigration Office.

3.7. Critical Success Factors

Soh Bong Yu[5], a leading Korean e-Government specialist identifies the following five major areas for ensuring successful implementation of e-Government initiatives as articulated below.

[5] Source: Soh Bong Yu, "e-Government of Korea: How we have been working with it" (KADO presentation), 25, https://www.kado.or.kr/koil/bbs/board_view.asp?config_code=362&offset=0&board_code=3246

Figure 8: Critical Success Factors

Source: Soh Bong Yu, "e-Government of Korea: How we have been working with it"

1 Vision, Objectives and Strategy

A long-term plan with a clearly articulated vision and strategy is vital to the implementation of e-government. A quick fix or piecemeal approach will not work. The more effective approach is to think big and have a big picture (top-down design), but to start small and prioritize tasks (bottom-up) during the implementation process. The County Vision must therefore be available, with the ICT County Vision clearly aligned accordingly. In sum, successful e-government initiatives require:

1. A clear vision by the leaders
2. Strong support from citizens
3. Sustainable ICT Agenda setting

2 Laws and Regulations

Soh Bong Yu says that it is important to plan for sufficient time and effort for legislative changes that may be required to support the implementation of new processes. The following laws need to be in place for e-government initiatives to succeed:

- Laws on privacy and related issues such as the Data Protection Act.
- Laws related to changes in business processes and information systems such as the e
- Transaction Act.
- Laws & Regulations regarding the government information technology Architecture

and Data Centres

3 Organizational structures

The effort required in change management should not be underestimated. Soh Bong Yu emphasizes that the organizational restructuring required to correspond to e-Government initiatives will typically take up between 30 and 50 per cent of total change management effort. Change in organization structures must therefore be well planned and implemented in a systematic manner. The following are important in successfully effecting organizational change:

1. Strong leadership with commitment
2. Planning – IT management and change management
3. Budget preparation and budget execution
4. Coordination and collaboration
5. Monitoring and performance measurements
6. Government-private sector-citizen partnership

4 Business Process

The existing way of doing County business may not necessarily be the most appropriate or effective. One of the tools to do business process innovation is Business Process Reengineering (BPR). BPR involves redesigning the work flow within or between department levels to increase process efficiency (i.e. to eliminate inefficiency in the work process). Counties should have a major review of existing processes with a view to re-defining them in order to leverage on ICTs.

5 Information Technology

Information technology changes rapidly. Soh Bong Yu identifies the following factors to consider when choosing technology and vendors are:

1. Level of application technologies required
2. Network infrastructure
3. Interoperability
4. Standardization
5. Technical and human resource capabilities

More specifically, the following factors will drive the implementation and achievement of success the identified ICT transformation projects:

1. Good working relationship between the Executive, The County Assembly and Public Service Board

2. Top leadership and management support. Political goodwill and top management buy in is the key to success of the ICT Master plan since financial investments and the right competencies can only be achieved from the top. Top leadership and management are critical both at the planning and implementation phases of the road map development.
3. Establishment of a Project Management Office / Team. This office or team will be responsible for all aspects of the ICT Projects.
4. A Change Management and Capacity Building: Continuous Communication, Capacity building and team development plan is critical to the successful implementation of the ICT roadmap. A change management and capacity building plan must be developed and focus on staff skills and capacity and managing culture and group dynamics. An external and internal communication strategy must be developed and change agents and champions identified and incorporated in the plan.
5. User trainings and continuous testing to ensure users are capable of using the technologies. These trainings must focus on both internal users as well as external users of the new ICT technologies and services.
6. System Integration and projects sequencing: it is critical that projects are rightly sequenced and systems are implemented in an integrated manner to allow for seamless operations. An appropriate project implementation plan must be put in place and followed to ensure projects are prioritized on the basis of sequencing first followed by impact and costs.
7. Periodic performance monitoring, evaluation, reporting and reviews and taking appropriate corrective actions. An appropriate project management application and monitoring and evaluation staff are a must.
8. Managing people's expectations, maintaining clarity and focus of the projects and ensuring deliverables are realistic.
9. The right organizational structure to support the ICT Strategy and ensuring right leadership and governance of the project.
10. Adequate Financing of the projects. An appropriate investment and financing strategy must be put in place and implemented to ensure the County can obtain finances from diversified sources and partners.

The table 16 below summarizes the critical success factors necessary for successful implementation, use and optimization of the solutions proposed in the previous sections

Table 17: Critical success factors

FACTOR	DESCRIPTION

FACTOR	DESCRIPTION
Vision, Objectives and Strategy	Develop a long-term plan with a clearly articulated vision and strategy and move away from quick fix or piecemeal approach Use top-down design but to start small and prioritize tasks (bottom-up) during the implementation process. The County Vision must be available, with the ICT County Vision clearly aligned with County Development Plans In summary, there is need for: • A clear vision by the leaders • Strong support from citizens • Sustainable ICT Agenda setting
Legislation and Policy	Plan for sufficient time and effort for legislative changes that may be required to support the implementation of new processes. Laws on privacy and related issues such as the Data Protection Act. Other laws include e-Transaction Act, ICT Policies
Organization Structure and Governance	Restructuring the County Organizational arrangements to make it correspond to e-Government Including Change Management programme Implementation Strong leadership with commitment to ICT Appointment of ICT Governance Committees
Business Process Redesign	Use Business Process Re-engineering to Redesigning the work flow within or between department levels to increase process efficiency The County should have a major review of existing processes with a view to re-defining them in order to leverage on ICTs.
ICT Infrastructure	Development of integrated ICT infrastructure that support or forms the base of other systems
ICT Procurement	Rapid Change in Information technology demands that the County Considers the following Reduce ICT Procurement Delays Move from owning ICT capital Equipment to leasing / outsourcing Prioritizing shared Services

FACTOR	DESCRIPTION
	Standardization Focus on Technical and human resource capabilities

3.8. Guiding Principles

The Road Map is based on seven guiding principles: infrastructure development, stakeholder participation, appropriate legislation, institutional arrangements and regulatory frameworks and e-Government Services which are critical in addressing the creation of jobs, economic growth and a knowledge-based society

- To ensure high performance management, accountability and public value, thus public value through alignment among existing policies, citizen service and business needs and ensure accountability and high performance service delivery through best-practice performance management.
- To ensure privacy, transparency, security and public trust thus public trust by providing optimal levels of security, open Government, citizen privacy, disaster avoidance and mitigation.
- To ensure shared solutions, platforms, standards and flexible, open boundaries thus maximize on sharing solutions, services and infrastructure within the County, other levels of Government, the private sector, moving toward compatible shared standards.
- To ensure maturation and modernization solutions thus sustained modernization of a comprehensive range of solutions and technologies with transformational or high-performance potential that are suitable for connecting tiers of Government, public and private sectors as well as improving performance and customer service.
- Coordinate with Public Works to ensure new public buildings and road infrastructure are constructed with adequate c conduits and ducts for public use and Server room space provisioned with proper air conditioning.
- To support and engage a workforce: develop and maintain a high-performance workforce and workplace capable of supporting current service needs and meeting future requirements
- To provide ICT research, innovation and transformation thus develop an expectation, culture and capacity for research, innovation and transformation of government to serve as a catalyst in business processes enhancement and organizational change.

- To leverage the state's ICT organization for economic growth and diversification thus align the organization for success in information management and smart computing awareness, analysis and related solutions through continuous training.
- To create a stable investment climate that will facilitate the mobilization of the necessary resources by both domestic and foreign private sector organizations to aid the process of developing and utilizing ICT and Conducive.
- To facilitate mobilization of the necessary financial and technological resources through both domestic and foreign direct investment.
- Adopt best practices and standards in the World ICT Sector.

3.9. Roll Out Plans

Projects for Roll out plans were derived from the process of selection and prioritization by the County stakeholders in conjunction with IPA consultants. Twelve projects were proposed as interventions to close the gaps and thus achieve desired levels in the COBIT framework as shown in Chart 1 below

Elegeyo Marakwet Projects Roll Out Plan Final

ID	Task Name	Duration	Start	Finish
1	**Elegeyo Marakwet ICT Road Map - Projects Roll Out Plan**	**60 mons**	Mon 10/12/15	Fri 5/15/20
2	**Connected County Government**	**60 mons**	**Mon 10/12/15**	**Fri 5/15/20**
3	Development of an Integrated ICT Network Infrastructure	12 mons	Mon 10/12/15	Fri 9/9/16
4	ERP System	24 mons	Mon 6/13/16	Fri 4/13/18
5	National reserve management system	24 mons	Mon 6/19/17	Fri 4/19/19
6	**Citizen Satisfaction**	**12 mons**	Mon 10/12/15	**Fri 9/9/16**
7	Integrated Health Management system	6 mons	Mon 12/12/16	Fri 5/26/17
8	Central ISDN number for emergencies(health, security and fire) and free call centre	6 mons	Mon 9/12/16	Fri 2/24/17
9	Equipping ECD and Training institution with ICT equipment	12 mons	Mon 4/9/18	Fri 3/8/19
10	**Connected Citizens**	**24 mons**	**Mon 10/12/15**	Fri 8/11/17
11	Youth empowerment centers	24 mons	Mon 10/12/15	Fri 8/11/17
12	Equip ICT center s for entrepreneurs	12 mons	Mon 9/19/16	Fri 8/18/17
13	Establishing County radio station/press unit	12 mons	Tue 1/2/18	Mon 12/3/18
14	**Connected Legislators**	**60 mons**	**Mon 10/12/15**	**Fri 5/15/20**
15	Public Participation System- Live Broadcasts of County Assembly proceedings	12 mons	Mon 7/4/16	Fri 6/2/17
16	ICT Proficiency Capacity Building Program for staff and all assembly members (MCAs)	12 mons	Mon 7/3/17	Fri 6/1/18
17	Committee management systems	12 mons	Mon 10/14/19	Fri 9/11/20

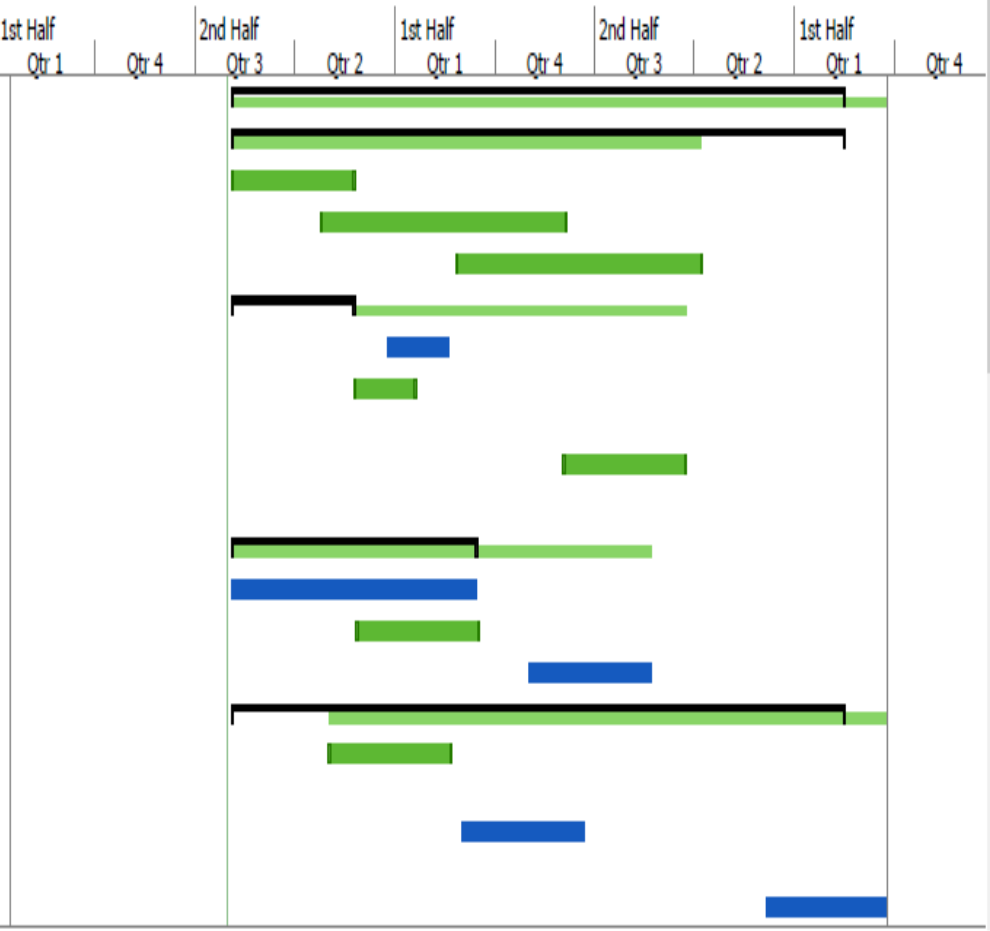


Chart 1: Consolidated Gantt chart

3.10.Financing Plan

In order to achieve any strategy and implement flagship projects, the road map will require an appreciation of the resources needed. Funding of the proposed projects in this road map is envisioned to come from:

1. The National and County Government budget,
2. Development partners,
3. Private institutions through Public Private Partnerships, and
4. Direct investments.

County Budgets could be further supplemented by special taxes (licenses, rates) and user fees.

3.10.1. Financial Policy and Strategy for ICT

Primarily, the County Government can fund the foundational pillars through a re-focused expenditure planning model, as adopted from the Kenya National ICT Master Plan of 2014. This can be facilitated through the County budget and allocations on ICT increasing to 5% of County Government budgets; as per the international benchmark.

Secondly, counties can also leverage on funding their priorities by approaching development partners who have ICT at the top of their support lists to meet the costs of ICT related expenditure. Creation of strategic mutually-beneficial partnerships with e-ready states in sectors such as education, tourism and entrepreneurship, counties can effectively leverage these partnerships for ICT funding[6].

3.10.2. Proposed Financial Partners

Thirdly, the County ICT Road Map can be financed through Public Private Partnerships (PPPs). ICT projects have a high risk associated with their implementation. These can be overcome by working with a partner that has demonstrated ability to deliver. One trend is to use a shared services approach to the provision of public services. This reduces costs and in some cases, these shared services can be developed as a PPP. In India, PPPs have been used successfully at the local and community level (Bhoomi and eSeVA centers in India)[7]. Some private sector operators have developed business models to provide national and federal government services using a PPP type of approach.

In the same light, the World Bank released a new ICT sector strategy (2002) comprising three strategic directions: Connect, Innovate, and Transform. The strategy's *Connect* pillar focuses on expanding connectivity infrastructure and promoting stability and predictability in regulatory systems. More recently, the World Bank has stepped up its financing of

[6] Younie, S. (2006). Implementing government policy on ICT in education: Lessons learnt. *Education and Information technologies*, *11*(3-4), 385-400.

[7] Bhatia, D., Bhatnagar, S. C., & Tominaga, J. (2009). How do manual and e-government services compare? Experiences from India. *Information and communications for development 2009: Extending reach and increasing impact*, 67-82

innovative public-private partnerships as catalytic vehicles to attract additional private sector investment in broadband infrastructure. This is an avenue that the County Governments can explore through deepened PPPs with favourable terms for partnerships for broadband and high-speed Internet, helping bring down retail prices and increasing the take-up of services.[8]

3.10.3. User fees to be levied for ICT use

The introduction of user fees and special taxes to populations engaging in County-owned ICT equipment is also a type of funding for the ICT road map. Special taxes will include licenses and rates for the various entities interacting with the ICT segment. The user fees will include membership and access to public computers, internet connectivity, County ICT databases and libraries among others. This category of funding will fundamentally aid in maintenance of the equipment, and ensure accountability in the uses of the various hardware and software. These avenues will also serve to sustain the standards, quality and affordability of the ICT projects.

3.10.4. Policy and Legislation Framework

There is need to enact policies that are suitable, promote sharing of costs and liabilities while promoting sustainable work methods such as service level agreements. Service Level Agreements ensure that the County gets value in ICT investments. Open Data and Open Source Legislation will enable the County optimize existing Data (for Innovation) while open Source will lower the cost of implementing Systems.

3.10.5. Proposed additional Funding Strategies

Finally, the road maps can also be funded through direct investment ventures. The creation of investor friendly environment at the national and County levels is a potent channel through which counties can realize growth in their ICT environment. The clear vision articulated in the road map would provide a viable profile through which investors can develop solid development-based inputs into the counties.

3.10.6. Shared Resources

There is need to fundraise regionally and pool resources for purposes of implementation of shared services, thus two or more counties can get together implement systems that are cross cutting and of value to all the regions concerned. A case in point is Revenue Collection Systems and Health Information Systems.

[8]http://documents.worldbank.org/curated/en/2012/06/16837585/information-communication-technology-ict-greater-development-impact-world-bank-group-strategy-ict-information-communication-technology-ict-greater-development-impact-world-bank-group-strategy-ict

PART 4: IMPLEMENTATION AND CHANGE MANAGEMENT FRAMEWORK

4.1. Introduction

The ICT strategic roadmap will bring major changes in IT, business processes, organizational structures, and job assignments during its implementations. We have come up with a set of activities focused on ensuring that there is less resistance to change and that various projects to be implemented stand a high chance to succeed. Our change management plan has been crafted by identifying five groups with each requiring different strategies to manage change. These groups are

i. Executive
ii. Senior Management
iii. Junior Management, Operational and Administration personnel
iv. Technical personnel
v. County citizens

Among the factors critical to effective change management programs and which we have considered in our change management strategy include

1. An effective sponsor at a senior level within the County government. This change sponsor will have the authority and organisational power to initiate the change and sustain it through its implementation and also be senior enough to ensure that the necessary resources are available throughout the change process;
2. Dedicated change management agents/teams. Change agents will be responsible for making the change a reality through activities such as the design of the elements of the change and the development of plans for its implementation. We have identified members from the County that will spearhead the change management program required to successfully implement the ICT roadmap.
3. Effective communication between the key sponsors and County staff. A primary focus of the communication will be to market the project to management and staff, with the objectives of building realistic expectations and reducing resistance to the new system;
4. Involvement of stakeholders including specific interest groups in ICT strategy activities. This will assist in reducing resistance to the changes that will occur as a result of the implementation of new systems. In the case of interest groups they can influence the people who must change and play a key role in promoting acceptance of the change
5. Adequate training of staff in the new processes and technology so that they can become familiar with its use thereby reducing the possible resistance to its introduction. We have identified and proposed appropriate training for each group

6. Monitoring and evaluation of the change management program will be done to ensure that the program remains on course. This will help to identify challenges during the implementation and mitigate. We have identified and proposed monitoring activities as well as expected results

1. THE EXECUTIVE

This group forms the top level decision makers. It includes law and policy makers as well executers of the same. These includes

1. The Governor and the Deputy Governor
2. County executive committee
3. County assembly members
4. The Public Service Board
5. County Secretary and Advisors

They hold the most important role in implementation of ICT strategic road map as they pass the budget, enforce the laws and policies as well create an enabling environment to enable change to take place. They will require awareness training to enable them make informed decisions and support the change champions. It is at this level that partnerships are created and decisions on inter-County collaborations such as sharing infrastructure is made.

2. SENIOR MANAGEMENT

In terms of hierarchy and responsibility, this group comes after the Executive. The group comprises mostly of departmental and sectional heads. The team leads in budget forecasting, leadership of teams and execution of County projects. Unlike the executive who has majority being political leaders, majority of staff in this group are professionals.

1. Chief officers of the Departments
2. Directors of the Departments
3. Sub-County Administrator and Ward Administrators
4. ICT Heads
5. Sectional heads

This group is more functional in its composition and therefore will take lead in implementation of key projects in their respective departments

3. JUNIOR MANAGERS,OPERATIONAL & ADMINISTRATIVE PERSONNEL

In terms of hierarchy this group comes after the Senior Management. They form the largest team that makes use of ICT systems within the County government and therefore equally critical in the success of the ICT strategic roadmap. This group interacts with ICT systems on a day to day basis and therefore must have a buy in order to make them succeed. This group requires both skills in some ICT systems as well as a culture change in order to successfully implement the changes. Among others they include

i. Personal assistants
ii. Procurement personnel

iii. Section managers
iv. HR Staff
v. Legal staff
vi. Project Managers

4. TECHNICAL PERSONEL

The technical staff comprises of people who are the masters of knowledge and skills in ICT. They take lead in implementation as well as support of both new and old systems. This team will require further training on both existing and new systems. They will also require a culture change to accept new ways of working as well as be able to support others more. In addition to training the County government will be required to restructure and recruit more technical personnel in order to have the capacity to offer and support more services. This group includes

- System administrators
- Web developers
- Network Administrators
- ICT Project Managers
- ICT Maintenance officers

5. COUNTY CITIZENS

The public or County citizens form the largest group that require change. However with proper leadership and appropriate activities it requires less change initiatives compared to the rest. The group also includes special groups such as traders, schools, health institutions etc. This group will require sensitization and in some cases skills to embrace new methods of engaging the County government as shown in Table 18 below.

4.1.1 Identified Skills Gaps and Training Area

Table 18: Identified Skill Gaps and Training areas

GROUP	TRAINING NEED	PROPOSED COURSE TITTLES
EXECUTIVE AND SENIOR MANAGEMENT		
1. The Governor and the Deputy Governor 2. County executive committee 3. County assembly members 4. The Public Service Board 5. County Secretary and Advisors 6. Chief officers of the Departments 7. Directors of the Departments 8. Sub-County Administrator and Ward Administrators 9. ICT Heads	To create awareness about the need to have a structure approach to manage Change To instil knowledge among the top decision makers on change dynamics and components of change management	**Change Management**
	To create awareness of available technologies in ICT and the need to embrace them with the County	Information communication Technologies
	To create awareness within the County's top decision makers of how ICT serves a solution to many problems facing the County	IT as a Solution
	To create awareness among the County's top decision making body of the need to ensure business continuity by putting systems in place to minimise disruption	Business Continuity and Disaster Recovery planning
	To create awareness among the County's top decision making body of how to make use of ICT to facilitate trade and business	E-commerce
	To create awareness among the County's top officials on how to use ICT to improve governance	E-Governance
	To create an understanding of the COBIT as a framework that will be used to govern growth of ICT within the County	COBIT

GROUP	TRAINING NEED	PROPOSED COURSE TITTLES
10. Sectional heads	To enable the County's top team make use of basic computer systems in their day to day work such as e-diaries, mails, internet, social media	Basic ICT applications
TECHNICAL PERSONNEL		
1. System administrators 2. Web developers 3. Network Administrators 4. ICT Project Managers 5. ICT Maintenance officers	To equip the technical staff with knowledge and skills how to ensure that IT systems and data are secure from access by unauthorised people Troubleshooting skills and training	Network Security, Computer hardware maintenance
	To equip the technical staff with knowledge and skills how to ensure that internet does serve as an entry point to hackers plus any other persons with malicious intentions	Cyber Security, Cyber security, CISSP or CISM
	To equip the technical staff with knowledge and skills to make of ITIL as a standard software for successfully managing IT projects	ITIL,PRINCE II
	To equip the technical staff with skills and knowledge in extraction of useful information from data collected to help the County government in making decisions to grow the County	Data Mining
	To equip the technical staff with knowledge and skills to help make use of ICT to investigate fraud and crime	Computer Forensics and Investigation
	To equip the technical staff with knowledge and skills to help them install, maintain and upgrade Enterprise systems	DBMS, SAP, ERPs, Oracle

GROUP	TRAINING NEED	PROPOSED COURSE TITTLES
	As the County will make use of various vendor's equipment such as Microsoft, Oracle, HP, Cisco etc. there is a need to have technical staff acquire full knowledge and skills on use of these equipment in order to increase their productivity	Product/equipment training such as CISCO CCNA, CCNP, CCIE, MCSE, MCTIP, Linux & Microsoft
JUNIOR MANAGERS, ADMINISTRATIVE AND OPERATIONAL PERSONNEL		
1. Personal assistants 2. Procurement personnel 3. HR Staff 4. Legal staff 5. Customer care representatives 6. Project Managers	With ERP systems becoming the default way on interconnecting activities in all organization departments there is a need to adequately train the administrative and management staff in their usage	ERP systems/Office Automation, IFMIS,IHRMIS, Library IMS, ESS/Board MIS, Document Management System
	There exists many computer applications ranging from MS office, Internet explorer, PDF that users must be adequately trained increase their usage as well as increase efficiency within the County	Computer applications-MS OFFICE,PDF,INTERNET
	With most ICT projects being implemented there is a need to equip this group with appropriate skills in usage of Project management tools in order to improve on project delivery	Project Management
	The customer care teams manning call centres require this training in order to efficiently help and engage the County citizens in solving any challenges they may have in accessing e-services offered by the County government	Call Centre Management

4.1.2 Proposed Organisational Structure for ICT in Elgeyo-Marakwet County

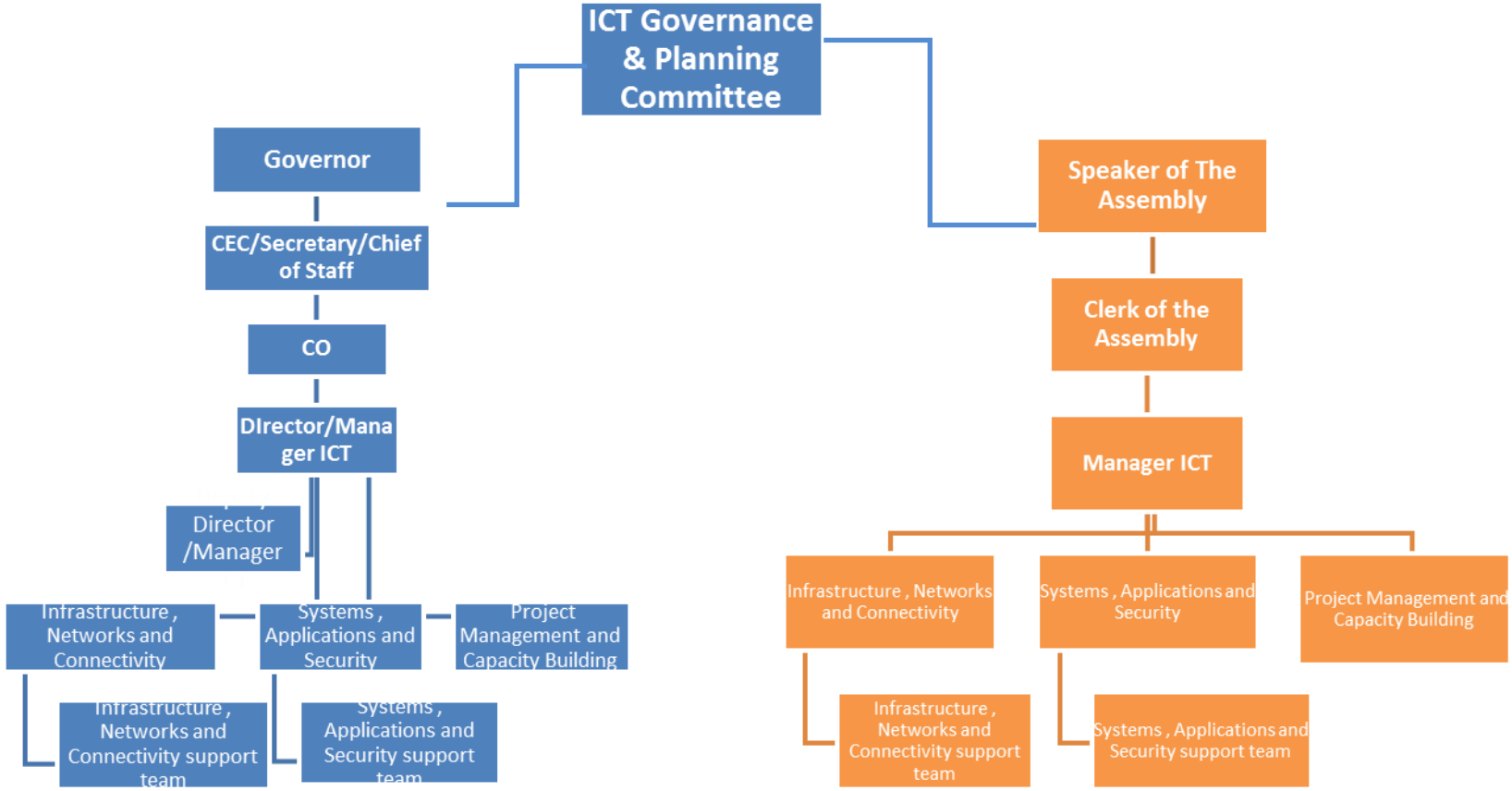
Organisation Structure recommended roles

In the roles shown in the diagram 7 below, the CEC's role will be lobbying for legislation and prioritization of ICT, providing leadership and direction and championing the vision of the road map. The CO will primarily oversee the accounting and budget management aspects in the project. The Director and his/ her deputies will be expected to communicate the departmental vision, strategy and road map, in addition to assisting the lobbying for legislation and budgetary allocations for ICT projects, leading executive ICT interaction, carrying out needs analyses, formulating policy, team management and budget management. The infrastructure roles will be focused on installing of devices, setting up of networks, providing repair and maintenance support, and managing the various vendors. Project management will be responsible for the project's implementation and monitoring, managing COBIT, and building capacity for the project. With regards to employee ICT skills training at the County Assembly and County executive levels, the County public service board and the County assembly service boards will respectively perform these duties. Notably, training and capacity building in ICT centres and within projects can be structured to be revenue generating. The figure 7 below shows the proposed Organisational structure for ICT.

Proposed Organisation Structure for ICT in counties

The figure 7 below shows the proposed Organisational structure for ICT

Figure 9: Proposed Organizational Structure



4.1.3 Project Management Office and Institutional framework

In order to ensure that projects deliver the expected investment value to the Government of Kenya it is necessary to follow a project implementation and management methodology that is geared towards the achievement of value. Best practice worldwide has recognized the importance of project governance as well as project management in the success of projects. Project governance, as provided for in Figure 12, provides the necessary ownership, leadership and accountability that drive the successful completion of projects. Project management methodologies enable the day to day process of implementing a project to be carried out in such a way that the project moves towards completion.

The Project Management office will, among other things:

1. Meet before inception of the project and on successful completion of the project and at least once every two months in between
2. Set the business objectives, principles, strategies and priorities of the project
3. Approve the project charter.
4. Approve the project budget
5. Approve the metrics for gauging the success of the project
6. Receive and discuss regular reports on the progress of the project
7. Discuss and approve any changes to the project
8. Measure project value using ROI or any other pertinent method in line with e-Government standards
9. Assist in the implementation of the project change management strategy
10. Make all major decisions regarding the implementation and execution of the project
11. Ensure adherence to laid down e-Government standards

4.1.4 Monitoring and Evaluation Framework

Monitoring and evaluation, as shown in Table 19, will be done by the established ICT governance committee. The committee will meet twice a year to carry out a half year and full year evaluation of the County roadmap implementation. The ICT governance committee will produce an annual scorecard outlining the progress that the County is achieving towards implementation of the County ICT roadmap. The ICT governance committee will liaise with the ICT Directorate to ensure that the projects are implemented on time.

Ministries responsible for implementation of key flagship projects will be responsible for reporting the progress of their projects to their Chief Officers, County Executive Committee representative and the ICT governance committee. Ministries will be required to report to the County executive committee on a quarterly basis in order to keep the ICT governance committee informed of progress, challenges and changes to the roadmaps. The ICT governance committee will evaluate the progress based on the key expected outcome.

Table 19: Monitoring &Evaluation

Institutional Structure **Monitoring & Evaluation Component**	**County ICT Executive/Ministry**	**County ICT Roadmap Governance Committee**	**National Agency/ICT Authority**
Organization/Unit responsible for M&E across all sectors and levels of County Government	ICT Directorate	ICT Governance Committee	ICT Secretary at the National ICT Ministry.
How will the targets be negotiated with the various organizations responsible in various sectors and levels of County Government	Chief Officer/ICT Director in charge of Information and Communication	County Executive in charge of Information and Communication	Targets As Defined in the County ICT Roadmaps
How will the realization of these targets be monitored	Internal Quarterly Audit of COBIT Processes Annual Performance Contracts External Annual Audit of COBIT Processes	Internal Quarterly Audit of ICT Projects Annual Performance Contracts	Bi-annual Progress Reports of ICT Projects External Annual Audit of ICT Projects

4.1.5 Strategies to improve M&E

Due to the fact that there is no current collection of ICT oriented data in the different initiatives within the County, there will be need for improved collection of ICT data in terms of implementation of projects, usage of ICT systems and impact on service delivery. Types of data collection will include,

- Usage of ICT tools and technologies by the County employees, citizens and visitors
- Service delivery improvement (time to deliver services)
- Cost savings for the County or citizens
- Access to ICT infrastructure
- Internet and connectivity coverage of the County
- Improvement of general and specialized ICT skills in the County amongst the government
- Employees, legislators and citizens.
- Inclusion of marginalized and disadvantaged groups

The ICT directorate will work with relevant Ministries to continuously collect data that pertains to the implementation of the roadmaps projects. The ICT directorate will keep score of the main data from all the agencies involved in the implementation and the Governance committee to oversee collection of relevant data from time to time and suggest improvements to the ICT directorate and ministries.

4.1.6 Risks and mitigation

The following risk matrix is used in this document; however there are several variations on this matrix that can be found in the literature. It does not matter which matrix you use as long as you consistently use the same matrix.

	CONSEQUENCE				
LIKELIHOOD	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Extreme (5)
Rare (1)	Low	Low	Low	Low	Low
Unlikely (2)	Low	Low	Low	Medium	Medium
Possible (3)	Low	Low	Medium	Medium	Medium
Likely (4)	Low	Medium	Medium	High	High
Almost certain (5)	Low	Medium	Medium	High	Extreme

In order to easily identify project risks and possible impact if the risks occur, a risk register and risk matrix are used to indicate whether the risk is likely to occur and how severe its impact will be if it occurs. A risk register is a list of all risks that have been identified, their significance and whether there is a way of mitigating (reducing) the impact. The Risk Matrix is a visual tool derived from the risk register to highlight key risks facing a project. It is used to offer managers a quick view of key risks.

The table below presents a global risk register for the proposed projects. When implementing individual projects, a unique risk register and risk matrix in Table 20 should be developed for each project by the project owner.

Table 20: Risk Matrix

Risk No	Risk Type	Details	Assessment		Mitigation strategies	Risk Owner
			Occurrence Likelihood	Impact if it occurs		
R1	Insufficient funding of proposed flagship Projects	• Lack of Commitment from Government • Lack of Political goodwill • Competing Government priorities • Lack of private sector investment	Medium	High	• Promote Government buy-in • Integrate broadband strategy into Performance Contracting process • Political advocacy/lobby groups	• County Executive • County Assembly • Finance Department
R2	Poor implementation of ICT Roadmap	• Capacity challenges • Poor Project management and planning skills • Procurement delays • Bureaucracy leading to project delays	High	High	• Recruit competent personnel • Adopt international Project Management methodologies • Adhere to procurement regulations	• ICT Governance Committee • Monitoring and Evaluation Manager • CEM, ICT

Risk No	Risk Type	Details	Assessment		Mitigation strategies	Risk Owner
			Occurrence Likelihood	Impact if it occurs		
R3	Lack of supportive policy and legal framework	• Delays in enacting legislation • Delays in operationalizing enacted legislation	High	High	• Advocacy and lobbying • Government agencies to operationalize legislation	• ICT Director • ICT Governance Committee • County Executive • County Assembly
R4	Low staff Skills and Motivation	• Lack of proper training and skills match	Medium	High	• High End training on ICT use is needed at the National Level	• Governor
R5	Poor or no Change Management plan	• Lack of Champions for Change Management	High	Medium	• Lack of training on change management	• Governor
R6	User Resistance	• Users or staff may refuse openly or covertly from using a	Low	High	• Involve users when making project selection decisions. • Train users to give them	• ICT Director • Planning Governance

Risk No	Risk Type	Details	Assessment		Mitigation strategies	Risk Owner
			Occurrence Likelihood	Impact if it occurs		
		system			the skills needed to use systems • Provide usage incentives	• Committee
R7	Abandoned Projects	• Abandoning projects when champions are transferred or retire	Low	High	• Lack of proper business continuity plans	• Governance Planning Committee
R8	Procurements	• Procurement Delays (see R2) • Vendor Related risks • System compatibility and interoperability risks	High	High	• Vendor due diligence • Ensure there is availability of detailed implementation framework • Procure standard based systems	• Procurement Department

To be effective, a project manager should be assigned to continuously update and report on project risks. A regular risk review process should be in place to ensure that all active risks are reviewed, monitored and action taken to mitigate them. From the risk register, it is possible to develop a risk matrix. As said early, a Risk Matrix is a visual tool derived from the risk register highlight to key risks facing a project. By quickly highlighting risks in the medium and high categories, a risk matrix allow project managers to intensively focus on the risks to minimize the risk they pose if risk mitigation action is not taken. Only projects with low likelihood and low impact are considered low risk. Projects with medium or high likelihood irrespective of the impact are considered medium risk projects. This is also true for those projects with low likelihood but high impact. Projects are considered high risk is the likelihood is medium or high and the impact is medium or high.

PART 5: ANNEXES

5.1. ANNEX 1: COBIT

5.1.1. Annex 1 A: ICT Governance &Management Framework

<table>
<tr><td colspan="2">Strategy & Governance
P01: Define a Strategic IT Plan</td><td>Personnel & Resource Management</td><td colspan="2">Infrastructure & Operations</td><td colspan="2">Applications</td></tr>
<tr><td colspan="2">P04: Define IT Processes, Organization & Relationships</td><td>P07: Manage IT HR Resources</td><td>AI6: Manage Changes</td><td>DS9: Manage Configurations</td><td colspan="2">AI1:Identify Automated Solutions</td></tr>
<tr><td>P06: Communicate Management Aims & Direction</td><td>ME1: Monitor & Evaluate IT Performance</td><td>AI4: Enable Operation & Use</td><td>DS3: Manage Performance & Capacity</td><td>DS10: Manage Problems & Incidents</td><td>AI2: Acquire & Maintain Applications</td><td>AI7: Install & Accredit Solutions and Changes</td></tr>
<tr><td>P09: Asses Risks</td><td>ME4: Provide IT Governance</td><td>DS7: Educate Train Users</td><td>DS8: Manage Service Desk & Incidents</td><td>DS13: Manage Operations</td><td>DS11: Manage Data</td><td>DS12: Manage Facilities</td></tr>
<tr><td>P10: Manage Projects</td><td>DS6: Identify and Allocate Costs</td><td>P02: Define Information Architecture</td><td>P08: Manage Quality</td><td>DS1: Define & Manage Service Levels</td><td>ME2: Monitor & Evaluate Internal Control Adequacy</td><td>ME3: Ensure Compliance with external requirements</td></tr>
<tr><td>P05: Manage IT Investments</td><td>AI5: Procure IT Resources</td><td>P03: Determine Technology direction</td><td>AI3: Acquire & Maintain Technology Infrastructure</td><td>DS2: Manage 3rd Party Services</td><td>DS4: Ensure Continuous Service</td><td>DS5: Ensure System Security</td></tr>
<tr><td colspan="2">Financial Management</td><td colspan="3">Service Planning & Architecture</td><td colspan="2">Security</td></tr>
</table>

5.1.2. Annex 1 B: Process Activity Table

PROCESS NAME	ACTIVITIES
PLAN AND ORGANISE	
PO1 Define a strategic IT plan.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1:**PO1-*01***Value management processes, including business cases and benefits realisation, are established. **PO1-*02*** Business and IT are involved in strategic planning. **PO1-*03***Current IT capabilities are defined. **PO1-*04***An IT strategic plan is prepared that defines IT goals and priorities based on the business objectives. **PO1-*05***IT tactical plans are prepared. **PO1- *06***Project and service portfolios are prepared and managed.
PO2 Define the information architecture.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **PO2-O1** There is an effective information architecture and data model. **PO2-O2** A data dictionary is maintained to enable the sharing of data elements amongst applications and systems, and to promote a common source of data throughout all IT applications. **PO2-O3** A data classification scheme is maintained. **PO2-O4** Processes are in place to ensure the integrity and consistency of all data stored in electronic form.
PO3 Determine technological direction.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. **PO3-O1** A technology infrastructure plan is developed and maintained based on an analysis of existing and emerging technologies and in accordance with the IT strategic and tactical plans. **PO3-O2** An IT architecture board (or equivalent) exists to provide architecture guidelines and advice on their application, and to verify compliance.

PROCESS NAME	ACTIVITIES
PO4 Define the IT processes, organisation and relationships.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level1: **PO4-01**An IT process framework is defined to include an IT process structure and relationships, ownership, maturity, performance measurement, and improvement. **PO4-02** The appropriate organisational bodies and structure are established to advice on strategic direction and review major investments on behalf of the board. **PO4-03** Roles, responsibilities and reporting lines are defined and integrated into business and decision processes. This includes responsibilities for quality assurance, risk management and data ownership. **PO4-04** Implementation of adequate supervisory practices includes separation of duties in the IT function to ensure that roles and responsibilities are properly exercised and to assess whether all personnel have sufficient authority and resources. **PO4-05** Staffing requirements are evaluated on a regular basis or upon major changes to the business, operational or IT environments to ensure that the IT function has sufficient resources to adequately and appropriately support the business goals and objectives. **PO4-06** Appropriate policies and procedures exist for contracted staff. **PO4-07** An established and maintained optimal co-ordination, communication and liaison structure exists between the IT function and various other internal or external interests.
PO5 Manage the IT investment.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **PO5-01** Budgets for IT-enabled investments are forecasted, allocated and managed. **PO5-02** Formal investment criteria (return on investment [ROI], payback period, net present value [NPV]) are defined. **PO5-03** Business value is measured and assessed against forecast.
PO6 Communicate management aims and direction.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **PO6-01** An IT control framework is established. **PO6-02** IT policies are defined
PO7 Manage IT human resources.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **PO7-01** Recruitment and retention policies and processes ensure that skills are available to achieve organisational goals. **PO7-03** Risks of overdependence on key resources are mitigated. **PO7-05** Staff performance is regularly evaluated and reviewed. **PO7-06** Risks associated with job changes and terminations are mitigated.
PO8 Manage quality.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose.

PROCESS NAME	ACTIVITIES
	Level 1: **PO8-O1** A quality management system (QMS) is developed and maintained, with the purpose of supporting continuous improvement. **PO8-O2** Standards are maintained for all quality, development and acquisition activities.
PO9 Assess and manage IT risks.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **PO9-O1** An IT risk management framework is established that is aligned to the organisation's (enterprise's) risk management framework. **PO9-O2** Risk remediation action plans are defined and communicated.
PO10 Manage projects.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **PO10-O1a** A programme management framework is defined. **PO10-O1b** A programme management framework is followed. **PO10-O1c** Contributions of projects within the programme are managed to expected outcomes. **PO10-O1d** Activities, interdependencies, resource requirements and conflicts of multiple projects are managed and resolved. **PO10-O2a** A project management framework is defined. **PO10-O2b** Projects follow a defined project management framework/process that requires appropriate approvals, planning, risk management, quality management and monitoring. **PO10-O3** Project planning is performed for each project and is detailed in the project portfolio. **PO10-O4** There is commitment to, and involvement of, business and end users in projects.
ACQUIRE AND IMPLEMENT	
AI1 Identify automated solutions.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **AI1-O1** Business and technical requirements are defined and maintained. **AI1-O2** Risk are identified and analysed as part of requirements development. **AI1-O3** Business requirement feasibility studies are prepared. **AI1-O4** Approved (or rejected) requirements and feasibility study results are prepared.
AI2 Acquire and maintain application software.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **AI2-O1** Design specifications are prepared based on business requirements and managed for new systems or major changes. **AI2-O2** Application control, security, availability and auditability controls are included in the design, development and implementation. **AI2-O3** The application software is developed and/or configured and maintained according to design specifications and development and documentation standards.

PROCESS NAME	ACTIVITIES
	AI2-O4 Development and maintenance are subject to the requirements of a quality assurance (QA) plan. **AI2-O5** Software requirements are subject to requirements management. **AI2-O6** A strategy for application software is in place.
AI3 Acquire and maintain technology infrastructure.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **AI3-O1** A technology acquisition plan is produced that aligns to the technology infrastructure plan. **AI3-O2** Internal control, security and auditability measures are implemented for infrastructure components. **AI3-O3** Infrastructure maintenance is planned. **AI3-O4** Technology infrastructure changes are tested.
AI4 Enable operation and use.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **AI4-O1** Plans are produced for knowledge transfer during the implementation of an application system or infrastructure change. **AI4-O2** Knowledge is communicated and users, business management, support staff and operational staff are trained.
AI5 Procure IT resources.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **AI5-O1** Procurement procedures and standards are defined and followed. **AI5-O2** Procedures exist that ensure that legal and contractual arrangements are addressed when establishing, modifying and terminating contracts for all suppliers. **AI5-O3** Requested hardware, software and services are procured in line with defined procedures.
AI6 Manage changes.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **AI6-O1** Change standards and associated procedures, including those for emergency changes, are defined and communicated. **AI6-O2** Changes are assessed, prioritised and authorised. **AI6-O3** Change status is tracked and reported.
AI7 Install and accredit solutions and changes.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **AI7-O1** A test strategy/plan based on organisational standards for testing of the system and data conversion is prepared and followed. **AI7-O2** Release planning, including planned approval and fall back mechanisms is undertaken. **AI7-O3** An appropriate environment for testing, including training, is established. **AI7-O4** Test results are evaluated and approved by business management prior to approval of release to production.
DELIVER AND SUPPORT	

PROCESS NAME	ACTIVITIES
DS1 Define and manage service levels.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **DS1-O1** A service management framework is in place to define the organisational structure for service level management, covering the base definitions of services, roles, tasks and responsibilities of internal and external service providers and customers. **DS1-O2** Internal and external SLAs are formalised in line with customer requirements and delivery capabilities. **DS1-O3** OLAs are developed to specify the technical processes required to support SLAs. **DS1-O4** Processes are in place to monitor (and periodically review) SLAs and achievements.
DS2 Manage third-party services.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **DS2-O1** Supplier services are identified and relationships managed. **DS2-O2** Supplier risk is identified and mitigated. **DS2-O3** Supplier performance is monitored and measured.
DS3 Manage performance and capacity.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **DS3-O1** Current and future system capacity and availability are planned and provided. **DS3-O2** System performance is monitored and reported.
DS4 Ensure continuous service.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **DS4-O1** An IT continuity framework and plan are developed and maintained (improved). **DS4-O2** Training on and testing of IT contingency plans occur. **DS4-O3** Contingency plans and data are stored at offsite locations.
DS5 Ensure systems security.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **DS5-O1** A security plan is developed and approved. **DS5-O2** User identities and authorisations are managed in a standardised manner. **DS5-O3** Security is monitored and tested. **DS5-O4** Techniques are in place to ensure that networks and information are secure.
DS6 Identify and allocate costs.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **DS6-O1** A cost model is developed and maintained based on the service provided and the business processes supported. **DS6_O2** Charges are implemented as per the agreed-upon policy.
DS7 Educate and train users.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose.

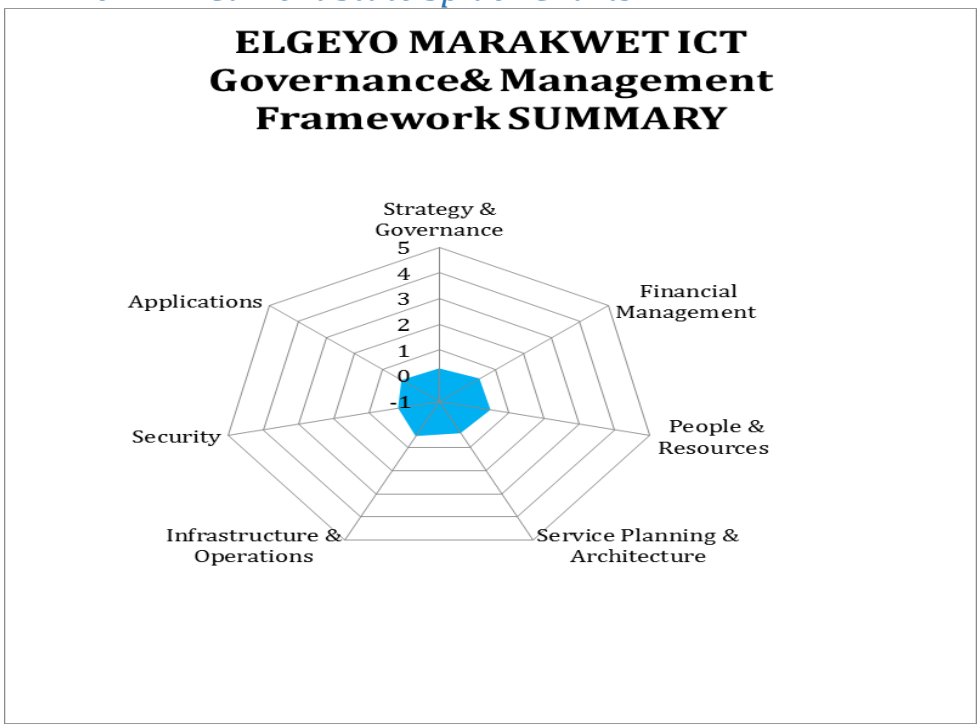
PROCESS NAME	ACTIVITIES
	Level 1: **DS7-O1** A training curriculum is established based on identified needs. **DS7-O2** Training is delivered and evaluated to meet identified needs.
DS8 Manage service desk and incidents.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **DS8-O1** A service desk is installed and operating, with logging and tracking of calls, incidents, service requests and information needs. **DS8_O2** Trends are monitored and reported. **DS8-O3** Clear escalation criteria and procedures are defined.
DS9 Manage the configuration.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **DS9-O1** A central repository of all configuration items is established, with procedures to support management and logging of changes. **DS9-O2** Integrity of configuration data is periodically reviewed.
DS10 Manage problems.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **DS10-O1** A service desk is installed and operating with logging and tracking of calls, incidents, service requests and information needs. **DS10-O2** Trends are monitored and reported.
DS11 Manage data.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **DS11-O1** Policies and procedures exist for data management that are based on business requirements. **DS11-O2** Onsite and offsite data storage is managed. **DS11-O3** Data and equipment are disposed of securely. **DS11-O4** Data are backed up and restoration is tested.
DS12 Manage the physical environment.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **DS12-O1** Facilities are selected and managed. **DS12-O2** Physical security measures are implemented. **DS12-O3** Facilities are protected against environmental factors.
DS13 Manage operations.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **DS13-O1** The IT environment is operated in line with agreed-upon service levels and defined instructions. **DS13-O2** The IT infrastructure is subject to appropriate preventive maintenance.
MONITOR AND EVALUATE	
ME1 Monitor and evaluate IT performance.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **ME1-O1** Processes exist to collect, collate and translate process performance reports into management reports for operational, executive and board reporting.

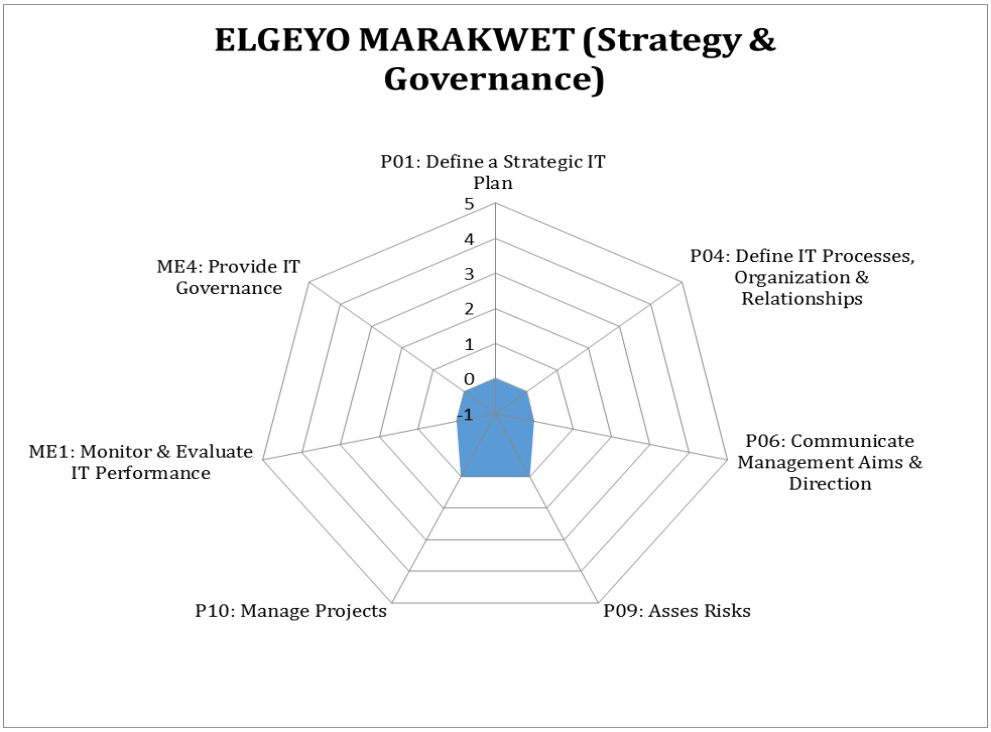
PROCESS NAME	ACTIVITIES
	ME1-O2 Performance is verified against agreed-upon targets and any necessary remedial action is performed.
ME2 Monitor and evaluate internal control.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **ME2-O1** A system of internal controls is embedded in the IT process framework. **ME2-O2** Monitoring and reporting on the effectiveness of the internal controls over IT occur. **ME2-O3** Control exceptions are reported to management for action. **ME2-O4** Monitoring and reporting on the effectiveness of IT internal controls at third-party suppliers occur.
ME3 Ensure compliance with external requirements.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1: **ME3-O1** Legal, regulatory and contractual requirements related to IT have been identified and appropriate policies are communicated. **ME3-O2** Compliance with legal, regulatory and contractual requirements is monitored and reported.
ME4 Provide IT governance.	Level 0: At this level, there is little or no evidence of any achievement of the process purpose. Level 1**: ME4-O1** There is an IT governance framework integrated into enterprise governance that enables the board and executive to have appropriate oversight and direction over the achievement of strategic alignment, value delivery, resource management and risk management. **ME4-O2** Business and IT are involved together as part of governance bodies such as an IT strategy committee in strategic decision making and IT benefit optimisation. **ME4-O3** There is a disciplined approach to portfolio, programme and project management, with business taking ownership of all IT-enabled investments and IT ensuring optimisation of the costs of delivering IT capabilities and services. **ME4-O4** There is oversight of investment in and use and allocation of IT resources to ensure appropriate resourcing and alignment with current and future strategic objectives and business imperatives. **ME4-O5** There is reasonable assurance that IT risk management practices are appropriate and do not exceed the board's risk appetite.

5.1.3. Annex 1 C: Process Scores Table

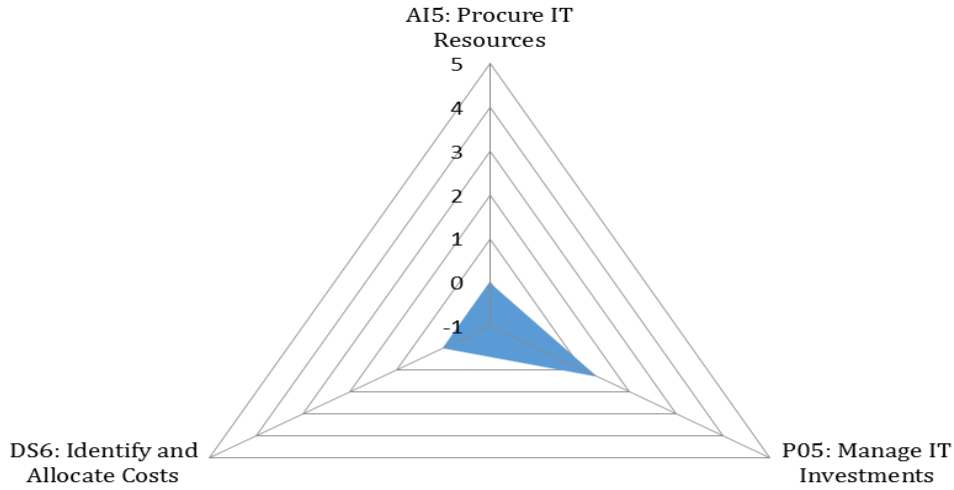
Element	Process	Current State	Benchmark State	Desired State
Strategy & Governance	PO1	0	1	1
	PO4	0	1	1
	PO6	0	1	1
	PO9	1	1	2
	PO10	1	1	2
	ME1	0	1	1
	ME4	0	1	1
Financial Management	PO5	1.3	1	2.3
	DS6	0	1	1
	AI5	0	1	1
People & Resource	PO7	1.4	1	2.4
	AI4	0	1	1
	DS7	0	1	1
Service Planning & Architecture	PO2	1	1	2
	PO3	0	1	1
	PO8	0	1	1
	AI3	0	1	1
	DS1	1.25	1	2.25
	DS2	0	1	1
Infrastructure & Operations	AI6	0	1	1
	DS3	1.7	1	2.7
	DS8	1.3	1	2.3
	DS9	0	1	1
	DS10	0	1	1
	DS13	0	1	1
Security	DS11	0	1	1
	DS12	0	1	1
	ME2	0	1	1
	ME3	1	1	2
	DS4	0	1	1
	DS5	0	1	1
Applications	AI1	0	1	1
	AI2	1	1	2
	AI7	0	1	1

5.1.4. Annex 1 D: Current State Spider Charts

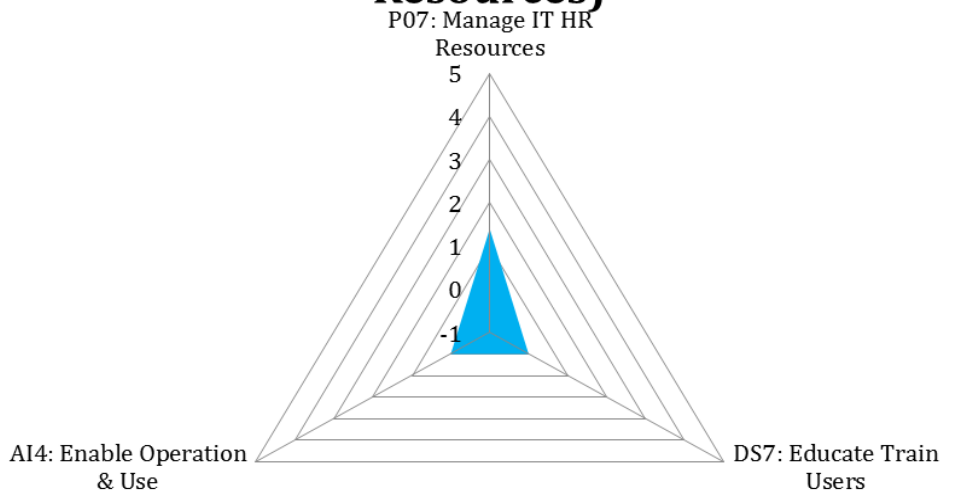


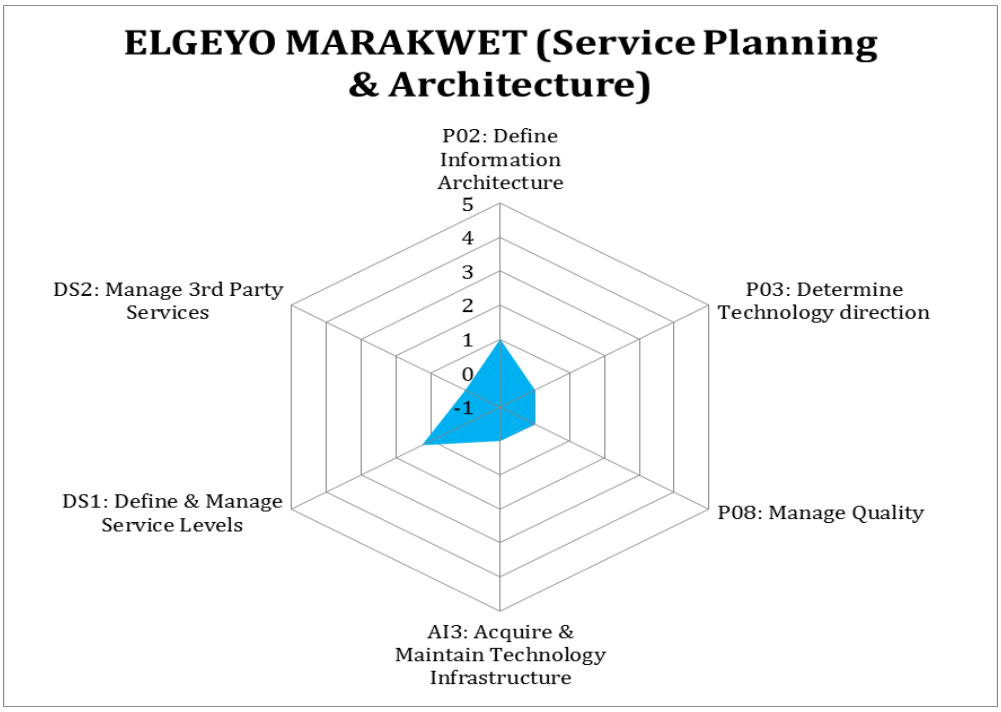


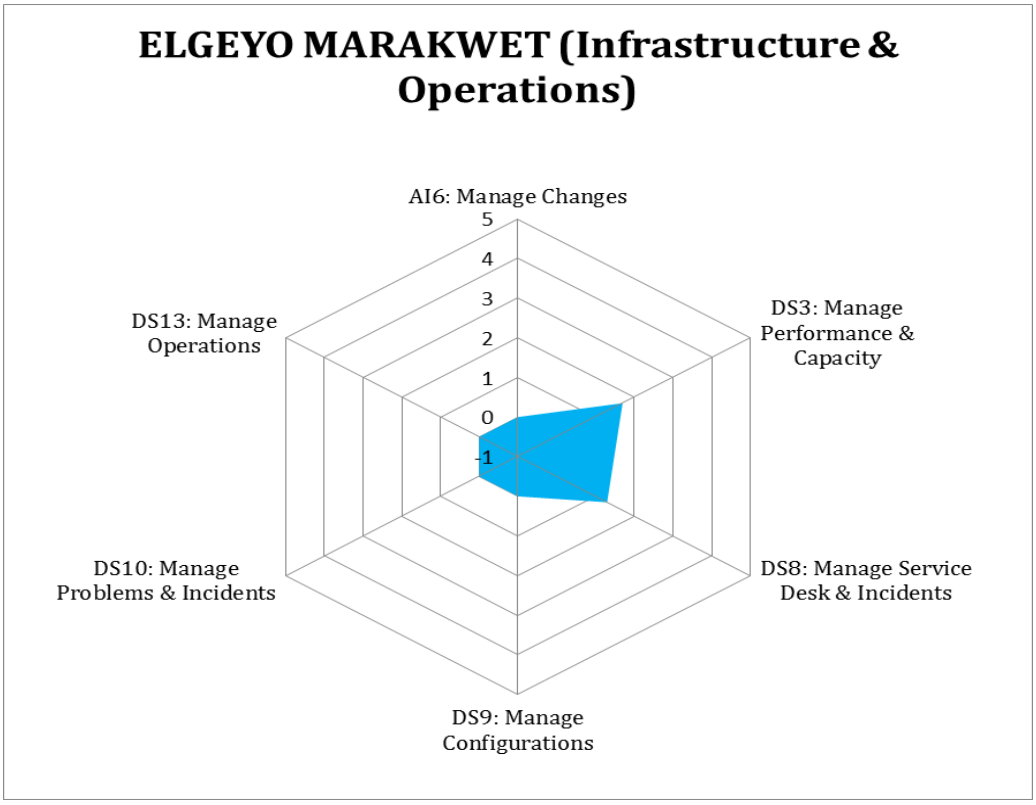
ELGEYO MARAKWET (Financial Management)



ELGEYO MARAKWET(People & Resources)




ELGEYO MARAKWET (Service Planning & Architecture)
P02: Define Information Architecture
P03: Determine Technology direction
P08: Manage Quality
AI3: Acquire & Maintain Technology Infrastructure
DS1: Define & Manage Service Levels
DS2: Manage 3rd Party Services
5
4
3
2
1
0
-1


ELGEYO MARAKWET (Infrastructure & Operations)
AI6: Manage Changes
DS3: Manage Performance & Capacity
DS8: Manage Service Desk & Incidents
DS9: Manage Configurations
DS10: Manage Problems & Incidents
DS13: Manage Operations
5
4
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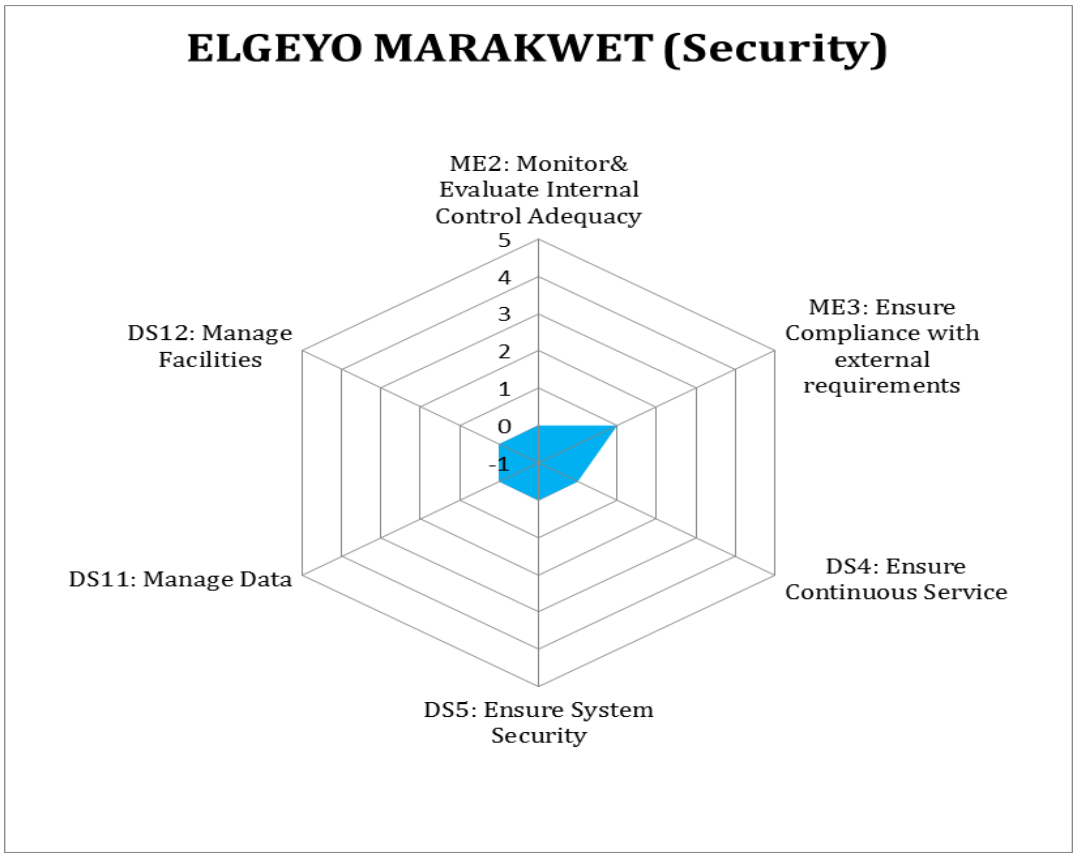
-1


ELGEYO MARAKWET (Security)
ME2: Monitor& Evaluate Internal Control Adequacy
5
4
3
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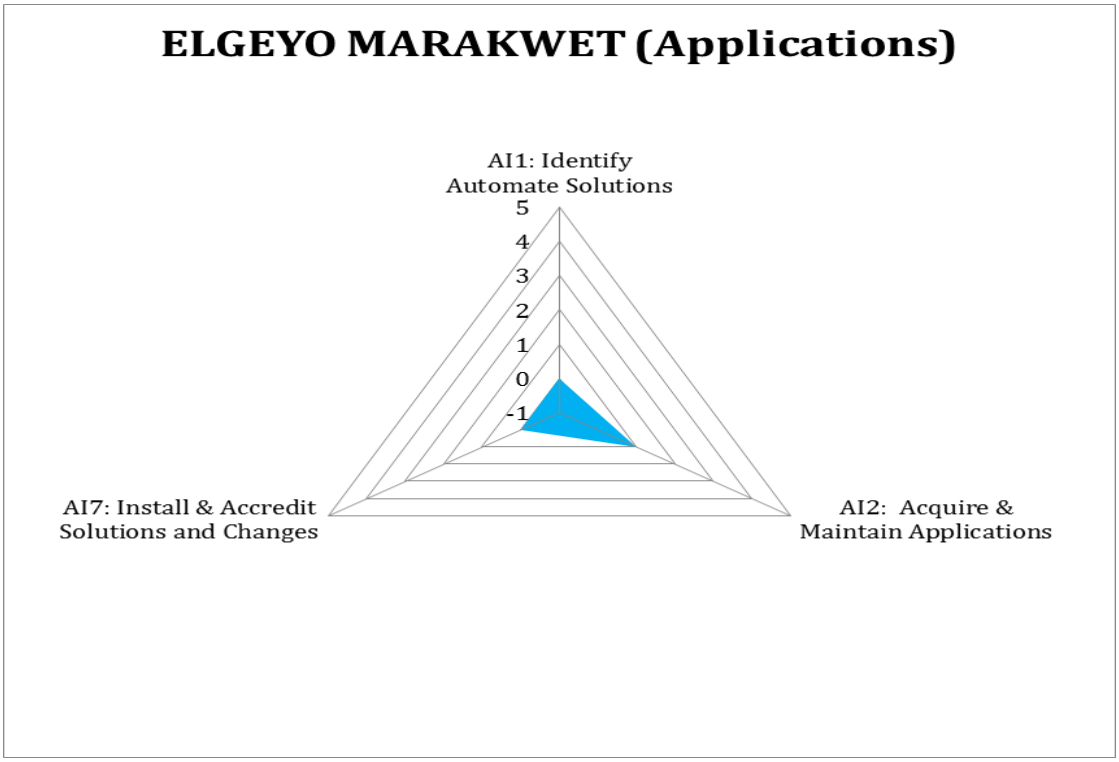
-1
ME3: Ensure Compliance with external requirements
DS4: Ensure Continuous Service
DS5: Ensure System Security
DS11: Manage Data
DS12: Manage Facilities


ELGEYO MARAKWET (Applications)
AI1: Identify Automate Solutions
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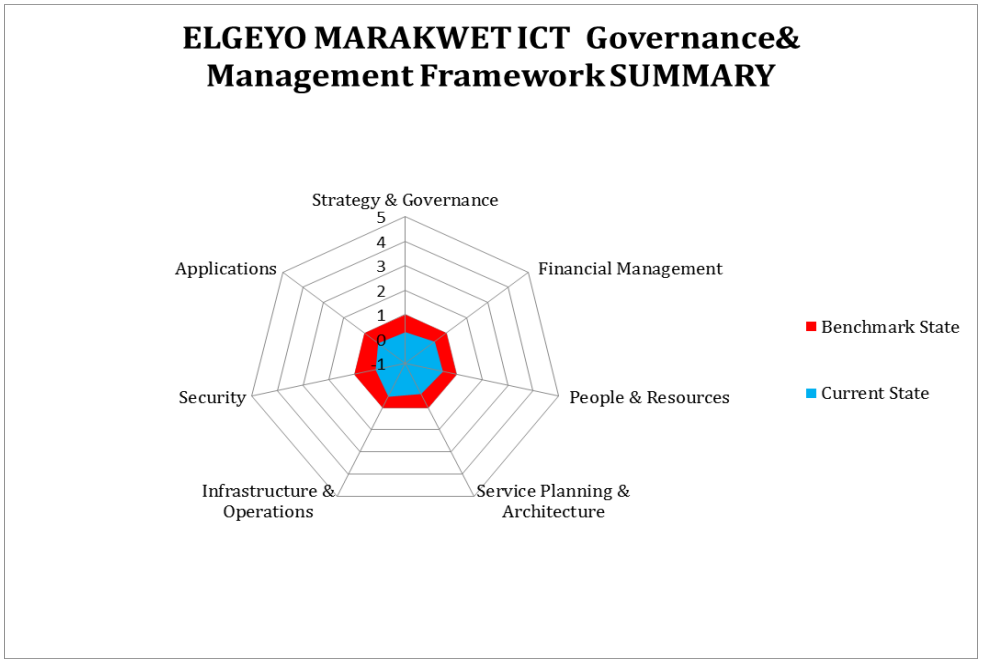
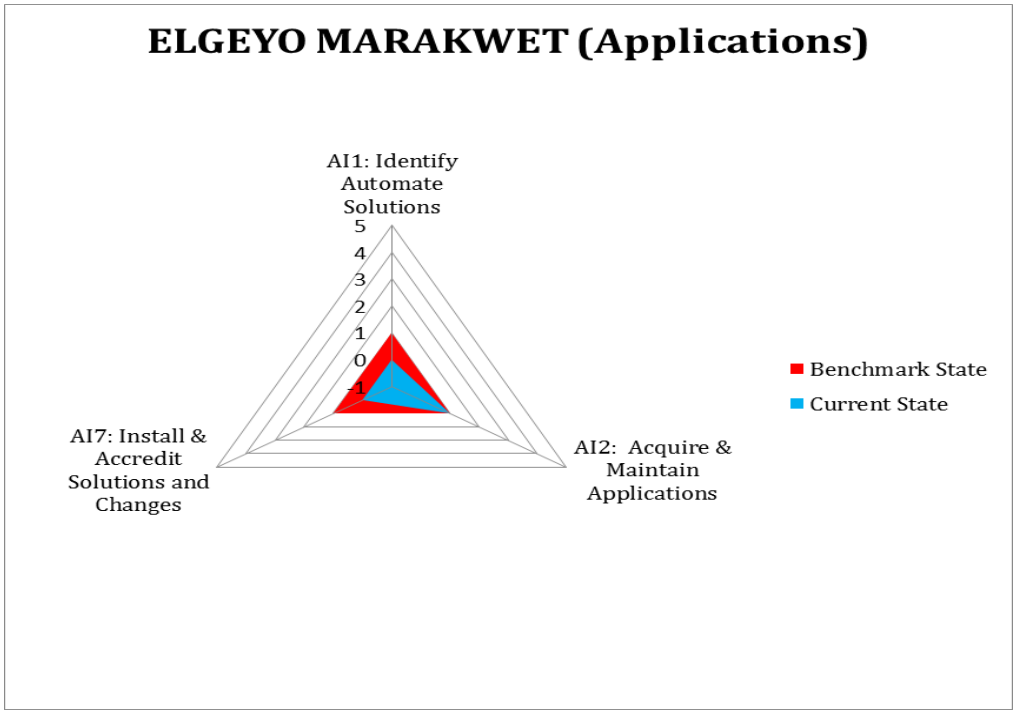
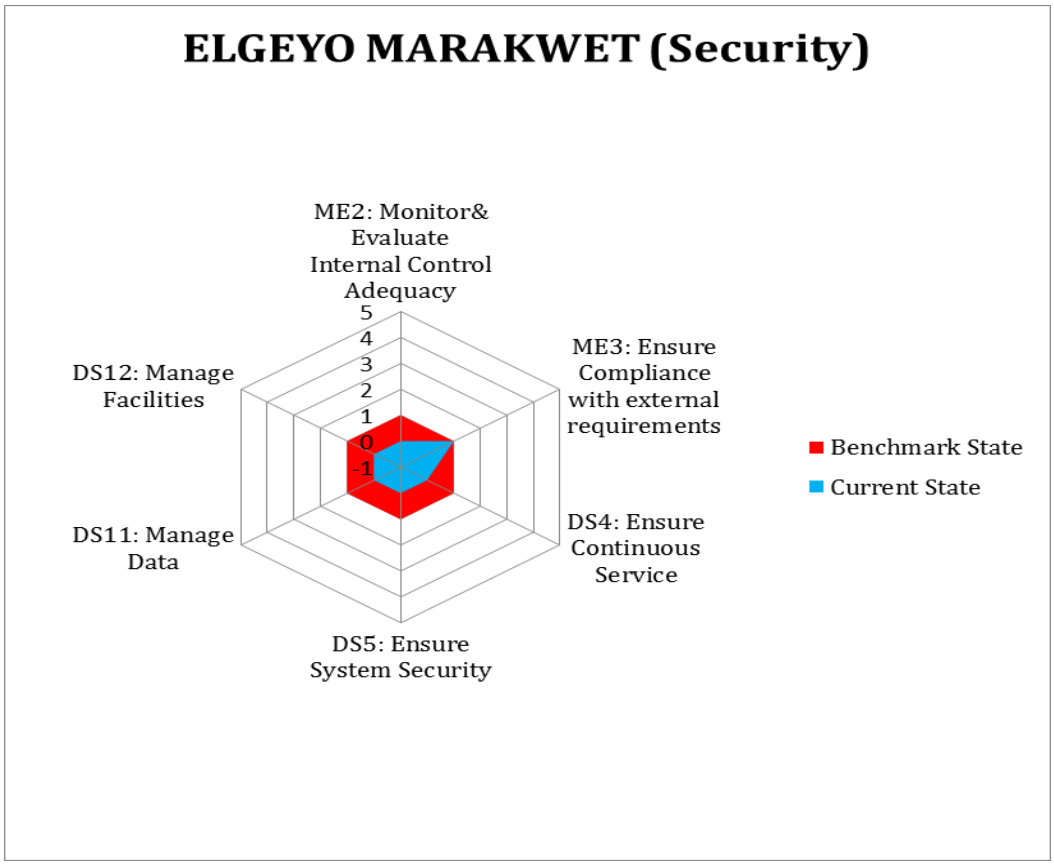
-1
AI2: Acquire & Maintain Applications
AI7: Install & Accredit Solutions and Changes

5.1.5. Appendix E: Benchmark State






ELGEYO MARAKWET (Security)
ME2: Monitor& Evaluate Internal Control Adequacy
ME3: Ensure Compliance with external requirements
DS4: Ensure Continuous Service
DS5: Ensure System Security
DS11: Manage Data
DS12: Manage Facilities
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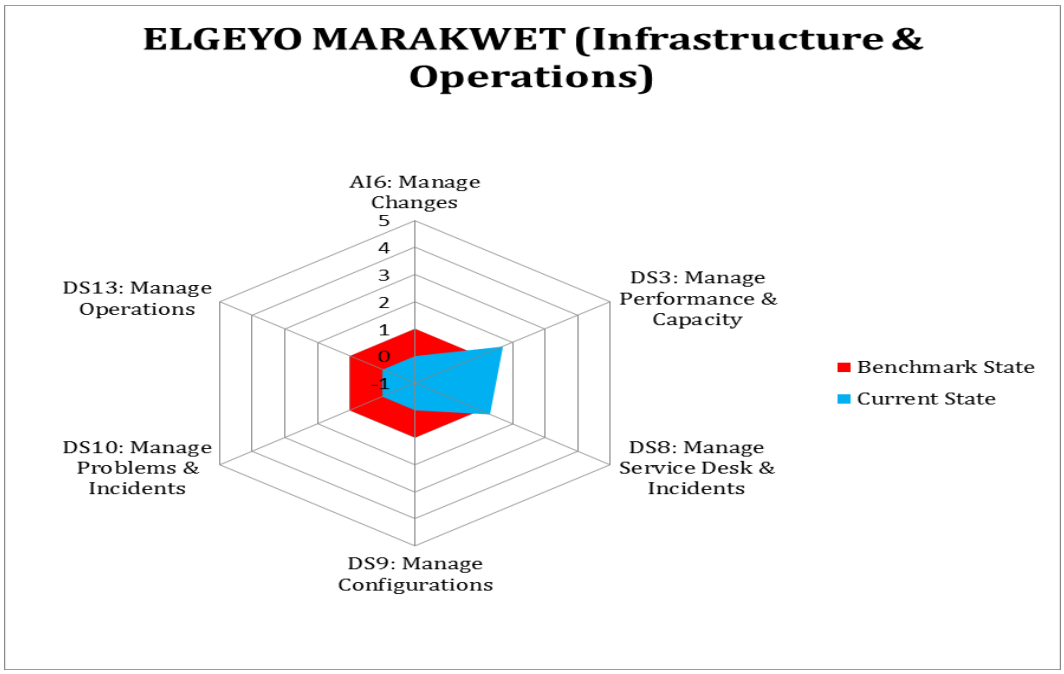
Benchmark State
Current State


ELGEYO MARAKWET (Infrastructure & Operations)
AI6: Manage Changes
DS3: Manage Performance & Capacity
DS8: Manage Service Desk & Incidents
DS9: Manage Configurations
DS10: Manage Problems & Incidents
DS13: Manage Operations
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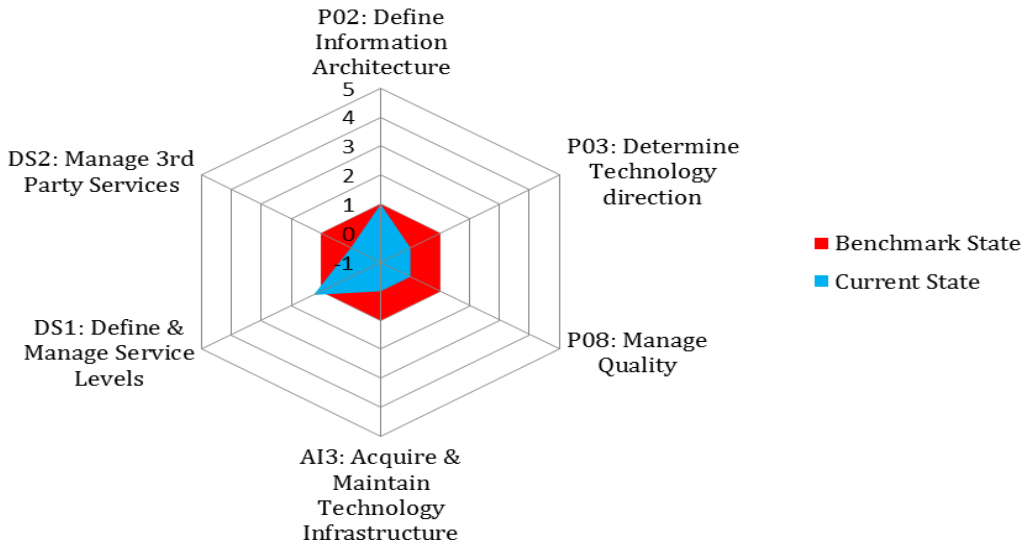
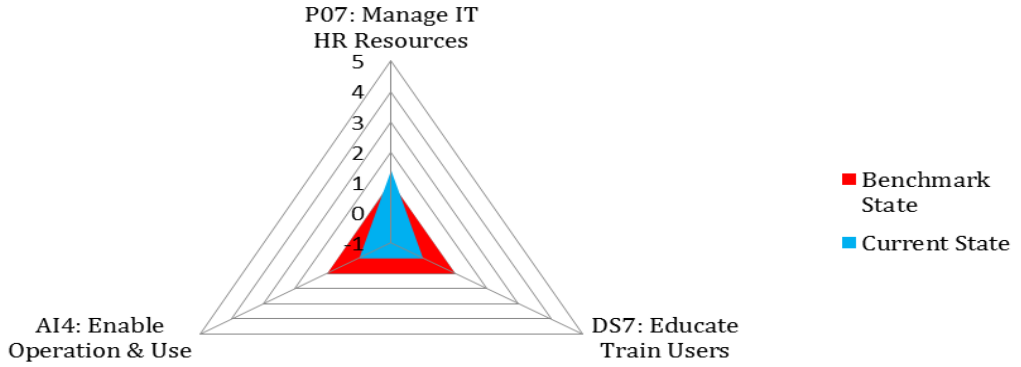
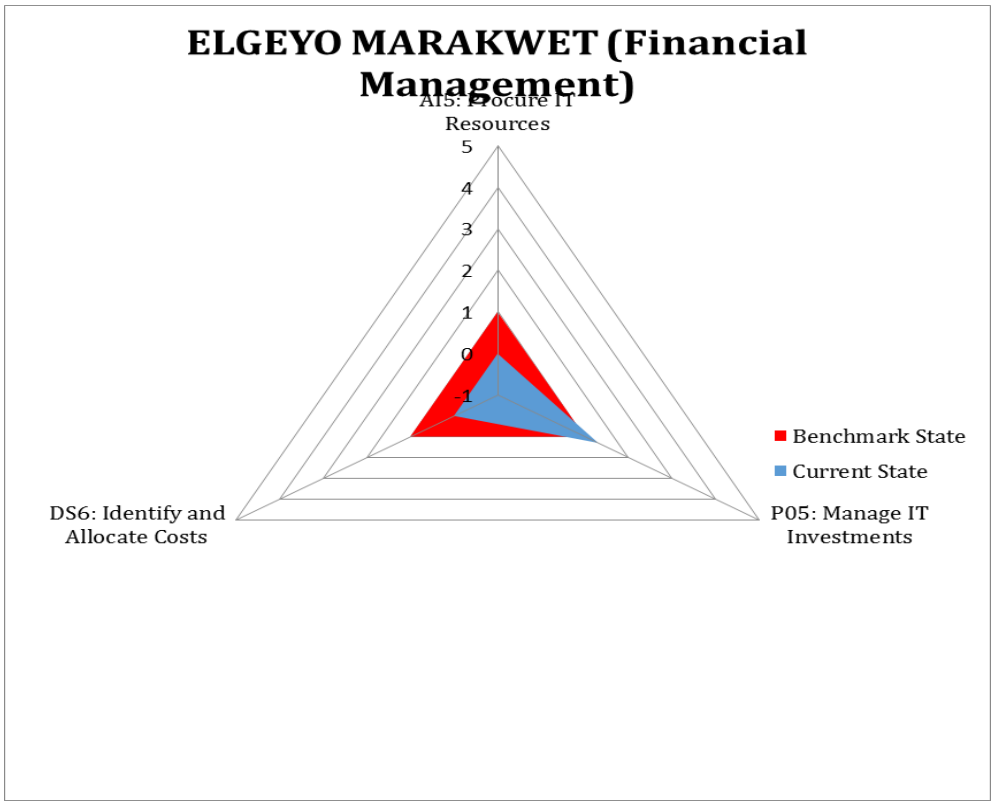
Benchmark State
Current State

ELGEYO MARAKWET (Service Planning & Architecture)



ELGEYO MARAKWET(People & Resources)




ELGEYO MARAKWET (Financial Management)
AI5: Procure IT Resources
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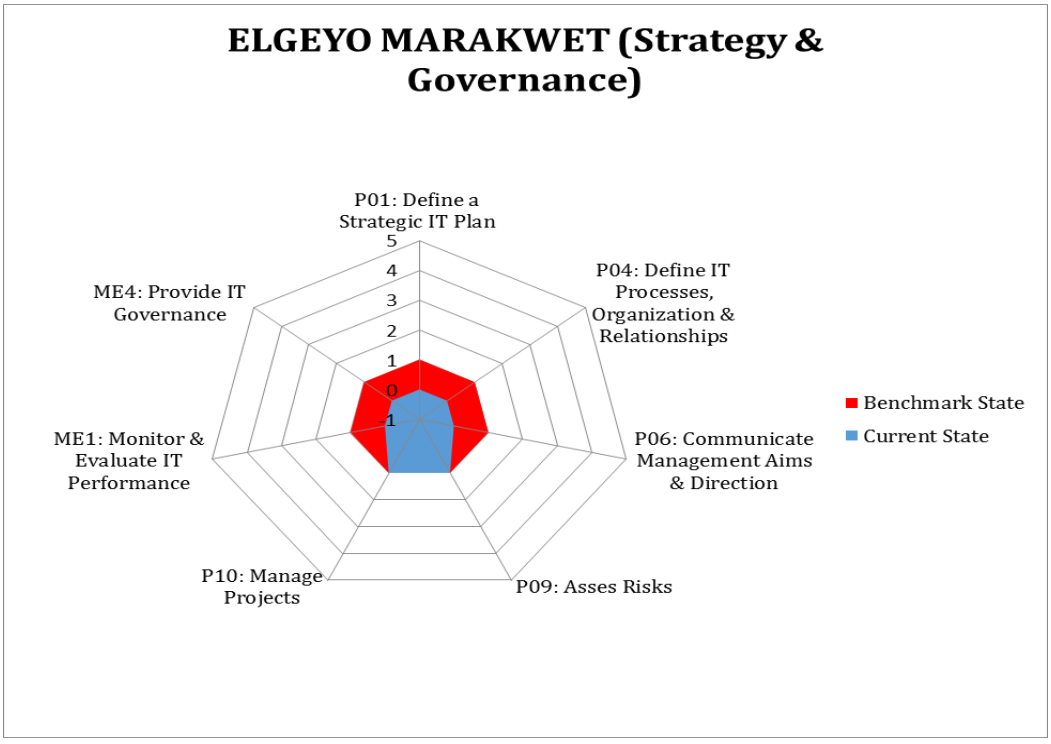
Benchmark State
Current State
P05: Manage IT Investments
DS6: Identify and Allocate Costs


ELGEYO MARAKWET (Strategy & Governance)
P01: Define a Strategic IT Plan
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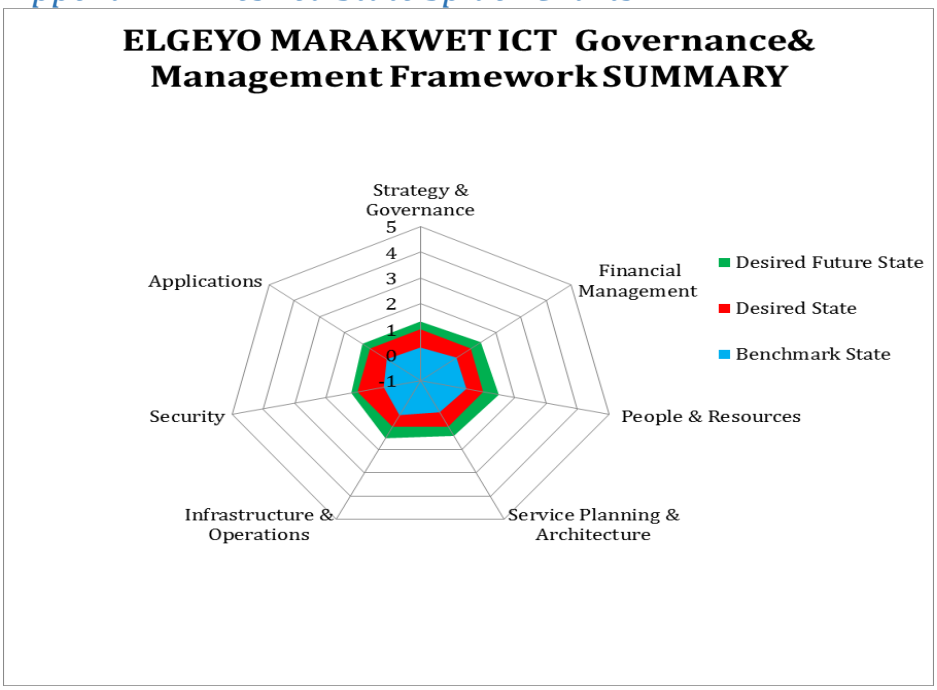
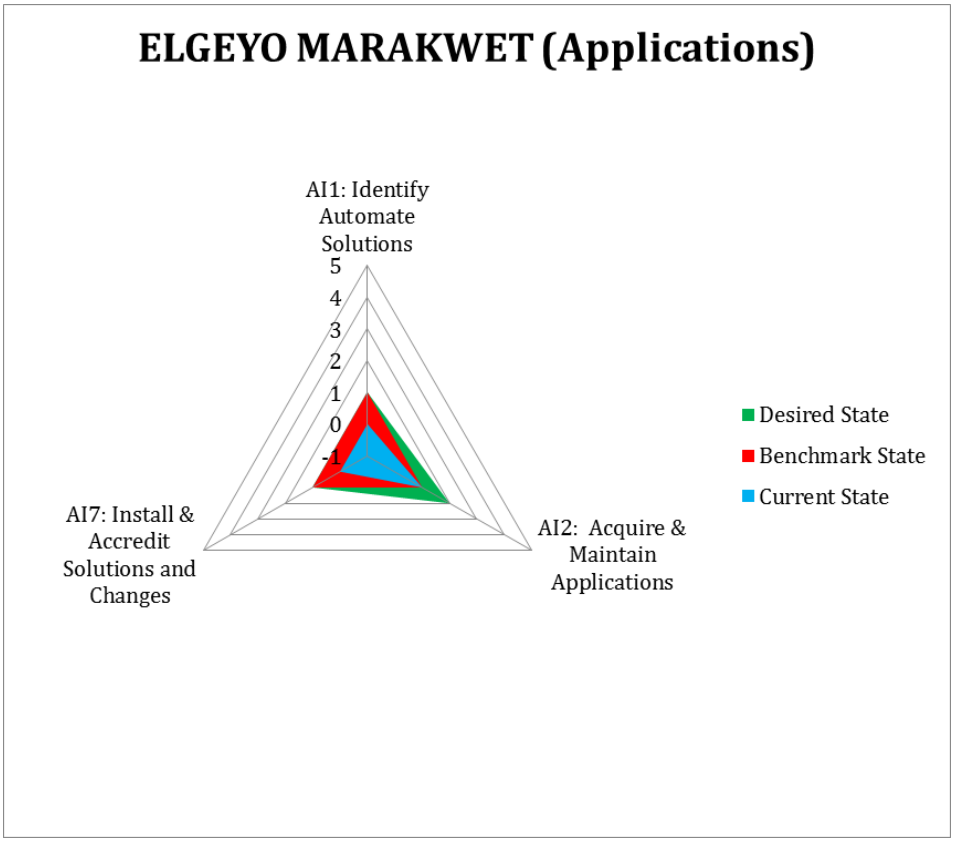
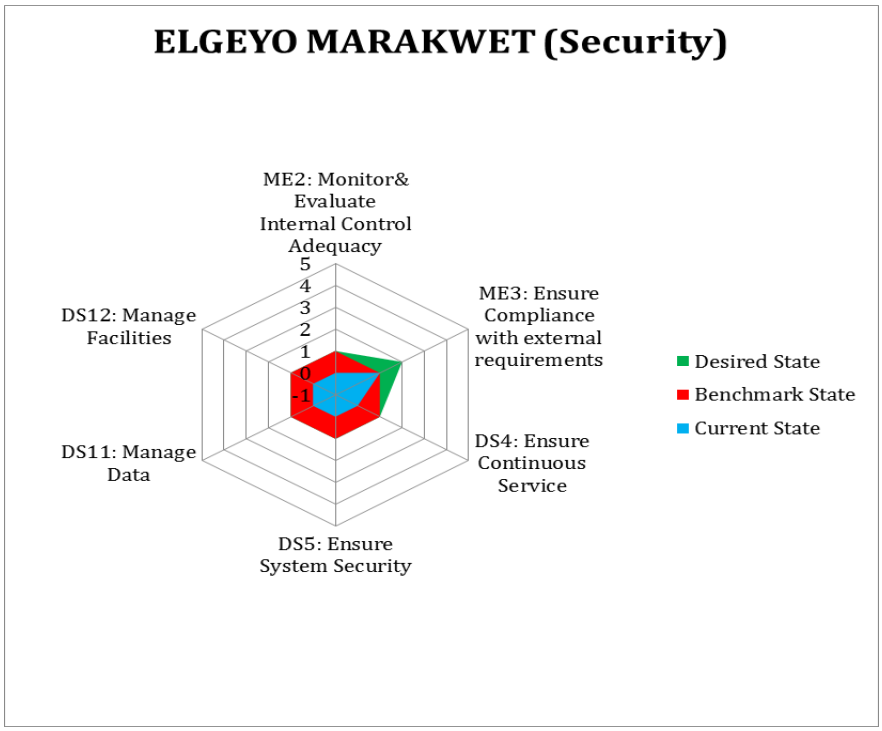
P04: Define IT Processes, Organization & Relationships
P06: Communicate Management Aims & Direction
P09: Asses Risks
P10: Manage Projects
ME1: Monitor & Evaluate IT Performance
ME4: Provide IT Governance
Benchmark State
Current State

5.1.6. Appendix F:: Desired State Spider Charts






ELGEYO MARAKWET (Security)
ME2: Monitor& Evaluate Internal Control Adequacy
ME3: Ensure Compliance with external requirements
DS4: Ensure Continuous Service
DS5: Ensure System Security
DS11: Manage Data
DS12: Manage Facilities
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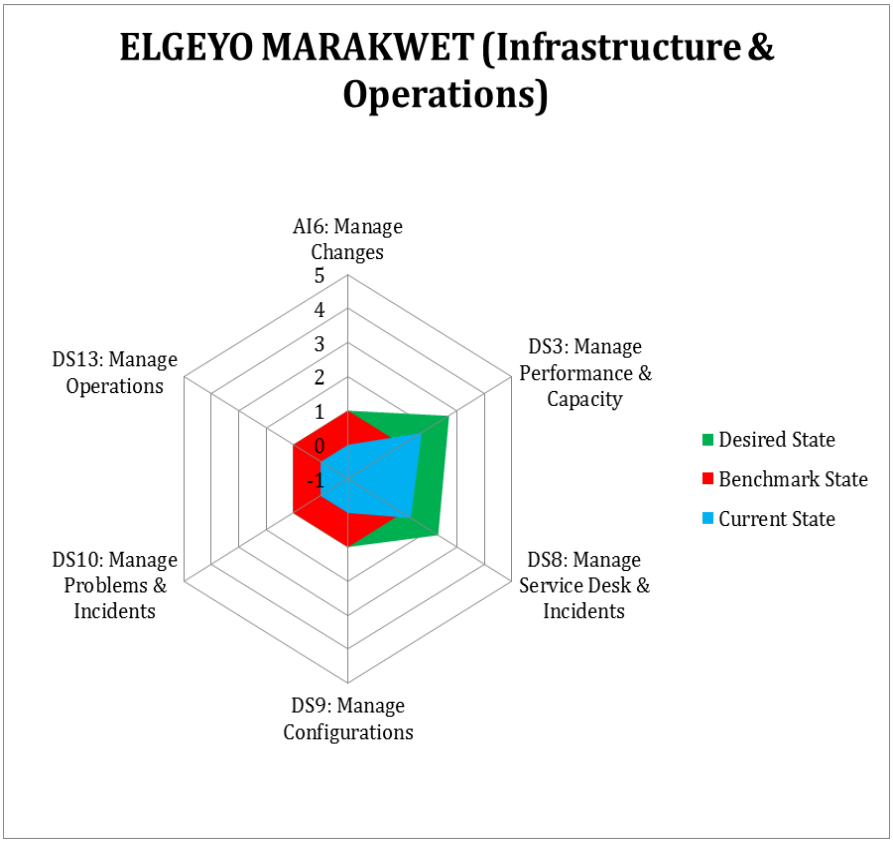
Desired State
Benchmark State
Current State


ELGEYO MARAKWET (Infrastructure & Operations)
AI6: Manage Changes
DS3: Manage Performance & Capacity
DS8: Manage Service Desk & Incidents
DS9: Manage Configurations
DS10: Manage Problems & Incidents
DS13: Manage Operations
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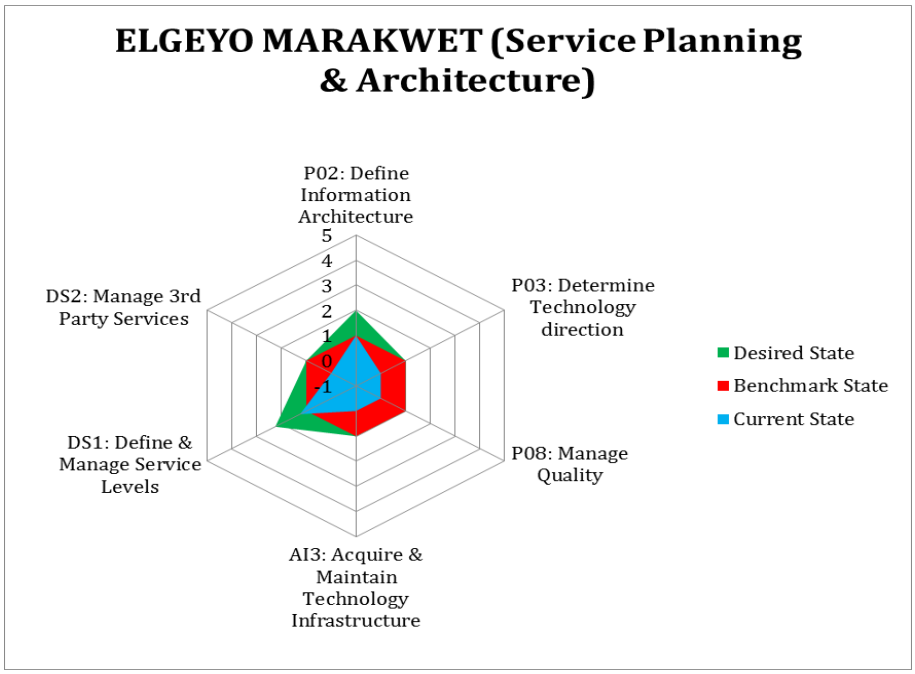
Desired State
Benchmark State
Current State


ELGEYO MARAKWET (Service Planning & Architecture)
P02: Define Information Architecture
P03: Determine Technology direction
P08: Manage Quality
AI3: Acquire & Maintain Technology Infrastructure
DS1: Define & Manage Service Levels
DS2: Manage 3rd Party Services
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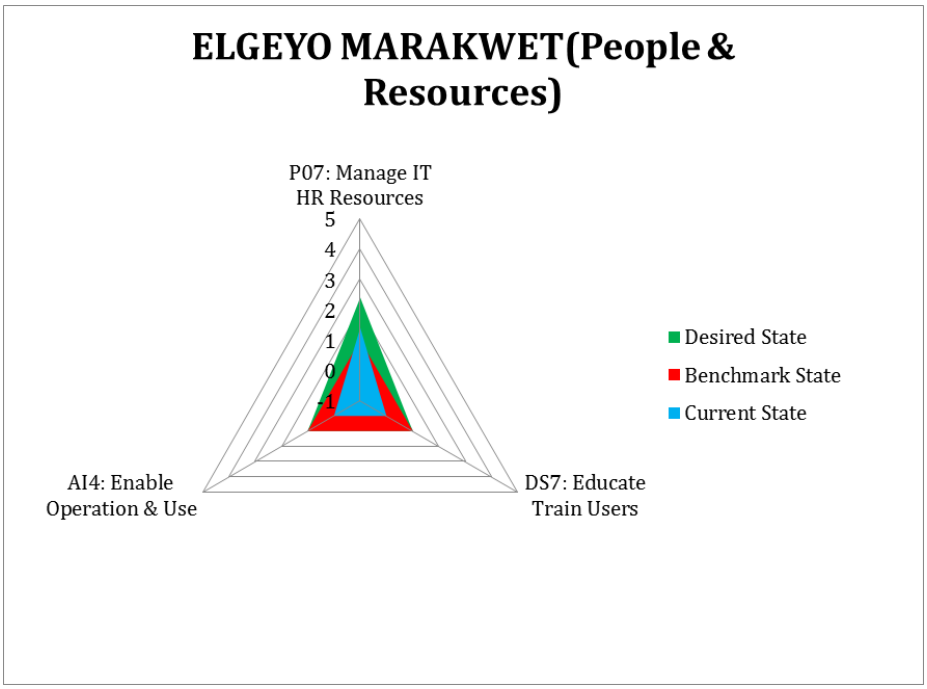
Desired State
Benchmark State
Current State


ELGEYO MARAKWET(People & Resources)
P07: Manage IT HR Resources
DS7: Educate Train Users
AI4: Enable Operation & Use
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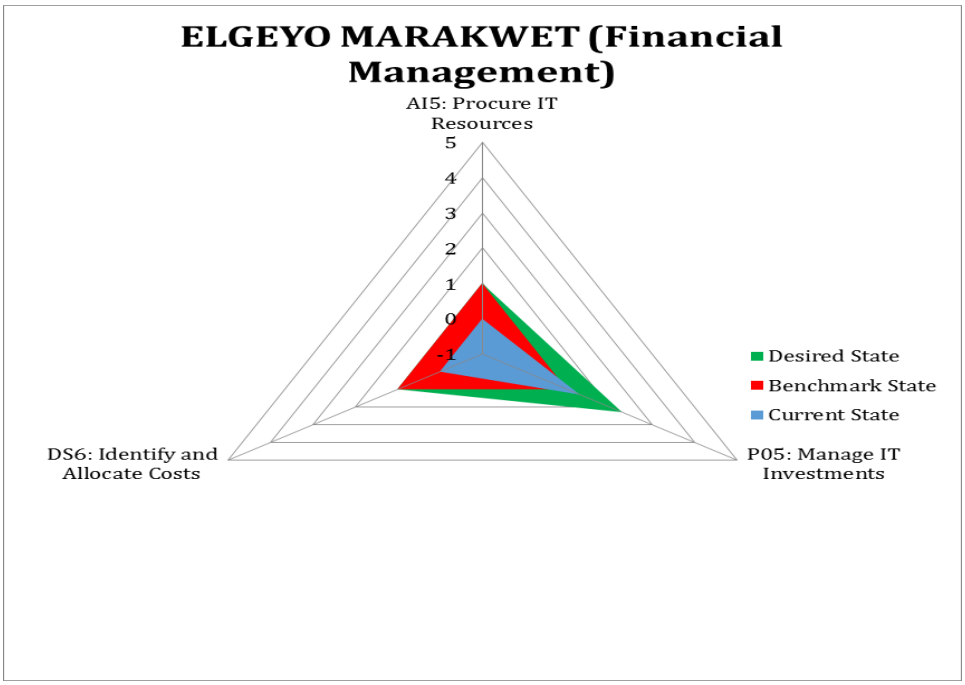
-1
Desired State
Benchmark State
Current State


ELGEYO MARAKWET (Financial Management)
AI5: Procure IT Resources
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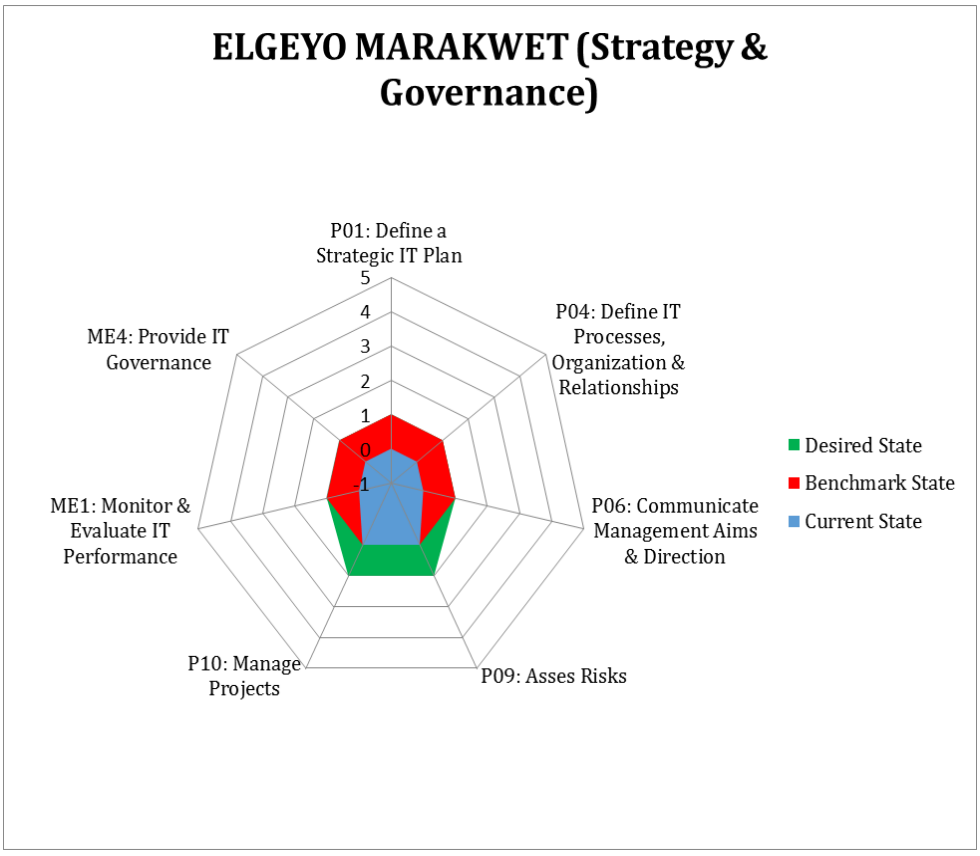
Desired State
Benchmark State
Current State
DS6: Identify and Allocate Costs
P05: Manage IT Investments


ELGEYO MARAKWET (Strategy & Governance)
P01: Define a Strategic IT Plan
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P04: Define IT Processes, Organization & Relationships
P06: Communicate Management Aims & Direction
P09: Asses Risks
P10: Manage Projects
ME1: Monitor & Evaluate IT Performance
ME4: Provide IT Governance
Desired State
Benchmark State
Current State

5.2. Annex 2: Project Prioritization Matrix

Connected County Government project Prioritization

Flagship Project	Importance Ranking		Importance Score	Feasibility Ranking		Total Score (max 18)	Priority/Ranking
	Alignment to County Strategy	Urgency		Available Technical Capability	Available Institutional Funding		
National reserve system	H	M	5	L	L	5	5th priority
E-learning systems	M	H	5	M	L	7.5	4th priority
ERP system	H	H	6	M	L	9	2nd Priority
Integrated ICT infrastructure of all administrative units	H	H	6	H	L	12	1st priority
Information Centres at the sub-County and Ward levels	M	M	4	H	L	8	3rd Priority

Connected Citizens project Prioritization

Flagship Project	Importance Ranking		Importance Score	Feasibility Ranking		Total Score (max 18)	Priority/Ranking
	Alignment to County Strategy	**Urgency**		**Available Technical Capability**	**Available Institutional Funding**		
Establishment of Learning Centres in all wards	M	M	4	H	L	8	3rd priority
Equip ICT center s for entrepreneurs	H	H	6	H	L	12	1st priority
Provide an equipped ICT center in each ward	H	H	6	M	L	9	2nd priority
Youth empowerment centers	M	H	5	M	L	7.5	4th priority
Establishing County radio station/press unit	L	H	2	H	L	4	5th

Citizen Satisfaction Project Prioritization

Flagship Project	Importance Ranking		Importance Score	Feasibility Ranking		Total Score (max 18)	Priority/Ranking
	Alignment to County Strategy	Urgency		Available Technical Capability	Available Institutional Funding		
Integrated health management system for Telemedicine and for effective and efficient service delivery	H	H	6	H	L	12	1st priority
Equipping ECD and Training institution with ICT equipment	M	M	4	H	L	8	3rd priority
Youth empowerment projects	H	M	5	L	L	5	5th priority
Central ISDN number for emergencies(health, security and fire) and free call centre	L	H	2	H	L	4	6th priority
Network connectivity to the Sub-Counties and to Ward levels	H	H	6	M	L	9	2nd priority
Social databases of aged, disability and special needs people	M	H	5	M	L	7.5	4th priority

Connected Legislator Project Prioritization

Flagship Project	**Importance Ranking**		**Importance Score**	**Feasibility Ranking**		**Total Score (max 18)**	**Priority/Ranking**
	Alignment to County Strategy	**Urgency**		**Available Technical Capability**	**Available Institutional Funding**		
Public Participation System- Live Broadcasts of County Assembly proceedings	H	H	6	H	L	12	1st
Electronic Voting System	M	H	5	M	L	7.5	4th
Incorporating County Radio, TV, Internet and Mobile technologies	H	M	5	L	L	5	5th
ICT Proficiency Capacity Building Program for staff and all assembly members (MCAs)	H	H	6	M	L	9	2nd
Committee management systems	M	M	4	H	L	8	3rd

5.3. Annex 3: Proposed Budgets for the Five Year Plan

The proposed budgets are arrived upon by taking into consideration

1. Size of County in terms of population and number of sub County units
2. Number of public schools in the County
3. Number of tertiary institutions in the County
4. Size of County government in terms of number of ministries (departments)
5. Number of level 2 and 3 hospitals in the County
6. Size of County assembly in terms of number of elected and nominated members
7. Quoted equipment prices in international websites
8. Recent project proposals submitted to select County governments
9. Project proposals submitted to other local authorities
10. Budgets of other local authorities

Connected County Government Budgets

No.	Project	Budget (Ksh)	Start	Timeframe
1	Development of an Integrated ICT Network Infrastructure	46M	Sept-15-2015	1 yr.
2	ERP System	67M	Jun-18-2016	2 yrs.
3	National reserve management system	30M	Jun-18-2017	2 yrs.
	Total	143m		

Citizen Satisfaction Budgets

No.	Project	Budget (Ksh)	start	Timeframe
1	Central ISDN number for emergencies(health, security and fire) and free call centre	5M	Sept-15-2016	6 months
2	Integrated Health Management system	9.5M	Nov- 20-2015	1 yr.
3	Equipping ECD and Training institution with ICT equipment	60M	April-10-2018	1 yr.
	Total	74.5m		

Connected Citizens Budgets

No.	Project	Budget (Ksh)	Start	Timeframe
1	Equip ICT center s for entrepreneurs	14M	Sep-20-2016	1 yr.
2	Youth empowerment centers	20M	Jun-15-2015	2yrs
3	Establishing County radio station/press unit	11M	Jan-10-2018	8mths
	Total	45m		

Connected legislator Budgets

No.	Project	Budget (Ksh)	start	Timeframe
1	Public Participation System-Live Broadcasts of County Assembly proceedings	7m	July -2016	I yr.
2	ICT Proficiency Capacity Building Program for staff and all assembly members (MCAs)	20m	Aug-2017	3 months
3	Committee management systems	20m	Sept -2019	10 months
5	**Total**	47m		

COBIT Costing

No.	Project	Budget (Ksh)	Timeframe
1	Search, Evaluate & Procure COBIT Consultant	0.1m	2 months
2	Contract & Sign up a COBIT Consultant	0.5m	1 day
3	COBIT Awareness & Appreciation Training for Top Leadership (Governor, County Exec, Speaker, Chief Officers)	0.05m	1 day
4	COBIT Technical Training for Mid-level Management (Directors, Managers across Ministries)	0.1m	2 days
5	COBIT Implementation Training for Technical Management (ICT Directors,	0.1 m	2 days

	ICT Technical Support, Auditors)		
6	External Annual Audits	0.5m	5 days
	Total	1.35m	

5.4. Annex 4: Implementation Matrix

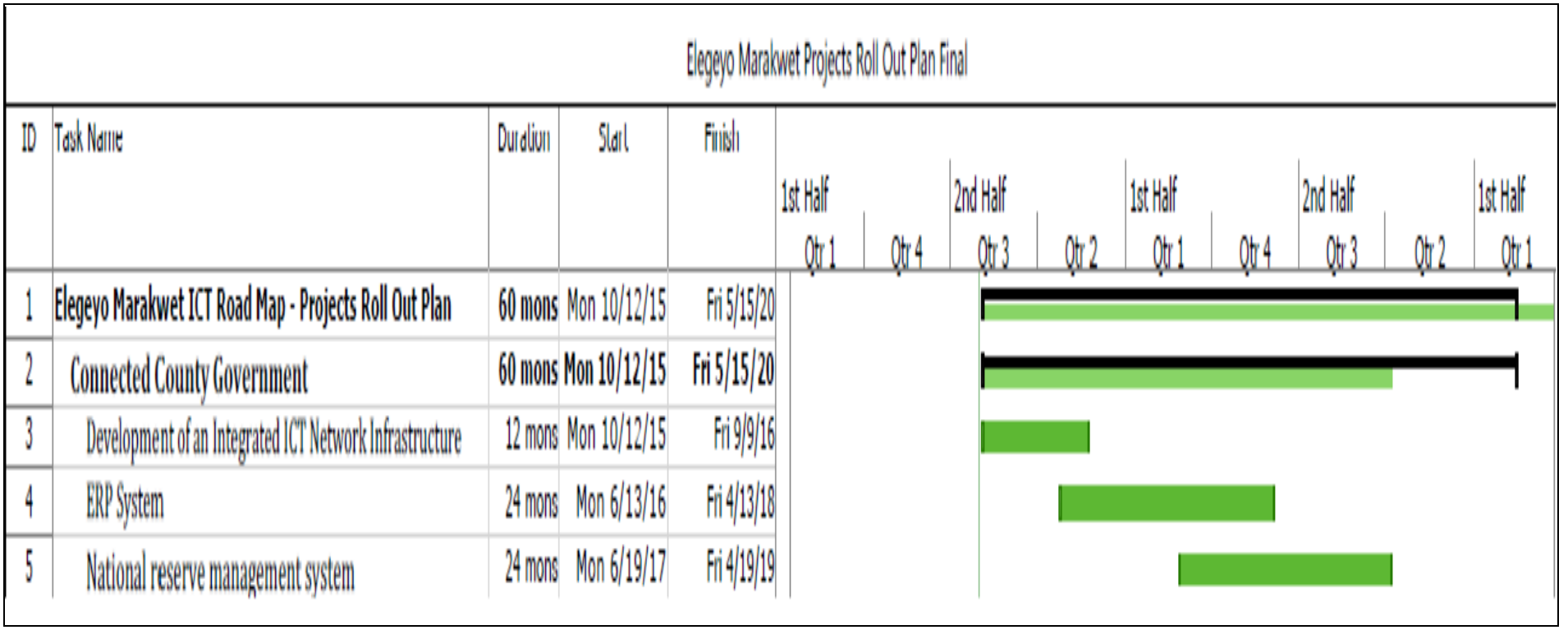
Flagship Projects	Objectives	Strategies	KPIs	Target 2015-2020	Outcomes	Responsibility	Budget
Development of an Integrated ICT Network Infrastructure	Increasing network coverage in the County	Budgetary allocation to network infrastructure	Number of Sub-counties and Ward Offices networked	All sub-Counties and Wards(offices)	Efficient and Effective communication	ICT Directorate	46M
ERP system	Reducing the operational costs involved in manually tracking and (perhaps) duplicating data using individual & disparate systems.	Procurement of an ERP system	Inventory accuracy	All modules of the ERP	Automatic and coherentworkflow from one department/function to another, for smooth transition and quicker completion of processes.	ICT Directorate	67M
National reserve management system	Proper management of the reserve to increase tourism	Acquire a National reserve management system	Increase in tourists	10000 yearly	Automated operations in the park	ICT Directorate	30M
Equip ICT centers for entrepreneurs	Promote entrepreneurship in the County	Establishment of incubation/resource centres	Number of innovation centres in the County	All sub-counties	Increased GDP and reduced poverty levels in the County	ICT Directorate	14M

Flagship Projects	Objectives	Strategies	KPIs	Target 2015-2020	Outcomes	Responsibility	Budget
Youth empowerment centers	Promote and nature talents in Elgeyo-Marakwet	Establishment of youth Centre's	Number of youth enrolled yearly	One	Increased self-reliance trough income generating skills	ICT Directorate	20M
Establishing County radio station/press unit	Dissemination of County news and information across E.M County	Establishment of County media	Number of listeners of the County radio	All County citizens	Empowered citizens with information	ICT Directorate	11M
Central ISDN number for emergencies(health, security and fire) and free call centre	Mitigation of casualties caused by disasters such as fire	Installation of alert systems to respond to emergencies	Number of calls received	All sub-counties and wards	Instant responses to emergency services	ICT Directorate	5M
Integrated Health Management system	Improve effectiveness and efficiency of health care services/delivery	Acquire an integrated Health Care Management System	Amount of time taken to retrieve patient records	All health facilities in the County	Better quality of health care, education and research.	ICT Directorate	9.5M
Equipping ECD and Training institution with ICT equipment	Increase ICT literacy	Equipment of ECD and training institutions with ICT equipment	number of ICT literate learners	All learning institutions	Effective and efficient use of technologies	ICT Directorate	60M

Flagship Projects	Objectives	Strategies	KPIs	Target 2015-2020	Outcomes	Responsibility	Budget
Public Participation System- Live Broadcasts of County Assembly proceedings	Providing for public participation in legislative issues	Implementation of live-broadcasts in County assembly	Number of proposals and feedback from the public	All County proceedings	Transparency in legislation	ICT Directorate, Clerk, Speaker	7M
ICT Proficiency Capacity Building Program for staff and all assembly members (MCAs)	Increased passing of bills	Provision of capacity building on the use of the existing systems and devices	Number of MCA's skilled in ICT	All MCA's in the County Assembly	Effective and efficient County assembly	ICT Directorate, Clerk, Speaker	20M
Committee management systems	Easy management of house committees	Development of a committee management system	Effective house committees	All house committees in the County assembly	Faster decision making and reduction of costs	ICT Directorate, Clerk, Speaker	20M

5.5. Annex 5: Roll-Out Plan Charts

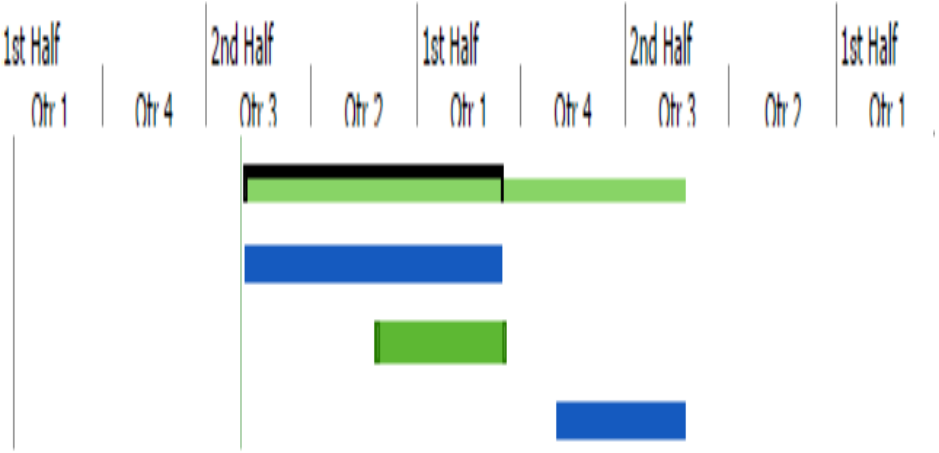
Connected County Government



Connected Citizens

Elegeyo Marakwet Projects Roll Out Plan Final

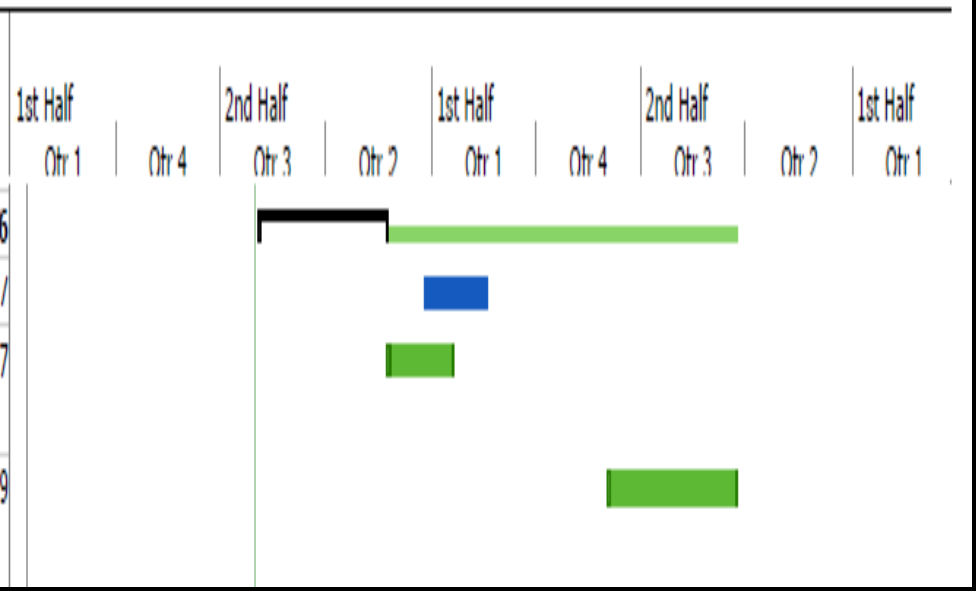
ID	Task Name	Duration	Start	Finish
10	**Connected Citizens**	**24 mons**	**Mon 10/12/15**	Fri 8/11/17
11	Youth empowerment centers	24 mons	Mon 10/12/15	Fri 8/11/17
12	Equip ICT center s for entrepreneurs	12 mons	Mon 9/19/16	Fri 8/18/17
13	Establishing County radio station/press unit	12 mons	Tue 1/2/18	Mon 12/3/18



Citizen Satisfaction

Elegeyo Marakwet Projects Roll Out Plan Final

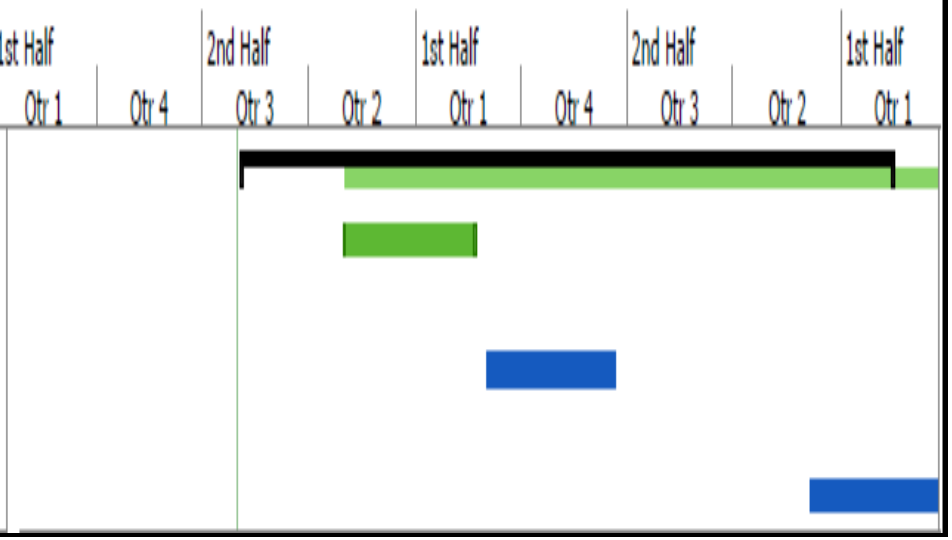
ID	Task Name	Duration	Start	Finish
6	**Citizen Satisfaction**	**12 mons**	Mon 10/12/15	**Fri 9/9/16**
7	Integrated Health Management system	6 mons	Mon 12/12/16	Fri 5/26/17
8	Central ISDN number for emergencies(health, security and fire) and free call centre	6 mons	Mon 9/12/16	Fri 2/24/17
9	Equipping ECD and Training institution with ICT equipment	12 mons	Mon 4/9/18	Fri 3/8/19



Connected Legislator

Elegeyo Marakwet Projects Roll Out Plan Final

ID	Task Name	Duration	Start	Finish
14	Connected Legislators	60 mons	Mon 10/12/15	Fri 5/15/20
15	Public Participation System- Live Broadcasts of County Assembly proceedings	12 mons	Mon 7/4/16	Fri 6/2/17
16	ICT Proficiency Capacity Building Program for staff and all assembly members (MCAs)	12 mons	Mon 7/3/17	Fri 6/1/18
17	Committee management systems	12 mons	Mon 10/14/19	Fri 9/11/20



5.6. Annex 6: Change Management Plan

THE EXECUTIVE

Type of Change (Specific to the department /group or section)	Who are the stakeholders	Barriers of Change	Change Agent(s)	Role of County government	Activities to make the change successful	Expected Result(s)/ Measurement criteria
1. Embrace and support ICT as a change agent	• County executive committee • County assembly members • Chief Officers • ICT Heads	Vested interest Resistance to change ICT Illiteracy Perceiving ICT as a non-priority	The executive/ management External consultants	i. Facilitate i.e. training, awareness creation, finance i. Create time for meetings and trainings i. Adopt County structure as well as recruit appropriate personnel to drive ICT growth	Allocate funds to ICT projects Appoint Change agents/champions Preparing and endorsing all ICT project plans Embracing the ICT structure and how it relates with the organizational structure	i.Establishment of relevant ICT policies ii.Increased budget allocation for ICT iii.Increased number of ICT staff in the County structure. iv.Literacy level of the executive and County assembly about ICT v. An improved service delivery vi.Automated and connected County
2. Propose and pass laws to promote ICT usage	• County executive committee • County assembly members • Chief Officers • ICT Heads	i. Vested interest Resistance to change Lack of intellectual capacity among MCAs Perceiving ICT as a	i. The executive/ management i. External consultants	Drafting of Bills on ICT Allocate time to debate and pass the bills into law Involve the public in legislation	i. Training i. Drafting of Bills on ICT i. Debates on bills on ICT	i. Appropriate laws to promote ICT passed i. Literacy level of the Executive and County assembly about ICT

Type of Change (Specific to the department /group or section)	Who are the stakeholders	Barriers of Change	Change Agent(s)	Role of County government	Activities to make the change successful	Expected Result(s)/ Measurement criteria
		non-priority				
3. Enforce the laws and policies passed that affect ICT penetration	..County Executive Committee County Assembly	Limited funding Sabotage of law enforcement in the political arena Corruption in the law enforcement system	County Executive Committee County Assembly The Public	Table and debate the procedural legislation Strictly adhere to deadlines set in the laws to comprise any board/tribunal	Pass all the procedural legislation to facilitate the enforcement of the substantive laws Establishment of special boards/tribunals if there is such need to adjudicate on disputes arising from the ICT laws.	Zero tolerance for noncompliance with the laws Prosecution of offenders Discipline enforcement
4. Allocate budget to specific ICT projects	County Executive Committee County Assembly Chief Officers ICT heads	Limited resources Vested interests Political sabotage Perceiving ICT as an option and non-priority ICT ignorance/Illiteracy	County Executive Committee County Assembly	Defend the increased allocation of resources in the County Budget for ICT projects Discourage politicization of the County ICT project Training and awareness on the importance of ICT and a key economic and social enabler Fill the ICT structure with intended	Passing of the County Budget which has catered for the County ICT projects Increased support for ICT activities Cabinet approvals for ICT activities	Availability of funds to support the implementation of ICT projects Take off of ICT projects Use of ICT in most County offices in performance of office duties and delivery of services Implementation of Information systems in all sectors including the citizens

Type of Change (Specific to the department /group or section)	Who are the stakeholders	Barriers of Change	Change Agent(s)	Role of County government	Activities to make the change successful	Expected Result(s)/ Measurement criteria
				personnel		

SENIOR MANAGEMENT

Type of Change (Specific to the department /group or section)	Who are the stakeholders	Barriers of Change	Change Agent(s)	Role of County government	Activities to make the change successful	Expected Result(s)/ Measurement criteria
Embrace and support ICT as a change agent	• County executive committee • County assembly members • Ministry heads • ICT Heads	Vested interest Resistance to change ICT Illiteracy	The executive/ management External consultants	v. Facilitate i.e. training, awareness creation, finance v. Create time for meetings and trainings i. Adopt County structure as well as recruit appropriate personnel to drive ICT growth	Allocate funds to ICT projects Appoint Change agents/champions Preparing and endorsing all ICT project plans	vii. Establishment of relevant ICT policies viii. Increased budget allocation for ICT ix. Increased number of ICT staff in the County structure. x. Literacy level of the executive and County assembly about ICT
2. Identify and formalize working relationships with ICT partners and other counties	• County executive committee • County assembly members • Chief Officers	i. Vested interest i. Resistance to change i. Hostility with some neighboring counties	The executive/ management i. External consultants	i. Identify and pursue partners for partnership /collaboration agreements	i. Set up inter-County working committees i. Prequalify and enlist relevant service providers	Number of signed partnerships. contracts with partners Establishment of shared facilities with

Type of Change (Specific to the department /group or section)	Who are the stakeholders	Barriers of Change	Change Agent(s)	Role of County government	Activities to make the change successful	Expected Result(s)/ Measurement criteria
	• ICT Heads	v. Lack of legislation on sharing of facilities v. Lack of collaborations with neighbours and other partners			i. Evaluate and identify relevant partners v. Create caucuses and collaborations with other partners v. Advocating for seminars, conferences, workshops and site visits	neighboring counties

JUNIOR MANAGEMENT, OPERATIONAL AND ADMINISTRATIVE

Type of Change (Specific to the department or section)	Who are the stakeholders	Barriers of Change	Change Agent(s)/Champions	Role of County Government	Activities to make the change successful	Expected Result(s)/ Measurement criteria

Type of Change (Specific to the department or section)	Who are the stakeholders	Barriers of Change	Change Agent(s)/Champions	Role of County Government	Activities to make the change successful	Expected Result(s)/ Measurement criteria
Shift from manual to digital record keeping	Personal assistants Procurement personnel HR Staff Legal staff Project Managers	i. Non-existent infrastructure i. Lack of skills i. Resistance to change v. Vested interests v. Poor maintenance of existing systems ICT illiteracy and poor perceptions	i. The Executive i. Heads and sectional heads of departments i. Change champions v. Business owners	i.Allocate a budget for training staff i. Mobilize resources/ Availing funds i.purchase equipment v.create conducive environment for change v.Implement proposed changes	Create awareness Training Procurement of necessary facilities Mandate Change Agents	i. Reduction in paper usage ii. Storage of more records in less space i. Security of Documents iv. Maintenance and preservation of documents v. Easy to update records
Use of automated revenue collections systems	Tax collectors Park attendants Cashiers Accountants Finance managers/Heads of Revenue	Resistance to change Corruption Poor infrastructure Poverty Lack of skills Lack of training and awareness	The Executive i. Heads of departments i. Change champions v. Business owners	Provide funds Set-up infrastructure to enable revenue collection Sensitize the citizens about new systems	Review of HR policies Training Public awareness campaigns	Increment in number of citizens paying through automated systems Disciplinary actions taken on defaulters

Type of Change (Specific to the department or section)	Who are the stakeholders	Barriers of Change	Change Agent(s)/Champions	Role of County Government	Activities to make the change successful	Expected Result(s)/ Measurement criteria
Use of ICT in County operations such as . Human Resource Management information system (HRIMS) Online procurement . Health Management systems . Geographical Information System (GIS)	HR staff Legal officers Procurement staff Ministries staff	Resistance to change Corruption Poor infrastructure Lack of skills	The Executive Heads of departments Change champions	Provide funds to purchase infrastructure Empower the change agents Establish appropriate structures	Purchase relevant systems Recruit relevant staff Run internal campaigns to encourage usage	Faster office operations Less paper usage in the office
Utilize full capacity systems	Personal assistants Procurement personnel Section managers	Lack of skills Complacence Lack of maintenance and support of the systems	The Executive i. Heads of departments Change	Establish policies to facilitate full utilization of ICT systems	Trainings to be done Run internal campaigns to encourage usage	i. Number of users using new systems i. Increased number of technical support personnel i. Increased demand for ICT systems

Type of Change (Specific to the department or section)	Who are the stakeholders	Barriers of Change	Change Agent(s)/Champions	Role of County Government	Activities to make the change successful	Expected Result(s)/ Measurement criteria
	HR Staff Legal staff Project Managers	Lack of policies	champions		Establish reward systems for compliance Recruit and contract more technical personnel	v. Faster delivery of services
Embrace current trends in ICT usage such as Project management tools, Social Media applications, Mobile money transfer, cloud computing	Personal assistants Procurement personnel Section managers HR Staff Legal staff Project Managers	Lack of skills Complacence Lack of maintenance and support of the systems Culture	The Executive i. Heads of departments Change champions	Establish policies to facilitate full utilization of ICT systems	Trainings to be done Run internal campaigns to encourage usage Establish reward systems for compliance	i. Number of users using new systems i. Increased demand for ICT systems i. Faster delivery of services

TECHNICAL PERSONEL

Type of Change (Specific to the department /group or section)	Who are the stakeholders	Barriers of Change	Change Agent(s)	Role of County Government	Activities to make the change successful	Expected Result(s)/ Measurement criteria
Automation of office operations	System administrators Web developers Network Administrators ICT Project Managers ICT Maintenance officers	Non-existent infrastructure Lack of skills Lack of management support Resistant to change	The Executive Head of departments Change champions	i. Allocate training budget Mobilizing resources/ availing funds i. Purchase equipment	Training Procurement of necessary facilities Appraisals on performance Mandating Change Agents Reward performance	Faster resolution of ICT problems using internal staff Adoption of appropriate technologies within the County ICT systems Increased security of County data Internal customer satisfaction
Optimization of existing ICT systems	System administrators Web developers Network Administrators ICT Project Managers ICT Maintenance officers	i. Vested interests i. Lack of skills i. Failed systems v. Systems procured without proper assessment of need	The Executive Head of departments Change champions	i. Allocate training budget i. Mobilizing resources/ availing funds i. Purchase equipment	Training Procurement of necessary facilities Appraisals on performance Mandating Change Agents Reward performance	Upgrading of systems in terms of capacity Increased awareness of existing systems Increased speed in service delivery High returns with minimal investments

Type of Change (Specific to the department /group or section)	Who are the stakeholders	Barriers of Change	Change Agent(s)	Role of County Government	Activities to make the change successful	Expected Result(s)/ Measurement criteria
Implement current trends in ICT technologies	System administrators Web developers Network Administrators ICT Project Managers ICT Maintenance officers	Vested interests i. Lack of skills i. Lack of funding	The Executive Head of departments Change champions	i. Allocate training budget i. Mobilizing resources/ availing funds i. Purchase equipment	Training Procurement of necessary facilities Appraisals on performance Mandating Change Agents Reward performance Establishment of relevant policies	• Increased speed in service delivery • Increased number of staff adopting current technologies in their daily operations.

COUNTY CITIZENS

Type of Change (Specific to the department /group or section)	Who are the stakeholders	Barriers of Change	Change Agent(s)	Role of County Government	Activities to make the change successful	Expected Result(s)/ Measurement criteria
Embrace and adopt use of ICT in engagement with County government services	All citizens/general public	Resistance to change i. Cultural ties i. Lack of skills	County Assembly Business owners Service providers	i. Lobby the MCAs to mobilize their constituents to embrace ICT i. Provide funding for setting up digital centers	Run public campaigns Publish fliers containing services Setup public digital centers Forums for ICT delivery through focus groups such	. Increase in number of citizens using ICT to access services . Number of digital centers established

Type of Change (Specific to the department /group or section)	Who are the stakeholders	Barriers of Change	Change Agent(s)	Role of County Government	Activities to make the change successful	Expected Result(s)/ Measurement criteria
				and public awareness	as schools, health institutions, traders	and running
Empowerment of the youth in adopting ICT to spur innovation	The Youth Parents Teachers	Resistance to change Cultural tie Lack of skills	Teachers Local leaders	i. Provide funding for setting up youth centers i. Establish/Empower the youth ministry	Establish ICT innovation competitions forums Establish youth centers in each sub-County through which the youth are engaged Establish youth competitions	Budget allocation for Youth centers Funding of innovative ideas from the youth