EXECUTIVE REPORT

COUNTY ICT SURVEY 2019-2020
ASSESMENT REPORT

KiCTAnet
KENYA ICT ACTION NETWORK

ICT Authority

COUNTY ICT SURVEY 2019–2020 ASSESMENT REPORT

Kenya ICT Action Network (KICTAnet) has collaborated with ICT Authority in order to institute and carry out annual ICT surveys to monitor and encourage faster adoption and maturity of ICTs within Counties as envisioned in the ICT Roadmaps.

This report consolidates the findings for the three selected Counties of Uasin Gishu, Kajiado and Taita-Taveta.

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Forward

In the year 2015, ICT Authority facilitated the development of the County ICT Roadmaps under SMART County program. The ICT Roadmaps recognize that ICTs are tools that facilitate efficient delivery of services, improve accountability and transparency while increasing public participation in socio-economic development of the Counties.

However, successful implementation of ICTs in county governments continues to face many challenges and requires legislative, budgetary, technical as well as political support - without which the ICT opportunities will remain unrealized

Kenya ICT Action Network (KICTAnet) has collaborated with ICT Authority in order to institute and carry out annual ICT surveys to monitor and encourage faster adoption and maturity of ICTs within Counties as envisioned in the ICT Roadmaps.

This report consolidates the findings for the three selected Counties of Uasin Gishu, Kajiado and Taita-Taveta. We believe the highlights of which ICT Categories that are performing well and which ones need improvement would guide the counties in the next year ahead - as they try to implement and improve the ICT development agenda.

We also take this opportunity to acknowledge and thank the key sponsors Huawei and Communications Authority for making the 2019-2020 County ICT Survey possible. We look forward to retaining their sponsorship and encourage other partners to join in the coming years to ensure that we expand the survey to include all Counties in Kenya.

Dr. Katherine W. Getao, EBS
CEO, ICT Authority
June 2020

Grace Githaiga
Convenor, Kenya ICT Action Network
June 2020

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Executive Summary

The County ICT survey and subsequent assessment is based on the ICT Governance & Management (ICT G&M) Framework[1], which was adapted from the ISACA, COBIT[2] Framework and customized for the Kenyan Counties.

This Framework provides linkages between the overall objectives of the County government and specific ICT process and activities that can assist county governments achieve the same. It also provides a mechanism for continuous monitoring, measurement and maturity of the ICT processes.

The customized COBIT framework has twenty-five ICT sub processes that need to be implemented and monitored in order to deliver an effective SMART County. These were identified, questionnaires designed and feedback assessed under the following broad nine categories.

Table 1 below shows the rating/score for each of the categories (maximum score of 5) with respect to the three sampled Counties of Uasin Gishu (Urban), Kajiado (Rural) and Taita-Taveta (extra-Rural).

Each category and its sub processes were evaluated, assessed and given a score that ranged between Zero (0) and Five (5). A zero score implies that the expected ICT processes were non-existent or are incomplete, while the highest score of five implies the processes and procedures not only exist but have matured to be established, predictable and optimized.

Detailed findings behind the score are within each respective County report but in general, those categories highlighted (in red) need immediate attention across board since they result in an average score that is below performance Level 1.

	Category Measured	Uasin Gishu	Kajiado	Taita-Taveta	Average
1	ICT Policy & Strategic Plan	2.3	1.8	1.3	1.80
2	ICT Risk Assessment & Monitoring	0.6	1.0	0.5	0.70
3	ICT Financial & Procurement Mngt	2.0	1.4	2.3	1.90
4	ICT Personnel/Skills Mngt	1.8	1.6	1.5	1.63
5	ICT Service Planning & Architecture	1.4	1.3	1.2	1.30
6	ICT Security & Business Continuity	1.1	1.2	0.5	0.93
7	ICT Infr, Operations & User Support	1.8	1.8	1.5	1.70
8	ICT Deployment Info-Sys/Apps	2.1	1.5	2.0	1.87
9	National ICT Projects	0.9	0.7	1.2	0.93
	Total Averages	**1.6**	**1.4**	**1.3**	**1.43**

Table 1: ICT Governance & Management Framework (ICT G&M)

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1 ICT Governance & Management Framework adopted & modified from Sugumaran, et. al. (2015, www.isaca.org).

2 CoBIT, Control Objectives for Information & Related Technologies, by www.isaca.org

Specifically, the performance in the categories of ICT Risk Management, ICT Security and National Projects and National Projects recorded poor performance. The Counties are urged to begin instituting an ICT Risk & Security Frameworks and working closely with ICT Authority to activate NOFBI at County Levels.

Some of the notable challenges behind the low performance included but not limited to change of County Government leadership that leads to new priorities that may not align with the previous county leadership. Other challenges included weak institutional make up for the ICT Department, including being placed under Finance, Education or other departments hence limiting their control scope and ICT budgets.

Additionally, most of the counties reported that the national projects including the NOFBI, the Digital Learning Program (DLP) and the National Data Center were all happening without sharing information with County management. This therefore presents an opportunity to review and improve the working relationships between the two levels of governments - as far as ICT development is concerned.

....Specifically, the performance in the categories of ICT Risk Management, ICT Security and National Projects and National Projects recorded poor performance....

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Introduction

2.1 Purpose of the Assessment/Survey

National or Country-wide ICT progress can only be achieved if Counties are taken as the basic unit of ICT development. The purpose of the annual ICT County Assessment is therefore to raise awareness and the importance of ICT governance and adoption at the County level with a view to catalysing County ICT development as a way of contributing to the national ICT agenda.

Additionally, the survey and assessment helps County ICT departments to identify, measure and track the maturity levels of key ICT processes that facilitate and enable efficient execution of the integrated County development plans.

2.2 Assessment Scope

The key areas of assessment covered policies, processes and procedures that are expected to govern and manage ICTs in Counties as categorized under the nine elements of Table1.

2.2.1 Organizational Unit

The main focus was on the operations and processes of the County ICT Department and how it relates to the other departments and the wider county residents it serves.

2.2.2 Processes and Capability/Automation Levels

The Process Assessment Model (PAM) used for this assessment is the COBIT PAM as defined by ISACA and ISO-15504 International Standard. The target ICT maturity level that was selected was Level 3 out of the maximum Level 5. The idea is to incrementally increase the target maturity level in subsequent years.

2.2.3 Processes Reviewed

Section 2.7.1 lists the sub-processes that were evaluated through the designed questionnaire and interrogated in the subsequent online validation meetings.

2.2.4 Class of Assessment

The class of assessment determines the necessary rigour under which the assessment is to be performed. This year we have done both class **ONE & TWO** assessment. This prepares ground for Subsequent "Class Three" assessment to be done in subsequent years.

Class	Suitability
One	Comparison with other organisations
Two	Reliable internal assessment for internal reporting
Three	Monitoring the ongoing progress of an improvement programme

It is therefore hoped that next year, we will be able to do a follow up to measure the extent to which the County has improved its performance in each of the categories being assessed.

2.3 Survey & Assessment Constraints

The key constraints faced during the assessment included the fact that the Assessors could not travel to the county sites as initially planned due the COVID-19 situation. Most of the survey activities had to be done online with the following notable challenges.

- Completion timeframe for Questionnaire: It took a while to get the online questionnaire completed and schedule the online validation meeting.
- Processes or business unit excluded: We would have wished to talk to other Department heads had we made it to the counties as earlier planned.
- Evidence gathering: Whereas we had intensive online validation interviews, we could not access some documents due to the risk of sharing them online - without the appropriate encrypted document system.

2.4 Assessment Team Members

The following table presents the roles and responsibilities of the Key players during this assessment exercise.

Role	Name	Organisation	Position in the organisation
Sponsor	Grace Githaiga	Kenya ICT Action Network	Convenor
Sponsor	Dr. Kate Getao	ICT Authority	CEO
Partnerships	Eunice Kariuki	ICT Authority	Partnerships, Innovation & Capacity
Project Coordinator/ ICTA-County Liaison	Mr. Muiruri J. N	ICT Authority	Head/ICT Infrastructure
ICTA-County Liaison	Mr. Thomas Odhiambo	ICT Authority	Head, Project Management Office
County ICT Director/ Personnel	Mr. Titus Kimaiyo	Uasin Gishu County	ICT Director
County ICT Director/ Personnel	Mr. Collins Taipan	Kajiado County	ICT Director
County ICT Director/ Personnel	Mr. Mr. Gibran Mwadime	Taita Taveta County	ICT Director
Lead Assessor/ Consultant	Mr. J. Walubengo	Kenya ICT Network (KICTAnet)	Lead, Research Associate
Assessor/Consultant	Mr. K. Kariuki	Kenya ICT Network (KICTAnet)	Research Associate

Table 2: Assessment Team Members

2.5 General WorkPlan

The general Work Plan spanned a period of two months as shown below:

1. Kick OFF Meetings at ICT Authority   (2Days/ 4hrs)
2. Establish Key Priority Areas/ICT Processes for Counties   (1Day/8hrs)
3. Develop Questionnaires to Survey/Assess ICTs in Counties   (1day/8hrs)
4. Administer the Online Questionnaires to County   (2Weeks/40hrs)
5. Analyse Feedback and prepare for Validation meeting   (1Week/20hrs)
6. Hold online Validation Meeting (Collect Evidence, Cross Check)   (1day/6hrs)
7. Prepare Draft_1 Report   (1Week/20hrs)
8. Prepare & Submit Final Reports to ICTA, County, Stakeholders   (1day/4hrs)

2.6 Confidentiality Agreement

The participants in the assessment were assured of absolute confidentiality for the information they have provided. KICTAnet and its Consultants endeavor to keep data collected private and confidential and will only share general overview and trends to public stakeholders as agreed with the partners.

2.7 Summary of the Approach

2.7.1 ICT Governance & Management Framework (ICT G&M)

In fulfilling the Terms of Reference, KICTAnet adopted the ICT Governance & Management (ICT G&M) Framework, which was adapted from the ISACA, CoBIT and customized it for the Kenyan Counties.   The key elements and their sub components that were assessed during the survey are listed in Table 3 below.

1. ICT Policy, Strategy, Risk & Governance		3. ICT Personnel & Resource Mngt	5. ICT Infrastructure, Operations & User Support		6. Evaluation & Deployment of ICT Applications	
P01: Define a Strategic IT Plan						
P04: Define IT Processes, Organization & Relationships		P07: Manage IT HR Resources	AI6: Manage Changes	DS9: Manage Configurations	AI1: Identify Automated Solutions	
P06: Communicate Management Aims & Direction	ME1: Monitor & Evaluate IT Performance	AI4: Enable Operation & Use	DS3: Manage Performance & Capacity	DS10: Manage Problems & Incidents	AI2: Acquire & Maintain Applications	AI7: Install & Accredit Solutions and Changes
P09: Asses Risks	ME4: Provide IT Governance	DS7: Educate Train Users	DS8: Manage Service Desk & Incidents	DS13: Manage Operations	DS11: Manage Data	DS12: Manage Facilities
P10: Manage Projects	DS6: Identify and Allocate Costs	P02: Define Information Architecture	P08: Manage Quality	DS1: Define & Manage Service Levels	ME2: Monitor & Evaluate Internal Control Adequacy	ME3: Ensure Compliance with external requirements
P05: Manage IT Investments	AI5: Procure IT Resources	P03: Determine Technology direction	AI3: Acquire & Maintain Technology Infrastructure	DS2: Manage 3rd Party Services	DS4: Ensure Continuous Service	DS5: Ensure System Security
2. ICT Financial & Procurement Management		4. ICT Service Planning & Architecture			7. ICT Security & Business Continuity	

Table 3: ICT Governance & Management Framework (ICT G&M)

2.7.2 ICT Process Maturity /Measurement Framework

The International Standards for capability maturity, ISO 15504 provided the framework for measuring and recording the maturity levels of these ICT Processes.
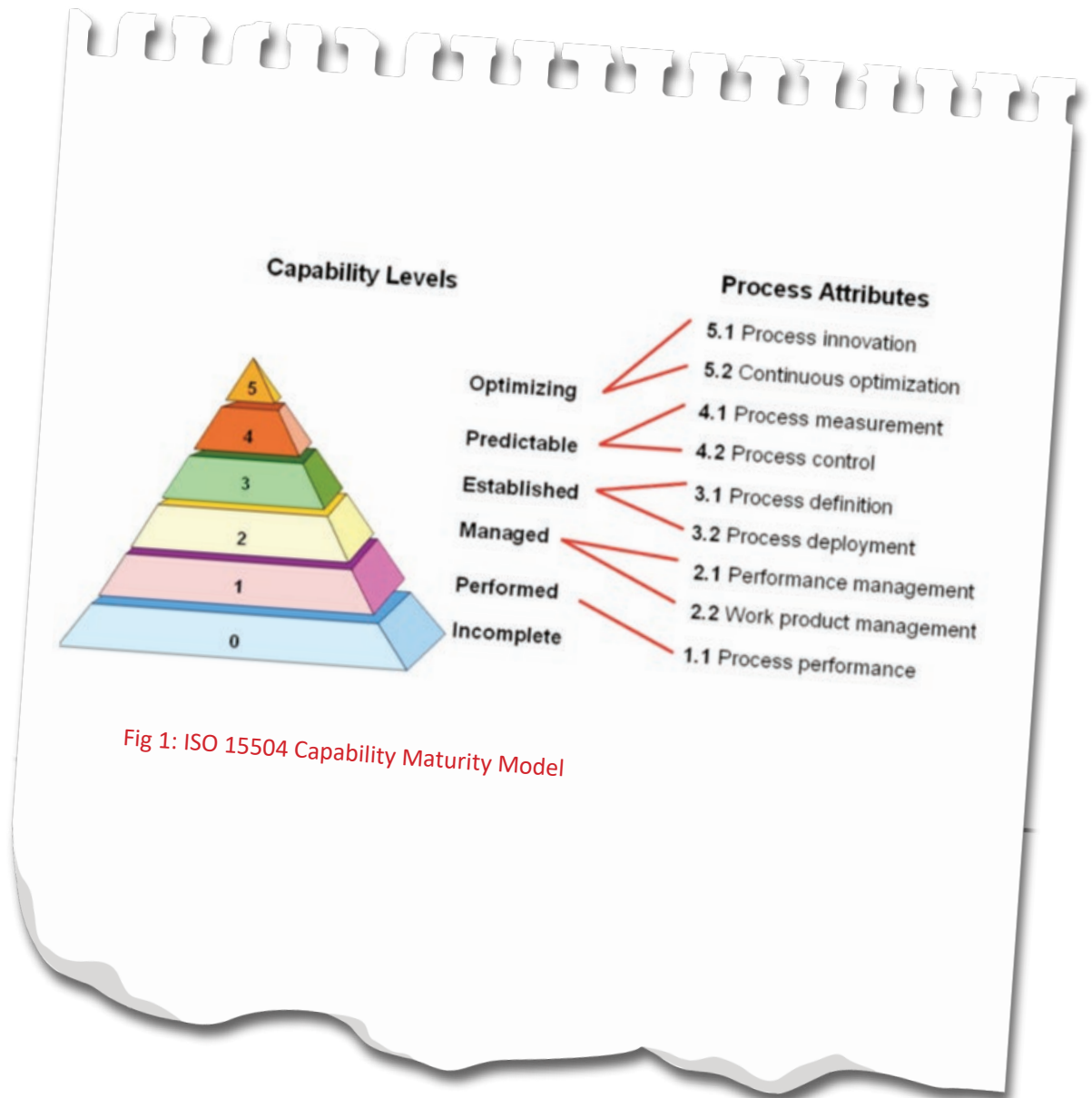

Fig 1: ISO 15504 Capability Maturity Model

Each ICT policy, process or procedure was therefore evaluated based on the extent to which the evidence presented by the Counties matched against the above levels. The Maturity Levels ranged from Zero (0) meaning that the ICT Policy, Process or Procedure was Incomplete; all the way to Level five (5) where they are Optimized.

2.7.3 Interpretation for each ICT Maturity Level /Score

Maturity Level -0: Incomplete/Non-existent
There is a complete lack of any recognisable policy, process, or procedure. The County has not even recognised that there is an issue to be addressed.

Maturity Level 1: Performed (but adhoc)
There is evidence that the County has recognised that the issues exist and need to be addressed. There are, however, no standardised processes; instead there are ad hoc

approaches that tend to be applied on an individual or case-by-case basis. The overall approach to management is disorganised.

Maturity Level 2: Managed (Repeatable but still intuitive)

Policies, Processes and Procedures have developed to the stage where different people undertaking the same task follow similar procedures. There is no formal training or communication of standard procedures, and responsibility is left to the individual. There is a high degree of reliance on the knowledge of individuals and, therefore, errors are likely.

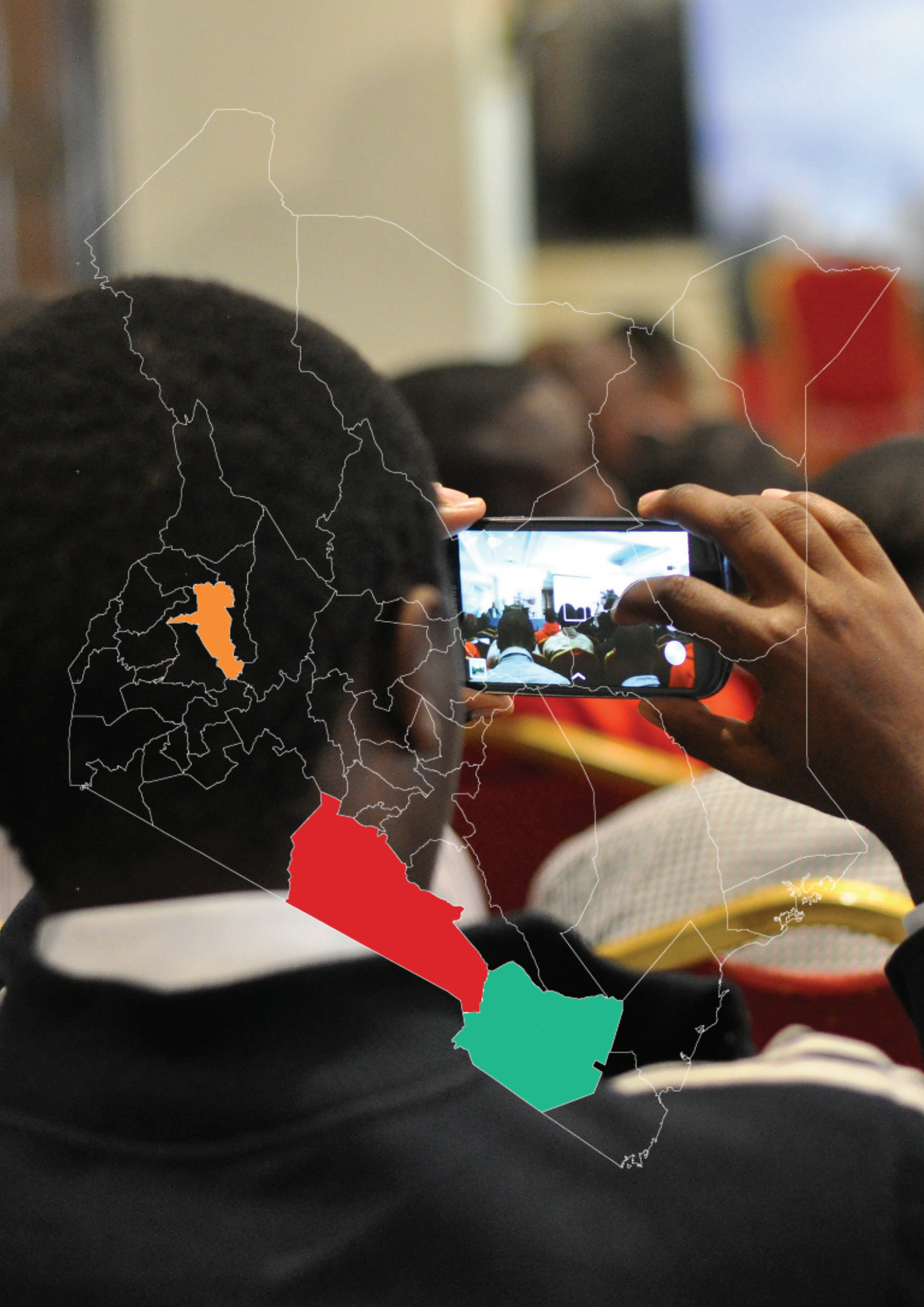### Maturity Level 3: Established (Defined)

Policies and Procedures have been standardised and documented, and communicated through training. It is mandated that these processes should be followed; however, it is unlikely that deviations will be detected. The procedures themselves are not sophisticated but are the formalisation of existing practices.

Maturity Level 4: Predictable (Managed and measurable)

County management monitors and measures compliance with policies or procedures and takes action where processes appear not to be working effectively. Processes are under constant improvement and provide good practice. Automation and tools are used in a limited or fragmented way.

Maturity Level 5: Optimised

Policies, Processes and Procedures have been refined to a level of best practice, based on the results of continuous improvement and maturity modelling with other similar organisations. ICTs are used in an integrated way to automate the workflow, providing tools to improve quality and effectiveness, making the County quick to adapt.

Uasin Gishu County Spider Chart

■ Target State ■ Current State

ICT Policy & Strategic Plan
5.00
4.00
3.00
2.00
1.00
0.00

National ICT Projects Evaluation

ICT Risk Assesment & Monitoring

ICT Deployment, Info-Systems/Applications

ICT Financial & Procurment Mngt

ICT Infrastructure, Operations & User Support

ICT Personnel/Skills Management

ICT Security & Business Continuity

ICT Service Planning & Architecture

3.1. Uasin Gishu County

The Uasin Gishu County was found to be doing relatively well in the following three categories, ICT Strategy, ICT Financial & Procurement Management as well as ICT System Acquisition and Deployment. In these categories, the County recorded a maturity level of 2.0 or above, implying that most of the processes in these categories are being performed and managed.

The rest of the categories were however scoring below maturity level 2 and were either incomplete or being performed in an ad-hoc manner. Of particular concern are the ICT Risk Management and the ICT Security & Business Continuity Categories where scores of 0.6 and 1.1 were realized respectively.

The county should therefore immediately embark on doing threat profiles and countermeasures as well as establishing remote backup sites for its data and systems. Additionally, it was observed that the NOFBI was only serving two of its six sub counties and ICTA and the county should work together to correct this surprising observation

Kajiado County Spider Chart

■ Target State ■ Current State
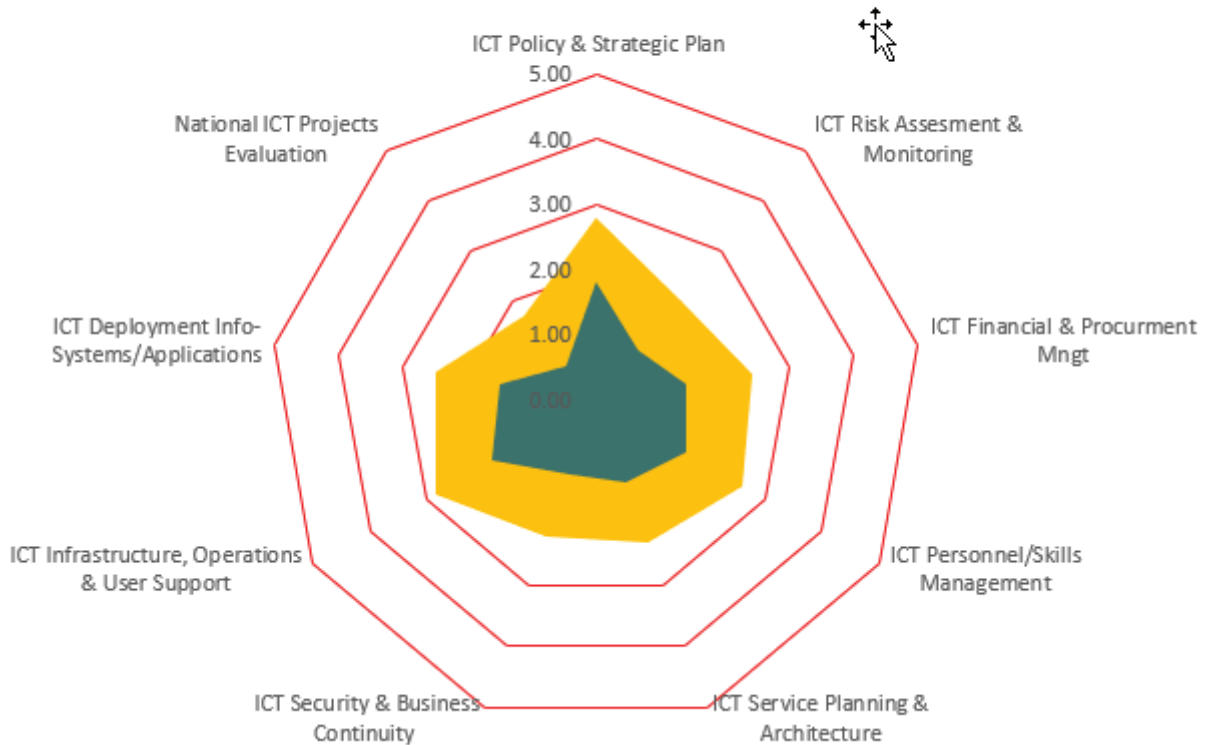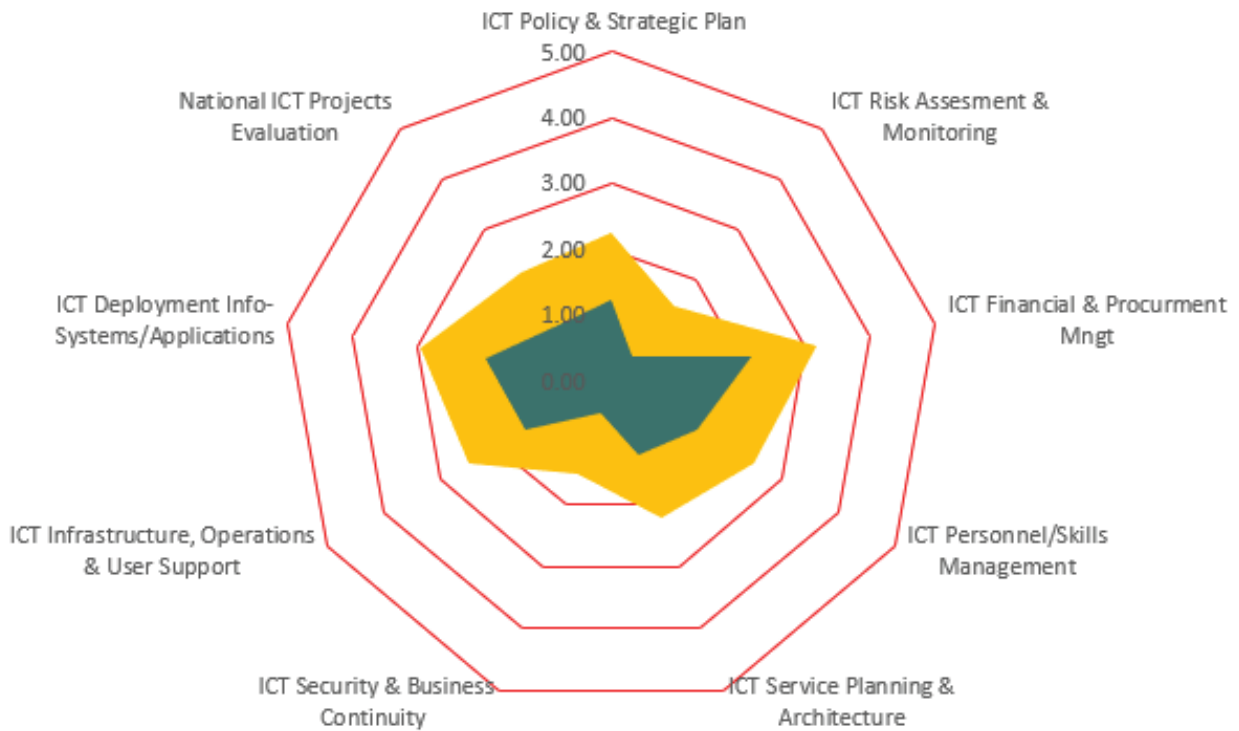
3.2. Kajiado County

The Kajiado County was performing relative well in ICT Policy & Strategy as well as the Infrastructure and Support Categories, where they scored close to Level 2 Maturity levels. However, the County should aim to improve in these categories by ensuring that the corresponding processes and procedures are standardised, defined and optimized.

Kajiado County also reported that the Digital Learning Program (DLP) had been implemented at close to 80% of the schools. However, they reported a need to have a structured way of engagement between County management and ICT Authority with regard to the National ICT Projects.

The NOFBI project was for example only being used at the County Commissioners Office, and still not active at the County Government offices due a simple missing item – the Optical Distribution Frame (ODF) Tray. Closer collaboration with ICT Authority should have addressed and resolved these challenges

Taita Taveta County Spider Chart

■ Target State ■ Current State

ICT Policy & Strategic Plan
5.00
4.00
3.00
2.00
1.00
0.00

National ICT Projects Evaluation

ICT Risk Assesment & Monitoring

ICT Deployment Info-Systems/Applications

ICT Financial & Procurment Mngt

ICT Infrastructure, Operations & User Support

ICT Personnel/Skills Management

ICT Security & Business Continuity

ICT Service Planning & Architecture

3.3. Taita-Taveta County

The Taita-Taveta County is doing relatively well in the following three categories, ICT Financial & Procurement Management, ICT Infrastructure Operations & User Support and ICT System Acquisition & Deployment. In these categories, the County maturity level approaches 2.0 or is slightly above. This implies that most of the processes in these categories are being performed and managed.

The rest of the categories are however scoring way below maturity level 2 and are either incomplete or being performed in an ad-hoc manner. Of particular concern is the ICT Security, Risk Management & Service Planning where scores of 0.5 & 1.2 were recorded respectively.

The NOFBI project is however actively being used in the county headquarters and in two out of the four sub-counties, namely, Wundanyi and Mwatate. There is however need to extend and activate the same in the rest of the sub-counties.

Overall ICT Category/
Key Findings

4.0

4.1. ICT Policy, Strategy & Governance

We reviewed the County ICT Policies and Strategies, evaluating to what extend they were aligned to the County Annual Development Plans. We found that in a few Counties, the ICT Strategy and Policy documents had been developed and approved, but the majority had the same in draft form or out-dated.

4.2. ICT Risk Management

We sought to review the County ICT Risk /Threat Analysis Reports, Risk Countermeasures & Mitigating Controls Report and the County Business Continuity Plans (BCK). Unfortunately there was little evidence of any existing ICT Risk Management Framework in most counties.

4.3. ICT Financial & Procurement Management

We reviewed and discussed ICT Annual Budgets, ICT Annual Procurement Budgets and Defined Service Level Agreements (SLAs) for internal departments. We found that most Counties follow the Public Procurement rules and regulations and the County Assemblies reduced ICT budgets during the approval stages. Additionally, many Counties had de-centralized ICT budgets, where each department decided independently on what systems to procure.

4.4. ICT Personnel and Skills Management

We reviewed and interrogated the ICT Organograms, discussed the County ICT Staff compliments & personnel as well as the County ICT Training Schedules for both User level & Technical staff. We found that very few Counties had a stand-alone ICT Division, with many having to be combined with various departments like Trade, Education or Youth. Majority had very low ICT staff personnel serving a widely dispersed area under various sub-counties. Other than sponsored trainings under the Kenya School of Government, many Counties had little or nor specialized training for their ICT employees and general staff.

4.5. ICT Service Planning & Architecture

We sought to interrogate the extent to which the County had defined an Information Architecture & Data Model, implemented a Data Classification Scheme and defined Service Level Agreements (SLAs) for External Suppliers/Customers. There was little to no evidence of Information Architecture or a Data Classification Scheme within the Counties. A few Counties had some SLAs in place for select suppliers such as ISPs but quite often, these are not enforced or have no penalties for failed service delivery.

4.6. ICT Security & Business Continuity

Amongst the documents required for review was the Info-Security Policy, the ICT Disaster Recovery Plan, Backups-Restore Procedures and whether the County carries out annual Information-System Audits. We found that there was no Info-Security Policies and annual ICT Audits were not being performed – other than as an option during financial audit. Regular backups were not being done, but for those Counties doing them, the backups were kept on site, rather than off-site (e.g. at National Data Centre).

4.7. ICT Infrastructure, Operations & User Support

We sought to find out if there were Help-Desk/Support Systems in place, Software Change Management policy /procedures and baseline Configuration Management system. We found that most Counties had no Ticket-Issuance systems and problems were recorded manually, making it difficult to track and resolve. There is generally no evidence of a Configuration Management System where system images are configured and ready to be deployed in case there is need to re-install user services.

4.8. ICT System Acquisition & Deployment

For each ICT Project, there is need to have ICT Feasibility studies, prepare formal ICT Requirement specifications and define ICT Test Plans & Acceptance Criterion. We found that these were largely done, since the Public Procurement Act speaks to the steps required. Deployments were also made in most Counties, after tests and user acceptance process were approved.

4.9. National ICT projects

The final category of assessment sought to found out the extent and use of the National Optical Fibre Infrastructure (NOFBI), the utility of the Digital Learning Programme (DLP) and the extent to which the County makes use of National Data Centre. It was found that whereas the NOFBI infrastructure extends beyond the Headquarters and into the Sub counties, it is only activated at the HQ in most Counties.

Additionally, the County ICT personnel were not being updated on National ICT projects such as the DLP and the national level data centre.

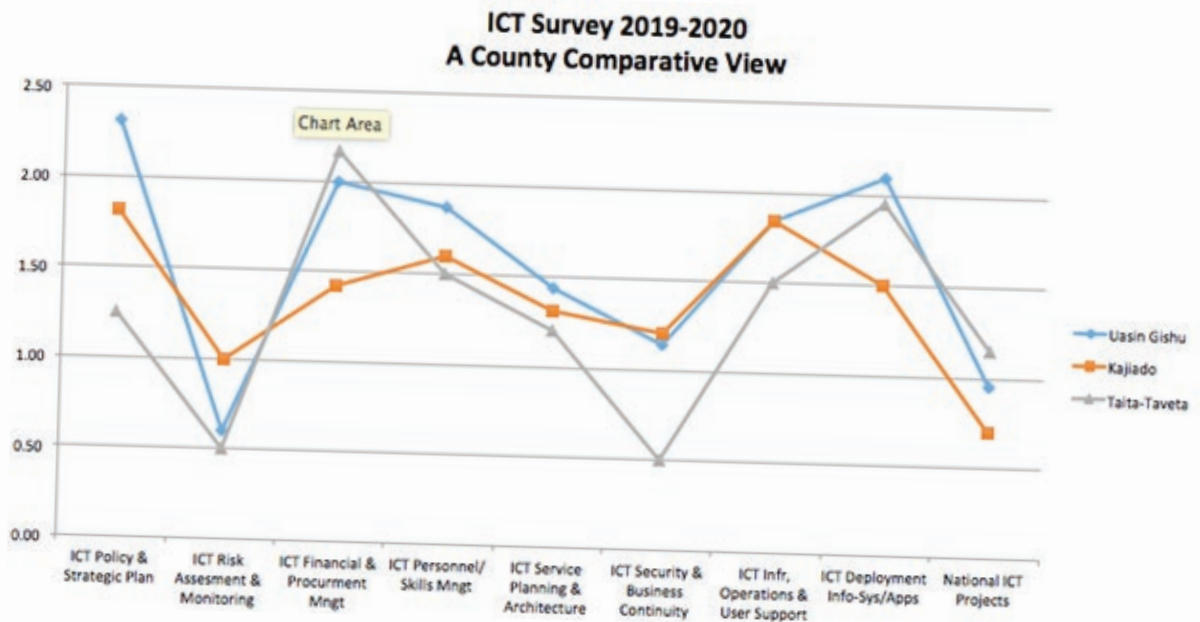# Comparative view & Targets for Subsequent year

Fig 5: County Comparative view – per each ICT Category

The Chart above gives a graphical view of how the three counties performed in the nine ICT Categories relative to each other. It provides a framework for measuring progress going forward. In general, Uasin Gishu County scored above the other two counties in most of the nine ICT categories. Kajiado and Taita-Taveta had mixed results, where each performed better than the other in several of the categories.

What is critical however is that the current scores form the baseline performance for each County- enabling each to launch improvement programs and activities based on the gaps identified in order to improve in the subsequent years scores.

As an example, the current score for Uasin Gishu, in the ICT Policy & Strategic category is at Level 2 and the County should plan to move it to the next Level, Level 3 in the subsequent year. They would do this by ensuring that the Policy and Strategic processes identified in Table 2 such as Risk Assessment, ICT Governance and evaluation of ICT process are implemented.

The same approach should apply to the other measured ICT categories and for each respective County.

Way Forward and Recommendations

Most Counties were doing relatively well in the following three categories, ICT Strategy & ICT Financial & Procurement Management with an average score of 1.7 and 1.8 was recorded respectively.

The rest of the ICT categories were however recording average scores below 1.5 implying that they are either incomplete or being performed in an ad-hoc manner. Of particular concern are the ICT Risk Management, the ICT Security & Business Continuity and the National Projects Categories where average scores of 0.7, 0.9 and 0.9 were recorded respectively.

The specific county action recommended to address the low scores is contained in the respective County reports. However, in general the following ICT processes from the Governance & Management Framework (ICT G&M, Table 2) were selectively proposed to the Counties according their respectively assessed weak domains:

...Most Counties were doing relatively well in ICT Strategy & ICT Financial & Procurement Management with an average score of 1.7 and 1.8 was recorded respectively...

a) P09: Asses ICT Risks
Provide an ICT risk management framework and align it to the organisation's (enterprise's) risk management framework

b) ME2: Monitor & Evaluate Internal Control Adequacy
Ensure a system of internal controls is embedded in the ICT process framework.

c) ME3: Ensure Compliance with external requirements
Identify and communicate Legal, regulatory and contractual requirements relating to ICTs.

d) DS4: Ensure Continuous Service
Ensure the ICT continuity framework and plan are developed, maintained (improved) and implementing staff trained regularly.

e) DS5: Ensure System Security
Ensure User identities and authorisations are managed in a standardised manner.

f) P02: Define Information Architecture
Provide an Info-Architecture and a data dictionary to enable the sharing of data elements amongst applications and systems, and to promote a common use of data throughout all IT applications.

g) P08: Manage Quality
Provide a quality management system (QMS) is developed and maintained, with the purpose of supporting continuous improvement.

h) DS1: Define & Manage Service Levels
Provide a service management framework is in 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.

i) P03: Determine Technology direction
Develop and maintain technology infrastructure plan based on an analysis of existing and emerging technologies and in accordance with the ICT strategic and tactical plans.

j) AI3: Acquire & Maintain Technology Infrastructure
Ensure that the technology acquisition plan is aligned to the technology infrastructure plan.

k) DS2: Manage 3rd Party Services
Ensure Supplier services & risks are identified and their performance monitored and measured.

l) P07: Manage IT HR Resources
Ensure Recruitment / Retention policies and processes are in place to guarantee ICT skills are available to achieve organisational goals.

m) AI4: Enable Operation & Use
Ensure Plans are produced for knowledge transfer during the implementation of Information System or Infrastructure changes.

n) DS7: Educate Train Users
Ensure an ICT training curriculum is established and delivered, based on identified training needs.

It is hoped that each County will embark on and implement the activities within these processes in order to improve their performance scores in the subsequent years. Finally, we look forward to expanding our survey to include the use of additional national projects like the IFMIS project, trainings at Kenya School of Government amongst others.

...There is need for development of ICT continuity frameworks; implementing staff trained regularly in all the counties...