STATE OF ICT REPORT 2017
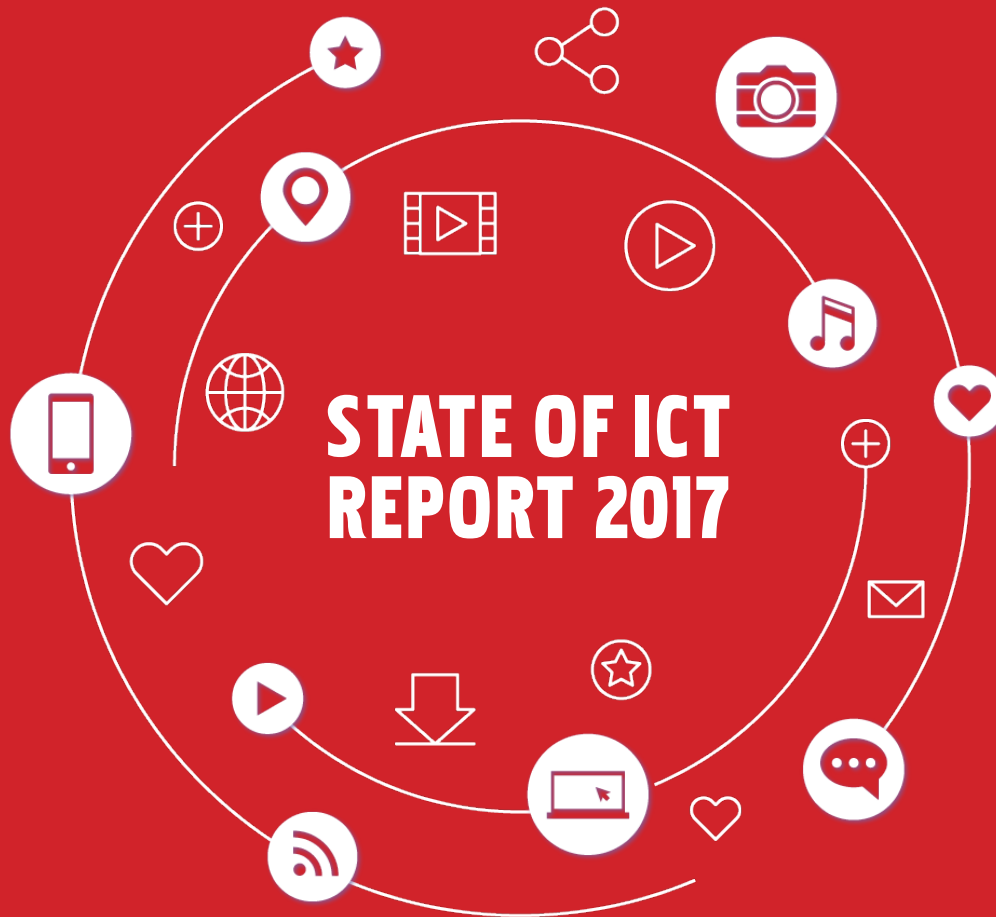
The Internet: Private commodity or public good?

Perceptions from the KICTANet 2017 ICT survey

KICTAnet
KENYA ICT ACTION NETWORK

STATE OF ICT REPORT 2017

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Abbreviations and acronyms

|	
CAK	Communications Authority of Kenya
ICT	Information and Communications Technology
IFMIS	Integrated Financial Management Information System
ISP	Internet Service Provider
KICTANET	Kenya ICT Action Network
NOFBI	National Optic Fibre Backbone
PPP	Public-private partnership
PWD	Person with Disability
R&D	Research and Development
SLA	Service-Level Agreement
TVET	Technical and Vocational Education and Training
USF	Universal Service Fund

Acknowledgement

Executive Summary

The Internet has a long history in Kenya, with its access having been launched in October 1995 on a leased telephone line. Significant changes have since been recorded. Sector statistics reports from the Communications Authority of Kenya (CAK) covering the second and third quarters of the 2017/2018 financial year indicated a steady increase in the number of Internet subscriptions across the country. There were 36 million Internet subscriptions across the country in the January – March 2018 quarter, up from 33.4 million in the October – December 2017 quarter. In the July – September 2017 quarter, there were 30.9 million Internet subscriptions across the country. This growth has been fueled by increased digitalization of services both in the public and private sectors, and growth of social networking platforms.

This data was based on information provided by service providers. Additionally, there is a robust ICT community of stakeholders engaging in niche areas that include: regulation and governance; infrastructure provision and access; software and content development; and research.

KICTANet undertook this survey with various stakeholders to assess their perceptions of the performance of the ICT sector in 2017. The survey focused on the following key areas: policy and legal issues, access, infrastructure, and human capital/workforce. These key areas were developed from the ICT Wishlist initiative where stakeholders listed priority areas which they felt the government and other stakeholders needed to focus on. The Wishlist initiative was a community-driven engagement programme carried out in December 2015 among stakeholders from which emerged four key issues, namely: Policy and legal issues; Access; Infrastructure; and Human capital/skills force.
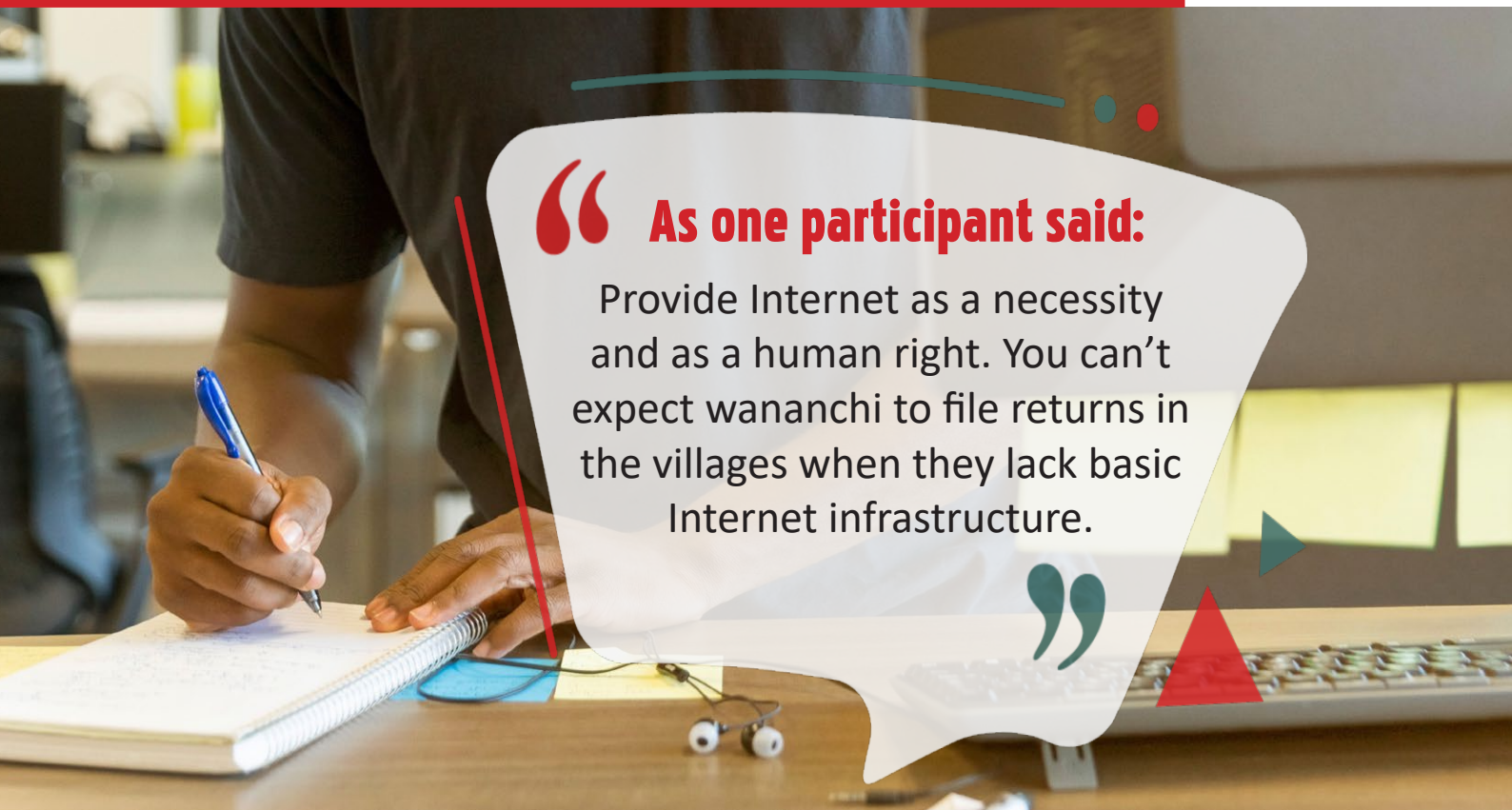
> **" As one participant said:**
>
> Provide Internet as a necessity and as a human right. You can't expect wananchi to file returns in the villages when they lack basic Internet infrastructure.**"**

The data collected in this survey, illustrated a perception that the Internet is a service that should not be restricted to elite urban users. It needs to also be accessed by poorer and rural communities. Therefore, the dominance of particular players such as telecommunications companies emerged as a concern among respondents who leaned towards viewing the Internet as a public good rather than a commodity for purchase.

Respondents viewed the government as a key player in the technology sector and needs to make more effort in an array of areas. These include ensuring access to all, providing infrastructure at national and county levels, and engaging the citizenry in ICT policy making and implementation. Nonetheless, the government is partly perceived as dishonest in its policy making and activities, an indication of lack of trust by the public.

The data also showed a perception among respondents that the Internet remains an elitist, jargon-laden commodity, yet is essentially a public good that needs to be demystified. This latter perception of a public good is borne out by the fact that since 1995, Internet access has largely been granted through private, for-profit companies, namely Internet Service Providers and telecommunications companies. The development of Internet is therefore controlled by market forces, owing to the slower connection of rural and lower income areas.

The report recommends the following: greater inclusion of different stakeholders in different aspects of the ICT sector such as policy making, planning and legislation; more effort by government to be transparent and accountable in its ICT policies and practices; increased engagement by academia in both theoretical and industry-focused research; discouragement of monopolies; and continued encouragement of public-private partnerships. More specific results of the survey are presented in the rest of the report.

Introduction

As part of its annual review of the ICT sector in Kenya, KICTANet undertook a survey of diverse stakeholders related to strategic, legislative, policy and regulatory issues that took place in the course of 2017.The survey focused on thematic areas developed from an ICT Wishlist generated among stakeholders in 2015 in a community-driven, 100-day programme. The four key areas that emerged in the Wishlist were policy and legal issues; access; Infrastructure; and Human capital/skills force.

The findings were presented to stakeholders at a March 23, 2018 face to face event. Comments and reflections from that event were incorporated into this report.

Program Design & methodology

An online survey developed on a Google Form was shared with stakeholders online. The survey is available in Appendix 1 and covered thematic areas, as follows: policy and legal issues, access, infrastructure, and human capital/ workforce.

Participants were presented with 23 questions, 19 of which yielded quantitative data while 4 yielded qualitative data. The quantitative data was descriptively analyzed and presented through charts and graphs. The qualitative data underwent a thematic analysis with select quotes used for illustration.

The key objective was to capture stakeholder perceptions of achievements and challenges within the ICT sector during the year under review.

The main outcomes were:
- Data on the stakeholders' assessments of the ICT sector was gathered and analyzed.
- A report of the findings presented to stakeholders at a March 23, 2018 face to face meeting.

Survey Findings

Overview of the participation

There were 52 survey respondents drawn from academia, business, civil society, and government. There was lesser representation from the technical and legal communities, as well as international organizations. The majority of respondents were male, while a third were female. An estimated 4% chose not to indicate their gender. The stakeholder and gender responses are presented in the figure 1 and 2 below.
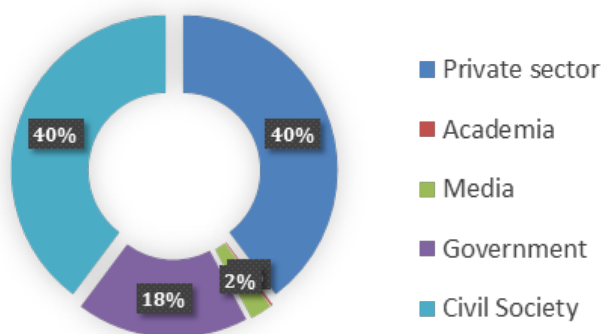
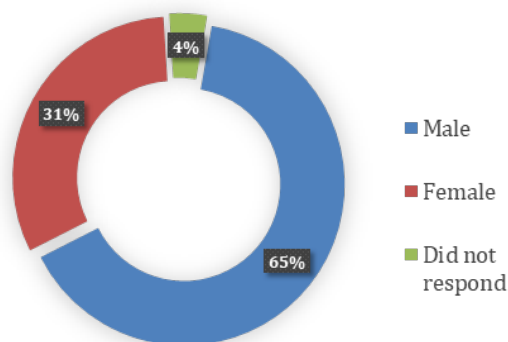

Figure 1. Respondents by stakeholder group

Figure 2. Respondents by gender

Policy and Legal issues

i) Opening up of ICTs for public participation in policy development, concepts and selection of projects

The options for response were: 1-lowest extent, 2- below average extent, 3-Average/Moderate extent 4-Above Average extent 5:-Largest extent.

From the choices, 36.5% of the respondents felt that public participation in policy development was to a moderate extent. The data also reflects similar responses expressed in the 2016 review of the ICT sector where 41% of the stakeholders indicated that engagement between the government and other stakeholders was moderately achieved. 3.8% of the respondents expressed that public participation was carried out in the lowest extent, and none of them felt it was carried out to a large extent.
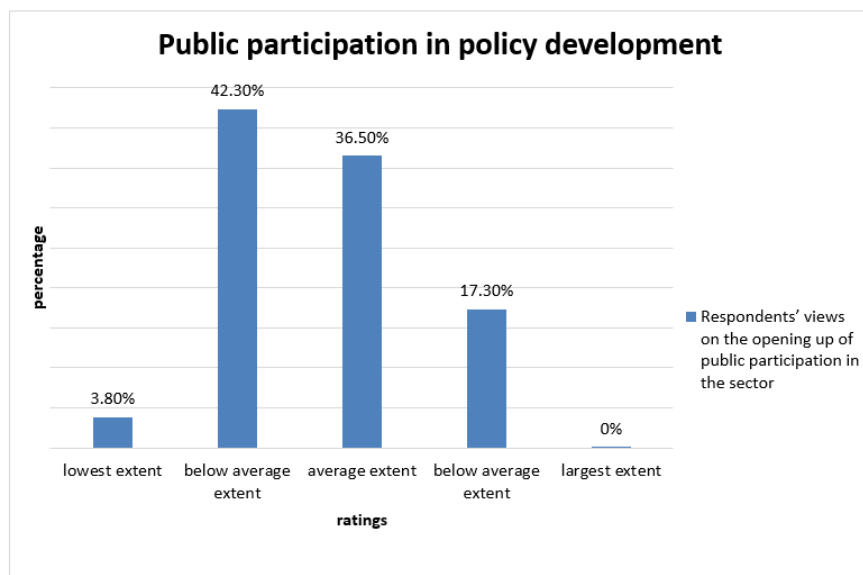

Figure 3. Public participation in policy development

On public participation, respondents from the private sector indicated that ICT policy making processes had been opened up to a minimal extent. Various stakeholders from international organizations and civil society indicated that they had been opened up to a great extent. The majority of the stakeholders considered the opening up of public participation processes as moderate or below average.

Public participation is the involvement of the public through stakeholder representation on decision making about public policies, government plans, programs and governance processes. It gives citizens an opportunity to interact with leaders and government agencies, understand policy issues, and give feedback. Article 10 of the Constitution obligates policy makers to provide for public participation in the development of public policies. This has started happening, not only in policy development processes, but also in governance and in the different levels of policy making. For instance, the ministry of ICT called for public participation for the Computers and Cybercrime bill at drafting stage[1] . The same Bill went again through public participation at the National Assembly.

Other government agencies have also used ICT as a tool for public participation. The Communications Authority of Kenya has engaged with the public on ICT policy, infrastructure and access through various fora and activities. These include invitations to comment on proposed legislation such as the Privacy and Data Protection Policy and Bill, 2018, and regulations such as regulatory interventions on the use of devices in the Internet of Things landscape.

Leaders both in the urban and rural areas engage with their constituencies through social networking platforms. Some have tools such as google forms to conduct surveys that would help in decision making.[2]

Nevertheless, public participation policy stumbles upon a number of challenges. Stakeholders have often complained of communication issues such as: poor feedback, lack of timely provision of documents to inform participation, insufficient time for stakeholders to respond, and communication/language gaps between a section of stakeholders and policy makers. During a presentation of the findings of this survey at a public forum, attendees indicated that public participation needed more initiative and effort to ensure that it took place, not only at national level, but also at the counties.

The ICT policy landscape has seen an increased number of stakeholders from more diverse backgrounds taking part in ICT policy development. They have included human rights organizations, professional bodies, both large and small enterprises, and education institutions. The participation of these stakeholders has varied with the different aspects of ICT policy, depending on areas of interests and expertise. A UNESCO (2017) report noted, civil society in the Kenyan context may engage more in matters Internet governance since private sector stakeholders may be more vested in having positive relationships with government, while international organizations tend to keep a low profile.

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1 Call for public participation on Computer and Cybercrimes Bill https://www.cio.co.ke/kenya-govt-calls-for-public-participation-on-computer-and-cyber-crimes-bill-2016/
2 http://www.treasury.go.ke/28-departments.html

ii) The extent with which ICT law and policy development process has embraced multi stakeholder participation

Respondents selected from 5 options, that ranged from very poorly (1) to excellent (5).
In terms of ICT law and policy development processes, and the extent to which multi stakeholder participation had been embraced, 1.9% of the respondents felt that it was poor (lowest extent), while 30.8% were of the opinion that it was below average. 48.1% opined that it was moderate, 15.4% said it was above average and 3.8% indicated it was excellent.
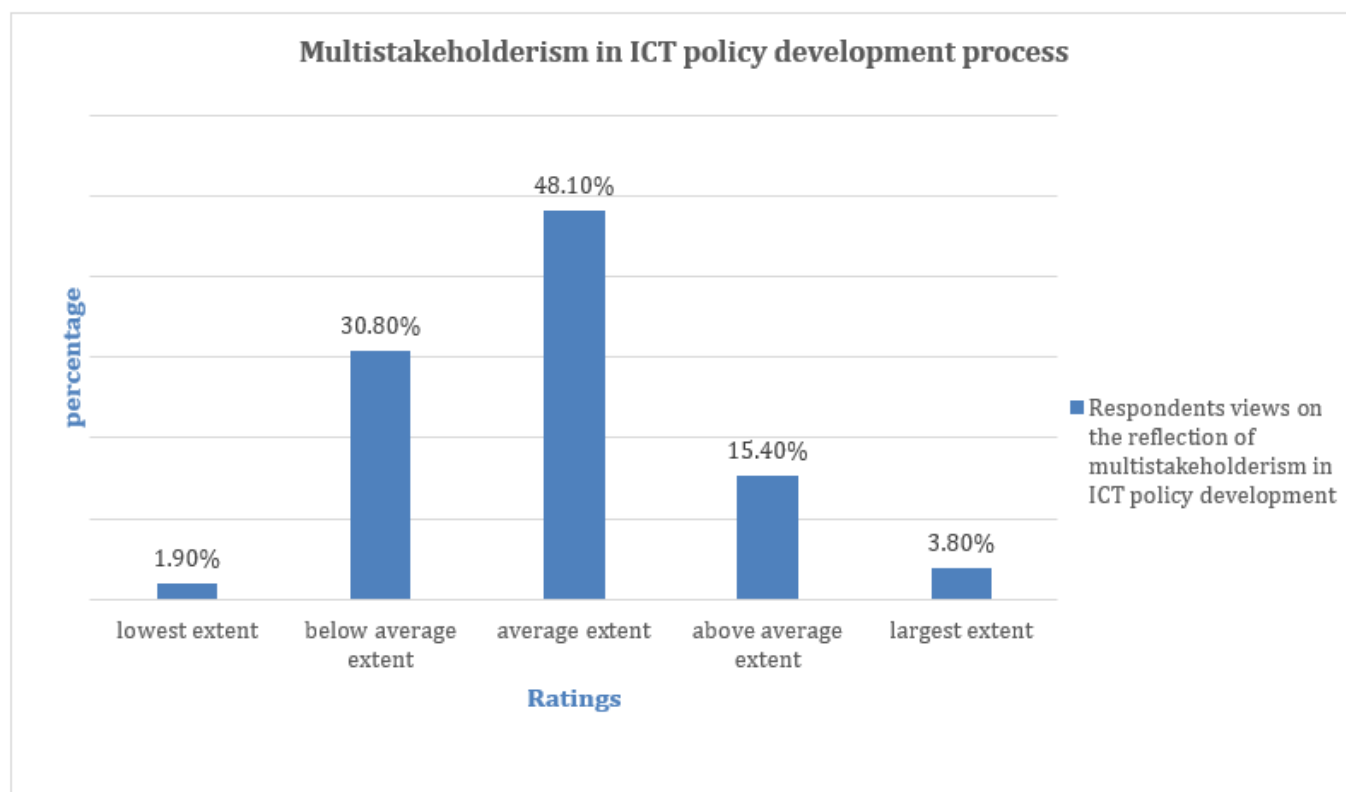

Figure 4. Multistakeholder representation in Policy Development Process

These variations could stem from the different capacities of stakeholders to engage in policy processes and their different areas of engagement. A UNESCO (2017) report observed the vibrancy of Internet governance in Kenya and recognized the multi-stakeholder approach. This is as a result of the growth of the ICT sector, a relatively open political and regulatory climate, as well as the need for an ICT policy framework that would accommodate various interests. The same report indicates that these factors contributed towards the development of KICTANet, which would often serve as a public forum for government to present policy proposals.

From 2003, different government agencies, including the government ICT agencies engaged in developing governance structures and policy processes that reflected multi stakeholder participation. For instance, the board of the Kenya Information and Communications Network (KENIC) includes representatives from domain name registrars, private sector, and government (KENIC, n.d.). The Universal Access Fund (USF) also has a cross-section of representatives from academia, private sector and civil society.

Public participation is a relatively new concept in Kenya having been entrenched as a constitutional requirement in policy making. However, it is often treated as a formality and there are several barriers to its implementation (Kimani, 2010; Mwenda, Bregt, Ligtenbeg &Kibutu, 2012). Additionally, there have been inconsistencies when it comes to gender balance and stakeholder representation in the different task forces established to deal with specific policies. In addition, the government does not always provide details on

stakeholder participation/representation on such policy task forces and processes. This observation was made during the March 2018 public presentation of the findings of this report, and yet the government's greater inclusion of the public was seen to be important for transparency and accountability.

iii) Sector performance in provision of policies that create opportunities for women, youth, People with Disabilities (PWD) and marginalized persons perspectives, as well as during implementation

Respondents selected from 5 options, ranging from very poorly (1) to excellent (5) as shown in Figure 5. The data showed that the majority of respondents (77%) perceived the sector to have performed poorly or moderately in providing opportunities to the various special interest groups. Only an estimated 1.9% considered the sector to have performed excellently.
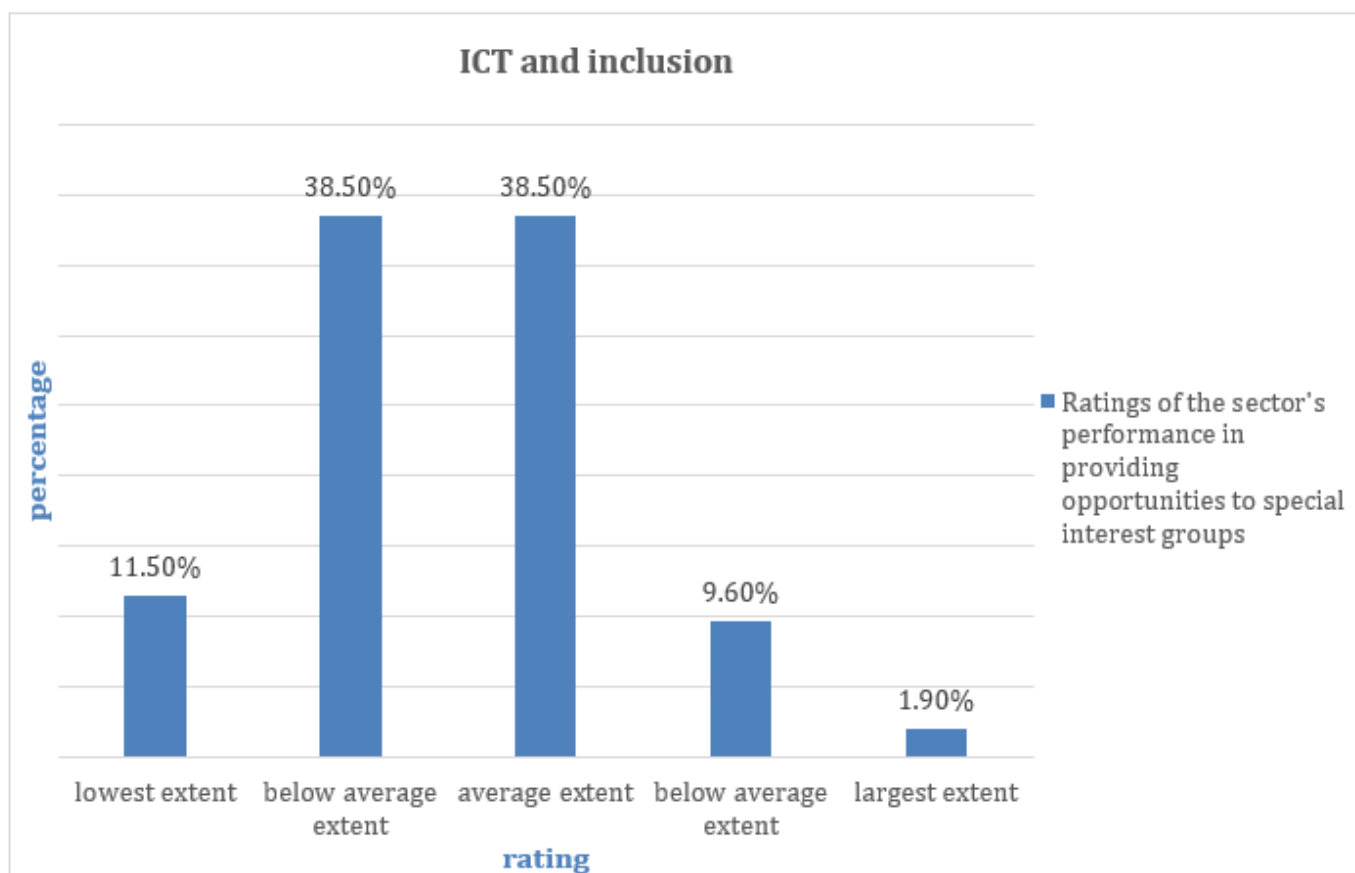
Figure 5. Inclusion in ICT

Interestingly, when comparing the responses by gender, the results indicated that majority of the female respondents supported this statement to a moderate extent (giving a rating of 3/5), while majority of the male respondents were of the opinion that support to women, youth and PWDs was somewhat below average (giving a rating of 2/5).These slight variations may demonstrate improvement in the performance of the sector in creating more opportunities for women.

Awareness of policies that promote ICT integration in the counties

The options for responses were 'yes,' 'no,' and 'maybe'.

Of the respondents, 36.5% indicated they had an awareness of policies that promote ICT integration at county level, while 53.8% did not. Nearly 10% of the respondents indicated their uncertainty by selecting the 'maybe' option as shown in figure 6 below.

Awareness of ICT policies for the rural areas

- Not sure
- No
- Yes
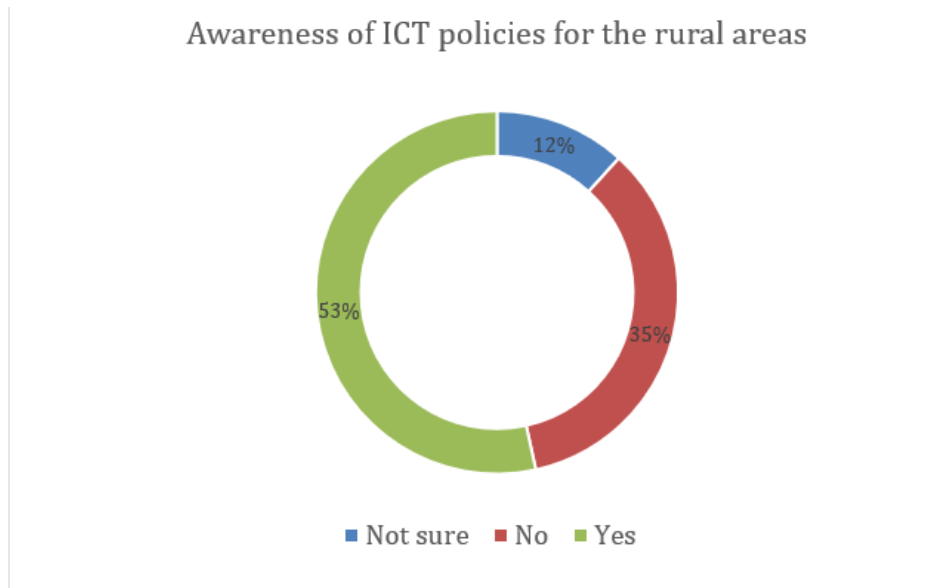
Figure 6. Respondents awareness on policies that promote ICT integration at the county level

Members of the tech community were among the stakeholders who were completely unaware of ICT policies that promote integration at the county level. Responses from the civil society, the government, the media and the private sectors, with small variations, showed that they had fair/substantial knowledge of such policies. See the figure 7 below
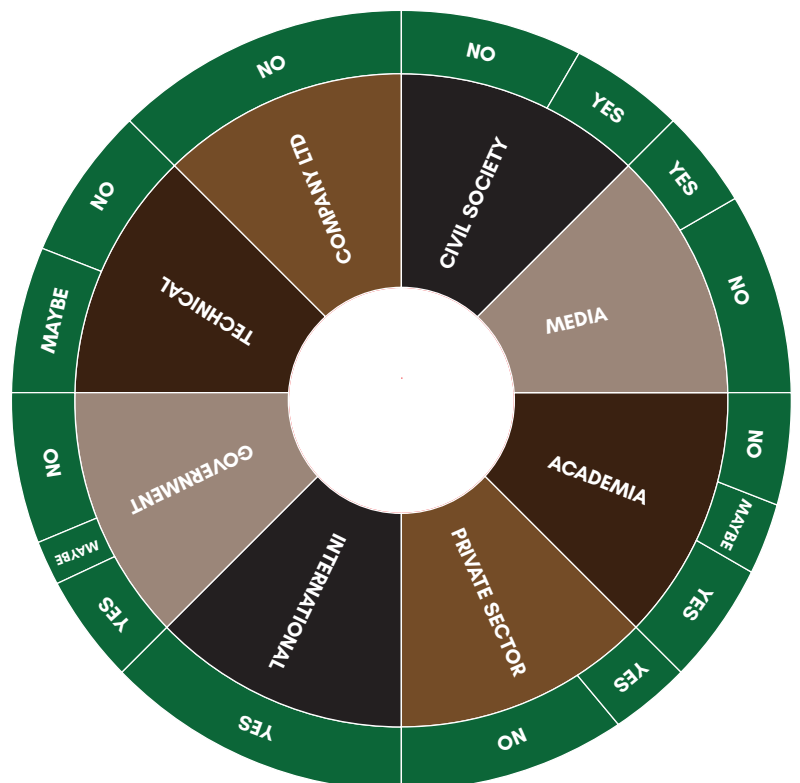

Figure 7.Respondents' awareness of policies that promote ICT integration at county level, by sector backgrounds.

What needs to be done to promote greater public participation in ICT policy and law making?

Participants presented their views on how the public can be encouraged to participate more in ICT policy and law making. These views emerged in open responses that were categorized under the following themes: creating awareness, structuring the public participation process, using different platforms, greater proactive effort from government to engage citizenry, training and research, and engaging different stakeholders.

Awareness creation

Various participants indicated the need for creation of awareness among the citizenry about ICT policy and lawmaking. A sample of respondents' responses indicates this:

- Awareness should be upheld on how different stakeholders can participate and benefit from the participation
- Increase awareness of new policy or laws being made.
- Enhanced transparency and disclosure; better report-back.

Having a structured public participation process

Different respondents indicated ways in which the public could be involved in the process of ICT policy and law making on different platforms. Also, through the efforts of government at national and county levels, as well as of other institutions. A sample of the responses around this question are shown below:

- Carry out more public forums especially in higher education institutions since young people understand ICT issues.
- Organize public meetings and also share online for comments.
- Hold multiple sessions throughout the year (funding allowing) with particular interest groups to entrench their understanding of and investment in policy.
- Target platforms frequented by the public such as social media and radio by creating and facilitating specific public target audience.
- More honest engagement from policy makers.
- Better timing (it is critical to have good time for stakeholders to review policy documents before participation forums).
- Accept various ways to provide feedback including electronic means.

Use of different media

Respondents proposed that to involve the public, the use of different platforms to engage and invite comments would be useful. The use of traditional media platforms such as TV and radio, were also suggested as a means to reach the public. A sample of comments below:

- Allow the public contribution via mobile service provider using SMS.
- Consider live streaming the forums.
- Allow for people to give views on as many platforms as possible.
- Create catchy media content for advertising on radio/TV for meet-ups and barazas.
- Most media stations should be involved to air out the forums regarding the same.
- Use of social media.

Proactive government involvement of citizenry

The respondents indicated the need for greater efforts from government to engage the public in the process of policy making. Participants called for more public consultations within larger time frames, better and more frequent ways of reporting back to the public after consultation forums. Participants also pointed to the need for government to be more open in its processes. A sample of responses is shown below.

- How about a website – a single point where notices of ALL matters for public participation are posted, not only ICT.
- Initiatives to the general public calling for their participation in policy and lawmaking.
- Carry out public campaigns on popular platforms and have realistic deadlines for submission of comments on the same.
- Government to publish public laws being made and provide online discussion forums where everyone can contribute and see others' contributions.
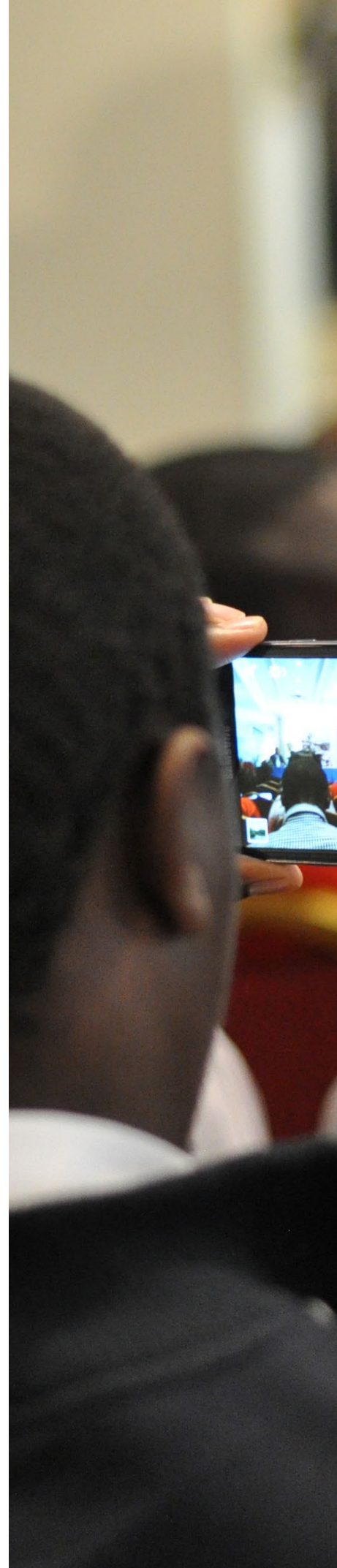
Training and research

Various participants saw a need to train citizens in the process of policy making and the need for data-driven policy making. A sample of comments are indicated below.

- Introducing ICT minor courses even in junior schools and also polytechnics.
- Involving academic institutions, ICT service providers and users of Technology in coming up with ICT policy and Law through research.

Engage different stakeholders

The value of having different interests represented in the policy making process was raised by participants who also called for a demystification of the technical language used in the ICT sector. Below is a sample of the comments:

- Engagement of citizenry, users not only technical communities
- Involve the creative sector especially the film industry.
- Provide more access data from the county.
- Strengthen multi-stakeholder platforms such as KICTANET.
- Youth involvement.

Key ICT policy and legal issues that need prioritization in the coming year:

The responses were analyzed according to the issues mentioned. Each of the respondents was able to name different priority areas. ICT security was identified as a key issue by 80% of the respondents, data protection by 20%, privacy by 5.5%, cyber security by 9.1%, and access by 7.2%.

Word Cloud on topic representation from the responses on what policy issues should be prioritized

Data protection

Survey participants expressed the need for a data protection framework. They were also specific on the prioritization of personal data protection by the stakeholders.

Access

Respondents called for the prioritization of ICT access in particular in the counties. Some responses advocated for the widened use of ICT in other cross cutting sectors, for sustainable development.

Regulation

The respondents also expressed that the ICT practitioners bill should be dropped. In addition, respondents also asked for an engagement within the entire ICT sector to review the regulations and define how far regulations should go in relation to freedom of expression and innovation.

Access

i) Cost and Affordability of the Internet in 2017

Just over a third (36.5%) of the respondents indicated that the cost of Internet was more affordable in 2017. There were 13.5% of the respondents who indicated that Internet affordability had increased to a moderate extent, while 9.6% strongly opposed the view that the internet was more affordable. The views are shown in figure 8 below.
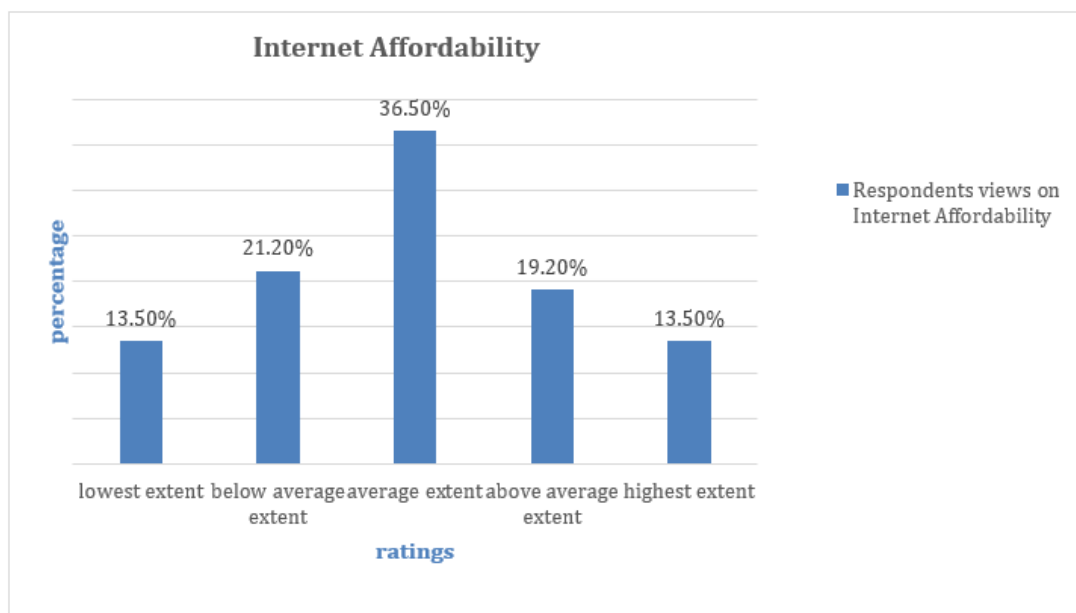

Figure 8. Internet affordability.

The Kenya telecommunications industry has been very competitive and internet costs have continued to go down over the years as service providers compete to attract customers. Broadband costs have come down such that the lowest costs range from KES 1000 per month and daily mobile internet at 7mbs for 5 shillings. However, distribution of infrastructure even within the urban areas is uneven. Provision of infrastructure has been left to market forces. Even within the urban areas, the private sector has left out patches where there is no business sense to invest their infrastructure.

ii) The extent to which persons with disabilities have access to ICT services

The majority of the respondents (71% - rating 5 and 4) felt the sector had performed well in incorporating the needs of people with disability in the provision of ICT based services as shown in the chart below.
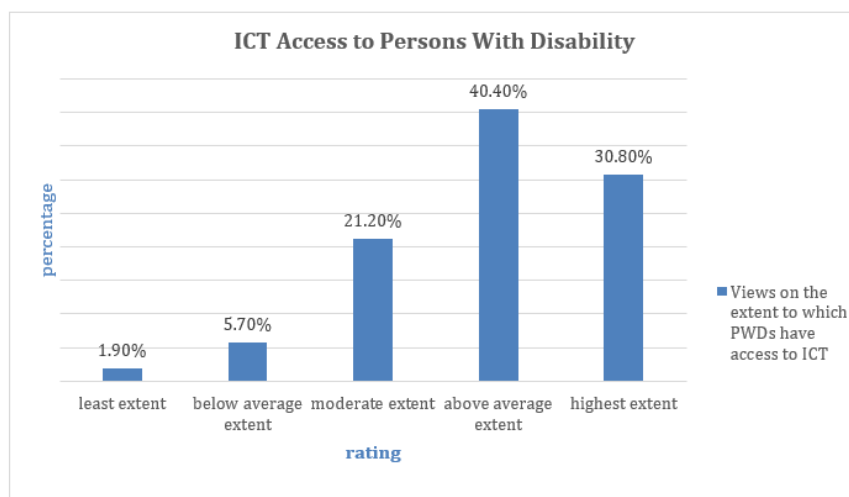

Figure 9. ICT Access to Persons with Disabilities.

A few developments in promoting inclusive political participation are worth noting. For instance, traditional media houses have added PWD access to prime news content, while the government has also improved ease of political participation in processes such as elections, parliamentary and court proceedings, and other issues of public interest. However, the government and private-sector service providers have not reflected the same with regard to accessibility on web-based services.

The e-citizen and i-tax are websites that provide critical services to Kenyans, yet they do not have accessibility features for citizens with disability. Similarly, the private sector has not fully accommodated the PWD population in ICT-based services.

iii) Prioritization to improve internet access across the country

The 50 open-ended responses to this question revolved around the following themes: government's role, reduced elitism, removing monopoly, and lowered costs.

Government's role

The respondents offered a range of options concerning the government's role in improving internet access across the country. Responses included: the need to reduce costs of access, enabling equitable access (such as to the physically challenged, schools, hospitals, marginalized areas, etc.), collaboration across national and county levels in infrastructure provision, deployment of the Universal Service Fund as it was envisioned, and constant engagement in public-private partnerships with the commercial stakeholders.

Below are sample comments concerning the government's role in improving internet access across the Country:

- Government backed ICT infrastructures such as fibre to county headquarters and also government-backed implementation in health and academia.
- Government subsidies and massive investment in backbone networks.
- Use of national resources beyond reliance on private sector.
- ICT hubs should be set up in counties.
- Have affirmative action for those with disabilities.
- Fiber and how it's laid. There needs to be some serious thought put into this. Perhaps the counties can lay down their own networks and companies do the last mile.
- Revive the moribund Universal Service Fund.
- Roll out infrastructure across counties.
- More wifi hotspots across the country.
- Localize ISPs at county level.
- Evaluate ICT penetration at county level and prioritize.

Reduce elitism

The provision of Internet access was perceived to be concentrated in urban elite areas. Several respondents raised this in their comments as indicated in the sample below:

• Lay out fibre to the rest of the country not only in posh neighbourhoods and business areas.
• Communication Authority should facilitate connectivity in marginalized areas in Kenya.
• Rural folks mostly use non-smart phones. There's need for cyber cafes that can encourage them to access internet more often. Besides, not everything can be done through the phone.
• [Establish] community networks.

Reduce monopolies

The dominance of particular players in internet provision, such as telecommunications companies was a concern raised by several respondents. Their responses were that there is need for government intervention and/or an increased number of other players in the sector to address the question of monopoly. Two comments below capture those sentiments:

• Need for more infrastructure by data companies across the country, especially to compete with Safaricom to democratize the market.
• Reduce telco monopolization.

Lowered costs

Respondents repeatedly pointed the need to enable a greater range of users to have equitable access to the Internet, including those who do not have large incomes. There was no specific solution as to how the lowering of costs would be achieved, although the respondents seemed to suggest that the market itself could sort through having a wider range of service providers. However, government intervention may be another option even though that was not explicitly stated by the respondents.

Sample responses were as follows:
• Standardizing and lower price of mobile data.
• Make the Internet service rates affordable.
• The cost of internet should be made more affordable to low income earners.

Infrastructure

iv) The extent to which there has been an increase in roll out of 3G and 4G outside Nairobi and in the counties

More than half of the respondents (52%) admitted that there has been increased 3G and 4G networks in the counties. Only 23.1% felt that the network coverage had improved to a moderate extent as shown in Figure 10 below.
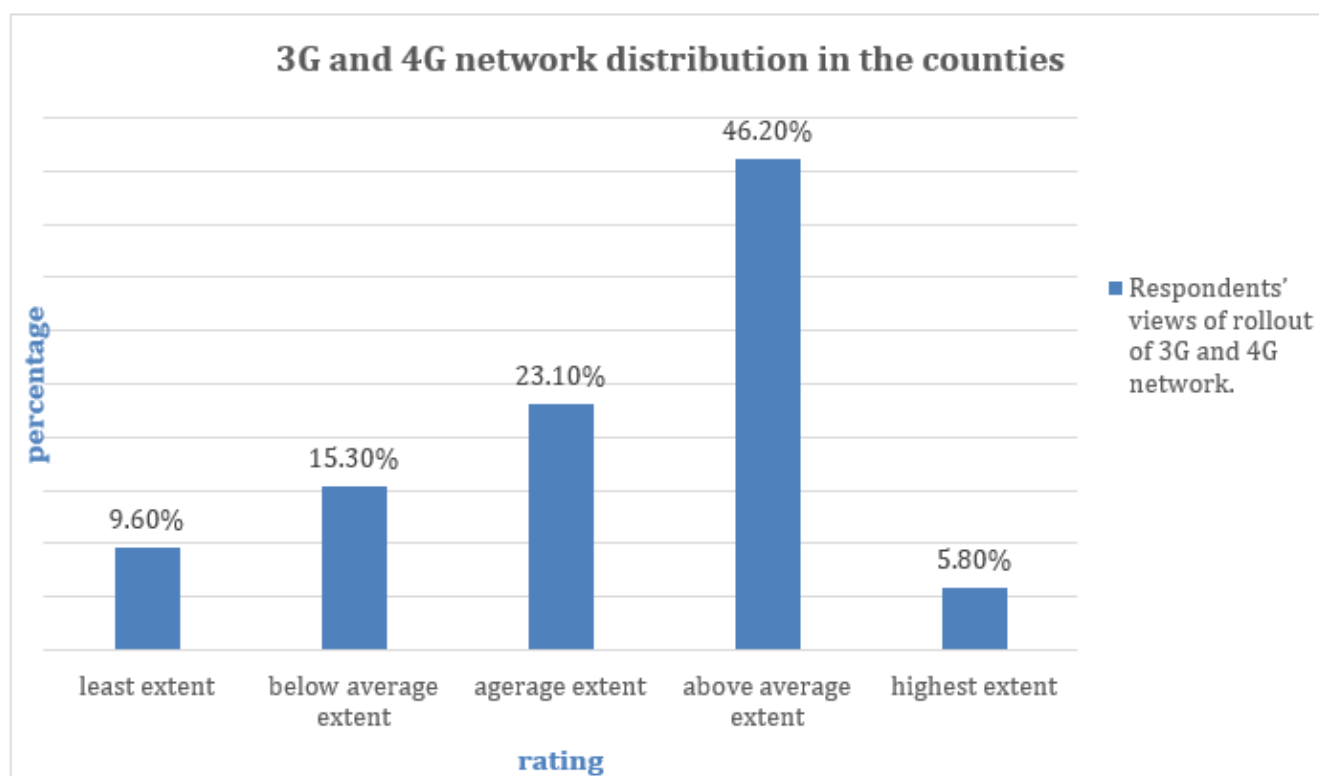

Figure 10. 3G and 4G Network Distribution in the Counties.

Mobile network infrastructure is deployed by private companies in the telecommunications sector. Perceptions of good 3G and 4G deployment in the counties could be out of the fact that most of the survey respondents are from Nairobi, and use Safaricom, which has the largest market. Safaricom has also deployed the widest coverage of 3G and 4G networks infrastructure across the country.[3]

The Kenya Information and Communication Act 2009 provided a base for the establishment of the Universal Access Fund (USF). The purpose of the fund is to promote widespread of ICT access countrywide by financing national projects that have significant impact on the availability and accessibility of ICTs in rural, remote and poor urban areas.

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3 https://techweez.com/2017/06/15/opensignal-map-kenya-carriers/

v) The extent to which the sector has promoted open source as a means of encouraging content creation

On the issue of open source, 7.7% felt that the sector had done little to promote open source as a means of encouraging local content creation, while 7.7% noted that the sector had provided robust support in this area. Just about a third of the respondents (32.7%) felt that to a moderate extent, the sector had done a lot to encourage local content creation through the promotion of open source.

Figure 11. Local Content Creation.
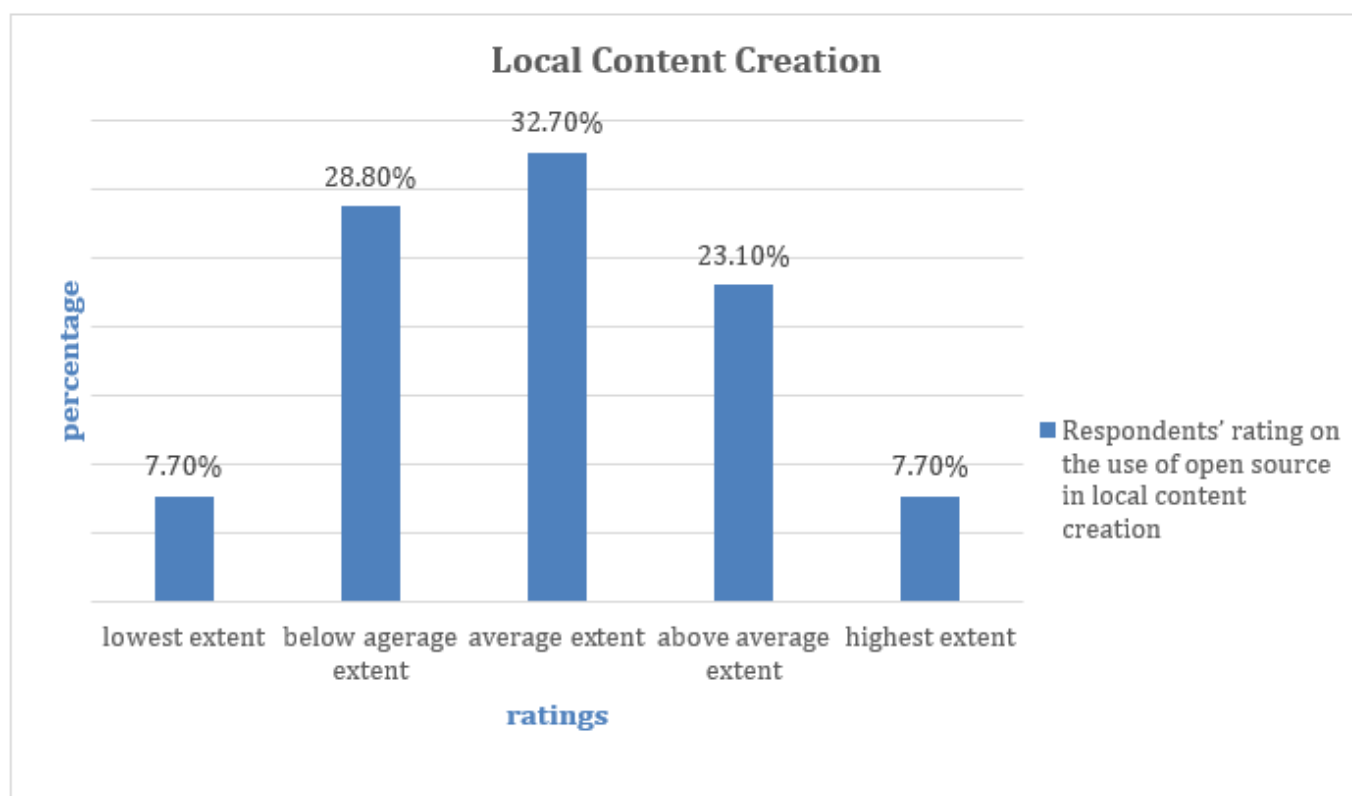
Enablers of local content creation include Internet Infrastructure, affordability of the Internet and ICT equipment, education and skills. These have significantly improved over the last 10 years. The applications industry has grown in terms of the number of applications, users and subject categories. Table 1 below shows the categories of local apps and their usage as at 30 March 2018.

CATEGORY	APPS AND DOWNLOAD NUMBERS				
Finance	Tala Kenya 1 Million	Mkopa 5,000	KCB 500,000	Okoa loan 100,000	M-ledger 500,000
Education	Kenya Basic Education Act 100	KCPE & KCSE study app 10,000	St Paul University 500	Kenyan Constitution 100,000	
Games	Bungoma Hangman 50,000	Matatu 10,000	Bet in 10,000	Githeri man 500	Bodaboda Madness 500
News	Tuko news 1 Million	Nation news 10,000	KTN News 100,000	Citizen news 500,000	Viusasa 500,000
Transport	Sendy 50,000	Little cab 100,000	Madaraka Xpress 500,000	Taxify 100,000	
Lifestyle/entertainment	Kenya travel guide 1,000	Mdundo Music 1 Million	Waabeh 1,000		
Public Service	NHIF Mobile 100,000	Nairobi City County 500	iTax 50,000	NTSA app 100,000	E citizen ke 50,000

Table 1: Categories of local apps
Source: Google Play Store

A positive trend is the ability of Small and Medium Sized Companies (SMEs) applications to compete with larger, for-profit companies such in the news and banking categories. However, Kenyan apps still struggle to compete locally with other global brands. Most of them rise out of local events and can only manage to run for the period the events are in the public discourse.

The Access to Information Act 2016 has promoted the creation of open data and Information by the government. There has also been increased publication and sharing of government information and data among citizens, thereby increasing political participation. For instance, during the 2017 elections, the Independent Electoral and Boundaries Commission (IEBC) and the Judiciary enhanced transparency by sharing data and proceedings on their respective websites. Government agencies have also increased citizen engagement through Social Media and have continued to provide more content on these platforms though there are still challenges including the limited nature of information from government sources. For example, the Government Open Data initiative – an online portal that presents government data on a variety of sectors - became inactive from early 2017. [4]

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4 http://realestateye.co.ke/kenya-open-data-portal-falling-apart/

vi) The extent to which Government transactions are electronic and auditable.

In regard to the extent government transactions have been electronic and auditable, 23% of the respondents felt they have been to a very large extent or above average. About 48% viewed these two characteristics of government transactions as below average or very poor, while 28.8% viewed the performance as moderate, as shown in the figure below.
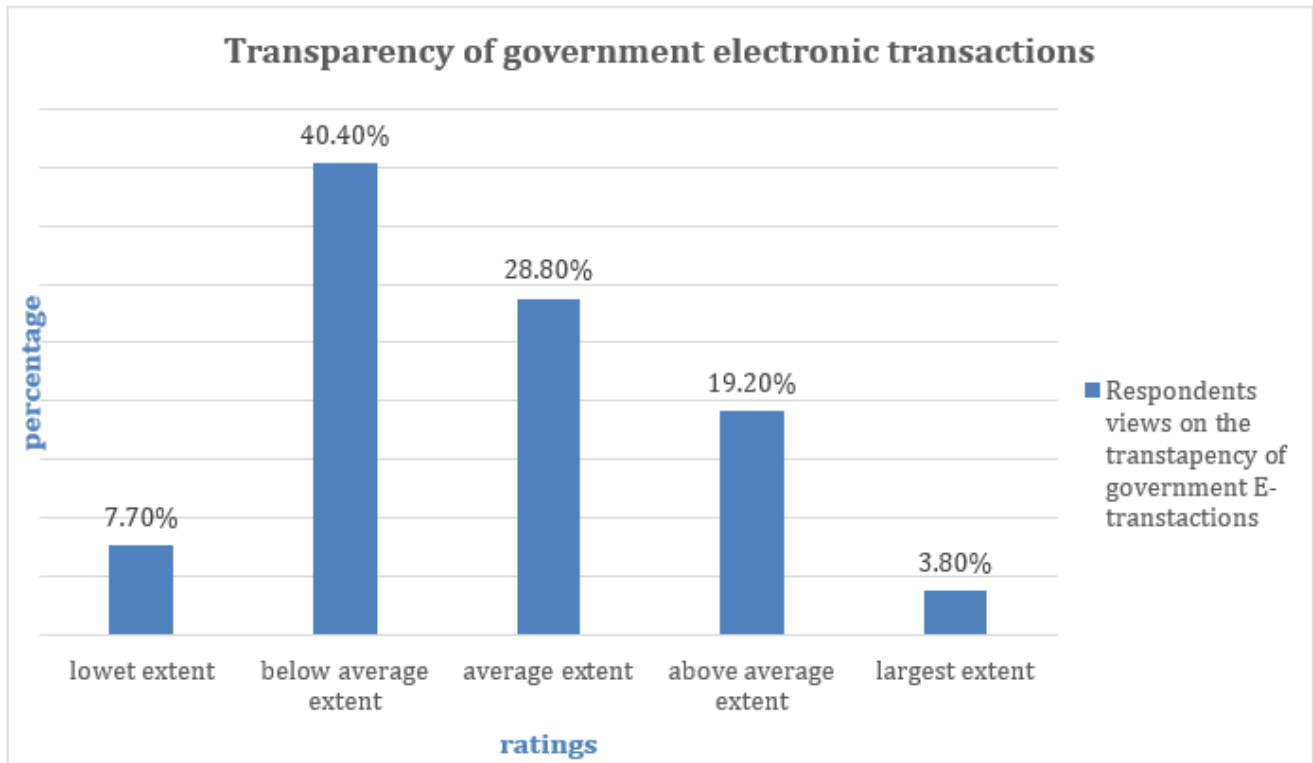

Figure 12. Transparency of public e-transactions.

The private sector rated government transactions as electronic and auditable as above average. Civil society too felt it was below average, while the media balanced between fairly moderate extent and below average. Respondents from academia were the most satisfied with transparency of government transactions.

vi) The extent to which Electronic health has been standardized to improve inter hospital medical care

The majority of respondents indicated that the achievement of e-health in this category was average or below average, as shown in the chart below.
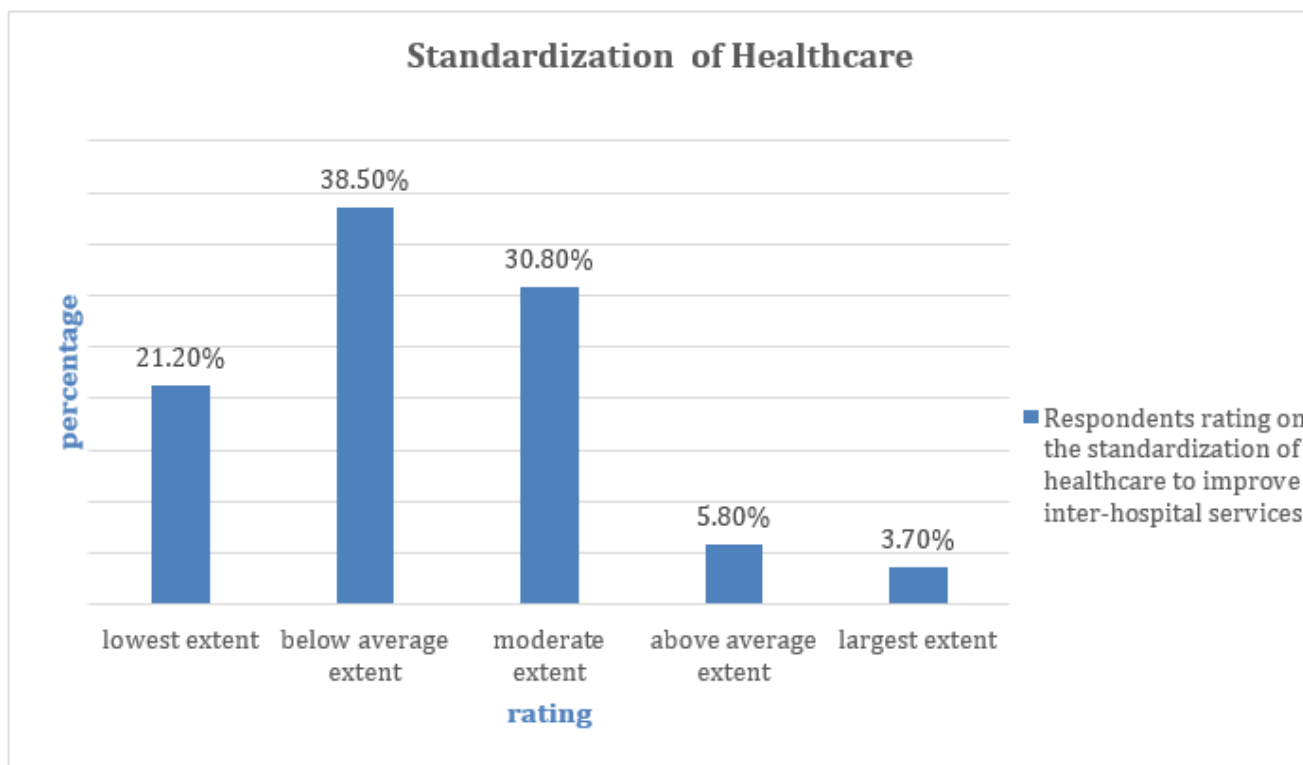

Figure 13. Standardization of Healthcare to Improve Inter-hospital Services

The challenges of inter-hospital care could arise due to lack of clear data protection framework. Health data is considered sensitive in many jurisdictions and in different sectors of the economy. As such citizens have had to go through the same procedures to get the information that had already been generated in another health facility. In effect, doubling the costs of transferring patients from one facility to another.

viii) The extent to which the sector should work on facilitating the provision for Mobile-phone voting facilities in the next General election

The majority of the respondents were of the view that the ICT sector should play a role in facilitating provision of mobile phone voting in the next general election. This is illustrated in Figure 18. Of the respondents, 48.1% strongly agreed that the sector should work on the facilitation of mobile phone voting for the next elections. 25% indicated that they moderately agreed on this issue, while 19.2% disagreed. Nearly 8% of the respondents were neutral on the subject.
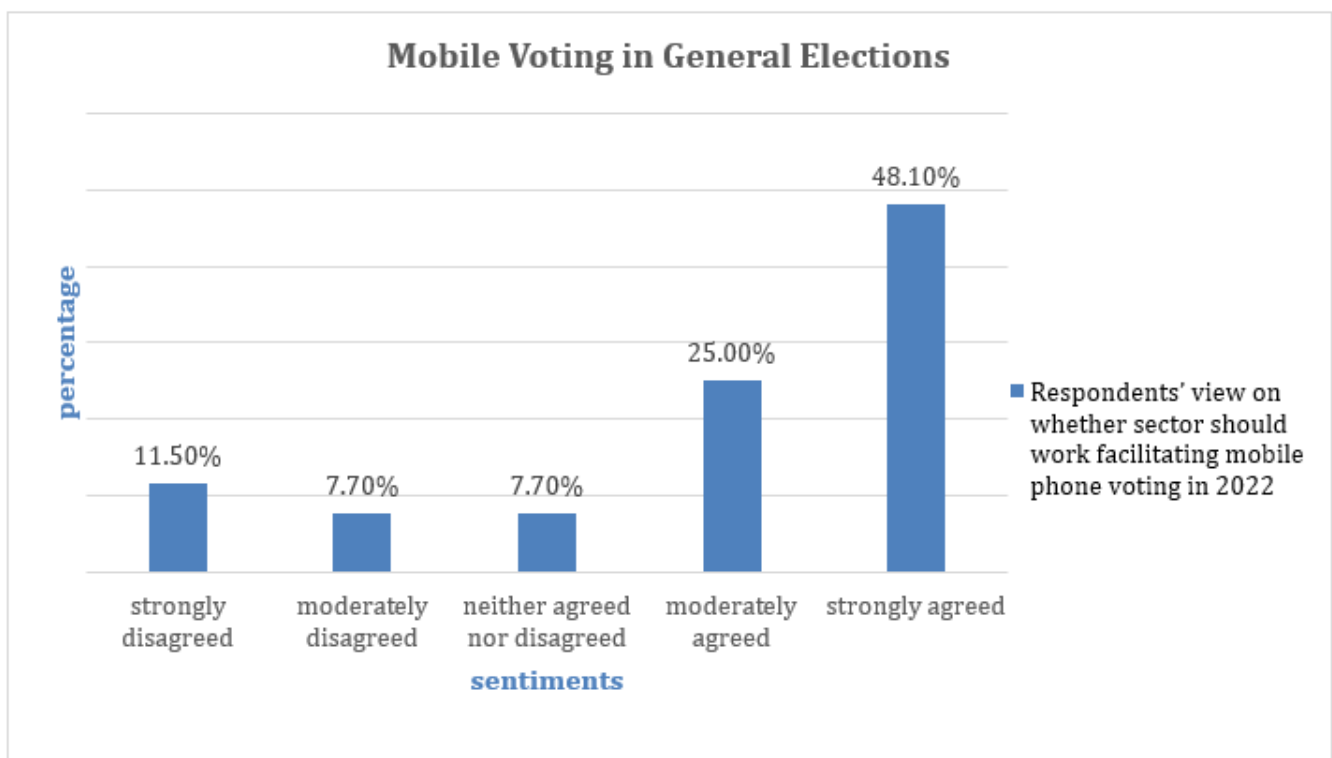

Figure 14. Mobile Voting in General Elections

Considering this survey was carried out after the contested 2017 presidential elections and which saw technology highly politicized, the findings were somewhat unexpected. The stakeholders felt that ICT can still be used in achieving greater transparency and accountability in elections when backed with robust laws and stronger institutions.

ix) Proposals for 2018 ICT infrastructural improvements

There were 50 responses that proposed areas that touch on structure; government role and processes; greater wireless connectivity; reduction of monopoly; and greater collaboration.
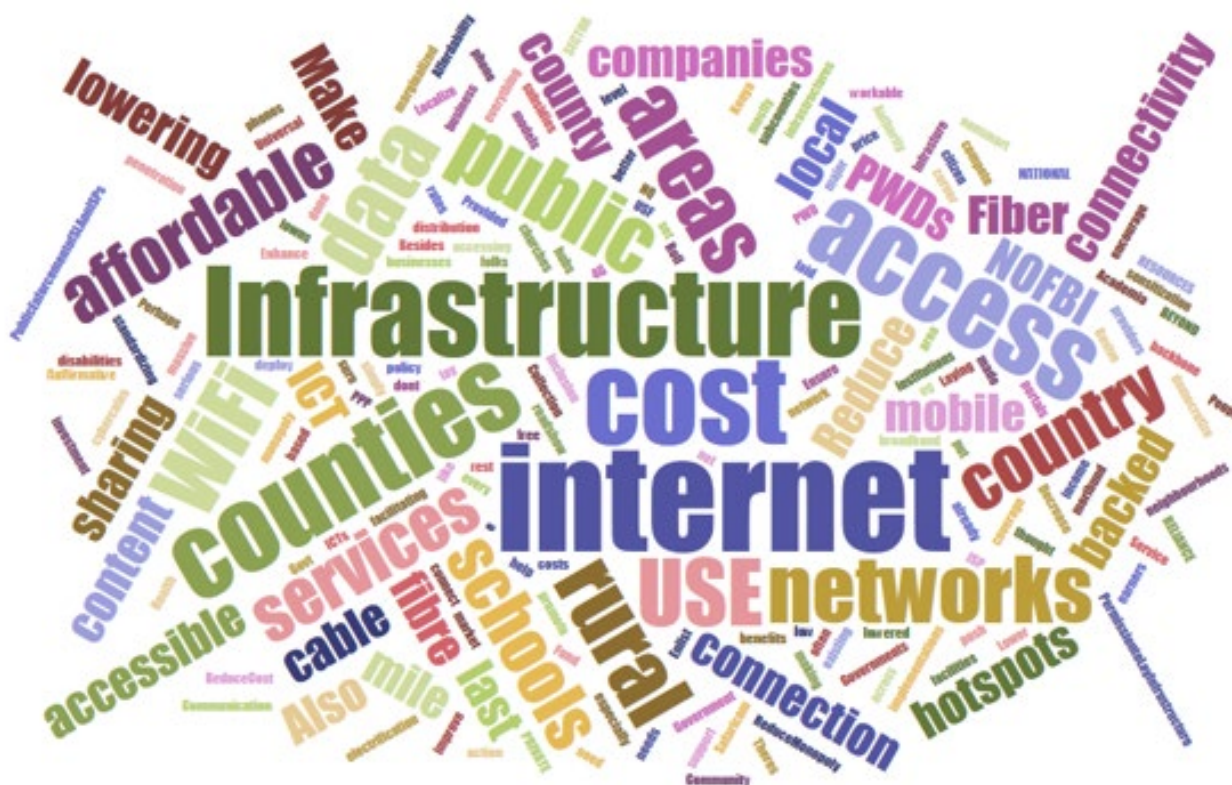

Figure 15. Word cloud representation of responses, on the items that should be prioritized to improve infrastructure

Structural

Respondents called for investment that would lead to improvement of the 3G and 4G networks countrywide, development of mobile infrastructure, utilization of the Universal Service Fund to achieve greater coverage, rural electrification, building wireless community networks, access at county level, and the use of alternatives such as cloud and wireless. On this last item, one respondent remarked: Use of cloud, wireless and other forms that do not involve degradation of the land and are not limited by the same land terrain.
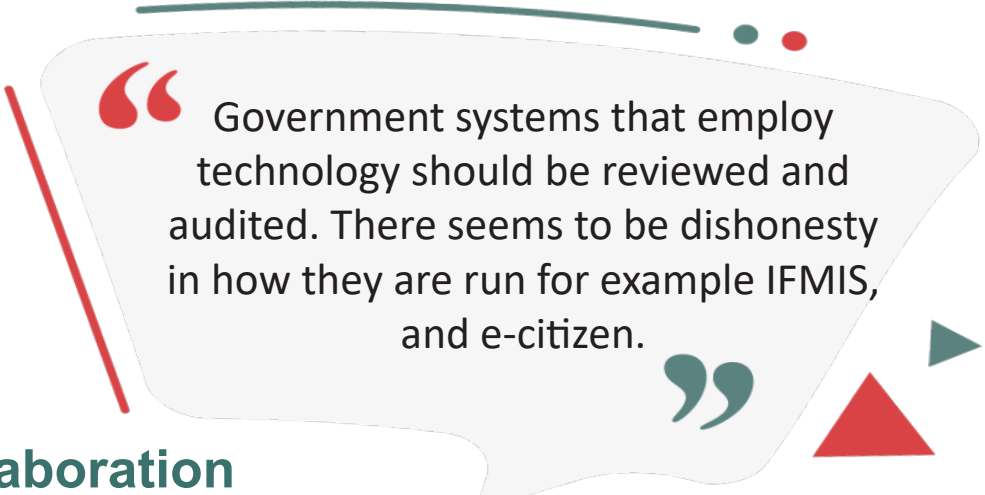
Other sample responses are noted here:
• The 3G and 4G network coverage should be available countrywide.
• In every district a person should have at least one service provider that offers 3G or 4G network.

Government role and processes

Respondents called for an approach in government that promoted greater honesty in its processes, provided greater connectivity and equity to all citizens and sectors, and harmonized various policies. Below is a sample of responses from respondents:

- More stakeholder input in the licensing processes and openness in the awarding of licenses and tenders. Stakeholders should be able to know amounts charged and spectrum of licenses. There also needs to be quicker, honest responses from CA on queries of the same.
- Government systems that employ technology should be reviewed and audited. There seems to be dishonesty in how they are run e.g. IFMIS, and e-citizen.
- Reduce monopoly within service providers and provide incentives to encourage more investment in the sector.
- Last mile villages connections, policy implementation in regards to ICT in Academia, Health and Public service.
- Better usage of NOFBI (National Optic Fibre Backbone).
- Policies to harmonize approvals across on setting up fiber by ISPs.
- Provide Internet as a necessity and as a human right. You can't expect wananchi to file returns in the villages when they lack basic internet infrastructure.

> " Government systems that employ technology should be reviewed and audited. There seems to be dishonesty in how they are run for example IFMIS, and e-citizen. "

Greater collaboration

Respondents recommended private-public partnerships as well as intra-industry partnerships in the development of ICT infrastructure, and called for the prioritization of rural areas in infrastructure development. Sample responses are shared below:

- Partnerships in rolling out infrastructure, both PPP as well as intra-industry partnership.
- Partnerships between government and private sector.

Training

Respondents suggested the need for skilled personnel with niche expertise. One respondent called for the establishment of an E-Governance Academy. One sample response was as follow:

- Training of ICT personnel in specific skills e.g. medical care and govt information access services.

Human Capital and Capacity

i) The extent to which Academia (Universities & Research Institutions) have enhanced capacity and linkages to meet the needs of the labor market and industry.

On academia's capacity to meet market needs, just over 69% of the respondents indicated that it was average or below average. This opinion was held by respondents from academia and the private sector who have close interaction with students and fresh graduates as they transit into the job market. Of the respondents, 23% indicated that academia had contributed to a very large or above average extent, while nearly 8% said the contribution was to its lowest extent, as seen in the figure 16 below.
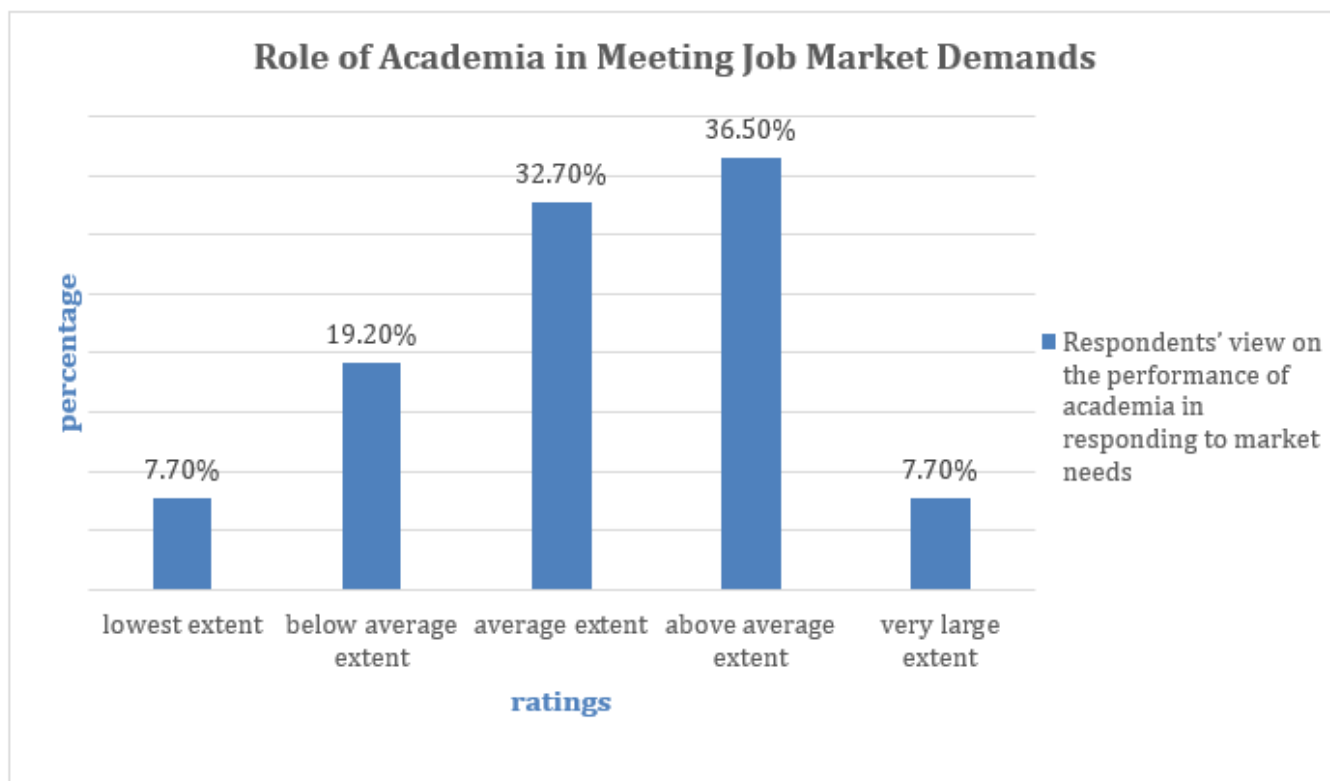

Figure 16. Role of Academia in Meeting Job Market Demands

ii) The extent to which Research and Development (R&D) in local institutions have been strengthened to enable the development of local solutions such as in solving the problem of traffic jams.

The majority of respondents held a positive view on the role of research and development to introduce local solutions. As seen in the following chart, 65%of respondents felt that R&D has enabled the development of local solution to above average and to a great extent.
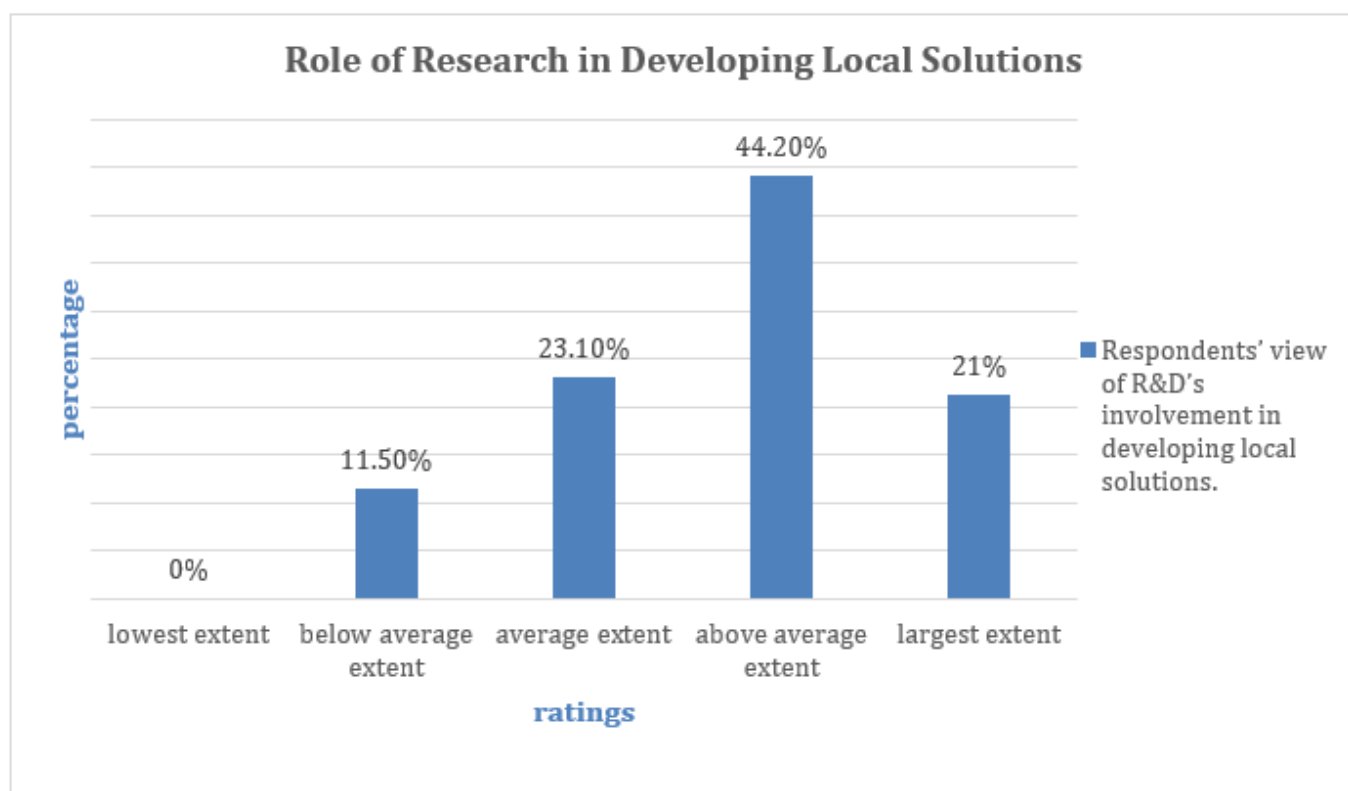
Figure 17. Role of Research in Promoting the Development of Local Solutions.

Various studies have addressed different aspects of the digital technology sector in Kenya and beyond. For instance, scholarship on digital technology's role in economic development has tended to focus on access concerns and the so-called 'digital divide' (Ndemo, 2017). Other studies have addressed policy and regulatory concerns and the evolution of the sector as a whole (Osiakwan, 2017; Mureithi, 2017). However, there remains room for greater growth in this area.

iiv) The extent to which the sector leveraged on tech development to promote innovation, techpreneurship and address youth unemployment.

None of the respondents expressed strong views in support of the sector's performance in leveraging on the ICT to address youth unemployment. Of the responses, 34.6% expressed that to the least or below average extent, the sector has made use of the ICT to address the problem of unemployment, 38.5% indicated that it was to a moderate extent, while 26.9% considered it to be at above average.
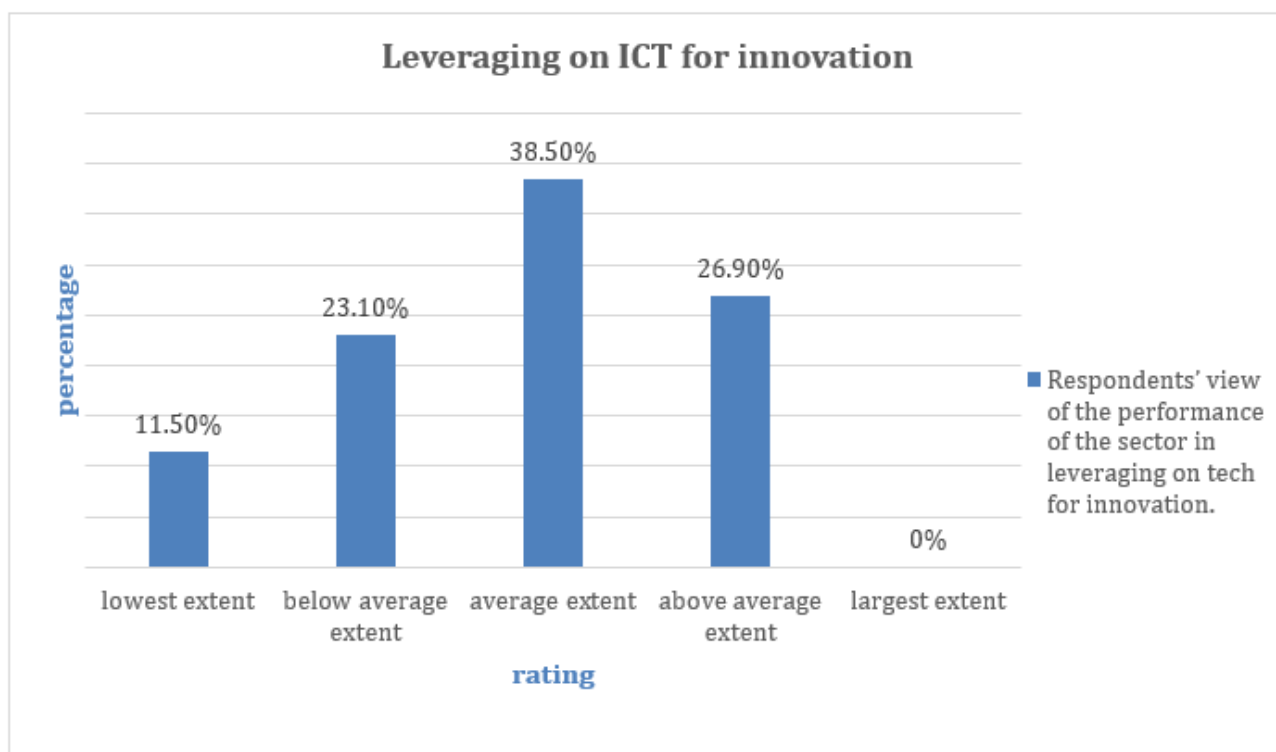
Figure 18. Leveraging on tech

ICT has reduced the cost of entrepreneurship, especially among the youth, by creating new technology-mediated processes. A lot of businesses advertised through the social media platforms use very small physical spaces, if any. New innovations such as mobile sports betting and mobile lending have taken advantage of the simple processes of transaction and analytics of data generated by the usage of ICT. However, the respondents felt that there is more that should be done to maximize on the potential of ICT to influence innovation.

v) Changes necessary to enhance research, innovation and techpreneurship

The 52 responses to this question revolved around the following themes: involving different niche groups, regulation and accountability, funding, clarity of focus; training; greater collaboration and investment; and guaranteed internet access.

Involving different niche groups

It is necessary to involve different groups in different projects regardless of technological knowledge. These groups would include the youth, and young women and girls.

Regulation and accountability

Respondents advocated for greater care in the regulations to promote rather than deter entrants in the sector. One respondent referred to the premature regulation of innovations and startups as a deterrent while another said there are narrow interests embedded in legislation that should be removed. There was another suggestion of having policies that support entrepreneurship and efforts to work online. Better documentation of government processes such as procurement was proposed alongside data-driven policy making and implementation.

Have areas of focus with some flexibility

Respondents noted the need for particular areas of focus. These included the development of tech hubs into production centers, as well as a need for academia to engage in more action research rather than only producing theoretical, grade-focused scholarship. Additionally, participants called for the development of open source products that can be of use to a wide variety of consumers. Other areas that would require a clear sense of focus included governance where participants called for greater transparency that would enable the equality of access for innovators and techpreneurs to government contract bidding.

Sample comments

Innovation challenges from a national level. Increased awareness. Academia developing solutions for market and industry. However, one respondent noted that being too focused could be unfair and limiting. The responded opined:

This thing of looking at tech and entrepreneurship as the be all and end all of our issue is wrong. Tech is a tool not the solution. We need to fix policy and its implementation.

Training

Respondents raised the need for sufficient skilled personnel to be involved in ICT training and for young people to receive training from as early as in primary school. Use of ICTs in TVET and invest in online TVET training; teach people about online training and entrepreneurship; invest in innovation hubs across counties; keep reviewing curricula to keep them fresh and relevant as articulated by a respondent:

Making training relevant for the industry not pushing it from a legislative way.

Greater collaboration and involvement

Respondents noted the multiple opportunities for collaboration between government, industry, and academia at technical and financial levels. These opportunities would need better structures put in place in order to encourage these interactions such as friendly policies and funding.

Types of collaborations suggested included those between incubation centers and international accelerators as well as industry players, exchange programs between academia and practice, and inclusion of a wide variety of stakeholders in policy making stages. One participant said the following:

Data driven policy making. Structural private sector linkages with academia for capital unlocking (funding) and early cycle collaborative development.

Internet access

The need for equitable and cheap Internet access was raised by respondents, as well as affordable access to a wide range of ICT infrastructures.

Conclusions and Recommendations

Government

The data was indicative that government is a key player in the technology sector, and needs to make more effort in engaging the citizenry in ICT policy making and implementation. Government also is often perceived as opaque and not always honest in its processes, policy making and practice in relation to the ICT sector. The need for a robust infrastructure that requires partnership of government at county and national levels and industry also emerged as a concern of respondents.

However, as indicated in the responses to the March 2018 public discussion, government is not the only important player in the technology sector. The discussion, on KICTANET platform that debated the preliminary findings presented in this report, pointed out that diverse interests in the sector should also proactively participate in processes and policy making related to the industry. Public participation models could involve using particular criteria (Mwenda et al., 2012) including the ensuring of effective and sufficient notification, free and democratic participation methods, accessible venues, language use, and the inclusion of a range of participants.

A substantial section of the respondents wanted the government to leverage on digital technologies in engaging stakeholders. Suggestions that came up included coming up with a one stop website where citizen can track policies that require public participation, use of social media and start up-incubators like the ihub.

The report recommends that different stakeholders be included in more aspects of the ICT sector such as policy making and legislation, which will also address the elitist, jargon-heavy approach prevalent in the sector. Government authorities are urged to be more transparent and accountable in their ICT policies and practices, while academia needs to seek to increase engagement in both theoretical and industry-focused research. The report further calls for a discouragement of monopolies such as those seen in the telecommunications sector, as well as the continued encouragement of public-private partnerships.

In addition, there is need for increased citizen participation in policy making, and reduction of private-sector monopolies such as in infrastructure and access provision. Greater inclusion of easily excluded groups such as people with disabilities, the youth, rural communities.
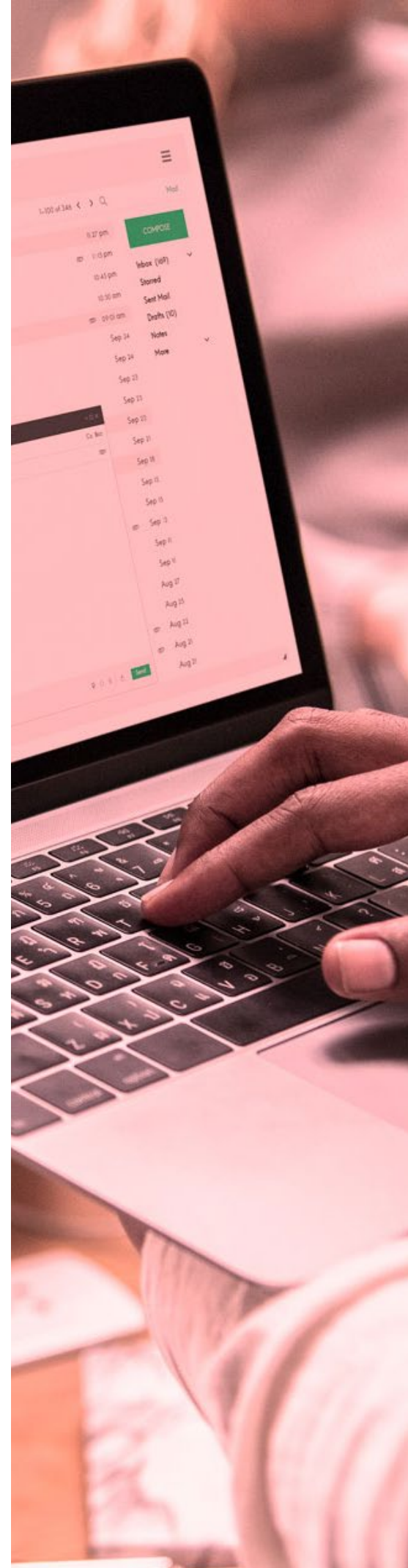
Private sector

The government, academia and the private sector should work towards inclusive service provision. Importance of access and usability of ICT continues to increase as the government and private sector explore efficient ways of service provision through ICT. ICT is a means of complying to certain policies, or getting public services such as: driving license, company registration and iTax, and should be seen as a human right.

Academia

There was a call for greater collaboration between academia, government and industry at technical and financial levels, and more data-driven policy making. This could be achieved through improved research that is directed at influencing policies; communicating research to decision makers in government and in the private sector.

Civil society

The civil society organizations in the ICT sector play a critical role in demystifying ICT and ICT policies to the citizenry. It also promotes policies through capacity building and awareness programs for the benefit of citizens and organizations as consumers. More civil society organizations from the different sectors and different levels of policy advocacy are needed in the sector so as to ensure diverse perspectives for the development of robust and inclusive policies.

Most respondents expressed need for awareness and capacity building. On awareness, respondents wanted more government information access by the public, in particular county data. They also indicated the need for a narrowed communication gap between the bureaucratic executive and the stakeholders (this includes use of simple language and avoiding jargon and acronyms). Further, it is important to avail policy documents to the stakeholders early enough for them to review and make meaningful contributions to the policy. This concern has also resulted to calls for a public participation framework.

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ANNEX

2017 ICT End Year Review Questionnaire
Following up on the 100 Days Wishlist that KICTANet had towards the end of 2016, we would like to get your thoughts and experiences on some of the issues you raised and what you think stakeholders in their different roles and capacities should focus on. This questionnaire should only take 10 mins or less.

1. Name (Optional)
_____

2. Stakeholder group
o Academia
o Civil Society
o Government
o Media
o Private Sector (Business)
o Technical Community
o Other

3. Gender
o Female
o Male
o Prefer not to say

Policy and legal issues

4. To what extent have the ICT law and policy development processes embraced multistakeholder participation?

Not at all (1) _____
Great Extent (5)

5.To what extent have ICTs been opened up for public participation in as far as policy development, concepts, and selection of projects are concerned?
Not at all (1) _____
Great Extent (5)

6.How has the sector performed in providing policies that create opportunities for women, youth, People with Disabilities (PWD) and marginalized persons perspectives as well as have their input during implementation?
Not at all (1) _____
Great Extent (5)

7.Are you aware of any policies that promote ICT integration in the counties?
o Yes
o No
o Maybe
8. What do you think should be done to promote greater public participation in ICT policy and law making?
_____
_____
9. What is the key ICT policy or legal issue that should be prioritised in the coming year?
_____
___

Access
10. The cost of Internet has been more affordable in 2017.
o strongly disagree
o disagree
o neutral
o agree
o strongly agree
11. We have more statistics on Internet Penetration in the counties.
o strongly disagree
o disagree
o neutral
o agree
o strongly agree

12. Persons with disabilities have better access to ICT services.
o strongly disagree
o disagree
o neutral
o agree
o strongly agree
13. What do you think should be prioritised this year to improve internet access across the country?

Infrastructure
Please rate the following statements.
14. There has been increased roll out of 3G and 4G outside Nairobi and in the counties.
o strongly disagree
o disagree
o neutral
o agree
o strongly agree
15. The sector has promoted open source as a means of encouraging content creation.
o strongly disagree
o disagree
o neutral
o agree
o strongly agree
16. Government transactions are electronic and auditable.
o trongly disagree
o disagree
o neutral
o agree
o strongly agree
17. Electronic health has been standardized to improve inter hospital medical care.
o strongly disagree
o disagree
o neutral
o agree
o strongly agree
18. The sector should still work on facilitating the provision for Mobile-phone voting facilities in the next General election.
o strongly disagree
o disagree
o neutral
o agree
o strongly agree
19. What do you think should be prioritised this year to improve ICT infrastructure in the country

Human capital/workforce
Please rate the following statements.

20.Academia (Universities & Research Institutions) have enhanced capacity and linkages to meet the needs of the labour market and industry.
o strongly disagree
o disagree
o neutral
o agree
o strongly agree
21. Research and Development in local institutions has been strengthened to enable the development of local solutions - e.g. addressing the traffic jams.
o trongly disagree
o disagree
o neutral
o agree
o strongly agree
22. The sector has leveraged on tech development to promote innovation, techprenuership and thus address youth unemployment.
o strongly disagree
o disagree
o neutral
o agree
o strongly agree
23. What's the critical change that can be made to enhance research, innovation and techpreneurship?
_____
___

        Asante!

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