THE KENYA INTERNET GOVERNANCE FORUM

Report of the 12th Kenya Internet Governance Forum held on 1st August 2019 at Panari Hotel, Nairobi, Kenya

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ASANTE SANA!

KENYA INTERNET GOVERNANCE FORUM SPONSORS

ACRONYMS AND ABBREVIATIONS

AB	African Bureau
AI	Artificial Intelligence
CAK	Communications Authority of Kenya
CMCA	Computer Misuse and Cybercrimes Act
CN	Community Networks
COP	Child Online Protection
DG	Data Governance
DI	Digital Inclusion
EDCP	Education Broadband Connectivity Project
EI	Emerging Issues
EU	European Union
FTTH	Fiber-To-The Home
GDPR	General Data Protection Regulation
GIGF	Global Internet Governance Forum
GSID	Global Safer Internet Day
GSMA	Global System for Mobile Communications Association
ICT	Information Communication Technology
IDs	Identity Cards
IG	Internet Governance
ISKC	Internet Society Kenyan Chapter
ITU	International Telecommunications Union
IWF	Internet Watch Foundation
JAWS	Job Access With Speech
KENET	Kenya Education Network Trust
KICD	Kenya Institute of Curriculum Development
KICTANet	Kenya ICT Action Network
KIGF	Kenya Internet Governance Forum
MTTC	Machakos Teachers Training College
NBS	National Bureau of Statistics
NEBP	National Education Broadband Project
NLS	National Library Service
PCoICTI	Parliamentary Committee on ICT and Innovation
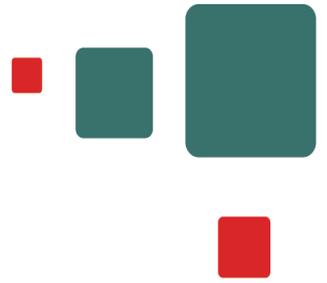
PWDs	Persons with Disabilities
SICTC	Senate ICT Committee
SMEs	Small to Medium Enterprises
TN	Tunapanda Net
TSB	Thika School for the Blind
UN	United Nations
USF	Universal Service Fund
WW	Watoto Watch
YIGF	Youth Internet Governance Forum

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Acknowledgement

I would like to express my deepest appreciation to all our sponsors and partners. A special gratitude to Safaricom PLC for their kind support of offering free Wi-Fi for streaming of KIGFs and free air time to all the participants of 2019 KIGF, Communication Authority of Kenya for setting an example as a regulator and participating in internet governance policy discussions, Facebook for heeding KICTANet's call to open an office in Nairobi to enhance service delivery to the online community and supports on various aspects of the association.

Special thanks go to the trustees of KICTANet whose idea to establish an association to offer a platform to discuss internet and internet governance matters was timely. All the partners who played an important role in spurring ideas and support to make 2019 KIGF a success, your input cannot be ignored.

Furthermore, I would also like to acknowledge with much appreciation the crucial role of the staff of KICTANet, who worked tirelessly to coordinate all the activities of the day and the necessary materials to make the celebrations of the day joyous. A special thanks go to the team that documented the events of the day. Last but not least, many thanks go to the convenor of the association, Ms Grace Githaiga, who invested her full effort in guiding the team in achieving the goal.

I have to appreciate the guidance given by other players in the industry as well as the panellists especially in the various presentations that improved the understanding of the internet governance and policy issues. A big thanks to their comments and advice.

1.0 Introduction

The Kenya Internet Governance Forum (KIGF) is an annual meeting held in line with the multi-stakeholder internet governance approach. It brings together various stakeholder groups to dialogue on internet governance and policy issues through an open and inclusive process. KIGF stakeholders are the government, the private sector, civil society, the technical and academic community, media and the public.

The purpose of Internet Governance Forum (IGF) is to offer an open platform for inclusive dialogue and the exchange of ideas on Internet Governance (IG) related issues, share best practices and experiences, identify emerging issues and direct them to the relevant authorities and to contribute to the enhancement of Internet governance through capacity building of the identified stakeholders.

The outcomes of the country level IG meetings such as the KIGF contributes to East Africa Internet Governance Forum (EAIGF) at regional and the Africa Internet Governance Forum (AIGF) at the continental level. Previously, Kenya hosted EAIGF in 2009 and 2012 and the global IGF in 2011 in Nairobi.

2019 KIGF was held on August 1st 2019, at the Nairobi Sarova Panafric Hotel. It was a culmination of the activities of KIGF week that commenced on July 29th 2019 under a theme:

One Kenya. One Net. One Vision.

The sub-themes for 2019 KIGF discussions were;

i.   Data Governance: discussions under this sub-theme focused on the fundamental challenges of ensuring inclusivity on the benefits of the data revolution to contribute to economic development while protecting the rights of people.

ii. Digital Inclusion: This sub-theme provided a framework to assess and consider the various elements and policies that could improve on the attainment of equity in opportunities available in a digital era. Digital inclusion is about having the right access, skills, motivation and trust to confidently go online.

iii. Security, Stability, Safety and Resilience: this session reviewed potential risks to security and safety which were discussed from various angles with due consideration to how stability and resilience can be achieved. Strategies for protection of both systems and users were addressed, taking into account a multidisciplinary perspective to potential solutions and the importance of stakeholder collaboration for responding to the growing range of threats to the global Internet and its users.

1.1 Opening remarks

Barrack Otieno the moderator of the 12th KIGF welcomed participants, and a round of introductions followed. He thanked the sponsors and long-time partners of the 12th KIGF and the previous KIGFs. He also acknowledged those who had participated in the earlier KIGF online discussion besides the remote participants.

Mr Otieno acknowledged that Kenya was the first African country to host a national IGF. Hence, a pioneer in the space. Besides, participants were informed that the Communications Authority of Kenya (CAK), the Senate ICT Committee (SICTC), the National Assembly Committee on ICT and Innovation (PCoICTI) participated in the discussions to shape policy and ICT development in the country.

Finally, he reminded participants that the program together with the concept note of the Kenya IGF was available on the Kenya IGF website https://kigf.or.ke/kesig/

1.1.1 Grace Githaiga, Convenor KICTANet

She welcomed participants to 2019 KIGF. She requested participants to stand and observe a minute of silence in honour of the late Bob Collymore, CEO of Safaricom PLC., the departed national leaders Hon. Ken Okoth and Governor Dr Joyce Laboso, who were all supporters of the industry and had passed on almost the same period.

She stated that KICTANet convened KIGFs since 2008 in collaboration with like-minded partners in the industry. She observed that multi-stakeholders' involvement was reflected in the participation and support of the KIGFs. She summarised the events that constituted KIGF week.

These events were:

i. The training of 40 participants from the Kenya School of Internet Governance (KESIG) who graduated later in the day forming the 4th cohort of alumni.

ii. KICTANet launched a policy brief on Over-The-Top (OTT) services. OTT highlighted issues that needed policy intervention.

iii. Youth IGF took place in a parallel session on the same day as the KIGF. The participants joined the main KIGF sessions in the afternoon.

iv. KICTANet and her partner CIPESA launched a tool on the accessibility of ICTS for people with disability, a growing push to involving PWDs in the KIGF.

All these events culminated to the 2019 KIGF!

Ms Githaiga recognized the various sponsors of the 2019 KIGF. In particular, she applauded CA, for setting an example of how a regulator should engage with the public in ICT issues, Facebook for heeding to a suggestion from KICTANet to install an office in Nairobi to enhance efficiency in responding to the needs of the users and for supporting various activities undertaken by KICTANet, Safaricom was also appreciated for connecting people and for offering free Wi-Fi to all KIGFs and a kind gesture of an award of Ksh.500 airtime to each attendee of 2019 KIGF besides playing an active role of responding to customer questions in the 'Talk to Safaricom' series.

She also recognized KENIC for believing in KIGF and for being an active attendee of the KIGF forum, the Ministry of ICT for guiding stakeholders on how to engage the government and shape policy, and the Internet Governance Forum Support Association (IGFSA) that first supported KIGF (the very first time it was establishment). Finally, Huawei, Watoto Watch, CIPESA and Global Partners Digital (GPD) were also acknowledged. Ms Githaiga applauded all the apanelists and appreciated Hon. Abshiro Halake for her work on the Senate ICT Committee.

1.1.2 Ms Kui Kinyanjui, Head of the Regulatory Team at Safaricom Plc.

In her welcome remarks, she highlighted that the internet plays an important role in connecting about 4.3 billion existing users and about 1 million joining the internet daily. She pointed out that the internet transcends geographical barriers allowing instant communication, ease of use and access to an endless supply of information.

She noted that the internet was a blessing to many people since it provided a means of livelihood to data developers and content creators observing that internet too brought in other vices like cyber bullying and offered a platform of propagation of inappropriate content among others.

Ms Kinyanjui observed that it was the responsibility of all stakeholders to ensure that the internet continues to be a safe space where young people continue to learn. She revealed that Safaricom partnered with Internet Watch Foundation to block websites that contained inappropriate content, for instance, sexual content that targets children.

She reiterated the importance of the multi-stakeholder approach in internet governance and emphasised on the importance of unity of purpose. Finally, she called on stakeholders to live Safaricom's slogan of 'When we come together, great things happen'.

2.0 First Session

2.1 Data Governance

Moderator: Mercy Ndegwa, Head of Policy at Facebook covering East Africa and Horn.

Panellists: Hon. Abshire Halake, Vice-Chair Senate ICT Committee, John Walubengo, Multimedia University and National Taskforce on Data Protection, Stephen Kiptiness, KO Associates and KENIC Board Member, Phillip Thiago, Technical Advisor for Data, Innovations and Open Government, Office of the Deputy President.

2.1.1 Mercy Ndegwa, Head of Policy at Facebook, East Africa and Horn

Ms Ndegwa pointed out that data governance was a timely topic for discussion and of utmost importance. She highlighted that Facebook was willing to engage with the government and other stakeholders to identify or develop a privacy and data governance structure suitable for the market. She stated that Facebook's African Public Policy team is comprised of Africans who identify with the challenges.

"The objective of this session was, therefore, to find out what Kenya is doing in terms of developing an appropriate data governance framework." She stated adding that the internet brought both good and bad effects to the citizens. "I'm hopeful that data can be used for positive impacts even at the grass-root level." She said optimistically.

2.1.2 Hon. Abshire Halake, Vice-Chair of ICT Senate Committee

Ms Halake started by appreciating the participants for coming together, bringing their creativity and expertise

to brainstorm on internet governance issues; a fact that the Senate ICT committee is in support.

> "
>
> "Brainstorming sessions allow tabling of scenarios and risks that may arise and their possible solutions."
>
> Hon. Halake
>
> "

Hon. Halake pointed out that technological advancements are unpredictable and legislators 'paint in the dark' in their effort to regulate technology. She thanked stakeholders for setting the agenda for Senate ICT committee under the 'Talk to Senate Series' which identified data protection as a priority in 2017 and shed more light on the committee.

In her response to what the Senate was doing in data governance, She stated that there were several pieces of data protection bills in the Kenyan Parliament (both at the National Assembly and the Senate) and that the harmonization of the two bills was ongoing. She stated that the legislative process will take into consideration Internet Governance standards and global best practice such as the General Data Protection Regulation (GDPR).

She informed the 2019 attendees that the ICT Committees of the Senate and the National Assembly had planned a meeting to chart the way forward in data protection legislation. She acknowledged that the law-making process takes longer with a major challenge experienced when legislators constantly revise the drafts.

Hon. Halake echoed Ms Kinyanjui's speech on the good and bad effects of the internet reiterating that women and girls are targets of cyberbullying, especially women in politics. "The internet is a double-edged sword. But, legislation should not stifle trade and development." Said Ms Halake.

She cautioned the private sector from being too self-reliant despite being competent at their operations. she called on them to consult with the legislatures on relevant legislative amendments or laws necessary to create a conducive environment for them to operate.

On whether the private sector should self-regulate and ensure the protection of consumer data in internal data collection and processes, she regretted that the model was not practical for Kenya.

> "Self-regulation is a broken system in the country. She gave the example that 80% of medication in the pharmaceutical industry is counterfeit despite the existence of regulatory bodies." She regretted.

She identified the need for education of internet users on their rights to determine their digital identity to reinforce data protection initiatives.

2.1.3 John Walubengo, Multimedia University and Taskforce on Personal Data

Mr Walubengo shed light on the process of data protection legislation and how members of the public can participate. The taskforce work entailed harmonising the data protection bills irrespective of their houses of origin.
Mr Walubengo stated that the legislation making process was also motivated by the GDPR which expect EU business partners to trade with businesses in jurisdictions with robust data protection laws. He explained that European data controllers face heavy penalties for compromising user data by sharing it to countries that lack data protection legislation.
Consequently, he elaborated that Kenya had been losing businesses to countries like Ghana, South Africa and Mauritius that have data protection laws in place.

2.1.4 Philip Thigo, Technical Advisor for Data, Innovations and Open Government, Office of the Deputy President

Mr Thigo informed the attendees that the government was concerned about processes, people and how their data is used. He emphasised the need for the ability of the national and county government to handle data in the fourth industrial revolution and wondered whether the laws and policies were responsive to the needs.
He stated that the basic principle that the government operated on was that data belonged to the citizen and the customer was the government and the business context respectively. Hence, consent was paramount. He reiterated that the private sector handled more data. "Safaricom has more economically viable data on citizens than the government." He stated.

He also explained that data governance has an open governance aspect that requires public participation. "How can we protect citizen's metadata? to address privacy, security and identity issues". He wondered loudly.

Thigo concluded his remarks by asking stakeholders not to be afraid of technology. Also, there is a need for technology and regulation since the two aspects are key in realizing Vision 2030, the Big 4 Agenda, and the establishment of public participation in discussions on ICTs.

2.1.5 Stephen Kiptiness, KO Associates and KENIC Board Member

Mr Kiptiness responded to three concerns.
These concerns are;

i. Whether corporates hold more data than the government,
ii. Whether people have a right to determine their digital identity, and
iii. People's perspectives on the data protection legislation which has borrowed heavily from the UNGDPR- a European Union Regulation.

Mr Kiptiness stated that the government had a vast amount of data that it uses for service delivery. He pointed out that the law-making process was slow noting that the private sector does not wait for the law to be put in place. This explains why a company like Safaricom has more economically relevant data than the government. However, lack of laws on how data is stored and controlled is a big blow to Kenya since this lowers the competitive edge of the Kenyan market to the international investors.

Mr Kiptiness added that other business entities take advantage of the legal gap to make money by misusing users' data. Besides, the existing legislation such as the Consumer Protection Act, the Competition Act and Sale of Goods Act require companies to meet certain requirements including accountability on how

they would use the data.

He stated that GDPR requires consent for using customer data at every stage of a transaction, which makes it impractical in a business environment. Yet businesses struggle with the question of "How far should consent to extrapolate for businesses be before using the data?"

He advised the government to find a way of balancing data protection legislation and promoting trade. He called on civil society to continue to pile pressure on the government due to its tendency to over-regulate.

> "Parliament should harmonise and coordinate their legislative efforts in the interest of the country and fast track the processes."

He advised applauding the current government for collaborating with its agencies better than any previous government, for instance, the establishment of the Ministry of National Coordination as a step in the right direction.

2.2 Plenary Session

A concern was raised on whether the ICT sector had entered into an era of over-regulation and if Hon. Halake could assure stakeholders that the Data Protection and Huduma Bills would not allow sharing of citizen's data with third parties. Another participant sought to understand the process of enacting the two bills if it will be transparent and meet the legal threshold for public participation.

In response to the question of over-regulation, Hon. Abshire Halake assured the participants that there was no over-regulation and that legislation process will be done in good faith to uphold the rule of law and address the risk of self-regulation.

She called on stakeholders to come forward and raise concerns in case they sensed an over-regulation that would hurt or stifle the sector.

On the Huduma Bill, she agreed that there were concerns on the transparency on registration of the Huduma Number. She pointed out that a reading of the Huduma Number Bill was underway whose aim was to rectify the faulty elements of the Huduma Number registration process.

2.3 Key Note Speeches

The keynote address was delivered by Joseph Nzano on behalf of Eng. Francis Wangusi, Director-General, Communications Authority of Kenya.

The Director-General of CAK acknowledged the journey of 12 years of working towards Internet Governance with like-minded stakeholders.

> "I wish to reiterate that we have continued to value the deliberations on various current Internet Governance related topics that have been carefully chosen and demystified."

The Director-General speech read in parts adding,
"I commend the conveners and the wider internet technical community for keeping the national debate on Internet Governance public policy issues alive in Kenya."

He acknowledged the feedback from KIGF discussions, which had influenced the implementation of some of the national projects. These include cybersecurity, data protection and privacy, protection of countries critical infrastructure, internet freedom, securing government networks, shaping talented ICT savvy students, supporting research and innovation, managing hate speech and fake news among other topics.

"KIGF continues to be a role model to National and Regional IGF's around the world…most of the topics discussed at KIGF find spaces at Global IGF (GIGF) events." Noted Eng. Wangusi. He further observed that 2019 KIGF's areas of interest including internet sustainability, security, robustness, stability, data governance and digital inclusion are timely adding, "ICTs have been identified as a key enabler to the Kenyan Government to achieve the Big 4 Agenda.

Technologies like Artificial Intelligence (AI) and Fintechs are now being used to improve people's lives through health care, education, finance, agriculture, and transport among other services."

He reiterated CA's commitment to take steps to stimulate the infrastructure development and uptake of ICT service in support of 2019 IGF theme of One Kenya, One Net, One Vision. "CA is deploying voice infrastructure in 202 sub-locations that have no connectivity at all to cover an underserved population of about 0.7 million people, the connection of high-speed internet to 896 secondary schools is on-going under Education Broadband Connectivity Project (EDCP) with a target to connect about 10,000 secondary schools, and some selected tertiary institutions."

CA has enhanced the security of Kenya's cyberspace in line with KICA and the National Cybersecurity Strategy to operate the Kenya Computer Incident Response Team-Coordination Centre (National KE-CIRT/CC) for national coordination and response to cyber threats.

3.0 Second Session

3.1 Topic: Security, Stability, Safety and Resilience

Moderator: Victor Kapiyo.
Panelists: Joseph Nzano, Communications Authority/ KE-CIRT, Raymond Bett, President ISACA Kenya, Aprielle Moraa, CEO Infosphere Limited & ISACA Board Member, Sheetal Kumar, Global Partners Digital, Serianu Representative.

3.1.1 Raymond Bett, President ISACA Kenya

Mr Bett stated that cybercriminals are more organized and have devised calculated attacks on vulnerabilities of systems that can be exploited. "There was a significant growth of cyber-attacks in the country in the first quarter of the year compared to last year's." He observed.

In his comments, he noted that Cyberbullying and Fake News was a growing concern on cybersecurity adding that cybercrimes were replicating traditional crimes. He identified four ways through which stakeholders could collaborate in tackling cyber-security.
These were;
• Forums similar to KIGF that provide a multi-stakeholder platform to voice out challenges and discuss various ways to address them,
• Sharing of information with other stakeholders to avoid similar attacks since attackers develop specialized attacks for various sectors.
• Collaboration between industry groupings and the government to formulate rules and regulations to curb the vices.

- Industry players to work on developing local solutions to fight cybercrime.

On an inquiry from the participants on human rights considerations in response to cyber threats, Mr Bett clarified that incidence response was a systematic process that gradually escalates as the incidence grows and sometimes leads to a disaster. He explained that such steps intended to restore operations to normal.

He pointed out that users are not starting at the same level since some were digital natives while others lacked digital skills. He advised that children could be protected online by apps that restrict access to inappropriate websites and Kenya should consider having an age limit on internet use altogether.

"Where children are concerned, there is a need to consider the role of parents even before KE-CIRT are involved." He emphasised.
He called for collaboration between stakeholders, creation of clear guidelines and law for uniform application to enable accountability, creation of awareness, a culture of trust in online spaces and focused curriculum on data science and analytics.

3.1.2 Aprielle Moraa, CEO Infosphere Limited & ISACA Board Member

She focused on the people's aspect of cybersecurity and the lack of a cyber-security culture that is dynamic and static. "Technology requires a strong cybersecurity culture to work without interference." He posed. While African culture encourages sharing, countries that have had an experience of cyber-attacks are more protective of their information.

She reiterated Mr Nzano emphasis on the importance of laws in tackling cybercrime but criticized the Computer Misuse and Cyber Crimes Act for providing penalties that were not commensurate to the offence. Cyber-security had evolved from being technical to a business issue, and now to a compliance and regulatory issue.

"There might be a global deficit of cyber-security professionals' of about 2 million by 2020." Ms Moraa foretold adding that Vision 2030 pegs the national growth on ICT and innovation while the country had not prepared for the risks that were associated with digitization such as lack of policies, legislation, an enabling environment and dependable collaboration.

In terms of what hinders sharing of information among the industry players, she divulged that the accompanying reputational harm of the institution greatly affected them.

> "Still, African countries are not sharing data on cyber-attacks which makes it hard for researchers to understand trends affecting the Continent and to find their solutions." She stated.

She recommended that cybersecurity industry players should educate themselves on information safety, while organizations needed to integrate end-to-end cybersecurity policy and collaborate in cybersecurity efforts. "I'd like to empower more women to join cybersecurity careers, keep engaging stakeholders by being a good cybersecurity ambassador and help companies better protect their computer systems." She committed.

3.1.3 Joseph Nzano, Communications Authority/ KE-CIRT

Mr Nzano agreed with Ms Moraa that statistics and experience proved that attacks were targeting individuals using social engineering. He gave an example of a power company that was attacked through an anonymous email to staff. He identified Internet of Things gadgets being at a high risk of attack(s) and called on application developers to test apps before introducing them to the market.

He observed that collaboration among industry players was key in tackling cybersecurity. He added that the CERTs of other African countries benchmarked on tools of the Kenyan CIRT.
 "Building trust among industry sectors as a foundation to facilitate information sharing as fast as possible on how to mitigate attacks is also key." He pointed out. He noted that the Computer Misuse and Cybercrime Act provides for penalties for offences that trends on cyberspace and offered a backup to law enforcement agencies in terms of admissibility of digital evidence in court through a chain of custody processes. He raised concern at what he termed as the dilution of laws through court cases leading to suspension or declaration of unconstitutionality of cybercrime provisions.

Mr Nzano recommended the implementation of community standards in both government and private sector, the encouragement of cyber hygiene practices and the protection of laws from further dilution to ensure prosecution and investigation of cybercrimes.

"I'd like to advocate for the development of apps to protect children online." He committed.

3.1.4 Sheetal Kumar, Global Partners Digital

In reflecting on where we place human rights in the cybersecurity discussion, and what trends, Ms Kumar noted that the perception of cyber-security as a technical matter was faulty because it was about people.

She stated that the move towards securitizing cyber-security leads to isolation from other issues such as human rights and ultimately narrowing the spaces for discussion on cyber-security issues and cyber-security strategy development.

On where to place human rights in the cyber-security discussion, Ms Kumar stated that human rights should be the rock of any cyber-security response in an open and free democratic society. "Human rights offer a good basis and reference while putting in place cybercrime legislation and information sharing framework on cybersecurity threats and incidences." She stated.

On global trends, she stated that there are two global processes at the United Nations level based on agreed international principles of state behaviour in cyberspace.

She highlighted the recommendations made so far which include norms and confidence-building and warned that countries from the Global South risked following principles solely laid down by powerful wealthy nations if they do not participate in international cyber-security processes.

Another global cyber-security effort which Kenya and KICTANet participate in was the Global Forum of Cyber Expertise (GFCE). The forum seeks to build an information-sharing mechanism for private sector and government to collaborate.

In conclusion, she recommended that the civil society, general industry practitioners and government commit to human rights framework in cybersecurity response, have more collaboration and diversity and involve women and minority groups in Internet governance.

"I'll gather more concrete examples to push for respect for human rights in cybersecurity issues." She committed.

3.2 Plenary session

Participants raised the following questions:

Is it possible to formulate customized solutions for minority groups?

How well prepared are the government and private sector to protect critical internet infrastructure?

Is it possible to have specialized courts for cybercrime cases?

Are there problems in drafting cybercrime legislation due to lack of expertise or drafters?

How do we come up with a cyber-security culture?

Is the narrative that cyber experts are inadequate a myth that needs to be debunked?

Moraa stated that culture defines an organization's personality and practices, and understands the information cycle from its creation to its destruction. "Besides, it's important to think of a company's information as part of its assets and use new technology to build a conscious cybersecurity culture." She advised.

Kumar stated that research on the implication of apps on humans should take place at the development stage. However, there is a need for regulation since it is reckless to rely on apps developers to be responsible. "Regulation should be done openly and transparently." She reiterated.

Bett affirmed that the existence of an inadequate number of cyber-security experts in the country was a myth. He advised that there was perhaps a need for modification of the education curriculum so that the training process meets the required skills as demanded by the market.

On whether the law-making process was an issue, he stated, "The country must rethink the current consensus-based model of legislation that takes a lot of time before a piece of legislation becomes law." He lamented.

On protection of critical infrastructure, he observed that the Computer Misuse and Cybercrimes Act (CMCA) had already addressed the challenge adding that what was pending was operationalization of the law once the court process was concluded.

Nzano observed that cyber-security was more of passion citing that some staff at KE-CIRT studied unrelated programs with cyber-security, and it was through self-initiative that they learnt their skills. He also added that in the next KIGF, academia should be invited to chart a way forward of integrating cyber-security with computer degree programs for easier absorption of graduates into the market. On customized cyber-security solutions for minorities, he illustrated that CA had worked extensively on Child Online Protection (COP), which also extended to vulnerable groups.
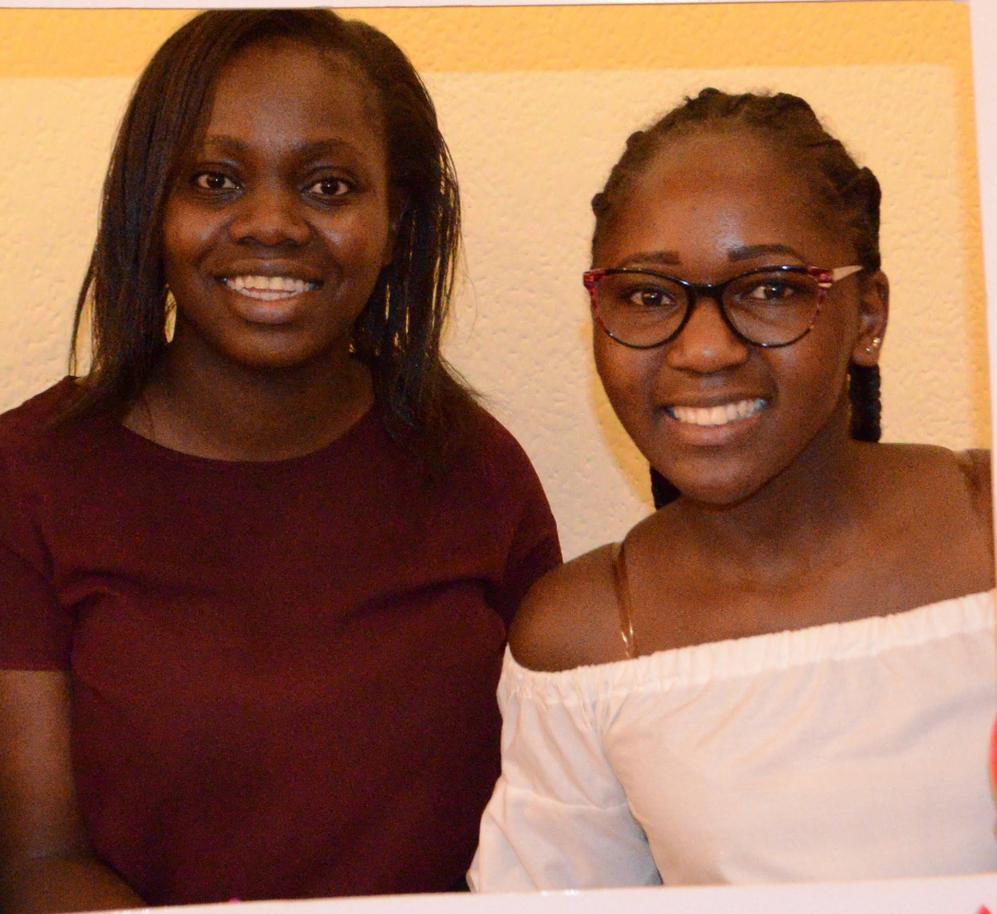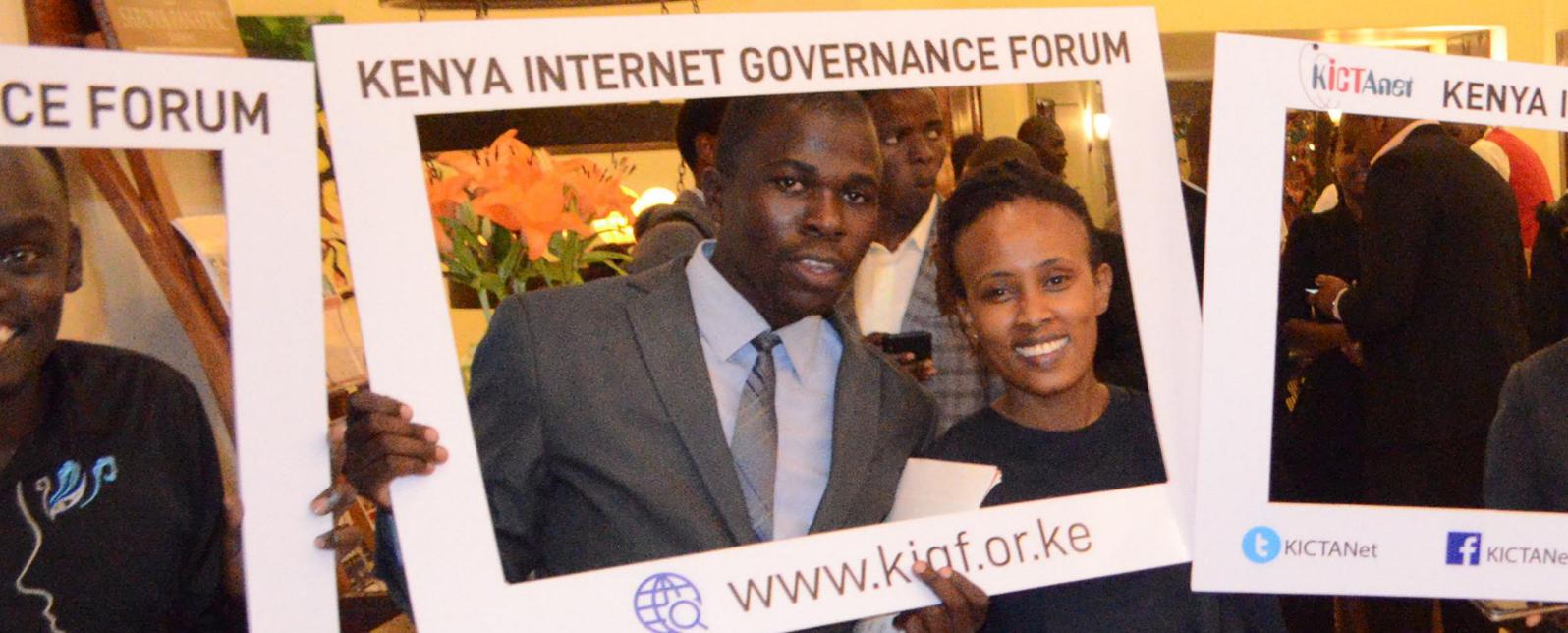
4.0 Third Session

Moderator: Lillian Kariuki, Watoto Watch Network
Panelists: Representatives from the Youth IGF

The moderator stated that 2019 KIGF offered an opportunity for the 3rd YIGF and was aligned to the Global Safer Internet Day (GSID). In 2018, the forum brought together 12 young people while 2019 KIGF had a representation of about 50 young people drawn from Loreto Convent Msongari Girls', Angels Academy, Masii and Mbagathi High Schools. The YIGF session discussed three thematic areas namely Data Governance, Digital Inclusion and Emerging Issues.

4.1 Emerging Issues: Online Betting/Gambling

A representative from the YIGF, Ms Phoebe, stated that children were gambling online using Identity cards (IDs) of adults to sign up on online betting websites. She termed this behaviour as an emerging concern that requires swift intervention. "The IDs are stolen, while some parents have allowed their children to gamble. Other children collect the money and give it to an adult to bet on their behalf." She revealed.

She recommended that:

i.   Billboards with betting information and other information that is unfriendly to children should be located far away from schools.
ii. Make warnings a requirement in these advertising such as 'betting is not for persons under 18'. Such writings should be in large font size and a prominent font type, preferably placed at the top of the advertisement billboard.
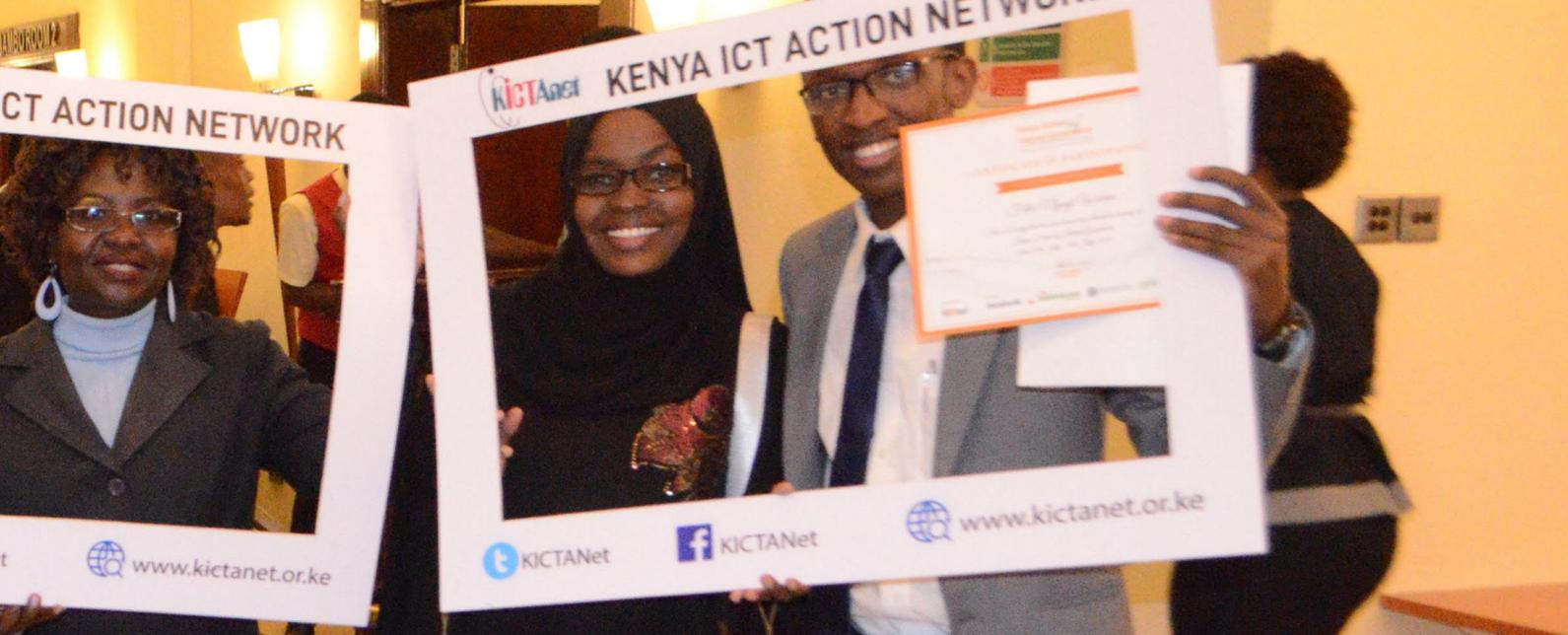
iii. Cyber café attendants who allow children to bet should be held accountable.
iv. The number of times a betting account can place bets on a daily or weekly basis should be limited.
v. Parents whose kids are betting using their IDs should be held accountable irrespective of whether or not they know about it.

4.1.1 Child Online Safety

Wilson stated that children were not safe online. "Children face cyberbullying and threats of exposing their intimate videos online, sex chatting which involves sending suggestive text messages." He observed.
According to Wilson, free WhatsApp and Facebook packages spoiled young people and should be taxed heavily or banned altogether. He also proposed that emergency numbers should be available on social media platforms to report cyberbullying.
Finally, he called on the government to follow-up on cyber café owners who allow children to access pornographic sites and legal action be taken against account hackers.

4.1.2 Digital Inclusion

Feisty, defined digital inclusion as the involvement of everyone in the ICT space and an enabler of people even in rural areas to access it. To achieve digital inclusion, she made the following recommendations:

Teach young people on digital literacy to reap benefits of the internet such as scholarship opportunities, blogging and airing their opinions.
The Ministry of Education should modify the curriculum to include skills such as coding, encryption and train teachers too so that they keep up with emerging technologies.
People in rural areas should be provided access to computers and cyber cafés.

Young people should be involved in global internet forums.
The government should extend the Laptops Program to High Schools' students.

4.1.3 Data Governance

A representative defined data governance as the management and control of data. He gave the following recommendations on data governance in Kenya;

i.   There were account breaches on Facebook such as hacking. Hence, need to come up with double verification to allow login to halt continuation of such vices.
ii. There is a need for integration of a secondary or two-step verification and authorization on WhatsApp to curb adding exercise to groups without one's consent.

The Moderator wrapped up the discussion by stating that:

i.   Young people know what they want and should participate in the KESIG to understand ICT jargon.
ii. Young people need to undergo mentorship programs in various organizations during school holidays.
iii. Young people were unaware of the opportunities available in the ICT industry and need experts to speak to them.
iv. It was lamented that young people were not participating in regional and global IGFs.

The audience raised the following questions:

i.   Where do young people get solutions to ICT problems? Are there organizations that help them?
ii. At what age should a young person have access to a mobile device?
iii. How would young people feel if persons below 18 years were restricted from using the internet?
iv. What is their role in protecting themselves online?
v.   Which social media platform is popular among their peers and why?

The panellists responded to the questions as follows:

i.   Solutions should be gotten from government Guidance and Counselling Centres.
ii. On minimum age to access the internet, the YIGF members suggested that 15 to 16 years would be the most appropriate.
iii. On what young people were doing to protect themselves, Feisty, one of the panellists, stated that she and her friends started a program that raises awareness on cyberbullying due to its negative impacts such as depression and even suicide. Phoebe added that the problem was a lack of support for their organization in terms of funding. Finally, after a vote among young people in the audience, WhatsApp was identified as the popular site among young people.

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5.0 Fourth Session

5.1 Topic: Digital Inclusion

Moderator: Thomas Kaberi
Panellists: Paul Kiage, Communications Authority, Nivi Sharma, BRCK, Ben Roberts, Liquid Telecom, Josephine Miliza, Community Networks Project, KICTANet, Judy Okite, CIPESA, Association for Accessibility and Equality, Alfred Mugambi, Senior Manager, Regulatory, Economics and Compliance Safaricom.

5.1.1 Judy Okite, CIPESA, Association for Accessibility and Equality

Explained that digital inclusion should include persons with disability and other vulnerable groups in digital discourses, unfortunately, this does not exist in Kenya. For instance, representatives from PWDs organisations and Persons with Disabilities (PWDs) that attended a meeting the previous day organized by CIPESA were not even aware that the National ICT Policy exists.

This was a challenge as to how one could advocate for the digital inclusion of PWDs while people living with disabilities themselves lack the knowledge of the existing ICT policies. It could only be interpreted that PWDs were inactive in the discussions or their perspectives were not included in internet policy discussions.

Judy thanked CA for their efforts to establish computer labs in schools for PWDs but faulted CA's Universal Service Funds (USF) supported programs for lack of a well-thought-out sustainability model. For example, a computer lab set up in Thika School for the Blind in 2009 lacked the necessary software and trained personnel to teach.

No follow-ups made since the lab was set up. Similar reports were made from Machakos Teachers Training College (MTTC) where the teachers trained themselves and had to install their software. She challenged the other panellists to go beyond ensuring internet connection and start asking the question, 'Whom are we connecting?'

5.1.2 Paul Kiage, Communications Authority of Kenya

Mr Kiage defined digital inclusion as empowering people to use ICTs; and here, people include PWDs, women, girls and children, the youth, rural and low-income areas populations. CA manages and administers the USF in addition to licensing communication service providers.

Kiage stated that in 2016, CA conducted a study to identify where people without access to ICTs areas are located. The report identified 348 sub-locations which had 0% voice services coverage. The Study also identified capacity gaps among young people and recommended two projects.

These projects are closing gaps in areas that had zero voice service coverage and taking connectivity to marginalized populations. On achievements, he stated, "About 22% of the gap was already addressed which translates to 78 sub-locations." CA had also initiated a National Education Broadband Project (NEBP) to connect over 8,500 secondary schools where 896 schools across 47 counties are already connected.

Similarly, Mr Kiage spelt out challenges hampering faster actions by CA.
These challenges are:

i. The insecurity of infrastructure in some parts of the country especially in North Eastern due to the Al-Shabaab terrorist group.
ii. Communal conflicts on where to put up infrastructure in far-flung areas.
iii. Slow implementation from some government agencies such as the National Environment Management Authority and Civil Aviation Authority.
iv. Lower internet speeds in schools than what the Authority contracted.

On the Universal Service Fund (USF), he revealed that the fund had 9 billion Kenya shillings inclusive of the contribution of CA to the kitty. The fund offered subsidies to telcos to provide infrastructure to underserved areas through a competitive bidding process. CA had also collaborated with National Library Service (NLS) to provide assistive technologies for PWDs.

On education level, he said that CA had partnered with Kenya Institute of Curriculum Development (KICD) to enhance the curriculum, and facilitate internet access through broadband connectivity to children in schools.

> "CA continues to dispense its mandate to ensure prices are at a reasonable cost by licensing many players and ensuring there is competition."

Mr Kiage affirmed adding that CA had developed guidelines for both voice and data to improve on the quality of the service. "The regulator also measures several parameters such as latency to ensure consumers get value for their money." He confirmed.

5.1.3 Josephine Miliza, Community Networks Project, KICTANet

According to Ms Miliza, "Digital inclusion is affordability and meaningful access of ICTs to all for social or economic empowerment." She stated that community networks are also known as bottom-up models upholding the historical spirit of the internet as a connection of many networks.

"We are decentralizing the internet by supporting community networks to fill connectivity gaps not addressed by large firms and telcos." She affirmed.

Ms Miliza stated that the Kibera Community Network (KCN) known as Tunapanda Net (TN) was initiated in 2016 upon the realization that the computers donated in schools were just collecting dust. "The aim of the computers and internet connectivity is to promote digital literacy to drive digital inclusion." She added.
Ms Miliza revealed that KCN relied on donor support from organizations such as the Internet Society (IS) and the Association for Progressive Communications (APC).

She cited the following challenges:

i.   Teachers' inability to see computers as part of the learning process, for example, computer classes are delinked from the overall curriculum.
ii.   Lack of capacity to develop an e-learning module.
iii. Content digitization required much time, human capital which meant an extra task for teachers. "Support from the private sector and the government is required." She advised.
iv.   Since 2014 the Kenya Education Network Trust (KENET), an internet service Provider to Tunapanda Net enjoyed the privilege of no tax by Kenya Revenue Authority (KRA). However, their license has been reviewed and the tax privilege scrapped off raising the cost of the internet of Tunapanda Net by 15%. "This necessitates a review of Tunapanda Net's business model." She lamented.

5.1.4 Ben Roberts, Chief Technology and Innovation Manager, Liquid Telecom

Mr Roberts stated that Liquid Telecom collaborated with CA to provide internet access to some schools to allow the interconnection of access and education. "The speed contracted for 5.1 Mbps was not enough in a school context." He pointed out. Mr Roberts highlighted some other challenges he observed from the schools with computers and internet connection.

These challenges are;

i.   Some schools use more internet access than others,
ii. Some students share Wi-Fi passwords with the local population,
iii. Some teachers download a lot of online content,
iv. He also pointed out a digital divide between private and public schools where private schools allow students to own computers, laptops and other devices, while public schools do not allow students to have these devices in schools.

"When computer labs are locked in some public schools, students then do not benefit from the internet access provided." He stated. Mr Roberts stated that Liquid Telecom did not provide internet access to individual users. "We collaborate with other players such as a micro-grid company in Kisii, which packages both internet access and electricity to enhance the accessibility of the internet." He pointed out.

On how to improve digital literacy and skills, Mr Roberts strongly recommended the use of computer games as a tool to inculcate interest among young people who will acquire skills themselves and, hopefully, teach their parents, teachers and others. "Less online content is available in Kiswahili and vernacular languages and this is a barrier to digital inclusion." He educated.
He pointed out that several start-ups companies are digitizing textbooks and learning content.

"Liquid Telecom also had an e-learning platform that imparts '21st-century skills' which include advanced computing skills such as Artificial Intelligence, Machine learning and computer game development." He added.

On spectrum allocation, he commended engineers for doing a good job in allocating frequency and pointed out that CA sends approximately 15 million dollars to the National Treasury from allocating frequency annually.

"The pricing is the major problem, and the current model of auctioning and selling of spectrum as a national commodity to the big players who hoard it since it directly affects internet costs needs rethinking." He advised.

Mr Roberts thought that spectrum allocation requires innovation from both the economic and engineering aspect. "The unused spectrum in rural areas should enjoy discounted prices if the owners let other players use their spectrum since there is a value to spectrum and once the buyer has paid for it they consider it as an asset." He advised wishfully.

5.1.5 Nivi Sharma, C.O.O BRCK

Ms Sharma explained how BRCK dealt with affordability as a barrier to internet accessibility by providing free Wi-Fi on buses in Nairobi and Kigali dubbed 'mojo Wi-Fi'. "This is in exchange for their time and attention instead of money while ensuring that participants' Personal Identifiable Information such as names, age or gender details are not collected in the process."

She stated adding that it was an alternative to the traditional business model that required users to buy data bundles since the unemployed population found this model affordable." She confessed.

Ms Sharma reiterated that BRCK believed that tackling digital literacy barrier to digital inclusion relied on connection to the internet which offered a vast resource to learn, grow and promote businesses. She suggested the need for the reintroduction of the internet to young people to promote sharing of ideas, research and education instead of wasting time on activities such as gambling, memes and pornographic activities.

On tackling internet access as a barrier to digital inclusion, BRCK, in a press release at the last World Mobile Congress stated, "The answer to establishing infrastructure in underserved areas is in technological and business model innovation." She highlighted that internet access to low-income earners did not offer a return for investments. "BRCK provides internet access to areas where there is no existing infrastructure." Ms Sharma stated.

She cautioned the belief that laptops and tablets were enough to facilitate digital inclusion, and warned stakeholders to not rely entirely on western digital interventions, and called for more customized integration of technology in education.

She explained that an effective digital intervention includes:

i.   Checking whether the computer room was waterproof;
ii.   Ensuring access to electricity or solar energy,
iii. Ensuring that the facility was not dusty (if dusty, whether the hardware had filters) and had appropriate humidity,
iv.   Ensuring there was relevant software installed,
v.   Training teachers on the use of the software and hardware,
vi.   Establishing an ICT support in case of technical issues,
vii. Availing relevant content for either KCSE or KCPE, and
viii. Carrying out monitoring and evaluation to find out whether students' performance was improving and whether students were imparted with the vital problem-solving skills.

On spectrum allocation, she cited a Research ICT Africa study that proved that last mile connectivity can be improved through an open spectrum policy. She suggested that a spectrum policy could be dynamic and regional; unlike the current model where the highest bidder owned a national spectrum and excluded small players.

Ideally, she proposed that unused spectrum should be re-sold to small players and the operating principle be: if a spectrum owner does not use their spectrum they consequently should lose it.

She lamented that currently, it was hard for small players to provide internet access on a frequency spectrum other than unlicensed spectrum such as Wi-Fi.

5.1.6 Alfred Mugambi, Senior Manager, Regulatory, Economics and Compliance Safaricom

Mr Mugambi restated Safaricom's belief in the power of technology to transform lives and admitted that while internet usage in Africa was -basement-based, Safaricom products such as M-Tiba and Digifarm go beyond connectivity by offering other innovative products such as health updates and connecting farmers to the market respectively. He insisted that there was a need to move beyond the access and to the next stage of the conversation, which is on internet usage.

On Safaricom's role to bridge the Digital divide, he stated that Safaricom worked with CA to roll out services in far-flung areas such as Turkana and North Eastern.

> "Communications services are not recognized as critical infrastructures like water and electricity, and yet is a big challenge to digital inclusion. This makes it hard to explain the value of a tower or the need to preserve the technology."
>
> Mr Mugambi

He recommended that the need to transform lives by enlightening stakeholders including users on the value of access to communication services.

On reintroducing the internet to young people, he stressed that young people should be consulted on what they are excited about.

According to him, putting books online was not enough and an ideal model was a competence-based curriculum aimed at equipping the youths with the necessary skills for employability and utilization of their talents especially in the wake of the high unemployment rate. He called for the creation of user-need for technology, which would, in turn, generate interest in learning how to use the internet and drive actualization of their ideas.

On spectrum allocation, Mr Mugambi stated "Spectrum is a finite resource that should be allocated to the person best placed to utilize it. The current process of spectrum allocation is effective. But the cost needs a review since it is a barrier to the local investors who might want to utilize it to provide local content." Nevertheless, he lauded the government for the effort to balance spectrum allocation among operators and appreciated that CA had reserved spectrum for education purposes.

5.2 Plenary Session

The questions raised by the audience were:

Is the spectrum allocation a commercial or a rights issue?

Will the websites be translated into Swahili and other local languages?

What is CA's role in supporting SMEs that would like to provide communication services?

How can Africa and Kenya specifically mitigate risk bias of emerging technologies?

What else should USF consider to include PWDs?

What are the accurate internet penetration statistics so far?

How safe is the Mojo Wi-Fi?

Can Safaricom make its fibre-to-the-home (FTTH) product more affordable?

Mr Ali Hussein of KICTANet shed some light on the statistics on internet penetration and termed it as a statistics interpretation issue. "CA considers that each sim card registration equals one person. Hence the absurd 106% internet penetration it has reported." He observed adding, "These statistics contrast data held by the ITU, GSMA, Safaricom and other players." He cited this as a major shortcoming of CA, which should be the trusted source on the accurate internet penetration statistics in Kenya.

5.2.1 Paul Kiage, Communications Authority

Mr Kiage stated that there were supply and demand methods of data collection. The statistics were computed from the numbers supplied by telcos and accurate statistics per household would be provided by the Kenya National Bureau of Statistics (KNBS) from the planned national census. He distinguished the number of subscriptions which was 46 million, (21% of which were on broadband) from the actual number of internet users which stood at 36 million.

On digital inclusion of PWDs, he stated that JAWS software, including screen readers and braille, had been installed in eight (8) learning institutions in Kenya, one per region. These institutions are Thika High School, Machakos School, Reverend Mworo in Nyeri, Mombasa School for the Physically Disabled (MSPD), Kuja School for the deaf, Kibos and Joyland schools in Kisumu. He aluded that such projects should be more sustainable.

> "CA has also partnered with the National Council for PWDs and created a portal where PWDs can access online content including job advertisements." He confirmed.

Besides, he said, the USF programs could be extended to primary schools catering for PWDs in the country. "Digital inclusion is a rights issue, which seeks to connect the marginalized populations." Mr Kiage stated.

5.2.2 Ben Roberts, Liquid Telecom

Mr Roberts clarified that internet service providers could not disclose the personal details of their subscribers to CA as it would breach their user's rights. However, the government-owned a database of ID Numbers and information of all persons in Kenya.

It could, therefore, come up with a collaborative system perhaps even using blockchain to track the age, gender and other details of internet subscribers for purposes of more accurate statistics on internet penetration in the country.

He added that the government would have to put in place a legal framework and a system to achieve this. On whether Kenya was a recipient of biased technologies that surveil Africans, he responded that one could customize the technology for Kenya and all that was needed was the required digital skills to innovate in your own space.

5.2.3 Judy Okite, CIPESA, Association for Accessibility and Equality

Ms Okite asked CA to invest more in PWDs since digital divide is on the increase. She called for the zero-rating of the JAWS software and finally asked CA to ensure the existing USF programs were sustainable. Finally, she registered her disappointment that she could not sit on the podium with her fellow panellists due to physical exclusion; and wondered how much PWDs were excluded online as well.

5.2.4 Nivi Sharma, BRCK

Ms Sharma concurred that the public Wi-Fi provided could be vulnerable to cybersecurity issues and that free internet access providers should not ignore such security concerns. She also called on support for local innovations, some of which were praised abroad but found no recognition in Kenya.

> "Stakeholders should encourage a customized approach to solving digital inclusion in Kenya and even benefit from exporting our innovation outside the country." She emphatically said.

5.2.5 Alfred Mugambi, Senior Manager, Regulatory, Economics and Compliance, Safaricom

Mr Mugambi responded to the question on the cost of Safaricom's FTTH service. "Customers should appreciate the efforts Safaricom puts to provide broadband to its customers. The cost is reasonable." He advised.

5.2.6 Josephine Miliza, Community Networks Project, KICTANet

Ms Miliza responded that the internet use by women was not an issue as long as they had socio-economic empowerment initiatives such as chamas (Merry-go-round).

6.0 Fifth Session

6.1 Fireside Chat

The moderator guided the panellists with questions on the theme One Kenya. One Net. One Vision.

6.1.1 Prof. Bitange Ndemo, University of Nairobi

Prof. Ndemo spoke about how emerging technology was causing major disruption(s). He called on more discussions among stakeholders to have a comprehensive understanding of new technology and its impacts on people's lives. "New technology, if channelled appropriately can have positive impacts on our society. IBM used big data to successfully make meteorological predictions." He pointed out adding, "This is of great help to farmers to plan their agricultural activities. Such accurate predictions are vital in resource utilization including credit scoring in the financial sector."

Prof. Bitange advised that Africa should not fear technology since the technology was built for Africa.

"

"This Continent would have immense benefits from Artificial Intelligence and Machine Learning through teaching computers to our numerous indigenous languages." He stated.

"

Prof. Ndemo noted that language was a barrier between politicians and citizens due to the lack of equivalent English words in the indigenous language. For example, a statement like 'be productive' could easily be misinterpreted by citizens to mean 'having more children' which is, in fact, a misinterpretation of the author's intended meaning. "This language problem could be cured by emerging technologies." He observed. He remained optimistic that despite not having a data protection legislation in place, there was recourse in the fact that technology and industry practitioners were having privacy concerns in mind.

He gave insights on the finding of the National Taskforce on distributed ledgers. "The Taskforce found out that Artificial Intelligence could be used in the fight against corruption by enabling traceability of funds in real-time. This is something that the current Integrated Financial Management Information System (IFMIS) has failed to achieve."

He highlighted adding, "The blockchain has the potential to link farmers to the market and therefore eliminate conniving intermediaries besides creating a supply chain that would improve efficiency in the agriculture sector." He gave an example of Kisumu fishermen who had successfully used blockchain to connect the market directly with Twiga Foods which connected farmers to the market.

He lauded the innovative of M-Pesa product by Safaricom that brought financial inclusivity in Kenya. "Before M-Pesa innovation, only the elite people in Kenyan who banked in the formal banking sector." Prof. Ndemo reiterated noting that Facebook's digital currency, libra, M-Pesa were great technological innovations that, perhaps, the United States Congress could benchmark in Kenya on how to regulate libra.

6.1.2 Dr. Wairagala Wakabi, Executive Director, CIPESA

Dr Wakabi stated that there was a need for both policy and practice that would facilitate inclusion. He specifically identified PWDs, vulnerable groups, women and the youth as lacking both internet access and digital skills. "We should leave nobody behind when it comes to digital inclusion." He advised. Dr. Wakabi called on the CA to improve access using the Universal Access Fund (UAF). "We need desegregated data so that we can understand how various groups of persons

are affected. As such, more communities need to participate in internet governance discourses to bridge the gap between technology, dreams and reality." He observed. He further noted that internet access should be considered a human rights issue. "Access to underserved areas and underserved groups such as PWDs should be a priority in digital inclusion efforts." He said.

6.1.3 Karimi Ruria, Senior Manager, Public Policy Safaricom

Ms Ruria reminded participants that 2019 KIGF's theme of One Kenya. One Net. One Vision reminded us that we were playing in a global space. "It is, therefore, important to pay attention to what is happening nationally and globally." She observed adding that there were important conversations of concern to people such as data and its potential use, cybersecurity and ensuring young people were safe online among others.

> "Digital inclusion is a priority for Safaricom and is in line with Sustainable Development Goal number 10 that seeks to reduce inequalities. Safaricom has come up with an innovative product known as the Braille watch for visually impaired M-Pesa users." She educated.

Apart from Braille watch, Ms Ruria informed the attendees that Safaricom was a beneficiary of the USF programs, and it provided communication coverage to underserved areas in Kenya.

"Safaricom planned to roll out 2G services. But, we have changed this model to provision of 3G services upon the realization that 2G coverage was not meeting the population's demands." She revealed.

Safaricom's Digifarm is another technological innovation that enables access to markets at the touch of a button. "The stakeholders have the solutions to our society's problems; Blaze, Braille Watch and Digifarm were all conceptualized by Safaricom's stakeholders which are proof that solutions are found within." Observed Ms Ruria.

6.1.4 Berhan Taye, AccessNow

Ms Taye reminded participants that Kenya was a benchmark in the East Africa region in terms of ICT policy and that neighbouring countries looked to Kenya for best practices. She faulted the Huduma Number registration processes and the Huduma Bill stating that there was no need for IBM predictions to foresee that Huduma Number would lead to human rights violations.

"We are talking about digital inclusion but we are not discussing digital discrimination". She gave an example that before Safaricom launched the Braille Watch, visually impaired persons were discriminated against while using M-Pesa. "In essence, we need to bring everyone on board while talking about digital inclusion."

6.1.5 Hon. Michael Onyango, former ICT CEC, Kisumu County and Africa

Hon. Onyango expressed his disappointment on how internet governance policy discussions were primarily conducted solely in Nairobi. "Nairobi is not Kenya and there are 46 other counties in the country". He called on stakeholders to demand more from the County governments since there the necessary infrastructure was in place and what lucked was 'how' to plug into the already existing resources. "149 community innovation centres are working in isolation.

There is a need to find ways to collaborate with such community innovation centres for maximum productivity." Hon. Onyango advised.To the young people who form the biggest percentage of the unemployed population in the country, he challenged them to be the change that they want. "There is no doubt that young people are talented and this is evident from the number of Big Tech companies opening offices in the country due to the availability of skilled labour." Hon. Onyango observed. He, however, called on young people to not aspire to be mere employees in these big tech firms but to establish their own similar start-up tech companies.

Hon. Onyango narrated about an inspiring project that he was involved in, which brought together young people who were unemployed and lacked higher education skills. "These youths were trained on digital skills such as Artificial Intelligence and coding. Some of them are currently working for big tech companies elsewhere." He revealed.

At the same time, he called on stakeholders to brainstorm on ways of creating jobs for young people from the emerging technologies that would benefit them and contribute to developing the economy. "It is important to identify the skills needed in the current digital landscape and then empower the youth with such necessary digital skills to survive in the market." He stated.

6.2 Plenary Session

Participants wanted to know how blockchain could be used to solve the current crisis on the regulation of the quality of meat and standards, and how women at the grassroots level could harness the power of emerging technologies.
Prof. Ndemo responded that blockchain might be used to scan the meat and find out the country of origin, expiry date and chemical content among other possible indicators for assessing the meat quality. Also, blockchain offers an innovative way for women's small microfinance enterprises or chamas (Merry-go-round) to digitize their financial activities.

7.0 Recommendations And Way Forward

The following recommendations were made on data governance, cyber-security, Youth IGF internet issues and digital inclusion. The recommendations are listed under each sub-theme as shown below;

7.1 Data Governance

i. The private sector should engage the government on proposed legislations or amendments for creating a conducive business environment.

ii. Stakeholders and especially civil society should endeavour to keep the government in check due to their tendency to over-regulate.

iii. The national parliament should consolidate their legislative efforts on data protection to put in place a data protection regime in the country to protect citizens' privacy rights, encourage trade as well as position Kenya as a viable market to European investors who have to comply with their GDPR obligations.

iv. There is a need for education of users on their rights to determine their digital identity and the importance of data protection.

v. Stakeholders should not fear technology and its regulation but should focus on ways to harness the potential uses of data for a positive impact on people's lives.

7.2 Cyber security

i. Collaboration at the global, national and industry level was vital in tackling cybersecurity.

ii. Stakeholders could not avoid the people aspect of

cybersecurity. Efforts to develop a cyber-security culture at a personal and corporate level besides using emerging technologies to develop and reinforce a cyber-security culture should be put in place.

iii. Information sharing among African countries needs to be improved for researchers to map out trends and to understand cybersecurity.

iv. Human rights should be the foundation of any cyber-security response activities. They offer a good reference point in legislating cybercrime statutes and open discussions about cybersecurity strategies.

v. Academia should be invited in subsequent KIGF to find ways to integrate cyber security in computer programs in schools and institutions of higher learning.

7.3 Youth IGF Feedback

i. The government must address the children online gambling menace by putting in place appropriate measures such as restricting the location of billboards near schools and recommend that warning to children not to gamble on betting advertisements in a large font.

ii. Young people are not adequately protected from cyberbullying while on social media platforms yet, they spend much time surfing the net due to cheaper and attractive internet bundles. Intervention from both service providers and the government is needed.

iii. The computer program for primary schools should be extended to high school students. Also, there is a need to have access to the internet to rural areas and offer digital skills through training of both teachers and students.

iv. Young people require mentorship by ICT experts as well as active participation in KESIG, regional and global IGFs.

7.4 Digital Inclusion

i. CA needs to integrate sustainability measures in their USF activities targeting PWDs. Other internet service providers must bring PWDs on board. The government should zero-rate assistive technologies software to narrow the digital divide.

ii. In addressing digital inclusion barriers such as access to internet, access and affordability, relevant stakeholders

should consider economic and technological innovation since extending access to far-flung areas does not guarantee a return on investments.

iii. Digital intervention in schools should take a holistic approach and consider the software, the humidity levels, availability of relevant KCSE or KCPE content, then monitor and evaluate the impact on learners among other factors. Additionally, focus should now move from just connecting people to how people can use the internet to transform their lives.

iv. Also, spectrum allocation policy should be reviewed to accommodate both small and large players. This can be done through an open and dynamic spectrum policy modified through economic and engineering innovations.

v. On digital literacy and skills, the internet should be re-introduced to young people to promote productive activities online. Teachers should be trained to integrate computers as part of the learning process and online content should be diversified to be available in Swahili language and other vernacular languages.

vi. The government should support community networks initiatives to schools by exempting KENET from tax payments. Stakeholders should find ways of developing e-learning modules and digitizing educational content.

7.5 Personal commitments and general recommendations

i. The government to find a way of balancing data protection legislation and promoting trade.

ii. Civil society to continue to pile pressure on the government to normalize regulations and to stop its tendency to over-regulate.

iii. On legislation process of Data Protection and Huduma Bills, Hon. Halake committed to the participnts that the process will be done in good faith to uphold the rule of law and address the risk of self-regulation.

iv. Mr Nzano reiterated CA's commitment to take steps to

stimulate the infrastructure development and uptake of ICT services. For example in target schools.

v. He committed to continue advocating for the development of apps to protect children online.

vi. CA will continue to enhance the security of Kenya's cyberspace in line with KICA and the National Cybersecurity Strategy to operate the Kenya Computer Incident Response Team-Coordination Centre (National KE-CIRT/CC) for national coordination and response to cyber threats.

vii. Mr Bett committed to research on local solutions to local problems and mentor young men to curb involvement to cybercrime to meet societal expectations.

viii. According to Ms Moraa, cybersecurity industry players should educate themselves on information safety, while organizations needed to integrate end-to-end cybersecurity policy and collaborate in cybersecurity efforts.

ix. Ms Moraa committed to empowering more women to join cybersecurity careers, keep engaging stakeholders by being a good cybersecurity ambassador and help companies better protect their computer systems.

x. Ms Kumar recommended that the civil society, general industry practitioners and government to commit to human rights framework in cybersecurity response, have more collaboration and diversity and involve women and minority groups in Internet Governance.

xi. Ms Kumar committed to continuing gathering more concrete examples to push for respect for human rights in cybersecurity issues.

Fireside Chat

Action Plan for achieving digital inclusion, stability and resilience of the internet and data governance

i. Stakeholders should be innovative in responding to society's needs ranging from digital skills training of young people to specific products that are aimed at reducing the digital inclusion gap.

ii. Policy makers and industry practices should not leave anyone behind while bridging the digital divide especially for PWDs, vulnerable and minority groups. For example,

stakeholders should push for affordability of assistive technologies for PWDs.

iii. The government and stakeholders need to understand emerging technologies (AI and blockchain) and integrate them in their operations and reap the benefits such as accuracy in predictions, curbing corruption, bridging language barriers and tracking food products from the farmers to the consumers.

iv. In Kenya, internet governance discussions should be devolved to all the 47 Counties to create an open and inclusive forums to discuss and shape the internet policy.

v. Stakeholders need to engage the county governments on ICT Policy initiatives and find ways to collaborate or utilize the existing infrastructures at the grassroots level.

PHOTO GALLERY
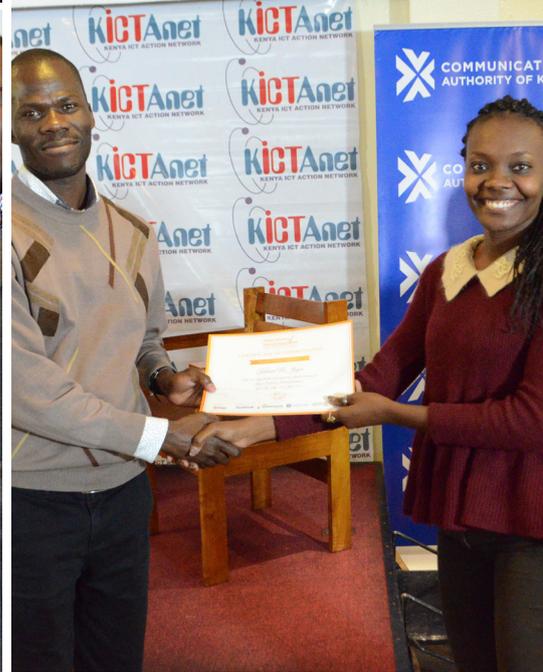
8.0 Appendix

8.1 Official Program

Time	Agenda	Moderator
8:00 - 8:30 am	Arrival and Registration Welcome and Introductions	KICTAnet MAG Team Conference Moderator: Barrack Otieno
8:30 - 9:00 am	**Opening Remarks:** *Grace Githaiga, Convenor, KICTAnet.* *Kui Kinyanjui, Safaricom Head of Regulatory and Public Policy, Safaricom Representative, Facebook*	**Moderator:** Grace Githaiga
9:00 - 9:30 am	**Keynote Speech:** *Francis Wangusi, Director-General, Communications Authority (CA)*	
9:30 - 10:30 am	**Data Governance Panel** *Hon. Abshiro Halake, Vice-Chair, Senate ICT Committee* *Hon. William Kisang', Chair, National Assembly ICT Committee* *John Walubengo, Multimedia University & Taskforce on Personal Data* *Stephen Kiptiness, KO Associates & KENIC Board Member* *Phillip Thigo, Technical Advisor for Data, Innovations and Open Government, Office of the Deputy President*	**Moderator: John Walubengo** **Session Questions** *Do individuals have the right to determine their own digital identity?* *To what extent can legal and regulatory frameworks ensure ethical practices in the use of new technologies?* *Should the government or business trade in personal/public data?* *How should we deal with transborder data flows e.g. cloud services and e-commerce, while respecting rights?*

		How do the proposed regulatory frameworks ensure the different stakeholders involved e.g. OTTs are held accountable? *What are the best practices that we can adopt to protect consumers?*
10:30 - 11.0:00 am	Plenary Session	
11.00 - 11:30 am	Tea Break	
11:30 - 12:30 pm	**Session 2: Security, Stability, Safety and Resilience** **Panel** *Joseph Nzano, Communications Authority / KE-CIRT* *Raymond Bett, President, ISACA Kenya* *Aprielle Moraa, CEO Infosphere.Limited & ISACA Kenya Board Member* *Sheetal Kumar, Global Partners Digital*	**Moderator: Victor Kapiyo** **Session Questions** *What are our current challenges?* *How can we strengthen cooperation and collaboration in Cybersecurity and responses to Cyberattacks?* *What regulatory and technical approaches do we need to put in place to ensure online safety for women, children and all vulnerable groups?* *How can we develop rights-respecting standards for acceptable content online?* *What are the emerging best practices to ensure the safety of consumers?*
12:30 - 1.00 pm	*Plenary*	
1:00 - 2.00 pm	*Lunch Break*	
2:00 – 2:30 pm	**Session 3: Youth IGF Panel** *Youth representatives from Schools*	**Moderator: Lillian Kariuki, Watoto Watch Network** **Session Questions** *Feedback on Data governance* *Feedback on Digital Inclusion* *Feedback on Emerging Issues on Child Online Safety*

2:30 – 3:30 pm	**Session 4: Digital Inclusion** *Panel* *Paul Kiage, Communications Authority* *Nivi Sharma, BRCK* *Ben Roberts, CTO, Liquid Telecom* *Judy Okite, CIPESA* *Josephine Miliza, Community Networks Project, KICTANet* *Alfred Mugambi, Senior Manager, Regulatory Economics and Compliance.*	**Moderator: Thomas Kaberi** **Session Questions** *How can we tackle access, affordability, and QoS issues, and what improvements should be made?* *How can we promote better Internet access, including for disadvantaged groups?* *How can we promote digital literacy?* *How do we ensure that Internet governance processes are truly inclusive?* *How can we equip the public e.g. youth and graduates to take advantage of the new opportunities e.g. jobs in the digital transformation?*
3:30 – 4:00 pm	Plenary Session	
4:00 – 4:30 pm	Actions Points and Way Forward *Rapporteurs Summary*	*Rapporteur*
4:30 – 4:45 pm	Kenya School of Internet Governance Award Ceremony	Grace Bomu, KICTANet
4:45 – 5:00 pm	Vote of thanks	*KIGF MAG, KICTANet*
5:00 - 6:00 pm	Tea Break Networking Session	
6:00 – 7.00 pm	**Session 5: One Kenya. One Net. One Vision** Karimi Ruria, Senior Manager, Public Policy, Safaricom Hon. Michael Onyango, fmr ICT CEC, Kisumu County & AfricaCreative Lab Dr. Wairagala Wakabi, CIPESA Prof. Bitange Ndemo Berhan Taye, Access Now	**Moderator: Ali Hussein** *The session will consolidate the day's discussions with a view to identifying what Kenya needs to do to achieve the conference theme, based on the three thematic areas and informed by the experiences and lessons from the region and international best practices.*
7.00 – 7:30 pm		

8.2 List of Attendees

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