



# PROCEEDINGS AT THE GHANA INTERNET GOVERNANCE FORUM

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18 October, 2016  
Ghana India Kofi Annan Centre of  
Excellence in ICT (AITI-KACE)

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By  
**National IGF Secretariat**  
6th Floor, Ghana Multimedia Centre,  
High Street, Accra  
**Ghana**  
**Email:** [secretariat@ghanaigf.org](mailto:secretariat@ghanaigf.org)  
**Web:** <http://www.ghanaigf.org>

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# Introduction

The Ghana IGF 2016 was the 4th in the series of IGFs held in Ghana. The Forum came at a time when Ghana was poised to advance its gains in putting in place key infrastructure for uptake of Internet applications for national growth. According national statistics, the ICT sector contributed 18% of an overall GDP growth of 4.9%. These impressive growth has been largely due to policy measures, government Interventions and uptake of ICT applications. According to the National Communications Authority, as at March 2016, Ghana mobile voice subscriptions was at 130% and Mobile Data 48%. The 2016 Broadband Commission report ranked Ghana at 49th globally and 1st in Africa for Internet Data usage. The Government through the ministry of communications has built an 800km long fibre optics cable to reach out to all Ministries Departments and Agencies (MDA) on the Eastern corridor which is underserved.

The fiber is also opening up opportunity for other private telecom operators to lease cable to improve service in the catchment area. A tier 3 National Data Centre infrastructure including a 600 Rack Primary Datacenter and a secondary Datacenter in Kumasi is expected to boost deployment of local content and uptake of hosting applications even further and hence improvement of ICT to the nations GDP growth.

It is also noteworthy that government has deployed 11 e-service applications the currently be access on the e-services portal (<http://www.eservices.gov.gh>). Plans are far advanced to increase the the number of e-services which currently include business registration services, birth and death registration, passport and drivers' license acquisition and so on. AN e-workspace program has been deployed as a pilot for 26 MDAs to ensure paperless communication and is being expanded to cover up to 102 MDAs.

It is on the background of these massive infrastructure upgrades that the Ghana IGF 2016 forum was held. The belief that all these infrastructures will work to serve the interest of the citizenry if a good dialogue of issues of governance is made to iron out any challenges that will hinder growth within the ICT sector and internet in particular.

The theme “Building a multi-stakeholder model for the sustainable development of the Internet” was chosen to reflect the pressing need for input from all stakeholders. This was further divided into four sub-themes: Youth IGF, Access and Diversity, Cybersecurity and Online Safety and Critical Internet Infrastructure for the next billion. The Forum was attended by 220 leaders from all stakeholders including academia, regulators, Media, technical community, private sector and government. Chart 1 is the representation of stakeholders at the Forum.

This is a high level report of the discussions held. Apart from the opening ceremony that has a detail report, most of the other session have bullet point of the key issues and recommendations.

## Ghana IGF 2016 Participation by Sector

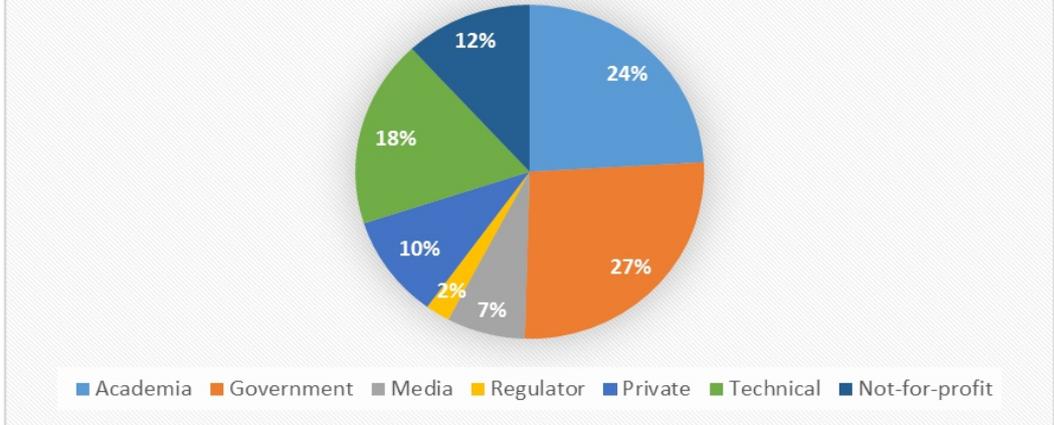


Chart 1: Ghana IG Forum 2016 Participation by sectors



Figure 1: Ghana Internet ECOSYSTEM

# Opening Ceremony

The ceremony was organized to officially open the 2016 Ghana Internet Governance Forum (IGF), at the Kofi Annan ICT Centre of Excellence. The Forum, which was under the theme, “Building a strong multi-stakeholder model for a sustainable development of the Internet in Ghana,” attracted over 200 people, including youth, IT professionals from industry and academia.

Mr. Papa Arkhurst, Director, IT of the Ministry of Foreign and regional Integration was master of ceremonies for the opening ceremony

The following persons representing key stakeholders in the Internet Ecosystem in Ghana and globally made statements at the opening ceremony:

- Lynn St Amour, Chair Person of IGF MAG Chair
- Prof. Nii Narku Quaynor, Chair, ISOC Ghana, Ghana IGF Convener
- Mr. Ben Eshun, Executive Secretary, Ghanaian Academic and Research Network (GARNET)
- Nene Nagai Kasa VII, Chair, Ghana Child Online Protection (COP) Steering Committee,
- Mr William Tevie, Director General, National Communication Authority
- Ms Dorothy Gordon, Director General, KACE-AITTI
- Mr. Eric Akumiah, Coordinator for Ghana IGF

The Deputy Minister of Communication, Hon. Ato Sarpong made the keynote address and official opening of the Ghana IGF Forum 2016 on behalf of the sector minister.

Lynn St. Amour, Chairperson of IGF and President & CEO of Internet Matters joined the ceremony remotely through Skype. In her opening remarks, she congratulated Ghana for organizing the forum and said, “Ghana's involvement of its Government in Internet Governance is a clear good example of setting the pace to achieve a multi-stakeholder approach for the sustainable development of the Internet in the country.” She added that in order to meet the UN 2020 target of the Internet for all, there is the need to for a multi-stakeholder approach and announced her unflinching support for Ghana IGF.

The IGF MAG Chair indicated that sustainable development of Internet is paramount and advocated national, regional and international collaborations and exchange of information as input for policies. She emphasized the importance of issues pertaining to security, data development, to build robust internet governance systems by creating awareness for sustainable development. Ms Amour spoke about the need to engage stakeholders, especially in developing countries and mentioned the efforts made by the UN Economic and Social Affairs, governments, public and private stakeholders.

Prof. Nii Narku Quaynor, pioneer of the Internet in Ghana noted that the organization of the Forum was a step in the right direction, and the Government of Ghana's engagement was a good indication that key policy stakeholders were involved in the issues of the Internet, which is a good sign for the multi-stakeholder approach.

He noted that for the sustainability of IGF, there needed to be more dialogue among IT professionals and other stakeholders through consensus, collaborations among different disciplines since one single profession does not have all the answers. “The input of lawyers, engineers is needed to contribute to the Internet ecosystem,” he stressed.

Furthermore, he stated and that organizing an annual event on Internet governance is not enough to sustain the momentum of discussions on the myriad of issues surrounding Internet governance. Therefore, more activities needed to be organized to keep the Forum active. He concluded by admonishing all to participate to achieve healthy communities. “This could be done if we work as a team to engage in internet monitoring to minimize cybercrime” he added.

Nene Nagai Kasa VIII in his welcome remarks said Child Online Protection (COP) Steering Committee was instituted to cater for the needs of children by ensuring protection and to curb online child abuse. He called on all to come on board and bring ideas to bear to help COP steering committee build a framework for its child online protection. He also recommended the steering committee for the inclusion of the elderly in internet program and proposed refresher courses for the elderly.

Mr. William Tevie, Director General of the NCA spoke on the importance of increasing intra and inter connectivity of the Internet as well as the need for appropriate policies to sustaining the development of the Internet. He also mentioned the importance of granting equal access to all as well as bridging identifiable gaps between the haves and the have-nots. On the issue of infrastructure, the Director General said to optimize the Internet and the bring its cost down, there was crucial to enhancing broadband, wireless, fibre optic and submarine cables networks. He concluding by saying that ensuring proper monitoring to achieve quality service was key to developing a sustainable Internet for all.

On her part Ms. Dorothy Gordon, stressed that Ghana is not participating enough on the Global scene. “the Internet is for all of us, and we should all have a say in how it is managed,” she stated. She indicated that there were several global platforms on the Internet that Ghana could represent so our voices could be heard. “Ghana is not represented as should be. It is good to support local communities, but we also need to participate on the international scene because the decisions that are taken at that level will invariably affect us,” she said.

She further mentioned the need to utilize innovations to grow businesses and also address cybercrimes which impede business opportunities. Additionally, she intimated that it was important to eliminate divisions and fragmentations and get everyone on board the rich, underprivileged, young, old, learned, urban, rural among others. She concluded by indicating the need to develop a framework needs to be set in place to define clear goals for progress of the Internet.

Mr. Eric Akumiah, Coordinator of the Ghana IGF reported on the 2015 IGF. Highlights included, in 2014, the internet society held a forum to decide that, IGF should be a permanent event in Ghana, and since then the Ghana IGF has been an annual event. He

said that during the year under review, that digital literacy had to be heightened and more women needed to participate in the IGF.

On his part, the Mr, Ato Sarpong, the Deputy Minister of Communications, who represented the Minister of Communications declared his consternation that Ghana was lagging behind at the development of the Internet in Ghana. However, he indicated Government's commitment through its broadband strategy of ensuring the service in every home by 2020. He also commended the establishment of the COP steering committee, to protect child users. The Deputy Minister said Government needed to have the right policy direction for internet issues such as infrastructure, tax incentives, licensing regimes, regulatory aspects and empowering consumers to knowledge on rights and responsibilities.

Touching on nationwide coverage, the Deputy Minister indicated that the acquisition of an appropriate broadband model is very necessary for nationwide coverage to bridge the rural-urban educational, economic and social gaps. He concluded by mentioning that content producers should engage multi-stakeholders for discussions on content.

# Session 1. E-Learning & It Entrepreneurship

**Moderator:** Dorothy Gordon DG – AITI – KACE

**Presenter:** Samuel Dodoo, Education Chair, ISOC Ghana

## Panelists:

- Florence Toffa, ED Mobile Web, Gh
- Kofi Amponsah, School of Continuing Education, University of Ghana
- Dr. Nana Kofi Ananan, Wisconsin University College
- Abel Yeboah, PhD Fellow, GTUC

## Preamble

Globally, E-learning presents numerous opportunities. Unfortunately, Africa, and Ghana have not taken advantage of these opportunities due to various reasons, one of them being the perception that education worth its sought ought to take place in a physical infrastructure. Consequently, learning which takes place in a virtual environment is not readily accepted. The presenter however submits that expansion of physical infrastructure is now a challenge in Africa, thus the need to adopt e-learning as an alternative.

## Prospects of E-Learning

- More people can access education through E-learning
- E-learning globally is a viable business. While countries in the West are bringing in billions of dollars annually as revenue Africa is only making a paltry amount in E-learning in comparison.
- E-learning offers numerous job opportunities prospects to individuals, institutions and the nation as a whole due to its value chain.
- Monetization of content by academics

## Challenges

The following were identified as challenges to the adoption of e-learning

- Negative mindset towards e-learning scholarship in Ghana
- Lack of local content
- Inadequate infrastructure, such bandwidth, recording studios
- Inadequate power supply in certain communities made it impossible for skillful teachers to teach the subject ICT.
- Lack of qualified personnel to either repackage information, or to handle technology effectively.
- Non-availability of IT tools to facilitate the learning of IT in schools.
- Technology has not been adapted to suit people's needs.
- Technology has not been well integrated into our educational curriculum.
- Lack of awareness of E-learning sites.
- Non-readiness of learners to use e-learning.

## Recommendations

- Change mind set of people who opt for e-learning. In this regard National

Accreditation Board (NAB) to work on endorsing and accrediting e-learning institutions, as well as acknowledging different kinds of learning other than the traditional.

- Establish a national council for E-learning
- National council for E-learning to invest in E-learning studios
- Integration of private sector so they take the lead to invest in production studios
- Encourage blended learning
- Build capacity and skills for the creation of content, including local languages and repackaging of information
- Reduce cost of power and internet to increase accessibility
- Put copyright systems in place for academics to monetize content
- National effort to harness the content of technology should be to: "Repackage, Repurpose and Reprioritize"

# Session 2: Youth in Internet Governance: Taking Stock

**Moderator:** Frank Ziggah, E-government analyst, NITA

**Presentation:** Briefing About Africa IGF Academy by Emmanuel Vitus, Academy Fellow

## **Panelists:**

- Dora Mawutor, Media Foundation for West Africa (MWFA)
- Senyo Worlali, Famerline Ghana
- Ivy Hoetu, NCA

## **Preamble**

The youth form over 50 percent of the population of Ghana, with a large number of them being Internet user, but do the youth actually know who and how the internet is governed? There is therefore the need to create awareness/sensitization on internet governance directed at the youth to ensure security mechanisms in the use of the internet to move internet governance forward.

## **Objectives of the Internet Governance:**

- To foster freedom of expression on the internet and inclusive and transparent national internet and policy processes.
- To add on to existing initiatives.
- To build multi-stakeholders in various countries.
- To participation of youth organizations in internet governance dialogue.

## **Opportunities of Internet Governance**

- Mentoring by internationally renowned experts in the internet government processes.
- A platform for peer learning and networking.
- Contributing to UN dialogue on issues of freedom of expression.
- Ensuring transparency and inclusiveness by creating an avenue for participation of developing countries.

## **Recommendations**

- Need to increase sensitization of internet governance in the youth.
- Create more awareness in the Ghanaian schools with the help of youth groups such as Student Representative Council (SRC) and National Union of Ghanaian Students (NUGS).
- Use internet to improve entrepreneurial skills by offering appropriate resources for information to enhance such skills.
- Exercise tolerance on the internet because we deal with people of different orientation, experience and viewpoints.
- Involve the youth in the productive use of the internet by learning to take advantage of

available entrepreneurial opportunities. And through this, the youth will be empowered.

- f. Create more platforms to positively influence policies concerning internet governance.
- g. Engage more people should enroll in the internet governance annual school especially the youth since the adults will be retiring soon.
- h. Establish an internet governance academy for the youth to teach healthy expressions and actions on the internet ensure responsible use.
- i. Institutionalize Internet governance fora to make them nation-wide.
- j. Implement decisions and recommendations made at the forum.

Panelists shared views on the ban of social media on election day and concluded it would be retrogressive to enforce such a decision since it would adversely affect foreign investors and business owners.

# Session 4. Making Internet Affordable for the next billion

**Moderator:** Papa Arkurst, Director, IT Ministry of Foreign Affairs & Regional Integration

**Presenter:** Clara Pinkrah-Sam, Deputy Country Representative, Alliance for Affordable Internet (A4AI).

**Panelists:**

- Dr. Godfred Frempong
- Derek B. Laryea

**Preamble**

The amount of knowledge and information available on the Internet today makes it a basic necessity of life. Access to the Internet is, therefore, a right and not a privilege. Sadly, not everyone can afford to access the Internet due to financial constraints. It therefore, behooves on government, private sector and civil society to endeavor to make the Internet affordable to everyone so that Ghana can meet the UN Sustainable Agenda 2020 goal of making the Internet accessible in least developed countries by 2020. In addition, the linkage between the social and business dimensions of the Internet should be considered to determine the price of the Internet. Affordability of the Internet is ultimately determined by its availability, its quality and it's the need for it.

**Challenges of high cost of Internet**

- Continuous gap between the haves and have nots
- Lack of access to information
- Loss of opportunities for employment

**Recommendations**

- Urgent reforms needed to achieve UN 2020 Internet for all goal
- Tax rebates for ISP so they can reduce cost of Internet
- Need to reduce cost of bandwidth
- Need to join non-profit organizations like A4AI lobby government and other stakeholders to reduce price of Internet
- Internet Service Providers (ISP) to negotiate on reduction of tax regimes to bring down cost.
- The Internet is a necessity and not a luxury and its tariff regime should be treated like other utilities like electricity and water and made affordable.

# Session 5: Bridging The Digital Divide and Improving Quality Of Service

**Moderator:** Dorothy Gordon, DG, AITI-KACE

**Presenter:** Osman Yahya, GIFEC

## Panelists

- Alfred Gaisie, NCA
- Victor Dodoo, MTN
- Edward Ansong, KNUST
- Marcus Adomey, ISOC Ghana President/PhD Fellow

## Preamble

A comparison on the development landscape of the Internet between developed and underdeveloped countries shows that poor quality of Internet service is usually due to lack of awareness on the part of consumers on their rights and privileges. To this extent, there must be consumer advocacy to create awareness on the consumers' rights. Permit acquisition and processes at the District Assemblies is cumbersome due to corrupt practices. To sustain the development of the Internet, support is needed to build the needed infrastructure and to ensure maintenance of fibre cables.

## Overview of GIFEC

- a. Ghana Investment Fund for Electronic Communications (GIFEC) was launched in November 2004 and started operations in January 2006.
- b. The Electronic Communications Act, 2008 ACT 775 provides the legal framework for the activities of the fund.
- c. The vision of GIFEC is to bridge the digital divide by providing rural telephony, ICT for livelihood that is E-Fishing for fisher folks among others.
- d. The fund is managed by a Board of Trustees under the chairmanship of the Minister of Communications.

## Recommendations

- a. Everyone must be mindful of protecting the internet infrastructure in the ground to improve quality of service.
- b. There is the need to look out on hidden taxes on the implementation of bridging the divide.
- c. Extend ICT literacy
- d. Consolidation of institutions to make access to information.
- e. Support projects of private sectors by reducing cost on acquiring permit for building.
- f. Encourage consumers to give feedback on the quality of their services.
- g. Protect internet infrastructure on the ground to improve quality of service.
- h. We need to make sure that, corruption does not hinder implementation of projects, which should bridge the gap rather than widening the rural-urban and gender divide.
- i. The District Assemblies and the traditional leaders should be more cooperative
- j. NCA wants consumers to step up on feedback on quality of service.
- k. Intranet is very efficient in Cuba therefore we could explore intranet as a nation
- l. To have effective follow-up on the cyber security bill in order to achieve passing of the cyber security law.

# Session 6: Policies & Regulatory Environment Framework in Ghana In Regards To Security & Privacy

**Moderator:** Dr. Godfred Frempong, STEPRI, CSIR

**Presenter:** Mr. Eric Akumiah. IGF Secretariat

## Panelists:

- Raymond Bill, NCA
- Abel Yeaboh Ofori, Phd candidate, Ghana Technology University College
- Marcus Adomey, AfricaCERT

## Preamble

The sophistication of cyber criminals and their unpredictable attacks behooves on government in concert with stakeholders to put in policies and regulations in place to protect consumers from possible attacks. In Ghana, there are policy documents which address cyber security. In this regard, a national cyber security has been drafted by Government and yet-to-be endorsed by cabinet. There are also laws that prosecute criminals. However, in view of the rapid change in technology, it is critical to build robust security systems to be ahead of the cyber criminals. This calls for capacity building of experts so they are abreast with the cyber security tools so that they can counteract any attack. There is also the need to incorporate security systems in the plans of critical infrastructure right from the onset. Regulated environment may be required to execute some cybersecurity protocols as part of its licensing regime in the future.

The panelists discussed how security could be addressed within a regulated environment with regulatory provisions.

## Challenges

- Inability to keep up with fast changing technology
- Lack of capacity building of IT professionals on cyber security
- IT procurement being handled by non-professionals

## Recommendations

- Capacity building on cyber security for IT professionals
- Need to set up a committee of expertise with various backgrounds to anticipate cybercrime, work on prevention and prosecute cyber criminals to produce cybercrime
- Organizations to be sensitized on the need to set up Computer Emergency Response Teams (CERT) to provide preventive and reactive solutions when there is an incidence
- Collaborations and network of CERTS to complement and support one another
- Harsh punishment for perpetrators
- Review laws fill in the gaps in existing laws
- Technology is dynamic, while policies are not, thus the need to align polices to these changes.

# Session 7: Curbing The Cyber Security Menace - Challenge & The Way Forward

**Moderator:** Eric Akumiah, Ghana IGF Coordinator

**Presenter:** Ken Adu-Amanfoh, National Communications Authority

## Panelists:

- Abel Yeaboh Ofori, Phd candidate, GTUC
- Luquman Mahama, CERT-GH
- Jake Francis, CISO, Vodafone
- Gustave Yankson, Police CID Cybercrime Unit
- Albert Antwi-Bosaiko, e- Crime Bureau
- John Tandoh, Bureau of National Communication

## Preamble

Cybercrime occurs at all levels and in different forms, it therefore behooves on government together with the private sector to act in concert to curb the incidences

## Challenges

- IT professionals are not cyber rime savvy enough on security policies
- No regulation

## Recommendations

- Sharing threat information among various stakeholders
- Creation of web-based platform to discuss treats
- Collaboration and networking
- Include cyber security in the curriculum at various levels of the education system so citizenry will appreciate the issues
- Acquire location based system to trace crimes
- Building capacity for key government agencies and institutions
- Transformation on cyber criminals
- Review current cyber landscape to make it robust
- Need more data analysts
- Need to invest in cybercrime prevention

# Session 8: Developing Our National Internet Infrastructure for The Next Billion User (Joint Session with IPv4 to IPv6 Session)

**Moderator:** Godfred Ofori-Som, Ghana National Petroleum Corporation

**Presenter:** Eric Akumiah, IGF Secretariat

## Panelists:

- Francis Amaning, Ghana Domain Name Registry (GDNR)
- Senyo Hadzor (Vodafone Ghana)
- Solomon Richardson, NITA
- Dorothy Gordon
- Ivy Hoetu

## Preamble

There is still more work to be done in the area of infrastructure. The initiative is private-led, but the government is also supporting and contributing to the development of the infrastructure of the Internet in Ghana. The cost of Internet is high because of inadequate terrestrial infrastructure. The CERT was set up by the government to play an advisory role. The idea is therefore for other CERTs especially in the different sectors to be formed nationwide to join CERT-GH. There is also the need to accelerate the implementation of the national domain registry .gh. Once .gh Registry is gazetted it would be cheaper and competitive to buy a .gh domain.

## Recommendations

- Need for a public, private partnership in providing infrastructure.
- The need for awareness creation on the role and formations of CERTs, including academia and the security agencies.
- The need for awareness creation on .gh Registry

# Session 9: Child Online and Protection and Women's Participation In Internet Governance In Ghana-Status And Way Forward

**Moderator:** Dorothy Gordon DG, AITI-KACE

**Presenter:** Awo Amenya, J-INITIATIVE

## Panelists:

- Veronica Boateng, Women in IT, Ghana
- Florence Toffa, ED Mobile Web, Ghana
- Patricia Dovi-Simpson, Director, RSIM, MOC
- Dora Mawutor, MFWA
- Ama Dadson, University of Ghana

## Preamble

Exposure to the Internet, means that we are all vulnerable to its content that is why it is important to increase awareness for its users. Increase sensitization of women on internet governance and policy making for the enhancement of their businesses is also important so that they are not only consumers but involved in making contributions to its governance. When it comes to child users, exposure to violence and abuse of children online and child pornography calls for protection. There needs to be advocacy for more women participation in IT.

## Recommendations

- a. Children should be part of the panel members for 2017 IGF
- b. Strengthening of peer learning
- c. Participate in online courses
- d. Parents ought to be excellent role models for their children for example parents should not send text messages when driving
- e. Demystify ICT in girls
- f. Women should be involved in technology so they can be able to interact with their children and thereby supervise their activities
- g. Review ICT for Accelerated Development Policy in the light of recent developments
- h. Define clearly what child pornography is and the punishment involved for perpetrators
- i. Children must be encouraged to report cases of violence and other forms of abuse on social media to their parents
- j. There should be a multi-stakeholder committee to facilitate a coherent Child Online Protection action in Ghana
- k. Need to to change curriculum and the approach to teaching ICT at the training colleges.
- l. ICT teachers should be technology savvy and they should teach technology. A national educational forum for ICT teachers would be helpful and in addition, promotion of ICT teachers must be tied to competence because some of the teachers do not have email addresses.
- m. Sensitization resources should be in various languages and be distributed in all public places including mosques and churches.
- n. Need to acquire up-to-date data on how Ghana is using the internet.

# Session 10: Transparency Accountability & Inclusiveness (joint Session with REN Session)

**Moderator:** Prof. Nii Quaynor

**Presenter:** Yusuf Amadu, University of Ghana

**Panelists:**

- Eric Kumah-Baku, GODI
- Dr. Joel Sam

**Preamble**

Zero rating encourages more people to go online to access information and allows customers to have free access to certain online services. This allows downloading of specific volumes of data, which ultimately will bring down the cost of access to information in less developed countries. There is therefore the need for transparency, inclusiveness and accountability in this regard.

**Recommendations**

- a. Online data should be updated frequently.
- b. There should be a limitation to the amount of information provided online.
- c. Zero rating encourages more people to go online
- d. We need to monitor zero rating
- e. We should leverage zero rating by making some journals zero rated for students
- f. We need to monitor zero rating because it brings about fragmentation
- g. Africa Connect should step up otherwise the project would be taken to a different country

# Session 11: Cloud Computing and Local Content Creation

**Presenter:** Peter Appiahene (no show)

**Moderator:** Dr. Narteh Siaw-Sappore

## Panelists

- Papa Arkhurst, Ministry for Foreign Affairs & Regional Integration (MFARI)
- Veronica Boateng, NITA
- Roger Baah, ISOC Ghana

## Preamble

Cloud computing does not require infrastructure but just a platform for sharing, research and networking. Cloud technology in education and teaching will bring about a centralized curriculum, which will benefit teachers and students. It will also ensure the availability of teaching materials for effective teaching. The technology will make it easier for teachers to have a centralized platform and is less expensive compared to building an infrastructure. It also increases availability of resources and serves as a channel for development. The main problem associated with cloud computing is security.

## Issues of Local Content Creation

- a. Relevance
- b. Adaptability
- c. Usability
- d. Ease of access
- e. Quality
- f. Portability
- g. Trust and Dependability

## Recommendations

- a. Need for cloud computing platforms in Ghana so more students can use the internet to complete their school assignments.
- b. Need for cloud computing the in all the regions for networking and monitoring activities.
- c. By using cloud computing there would not be any issue of removal of e-waste.
- d. Use cloud computing to create local content in Ghana.

# Session 12: IPV4 to IPV6 Migration – Challenges and Way Forward (Joint Session with Critical Internet Infrastructure)

**Moderator:** Godfred Ofori Som, GNPC

**Presenter:** Emmanuel Togo, University of Ghana

## Panelists:

- Francis Amaning, Ghana Domain Name Registry (GDNR)
- Senyo Hadzor (Vodafone Ghana)
- Solomon Richardson, NITA
- Dorothy Gordon
- Ivy Hoetu

## Preamble

As the use of technology and the Internet advances, more people are using phones, iPad, tablets, computers and other gadgets to gain access to the Internet, thus the need for more IP address, hence the migration from IPV4 to IPV6. Unfortunately, Africa is lagging behind in transitioning from IPV4 to IPV6. The fact of the matter is that globally all IP addresses are exhausted on IPV4, thus the transition to IPV6. Perhaps, Africa has the perception that there is no need to rush, as there are some addresses which are in the custody of AFRINIC.

## Challenges of Africa – Migration from IPV4 to IPV6

- Complexity of migration
- There is the need to build capacity for the deployment of IPV6
- Need for transition plan involving all stakeholders with government of Ghana taking the lead. must have a plan. In addition, the government and private sectors ought to have a plan.

# Session 13: Building A Vibrant and Sustainable NREN: An Approach for A Sustainable Development of The Internet In Ghana (Joint session with Transparency & Accountability)

**Moderator:** Prof. Nii Quaynor Ghana Dot Com

**Presenter:** Ben Eshun, GARNET

**Panelist:**

- Eric Kumah-Baku, GODI
- Dr. Joel Sam

**Preamble**

GARNET was established to create a national network of academics and researchers to ensure sustainable development and to achieve robust, high-speed, affordable internet within the academic community for effective collaborations.

**Recommendations**

- There is need to make the universities fluid by making them community of sharing
- GARNET to promote strong links for knowledge sharing and research development
- To enhance e-learning, libraries should have internet
- NREN to promote internet development through research, innovation and lifelong learning
- GARNET to offer more opportunities for research and collaborations

# Session 14: Emerging Issues: How to Implement the Multi-Stakeholder Model in the Internet Development in Ghana (Joint session with closing ceremony)

**Moderator:** Convener: Prof. Nii Quaynor

**Presenters:** Marilyn Cage, UN IGF MAG Member & Anja GENGO, NRI Contact person, IGF Secretariat

**Panelists:**

- Eric Akumiah, IGF Secretariat
- Ben Eshun, GARNET (Academia)

**Closing Remarks**

- Chengetai Masango

**Preamble**

As a country, we have to move connectivity from 29% to over 50% in the next five years and then into the growing numbers in the final years of the SDGs,

It is also important that all entities engaged in business, as well as other stakeholders to accept the challenge to advance Internet development. And ask the government agencies – engaged in agriculture, health, education – Not just the telecom regulatory agencies – to embrace a role in engagement about why access matters to them as they deliver services. – Marilyn Cage @ Ghana IG 2016 Forum

**Highlights of the Session and Closing Ceremony**

1. Multi-stakeholder model should be fashioned to allow all stakeholders to play their roles effectively for the benefit of the community.
2. Stakeholders should be tolerant of each other in order to encompass varied disciplines for knowledge sharing
3. Important to respect varied viewpoints and to get all the stakeholders on board so that no one would feel marginalized
4. The internet is a community for us to connect, engage, and revise to advance internet use and internet governance
5. Policies are to be implemented at the national level for global discussion
6. Dedication and commitment will make a great change in the communities
7. Knowledge is not in books and devices. It is human beings who advance knowledge for public good and community development therefore we need to make intellectual contribution for the benefit of the communities of today and for posterity.

## Conclusion

On the whole, the forum was a successful meeting. Due to funding challenges, the Forum was held for only one day, which accounted for the packed sessions. With more funding is proposed the Forum will be a two-day event with workshop session where there would be more interaction.

The moderated ended by encouraging participants, saying, “play your role and let your voice be hard.”



Ghana Internet Governance Forum  
6th Floor, Ghana Multimedia Centre  
High Street, Accra

**Email:** [secretariat@ghanaigf.org](mailto:secretariat@ghanaigf.org)  
**Web:** <http://www.ghanaigf.org>