Malawi

Tamanda Mlanga
Malawi Communications Regulatory Authority

- The IoT use cases are those that are in the unlicenced band i.e the Smartwatches, iPods, Smart TV , baby monitors, water level sensors, car parking fees and CCTV that can be monitored through our mobile devices
- As the regulatory body we are fighting that our data rate should come down first, and also have high-speed internet so that the users can enjoy the services.
- Our licences are technology-neutral spectrum **licences**

Zambia

- **1) Current Landscape and Future Potential**
  - **Current IoT Landscape in Zambia**
    - **No technical framework and regulation for IoT presently.**
    - **Limited IoT adoption: Primarily within academia and select industries.**
    - **Notable use cases: Smart metering by power and water utility companies.**
  - **5G and the Future of IoT**
    - The upcoming introduction of 5G in Zambia.
    - Key features of 5G: Enhanced latency and speed.
    - Expected increase in IoT uptake with 5G.
  - **Spectrum for IoT**
    - Current identification **863MHz to 870MHz.**
    - Importance of dedicated spectrum for seamless IoT operations.

2) Key Questions for the workshop

1. Best practices for formalizing and regulating IoT?
2. Recommended spectrum allocation for IoT?
3. Technical guidelines for IoT regulation?

3) Conclusion

- The need for a structured approach to IoT in Zambia.
- Embracing global best practices.
- Harnessing the potential of IoT for national development

South Sudan

Jose Dollo

Currently there is no plan in my country for the IoT

Priority of the country right now is building com. infrastructure.

My countries plan:

1. Extending mobile network to the states (2G,3G, 4G)
2. Investing on fiber optic network infrastructure.

TANZANIA(URT)

Gudila Proches Marick

IoT Applications In Tanzania

IoT Application mostly used in Tanzania are those in the group of wearables including the smart watches and earphones.
There are also few applications used at homes including the smart TVs, smart meters and alike.
The growth in using IoT application in the country is expected grow year after year as the internet penetration is growing to cover the remote areas in the country.
Currently most of these use cases are use the bluetooth and Wifi technology as they cover low range and low bandwidth.
However as the internet penetration increases we look forward to see applications using the LoRA and LPWANs technology.

So the **question** is how and what should the Telecom regulator prepare to facilitate the growth of these technologies and applications to allow interference free application using these technology in spectrum perspective as they cover long range.

LIBYA

General Authority of Communication & Informatiecs
E.Hisham Naji
Head of Spectrum Monitoring Unit

Spectrum Aspects of IOT in Libya:

-Surveillance, reconnaissance and assistance aircraft

-Disaster sensors

-Tracing

-Meteorological

LIBERIA

Blayon Adolphus Elliott
Liberia Telecommunications Authority

Liberia Telecommunications Authority is the regulatory arm for all telecommunications activities within the country. With the key responsibility of managing the usage of spectrum and the emergence of new technologies like IoT, we are currently studying the efficient way spectrum can be allocated for the use of various IoT services, and then put in place policy framework that will serve as a guideline for the usage of IoT applications.

Internet of Things usage in Liberia

Use Cases

The usage of IoT services presently in Liberia is new to most people and there is a need for them to understand the concept of what IoT is, how it works, and the benefits that come with using IoT devices. Most of the IoT devices used in the country include wearables like smartwatches to monitor blood pressure, Alexa used to automate appliances in homes, smart meter to monitor electricity and water usage, and GPS tracking for fleet management provided by a company called Frotcom Liberia. All of which uses unlicensed band. Our plan

Sudan

Musa

zimbabwe

Zimbabwe has experienced a growth in Digital agriculture using IoT device. Our country has constructed Innovation Hubs and Research Centres for Modernisation in our state Universities

Regulator assisting operators with infrastructure

We have smart meters .

Spectrum IOT is available

zimbabwe

Spectrum for IOT is available and Regulator is working on releasing more spectrum

· Online and offline mobile apps are being developed by our university innovation Hubs in aiding farmers with addressing the issue of plant diseases.

Our country has experienced high level of poaching and stock theft, The govern has put up Animal tracking in our national parks for tracking wild animals and encouraged the use of tracking device to mitigate cattle theft.

We would like to learn more on regulatory challenges and experiences from other member states

Zimbabwe

Chete jemwa

CAMEROON / ART

AMOUGOU OWONO REGINE ARIELLE

We haven’t gone very far with IOT yet.

we can give some applications concerning tracking and weather measurement.

We also have the use of wearable devices?

During the training we are expecting to have details on IOT licensing, best practice policies and of course spectrum management for this particular case.

GUINEA

Jean-Paul Koundouno

Etat des lieux de l'IoT en Guinée

On retrouve beaucoup d'applications de l'IoT que ça soit dans les résidences ou sur des personnes physiques.

Il faut savoir que l'usage se fait surtout dans un cadre ou améliorer ou faciliter le mode de vie des utilisateurs. Par exemple : l'usage des montres connectées pour accéder à des informations liées à la santé, l'activité physique, etc…, les détecteurs de mouvement à travers les caméras ou les capteurs.

Sur le plan technique : l'autorité de régulation (ARPT) n'a pas défini spécialement des directives à suivre.

Sur le plan réglementaire : Également pas de documents, pas de prédisposition sur les éventuelles sanctions, les recours, etc....

IoT Aspects

MADAGASCAR

Maminiaina RAZAFIMANA - ARTEC

MADAGASCAR

Cas actuel :

➢ Forte émergence de l'IoT

➢ Utilisation actuel banalisée (aucune réglementation)

Questions :

➢ Quels cadres réglementaires à appliquer pour les IoT?

➢ Côté services : possibilité d'affecter une licence?

Worshop on IoT aspects

Côte d’Ivoire 🇨🇮

BAMBA Lassina
Agence Ivoirienne de Gestion des Fréquences radioélectriques

Etat des lieux: Utilisation du couple de fréquences en bande UHF (424.7375/424.8635 MHz) par la Compagnie Ivoirienne d'Electricité pour ses compteurs intelligents.

Problématiques liées à la gestion du spectre

- Avec l'augmentation accrue des objets connectés, quel genre de cadre juridique ou réglementaire devrons nous mettre en place pour encourager et promouvoir les IoT?
- Quels sont les mécanismes à mettre en place juguler les éventuels brouillages que pourraient causer les IoT?
- Les bandes utilisées par les IoT doivent être soumises à facturation ou libres d'exploitation? Sur quelle base devraient t-on facturer? (coût d'opportunité ou enchère?)

Problématiques liées à la réglementation: Utilisation des IoT par des particuliers sans possibilité pour l'Etat de contrôler et de réglementer leurs usages. Quelles propositions pour réglementer ce secteur?
Quelles sont les meilleures pratiques en la matière?

MALI

ABDOULKAFAROU I DIALLO-AMRTP

Cas actuel:

- Forte emergence de IoT
- Aucune réglementation en vigueur

Action

- Le Mali prépare une étude sur les stratégie à large bande qui prendra en compte tous les aspects liés à l'utilisation des IoT

- Question:
  Quel cadre réglementaire faut-il appliquer pour les IoT?

ETHIOPIA

Ethiopian Communications Authority

Natenael Tadesse

Even though the adoption is at an earlier stage in Ethiopia, the opportunities are evident from the use-cases.

Cattle Animal Monitoring: To address the lack of veterinary knowledge for diagnosing and treating cattle in rural Ethiopia.

Automated Climate Monitoring System: To keep optimal growing conditions in greenhouse industries with varying seasons and improve environmental performance by maintaining heating, cooling, and humidity levels.

Fleet Management: for cargo tracking

In Ethiopia we have an institute called Artificial Intelligence Institute with a mission of fostering the development of a nationally recognized AI ecosystem, skilled manpower, & AI-based systems to digitally empower & transform Ethiopia for peace & prosperity. And they work in collaboration with multiple universities.

Website: https://www.aii.et

Questions

1. Since IPV4 is depleted what transition mechanisms should we adopt/developed to move from IPV4 to IPV6?
2. What are the way forwards to integrate the new IoT based systems with the old or existing legacy systems and applications?

Sudan

- IOT regulatory framework has been developed
- Lora
- Smart agriculture
- Smart mining

RCA
BOALYO FOUNGA Ferdinand

Etat de lieux: peu utilisé
Problematique: meconnaissance par la population, manque de l’internet fiable et l'application IoT
solution :
Collaborer avec les opérateurs ;
En parler avec la douane;
Informer la MUNISCA
Quelle réglementation appliquée? Bonne pratique

TUNISIE

YASSINE NAJAR

THE GAMBIA

ACHEIN JATTA
Public Utility Regulatory Authority (PURA)

- The application of IoT in the Gambia is at it infancy stage / minimal.
- IoT in the Gambia is more of theoretical / meaning we are still learning about it's application in different areas of the economy.
- Even though one of the operators just lunch in 5G(May 2023) the capability of this technology is under use.
- No IoT framework or regulation in place.

How do we as a regulator encourage the use and application of IoT and what are the technical regulatory frameworks to adopt.

GHANA

DENNIS OSEI BOATENG

NATIONAL COMMUNICATIONS AUTHORITY

Internet of Things Aspects in Ghana

- The National Communications Authority (NCA) is the national electronic communications regulator of Ghana.
- And in turn is responsible for the management of the radio spectrum resource as well as industry policy formulation.
- No regulatory framework put in place yet.

Internet of Things Aspects in Ghana Cont.

SEYCHELLES

DEPARTMENT OF INFORMATION COMMUNICATIONS TECHNOLOGY (DICT)

Presented by:
Siva Chetty

- DICT is the regulatory body for broadcasting and telecommunications sector in Seychelles.
- We do not have a lot of experience with IoTs. But we process them similarly to short range devices (SRDs).
- We basically follow the international best practice with respect to the usage of IoT in Seychelles. Especially, we follow ITU & EU Recommendation and Decisions.
- We also check for the devices conformance to internationally recognized technical standards with respect to RF spectrum, EMC and health and safety.

QUESTIONS

1. Can all IoT devices be regarded/categorized as a SRD?

2. Can traditional monitoring/tracking/telemetry devices (basically without an RF module) be regarded as IoT devices?

3. What is the international best practice with respect to licensing framework for IoTs?

4. With the expected rise in the use of IoTs in coming years and it is association with 5G – Will it cause any adverse health effects due to increased RF exposure?

EGYPT

Muhammed Eddouwek

NIGERIA

Ahmed Amate

*Nigerian Communications Commission (**NCC**)*

IoT Applications, Business models, connectivity solutions: IoT is vastly used by in sectors such as the Oil and Gas sector, security, Agriculture and of course the telecoms sector amongst others. The Applications include weather forecast, identifying faults along pipelines in the oil and gas sector by IOCs, smart solutions like meters etc. amongst others.

There is currently no IoT Regulations (**Disclaimer**: to the best of my knowledge) at the moment, but we are leveraging existing laws such as data protection, cyber security etc while we are working on collaborative/inter-agency efforts to develop a framework in the sector.

With regards to connectivity solutions, the Federal Government through the relevant agencies are continuously working on efforts to improve broadband access to underserved and unserved areas to enable telecom services including emerging technologies such as IoT

Question: (1) Distinction between IoT and AI **(2)** What challenges are other countries facing regarding Regulating IoT so far

TCHAD

Valambi Halina ARCEP

Actuellement;
Aucune réglementation disponible ni des lignes directrices, mais la demande d'IoT est croissante dans le pays.

Projet
Le Tchad attend à mener une étude stratégie des fréquences à large bandes, et ensemble avec les pays de la sous région pour y répondre efficacement.
Reamenagement des fréquences pour IMT et autres services.

Solution
L'atelier est une opportunité pour le Tchad pour en tirer partie et se positionner.

EQUATORIAL GUINEA

BONIFACIO NGUEMA

Uganda

Simon Peter Lubowa
Uganda Communications Commision

There is increased demand for IOT spectrum in Uganda for solutions such as:

- Smart Metering (utilities)
- Traffic monitoring
- Health monitoring
- Industrial Use
- Agricultural Monitoring

There are regulatory tools in place to aid IOT spectrum use in the 2.4GHz, 5GHz, 915-925MHz and 863MHz band including:

- Guidelines for utilisation of 2.4GHz band
- Guidelines for utilisation of the 5GHz band
- Guidelines for use of short range devices
- Type approval framework
- Technical requirements for the use of 868MHz band

However, there is no regulatory tool to specifically speak to IOT

BURUNDI

Mr. Lazare MAJAMBERE

Agence de Régulation et de Contrôle des Télécoms "ARCT"

Etat des lieux de l'IoT au Burundi:

1. L'IoT est plus observé en internet mobile (terminaux, application, réseaux,…), en automobile (véhicule & sécurité routière), en électricité, Hôtellerie, etc.
2. L'IoT exploite de la connectivité existant : LTE, 3G, WIFI, WiMax, …: défis actuel sur la connectivité.
3. Un domaine non connu par la population en générale: connu seulement par ceux qui oeuvrent dans le secteur de l'ICT (un petit nombre)

4. Un domaine exploité sans conscience des utilisateurs.

5. Pas de règlementation spécifique à l'IoT.

6. Lignes directrices sur l'utilisation des équipement à courte portée.

Perspectives :

Mise en place de la feuille de route qui projette la mise en place d'un réseau 5G en juillet 2024.: pour améliorer la connectivité.

Use cases for IoT, challenges envisaged and solutions, with case study example from Southern Africa

By

Mr. Richard M. Makgotlho

Radiocommunication Specialist,

Independent Communications Authority of South Africa

SOUTH AFRICA (REPUBLIC OF)

SA

In South Africa, spectrum is Assigned on a technology and Service Neutral Basis, in order to ensure that there are no limitation for the deployment of Internet Of Things (IoT) and the usage thereof including any applications and systems.

The current spectrum assignment and allocation framework is in compliance with the prescripts of the National Legislation.

In Southern Africa, through CRASA, the guiding principles for the assignment of Spectrum are based on a Technology and Service Neutral Basis; and

In Africa, through the African Telecommunications Union, Technology and Service Neutral is a key enabler for the uptake of applications through the promotion of the Technology and Service Neutrality.

The National, Sub Regional and Regional Allocations Plans therefore contains provisions that enables the use of frequencies for Specific use by Applications such as RFID, ISM and License Exempt including Light licensing such as those used for Dynamic Spectrum Management and Access as well as the E and V Bands.

IoT Use Case: Smart Water Meter

Old GPRS Meter Has Limitations

Coverage

GPRS: 20% of meters fail to report by, need extra manual reading

Power Consumption

GPRS: 2-year battery life is a barrier to large scale deployments

NB-IoT, Best Technology for Smart Water

Smart Water Application Scenarios

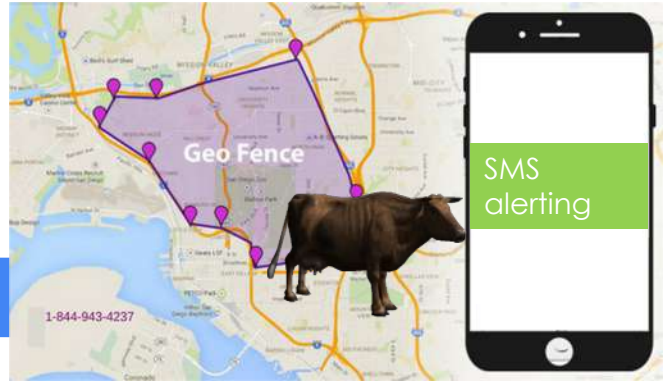
Smart Meter

Pipe Network Monitoring

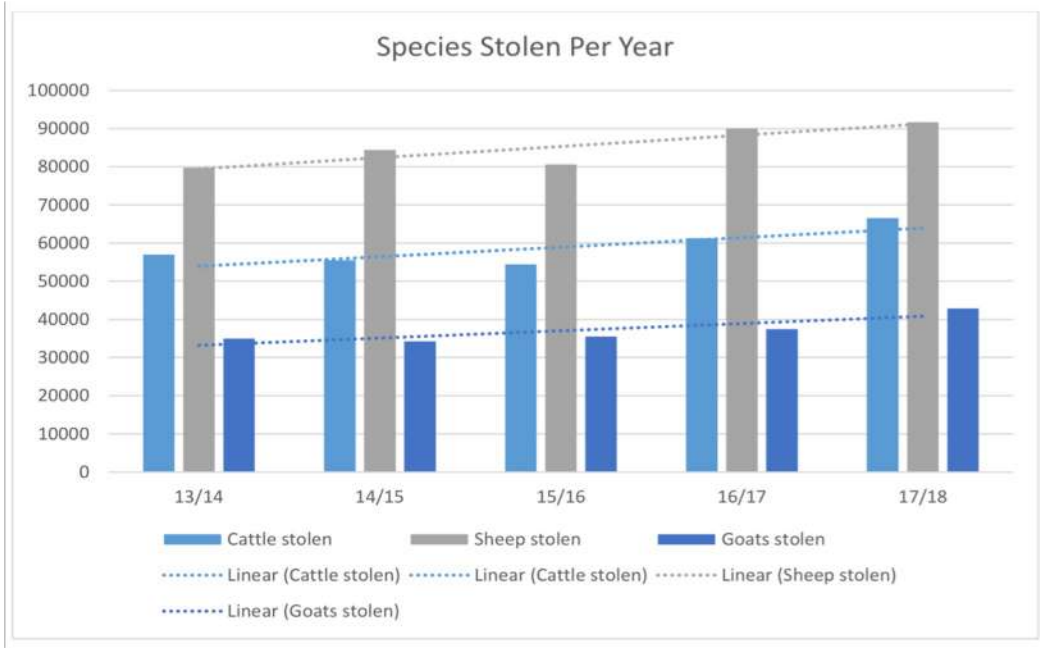
Tank Monitoring

IoT Use Case: Connected Livestock-Problem to be solved

- Livestock/wildlife lost

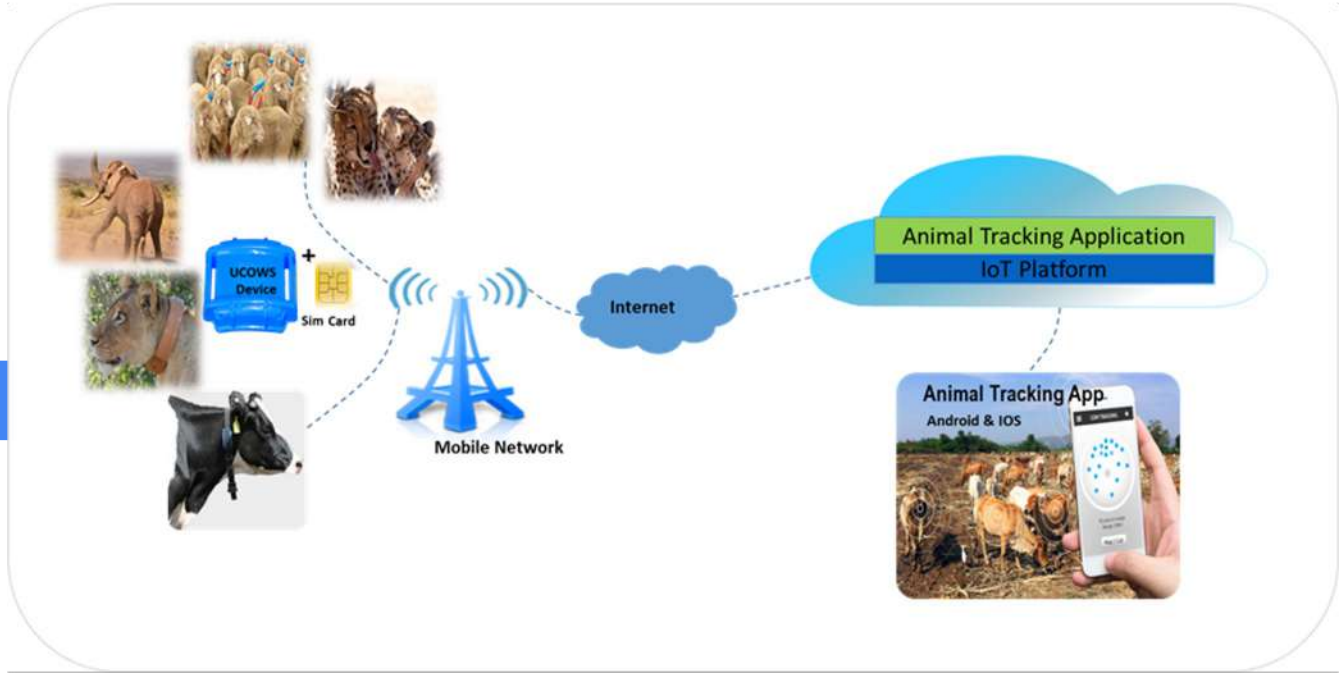


- Livestock/wildlife stolen



- Average adult cow market value is around R15k in SA
- Average lost cow number is around 2~10 in every 100 cows, average loss value is R300~R1500 per cow per year

IoT Use Case: Connected Livestock-Solution



- Livestock Activity Monitoring
- Livestock Location Monitoring
- Livestock Management

Value for Livestock Farmer

- Tracking for livestock protection
- Activity monitoring for better livestock health
- Estrus monitoring for more revenue generation

Social Value for Wildlife

- Projection of endangered species
- Preservation of national heritage
- Contribute to promotion of tourism

Thank You

Angola
Inacom

1. Improving network infrastructure
1. 5G Implementation