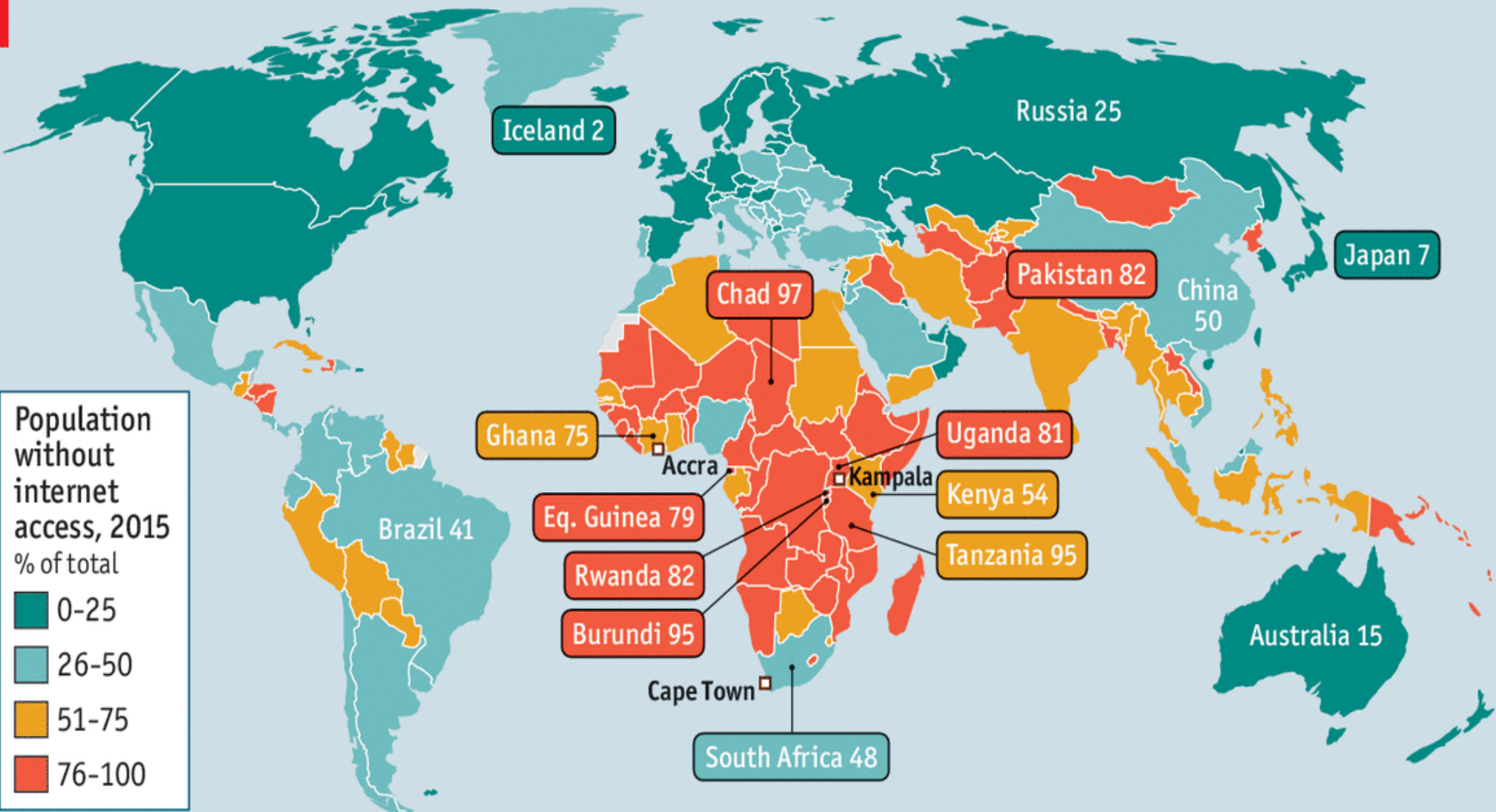


# Adoption of Emerging Radio Communications Technologies

24<sup>th</sup> July 2018

Dennis Sonoiya  
Planning Engineer

# Status of Internet access



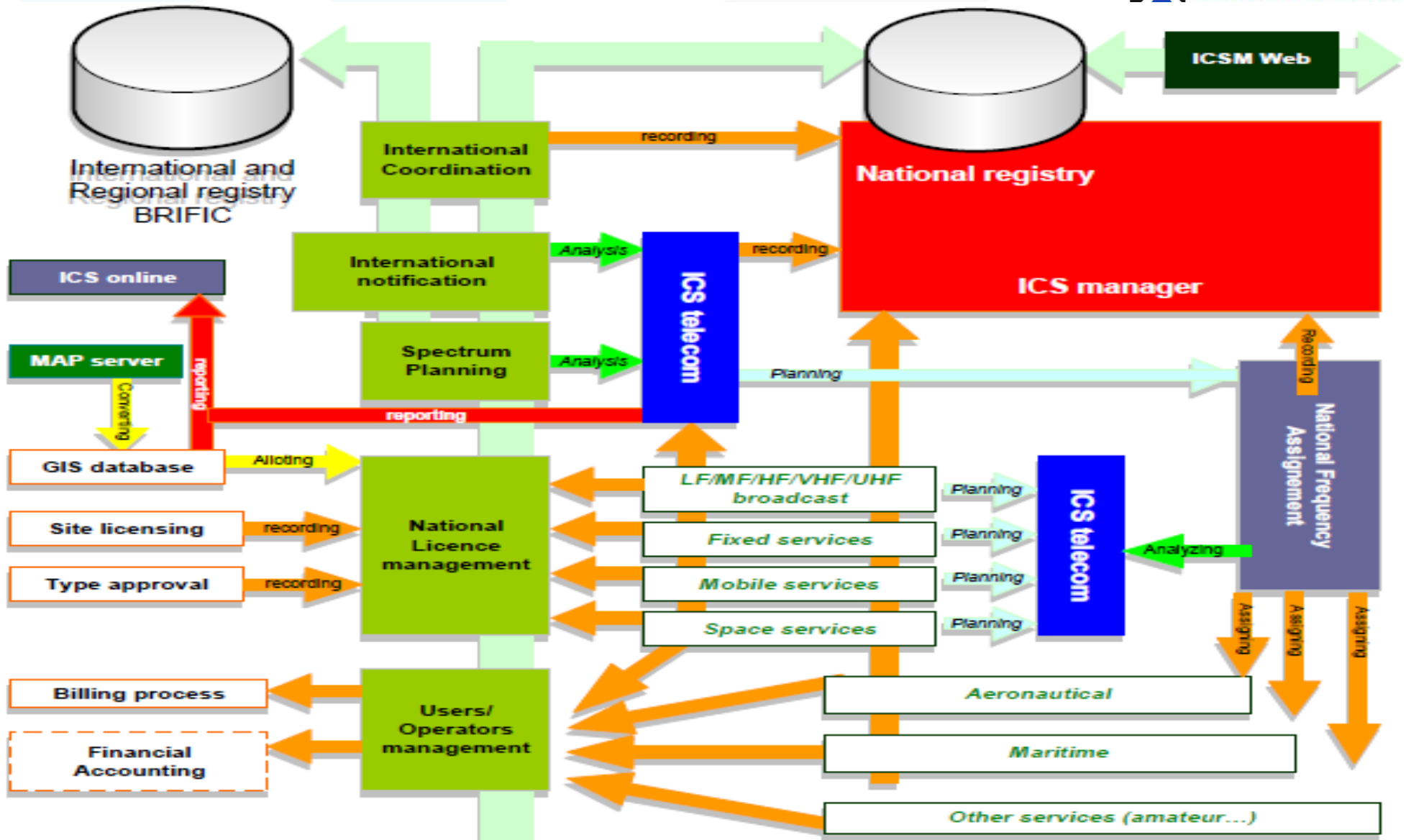
Population without internet access, 2015  
% of total

- 0-25
- 26-50
- 51-75
- 76-100

Source: The International Telecommunication Union

- **Dynamic Spectrum Access Technology**
- **Cognitive Radio Technology**
- **Geo-Location Database Technology**
- **Ultra Wide Band Technology**
- **Long Range Radio Technology**

# Spectrum Management System for Kenya



## Advantages of adoption of automated spectrum management:

- Reduction of harmful RF interference between licensed operators
- Efficient planning, licensing & coordination of RF spectrum
- Platform for analysis of spectrum usage trends
- Increase in revenue from spectrum licenses
- Basis for participation in regional & international research.

# Overview of Emerging Technologies

Technology	Application	Regulatory Perspective
<b>Dynamic Spectrum Access</b>	UHF TVWS, 5G, Rural & Sub-Urban Broadband	Licensed Shared Access (LSA)
<b>Cognitive Radio</b>		
<b>Geo-Location Database</b>		
<b>Ultra Wide Band (UWB)</b>	Urban, Short Range Broadband	Industrial Scientific & Medical Applications (ISM), Unlicensed
<b>Long Range Radio (LPWAN)</b>	IoT, M2M	

# Strategy for Adoption of Emerging Radio Technologies

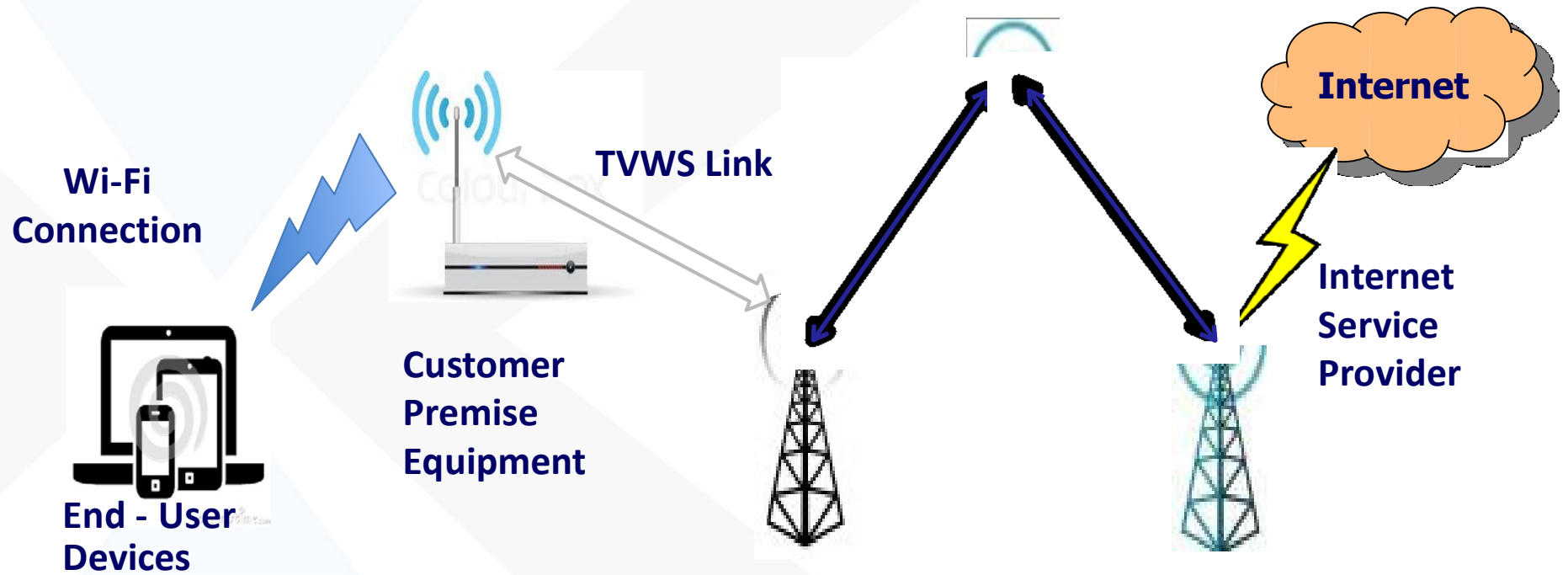


1. Adopt automated spectrum management solutions
2. Develop professional partnerships with Research Institutions
3. Build adequate capacity on RF spectrum technology and policy research
4. Issue trial authorisations for scientific research
5. Conduct actual measurements and perform analysis
6. Participate in regional and international RF spectrum research meetings
7. Review national spectrum policy to address emerging radio technologies
8. Develop guidelines and regulations to allow policy implementation

- To investigate dynamic spectrum access (DSA) and geo-location database technology, combined with software defined radio (SDR) implementations can be used to enable effective and efficient wireless networks to be built at scale to support affordable Internet.



# Typical TVWS Setup



## Challenges delaying adoption of emerging technologies:

- Inadequate spectrum management and monitoring systems
- Limited human & technical capability for RF spectrum research
- Out-dated national spectrum policies
- Rigid regulations

## Possible solutions to the Challenges

- Acquisition of Spectrum Management Software incl. SMS4DC
- In-depth training of engineers on evidence based research
- Establishment of partnerships with Universities for research
- Participation of engineers in research and ITU-R meetings
- Involvement of all national stakeholders in policy making

# Questions?

