

**ITUEvents**

Africa-BB-Maps National Event

# National broadband mapping systems in Zambia

9-11 December 2025

Lusaka, Zambia

[africabbmaps.itu.int/zm-kickoff/](https://africabbmaps.itu.int/zm-kickoff/)



Hosted by:



Organized by:



# Opening Ceremony



# Opening Ceremony



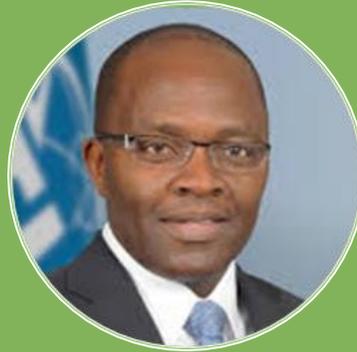
**Eng. Collins Mbulo**

Director General, ZICTA



**Mr. Bonannini Massimo**

Delegation of the  
EU to Zambia & COMESA



**Dr. Cosmas Zavazava**

Director, ITU  
Telecommunication  
Development Bureau



**Mr. Nkula Mwanza**

Director -  
Communications, MoTS



# Opening Ceremony



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Director -  
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# Official Group Photos



# Program of Day 1

8:30 – 9:00	REGISTRATION AND WELCOME COFFEE
9:00 – 9:30	Opening Ceremony
9:30 – 9:45	Official Group photo
9:45 – 10:00	Keynote: The Role of Broadband Mapping in National Digital Development Plans
10:00 – 10:45	SESSION 1: Presentation of Africa BB-Maps in Zambia – Objectives, Methodology, Timeline
10:45 - 11:15	Coffee Break
11:15- 13:00	SESSION 2: Context and Current State – Intervention by ZICTA
13:00 – 14:00	LUNCH BREAK
14:00 – 15:00	SESSION 3a: Context and Current State (1) – Intervention by the Governmental & Public Sectors
15:00 – 15:45	SESSION 3b: Context and Current State (2) - Intervention by the Private Sectors
15:45 – 16:00	Coffee Break
16:00 – 17:30	SESSION 3c: Context and Current State (3) - Intervention by the International Partners
17:30 – 17:45	Closing and Objectives of Day 2

# Keynote: The Role of Broadband Mapping in National Digital Development Plans

Moderation: Master of Ceremonies



**Ms Halima Letamo**

Area Representative for  
Southern Africa, ITU



# Session 1: Africa-BB-Maps in Zambia: Objectives, Methodology, Timeline

Moderation: Mr. Dana Jon Kamason, Project Manager, Africa-BB-Maps, ITU



# Session 1 : Africa-BB-Maps in Zambia: Objectives, Technical Framework, and Timeline



**Mr. Dana Jon Kamason**

Project Manager, Africa-BB-Maps, ITU



**Mr. Elind Sulmina**

Project Officer, Africa-BB-Maps, ITU



# Africa-BB-Maps – Objective in Zambia

To **establish** or **strengthen** and **operationalise sustainable** national **broadband mapping systems in Zambia** to enable:



**Validated, publicly accessible** broadband data



**Evidence-based** policy and regulation



Targeted **infrastructure investment**



**Affordable** and **meaningful connectivity**



Accelerated **digital transformation**



**Regional harmonisation**



Alignment with **international standards**



# Africa-BB-Maps - 3 Strategic Pillars



## Policy & Regulations



### Creating the enabling environment for broadband mapping to thrive:

- Governance frameworks aligned with EU best practices
- Policy and regulatory integration
- Common data standards and interoperability
- Monitoring and evaluation mechanisms

## Technology



### Delivering state-of-the-art mapping platform:

- Geospatial platform (proprietary, open-source, or hybrid)
- Integration of infrastructure and service data
- Geoportals for public access and planning
- Tools for network analysis and policy formulation

## Capacity Development



### Empowering people and institutions to lead:

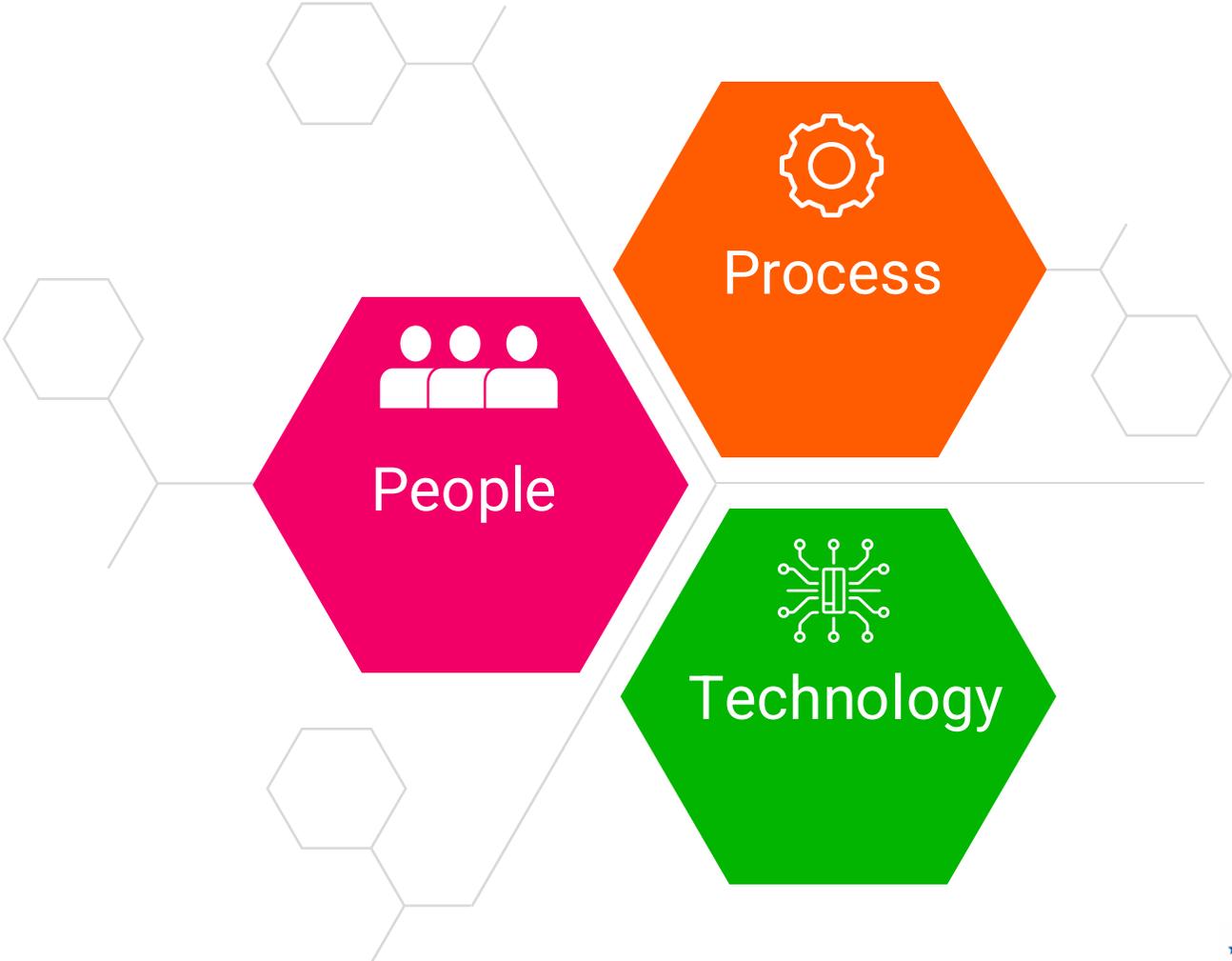
- Structured training through ITU Academy
- Hands-on learning in GIS, broadband policy, and data governance
- Support for ZICTA and stakeholders
- Zambia-EU collaboration and regional knowledge exchange

**National Ownership for Sustainability**



# Africa-BB-Maps - Technical Framework for Zambia

People, Process, and Technology for Sustainable Broadband Mapping



# Africa-BB-Maps - Expected Outcome for Zambia

## Low

01

Status: No system, no capacity, no coordination.

Focus: Raise awareness and assess digital readiness.

## Medium (Emerging)

02

Status: Foundations forming, but data and systems are minimal.

Focus: Build mandates, standards, and system blueprint.

## Medium (Functional)

03

Status: Basic system running with limited features and data.

Focus: Deploy core components and train initial users.

## High (Established)

04

Status: Operational system integrated into national planning.

Focus: Institutionalise platform and scale use across stakeholders.

## High (Strategic)

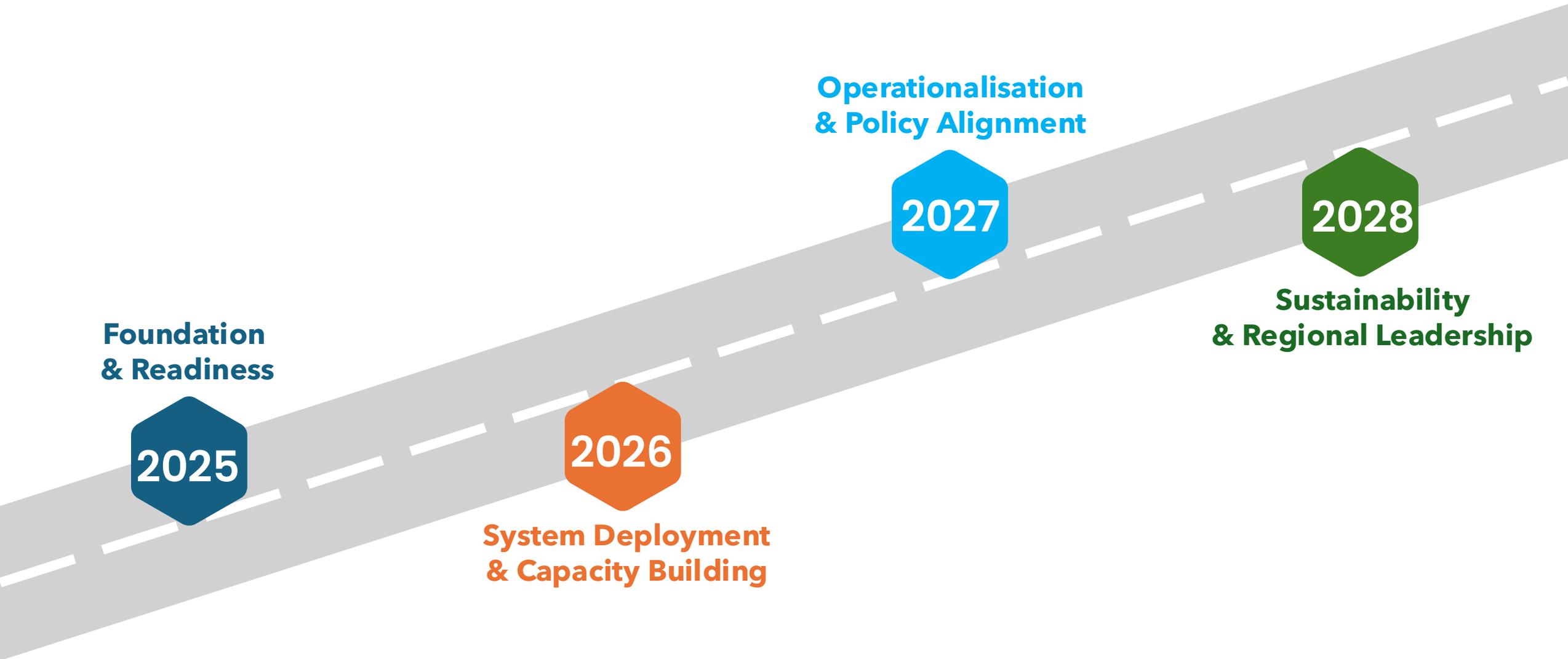
05

Status: Strategic tool aligned with regional and global standards.

Focus: Drive decision-making, enable regional harmonisation.



# Africa-BB-Maps - Roadmap for Zambia



**Thank you**

**Any questions?**



# Session 1 : Africa-BB-Maps in Zambia : Policy analysis high-level overview



**Mr. Elind Sulmina**

Project Officer, Africa-BB-Maps, ITU



# Policy Work in Zambia

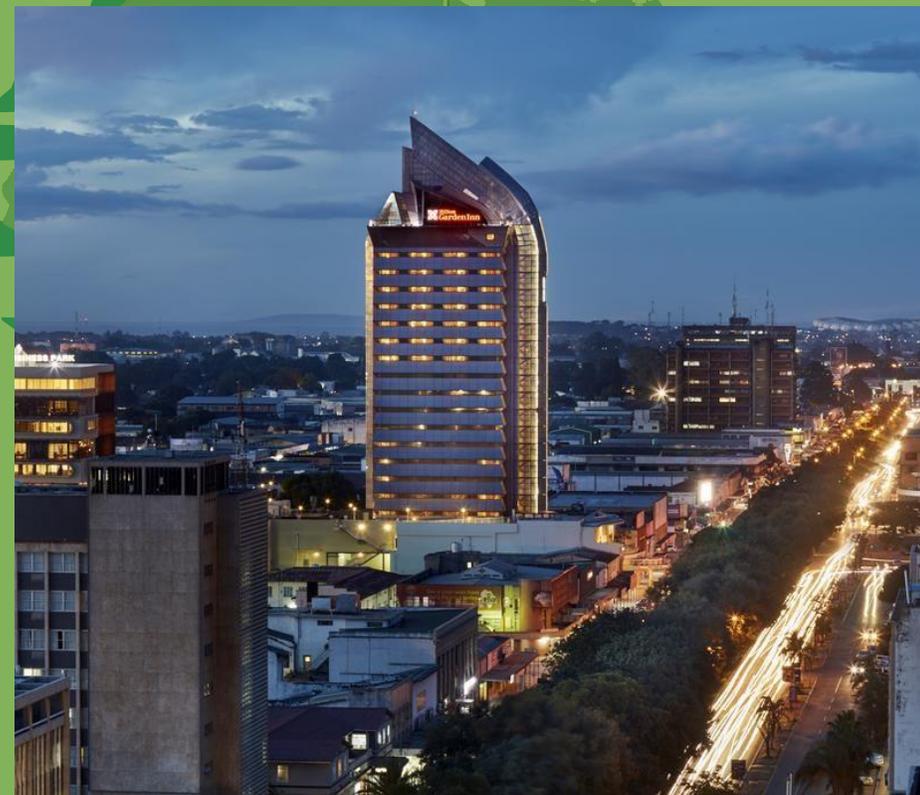
Africa-BB-Maps aims to help establish or strengthen broadband mapping systems within national regulatory agencies, ensuring they have the technical, policy, and institutional capacity to operate them effectively.

We aim for a state of the art GIS tool capable of planning better ICT Infrastructure investments, close connectivity gaps, and align with harmonized regional practices.

Policy Goal: Strengthen enabling environments for broadband mapping to fully operate without policy and regulatory constraints

Outputs:

- 1.2 Policy analysis & guidelines at country level
- 1.3 Increased policy dialogue & awareness at national/regional levels



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# Pillars of Policy Work

The Africa-BB-Maps policy component rests on three interconnected pillars that guide all country interventions.

1. Conduct Baseline Assessment & Needs Analysis – Targeted review of the broadband mapping ecosystem to identify gaps and fine-tune approaches.
2. Provide Targeted Recommendations – Strengthen legal and regulatory frameworks and optimize technical systems.
3. Policy Dialogue & Awareness – Build understanding, stakeholder alignment, and regional harmonization.



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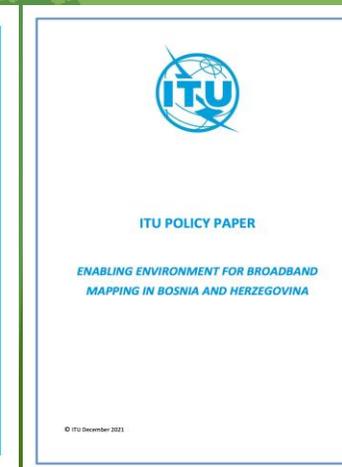
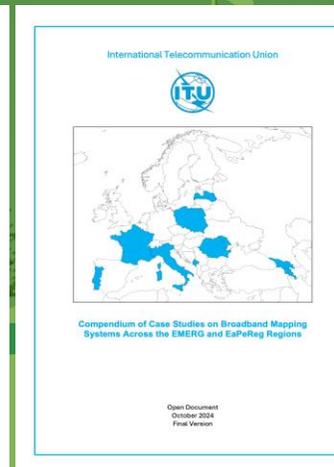
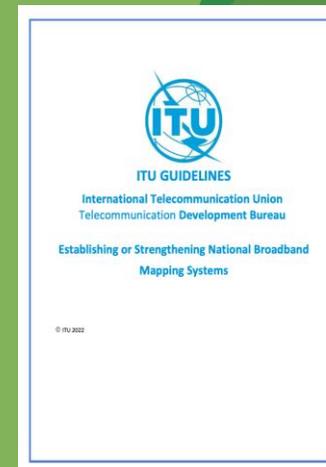
ZICTA



# Regulatory Practices & Frameworks

Drawing from global best practices, such as ITU and the EU

1. ITU Guidelines Establishing or Strengthening National Broadband
2. ITU Policy analysis report on establishing or strengthening the enabling environment for broadband mapping systems
3. ITU Compendium of Case Studies on Broadband Mapping Systems Across the EMERG and EaPeReg Regions
4. EU State Aid Guidelines (2023)
5. European Electronic Communications Code (2018)



# Policy Promotion & Advocacy

Policy dialogue is essential to ensure that broadband mapping is understood, supported, and integrated into national digital strategies. Africa-BB-Maps works with governments, regulators, and industry to raise awareness and promote harmonization.

- National and regional workshops
- Engagement with ministries, regulators, and private sector
- Advocacy for harmonized mapping approaches
- Sharing regional & global best practices
- Building stakeholder buy-in for mapping adoption



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# Expected Policy Outcomes



1. Stronger policy coherence with regional best practices
2. Broadband mapping embedded in national ICT strategies
3. Transparent, reliable data for investment and planning decisions
4. Enhanced capacity of Zambian institutions to manage mapping systems
5. Contribution to regional harmonization and cross-border connectivity



Thank you

Any questions?



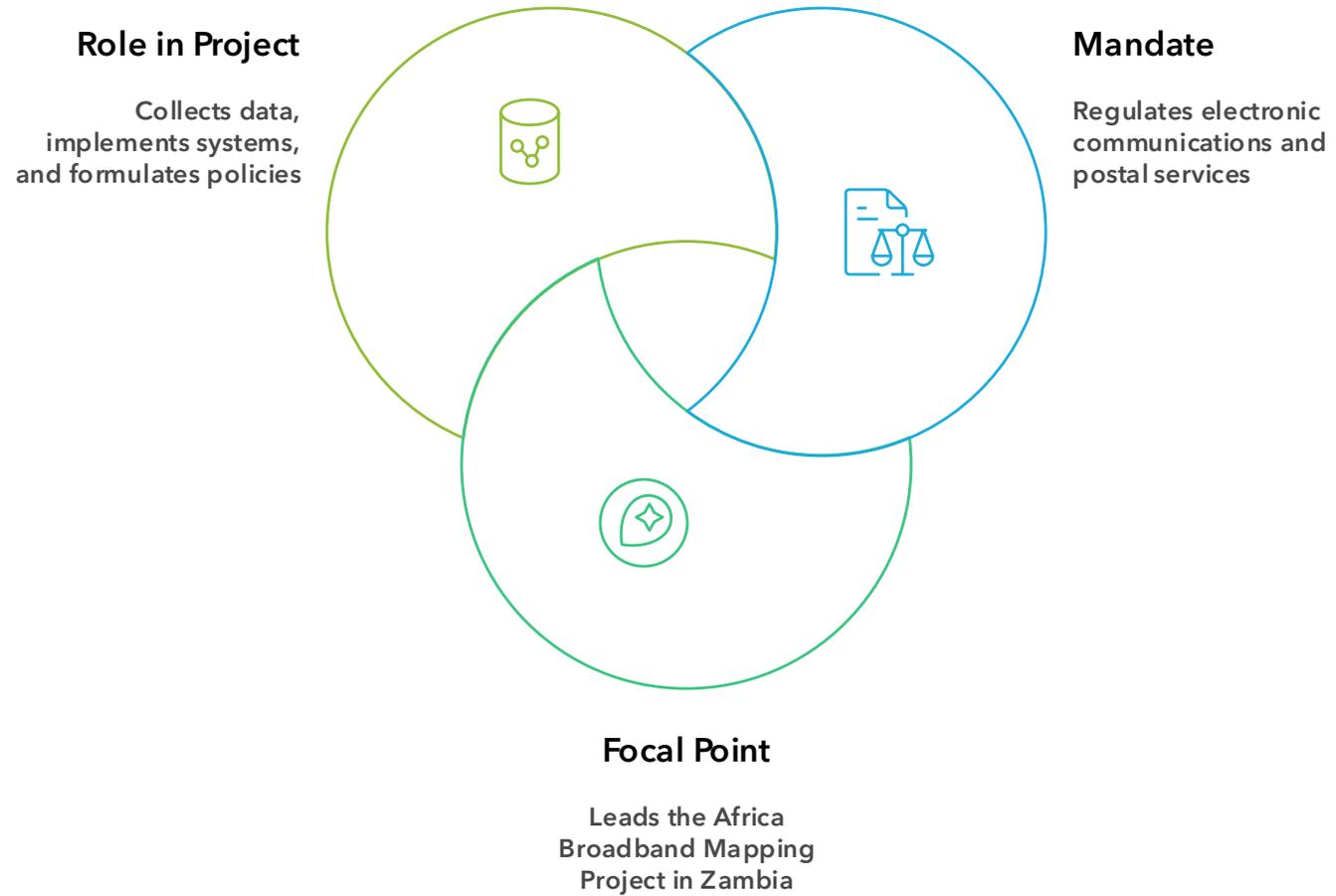
# Coffee Break



# Session 2 : Context and Current State - Intervention by ZICTA



# ZICTA's Role in Zambia's Digital Transformation



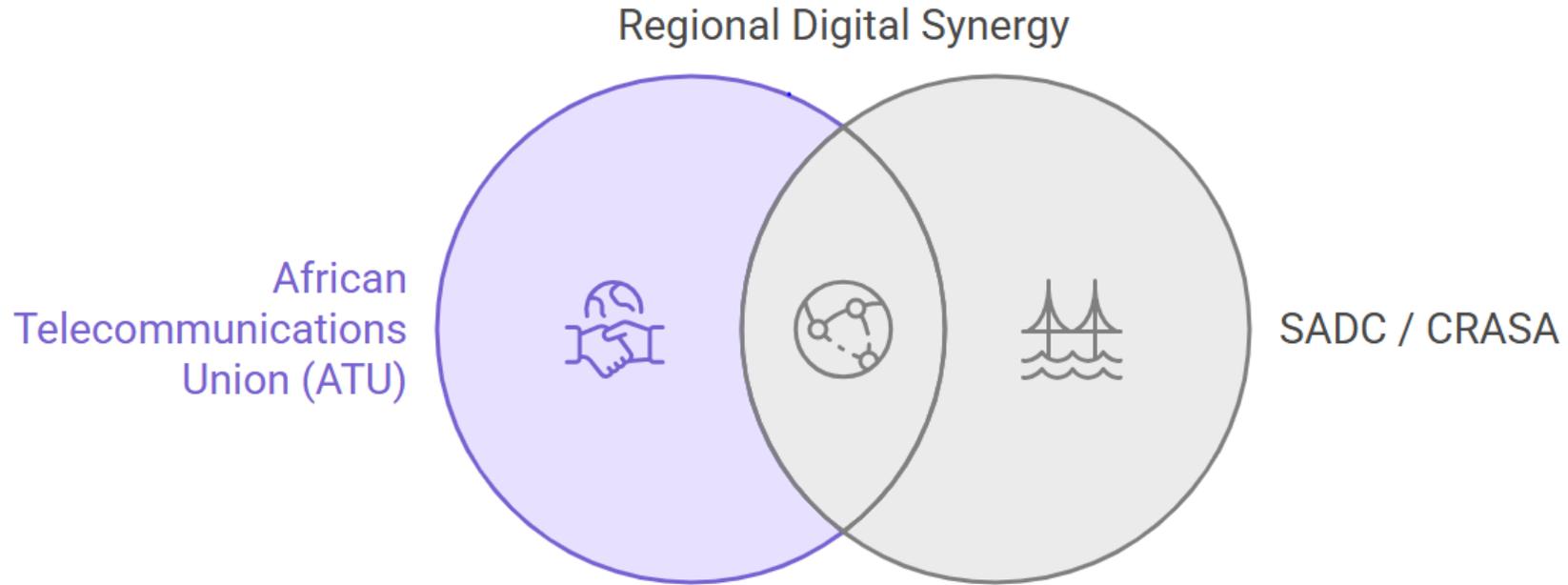
## Data Collection Partners

Characteristic	MNOs	Tower/Infrastructure Cos.	ISPs
 <b>Data Provided</b>	Geo-referenced network data	Precise locations of towers	Fixed network coverage
 <b>Benefits (Nation)</b>	Accurate service availability	Accurate service availability	Accurate service availability
 <b>Benefits (Org)</b>	Informed investment planning	Informed investment planning	Informed investment planning

# Local Public Sector Stakeholders

Stakeholder	Contribution	Benefits
 ZAMSTATS	Demographic data	Accurate baselines
 ECZ	Standardized boundaries	Effective geographic sampling
 Energy Supply	Electricity grid data	Coordinated infrastructure planning
 Other Regulators	Permits, zoning	Streamlined permits

# Driving African Digital Integration

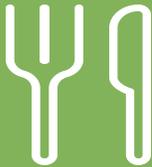


Thank you

Any questions?



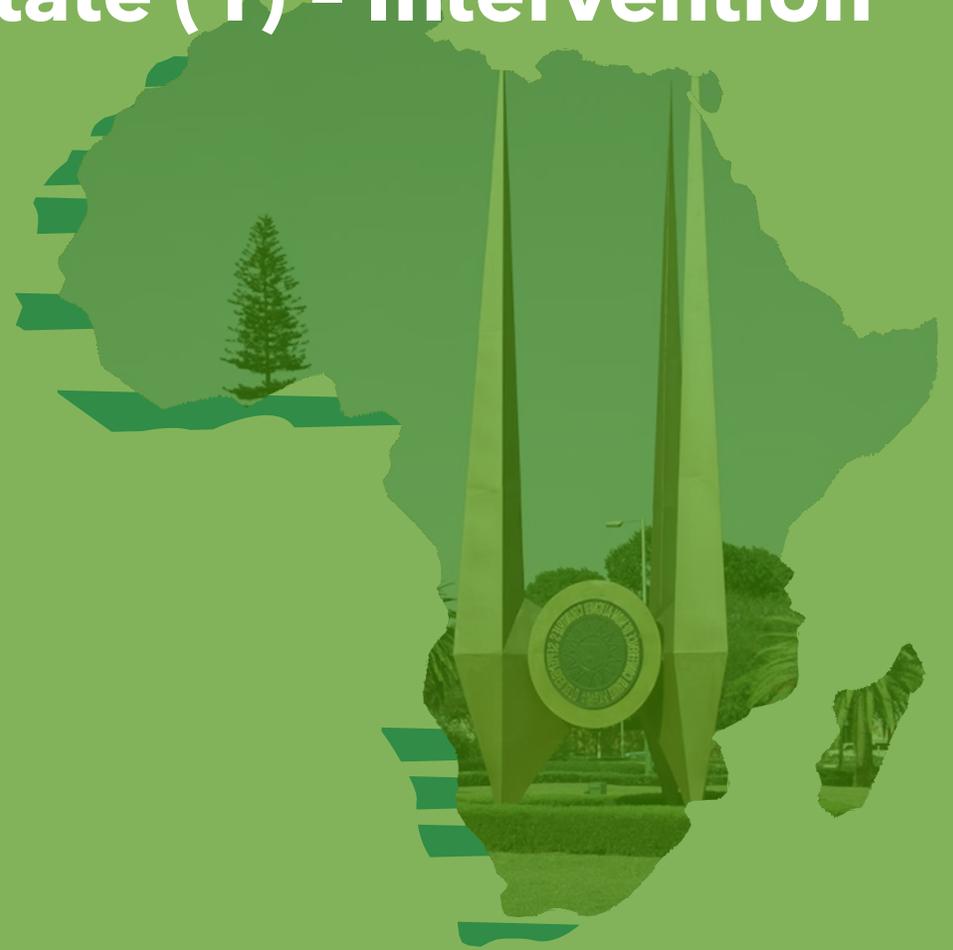
# Lunch Break



# Session 3a: Context and Current State (1) – Intervention by Governmental & Public Sectors



Representative, ZICTA



Thank you

Any questions?



# Session 3b: Context and Current State (2) - Intervention by The Privates Sectors



Representative



Thank you

Any questions?



# Coffee Break



# Session 3c: Context and Current State (3) - Intervention by the International Partners



Representative, ZICTA



**Thank you**

**Any questions?**



# RECAP of Day 1 and Objectives of Day 2



**Day 2**

# Technical Systems and Data Readiness



# Welcome Coffee



# Objectives of Day 2: Technical Systems & Data Readiness

9:00 – 9:15	Recap of Day 1 and Objectives of Day 2
9:15 – 10:45	SESSION 4: Case Studies from ITU : What Lessons Apply
10:45 – 11:15	Coffee Break
11:15 – 12:45	SESSION 5: Technical Deep-Dive: Architecture, Standards, Tools, Operators
12:45 – 14:00	LUNCH BREAK
14:00 – 14:30	SESSION 6: Presentation of Upcoming Policy Analysis Work
14:30 – 16:00	PARALLEL SESSIONS:  Co-Creation Dialogue on Architecture, Data Sources & Technical Constraints  Co-Creation Dialogue on the policy and regulatory work
16:00 – 17:30	Recap / Closing

# SESSION 4 : Case Studies from ITU: What Lessons Apply ?

Moderation: Mr. Elind Sulmina, Project Officer, Africa-BB-Maps, ITU



# Session 4: Case Studies from ITU: What Lessons Apply ?



**Mr. Elind Sulmina**

Project Officer, Africa-BB-Maps, ITU



**Ms Agnieszka Gładysz,**

ITU Speaker, Poland



**Ms Joanna Antczak,**

ITU Speaker, Poland



**Mr**

**Catalin Constantinescu,**

ITU Speaker, Romania



**Thank you**

**Any questions?**



# Coffee Break



# SESSION 5: Technical Deep-Dive - Data Standards, Tools, Interoperability, Operator Reporting, QoS & Crowdsourcing Best Practices

Setting the stage & Moderation: Mr. Dana Jon Kamason, Project Manager, Africa-BB-Maps, ITU



# Session 5: Technical Deep-Dive: Data Standards, Tools, Interoperability, Operator



**Mr Dana Jon Kamason**

Representative, ITU



# ICS Manager

Spectrum Management Solution

**ICS Manager** ≠ **GIS Platform**



# Africa-BB-Maps – Geospatial **Software Choices** for Zambia



# Africa-BB-Maps – Architecture Pillars

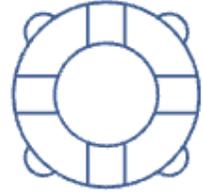
Best Practice and Design Recommendations



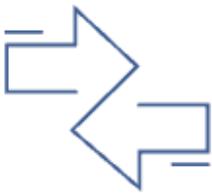
Security



Performance & Scalability



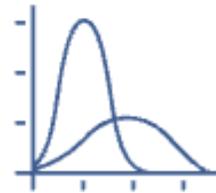
Reliability



Integration



Automation



Observability



# Africa-BB-Maps – Architecture **Systems Patterns**

Geospatial in Nature, Supports Multiple Deployment Models



Location Services



Self-service mapping,  
analysis, and sharing



Enterprise application  
hosting and  
management



Data editing and  
management



Imagery data  
management and  
analytics



Mobile operation and  
offline data  
management

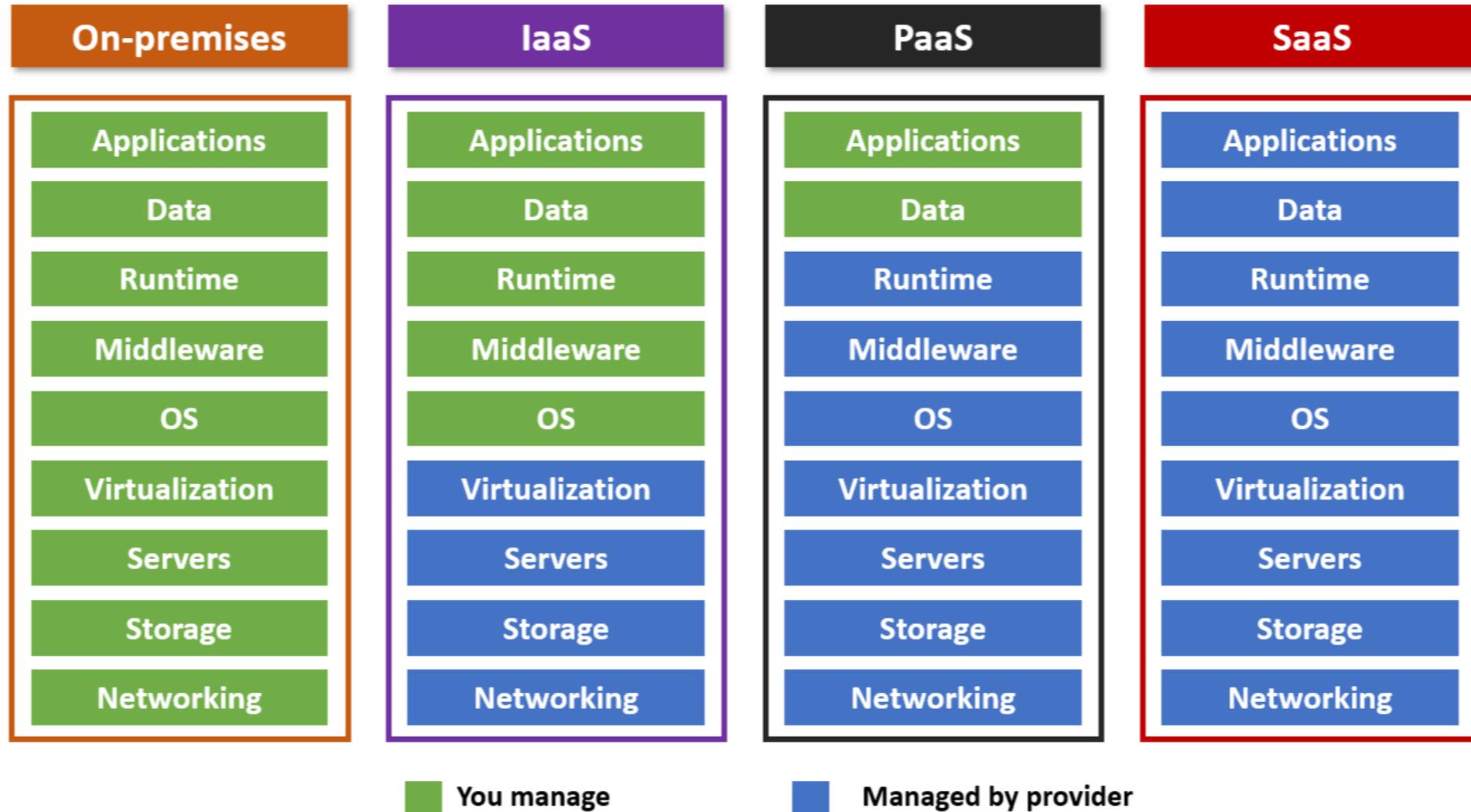


Real-time data  
streaming and  
analytics

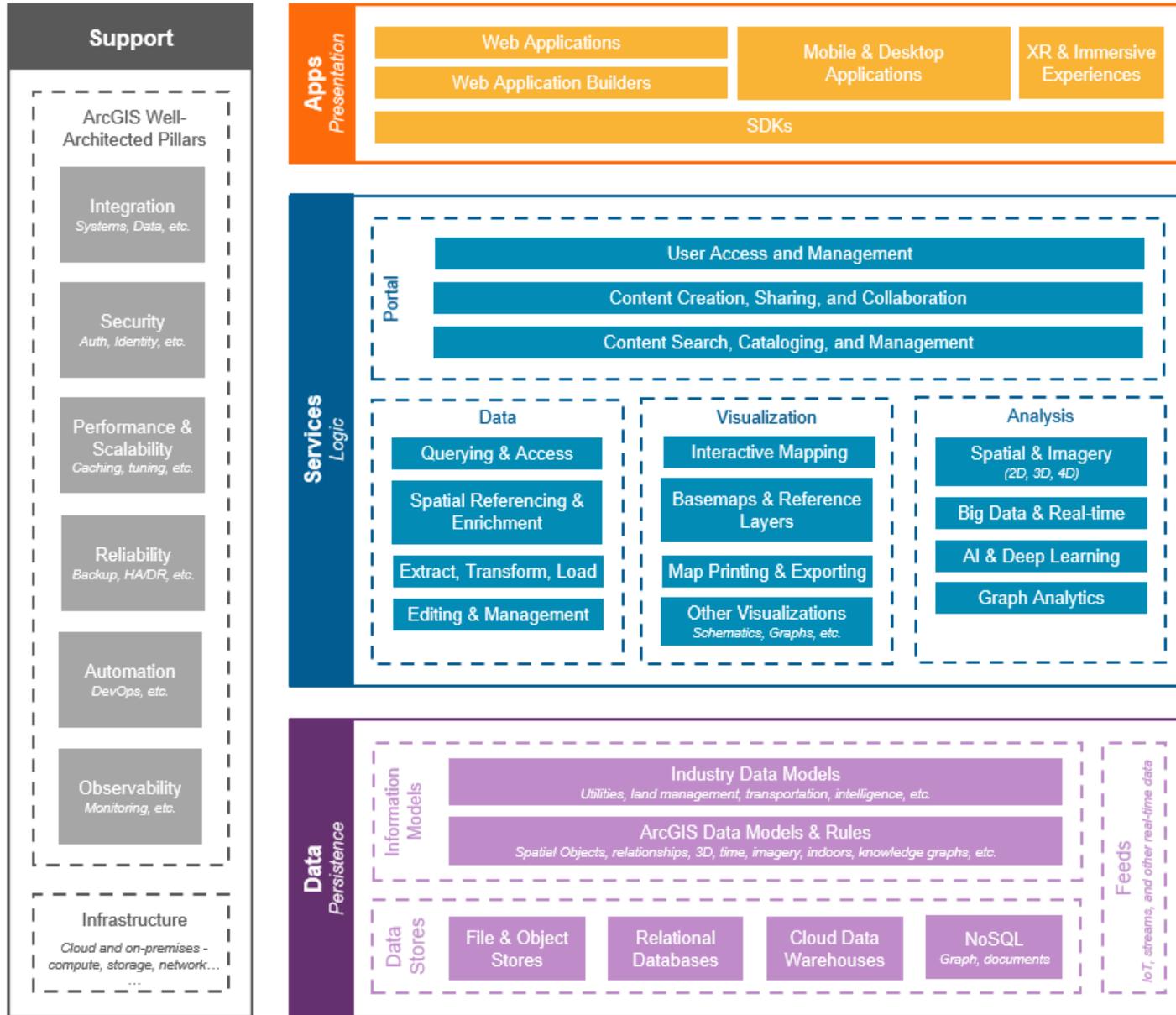


Big data analytics

# Africa-BB-Maps – Architecture Deployment Model



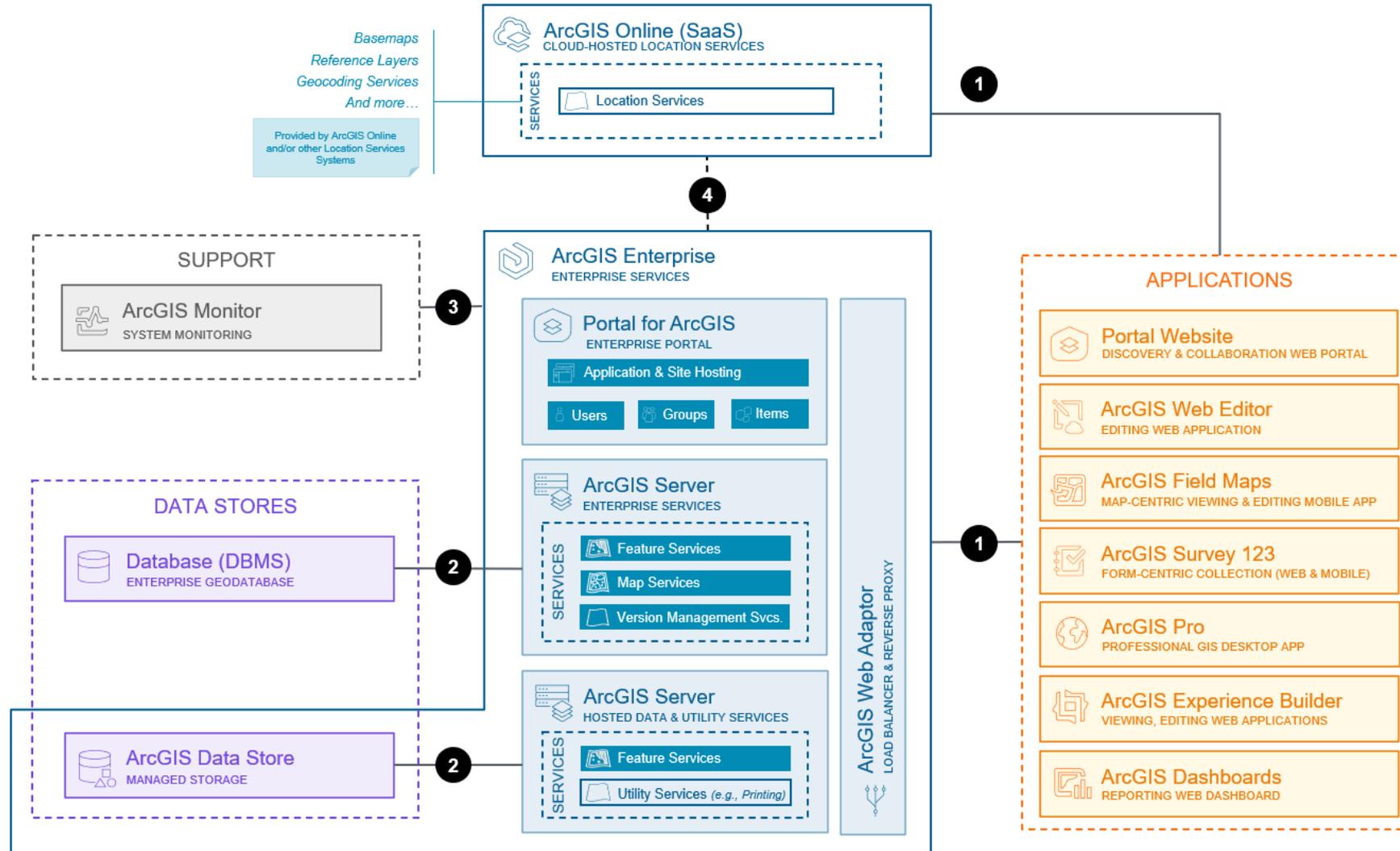
# Africa-BB-Maps – Enterprise GIS Architecture



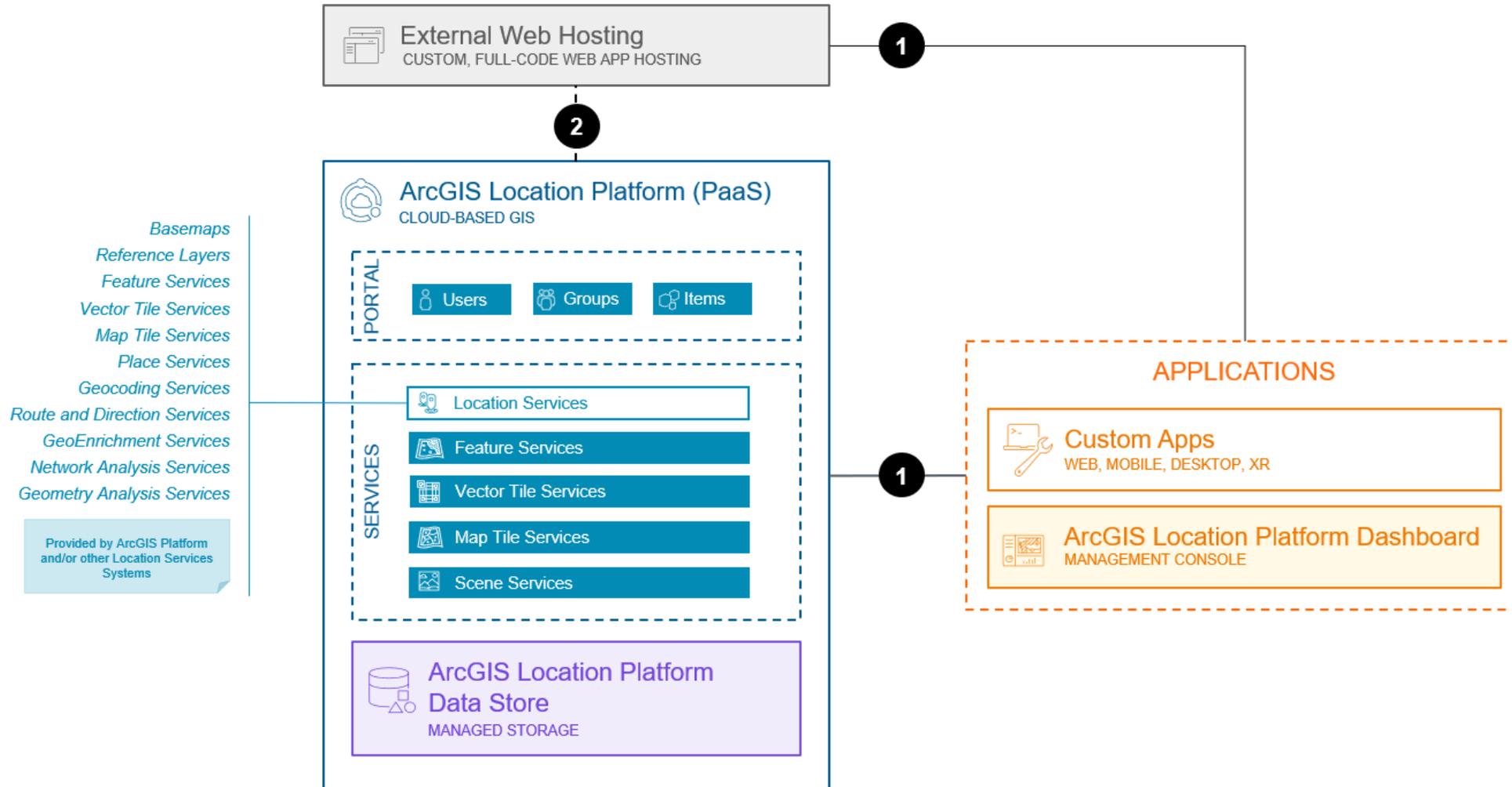
# Esri



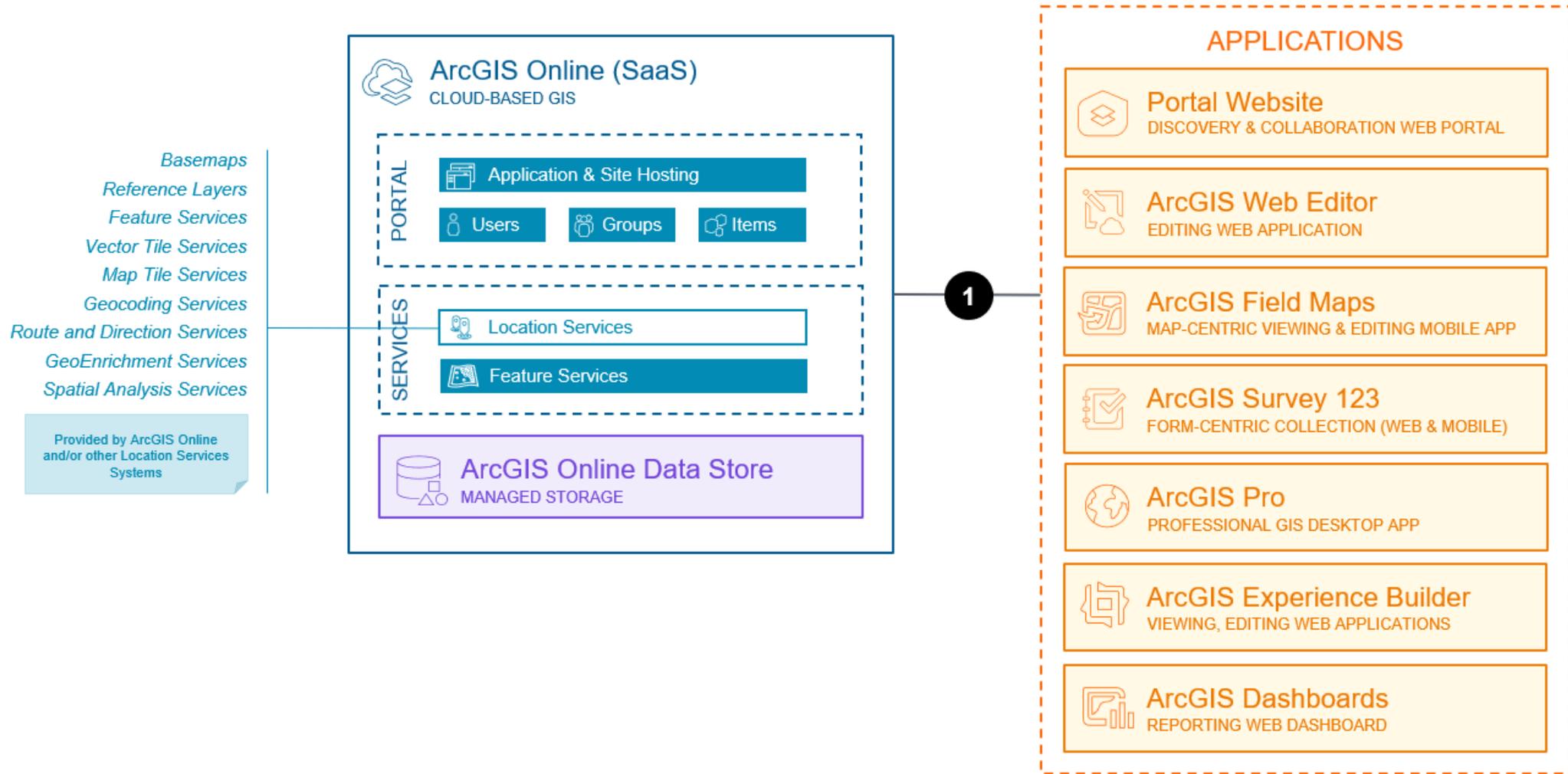
# Africa-BB-Maps – ArcGIS IaaS/On-Premises



# Africa-BB-Maps – ArcGIS PaaS



# Africa-BB-Maps – ArcGIS SaaS



# Open Source

# Africa-BB-Maps – Geospatial Open Source Software



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## The Open Source Geospatial Foundation

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### Open source projects

Open source is so much more than technology. Meet the projects that are here to help you!

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[All Projects](#)

### About open source geo

Powerful, secure and flexible; open source gives you the freedom to "Do Geo" your way

[Open source geo](#)

### Helping you succeed

Support provided by local chapters, service providers and research collaboration.

[Connect with OSGeo](#)

[Science and Education](#)

<https://www.osgeo.org/>



# Africa-BB-Maps – Geospatial Open Source Projects



**deegree**

deegree is open source software for spatial data infrastructures and the geospat...

[Website](#) ↔ [Source](#) □ [Documentation](#)



**GDAL/OGR**

GDAL is a C++ translator library for more than 200 raster and vector geospatial ...

[Website](#) ↔ [Source](#) □ [Documentation](#)



**GeoMoose**

GeoMoose is a Web Client JavaScript Framework for displaying distributed cartogr...

[Website](#) ↔ [Source](#) □ [Documentation](#)



**gvSIG Desktop**

gvSIG is a powerful, user-friendly, interoperable GIS used by thousands o...

[Website](#) ↔ [Source](#) □ [Documentation](#)



**Mapbender**

Mapbender is a web based geoportal framework to publish, register, view, navigat...

[Website](#) ↔ [Source](#) □ [Documentation](#)



**MapServer**

Known as one of the fastest mapping engines in the world, MapServer is an Open S...

[Website](#) ↔ [Source](#) □ [Documentation](#)



**GeoNetwork**

A catalog to manage spatially referenced resources. It provides powerful metadat...

[Website](#) ↔ [Source](#) □ [Documentation](#)



**GeoNode**

GeoNode is a web-based application and platform for developing geospatial inform...

[Website](#) ↔ [Source](#) □ [Documentation](#)



**GEOS**

GEOS (Geometry Engine – Open Source) is a C++ port of the Java Topology Su...

[Website](#) ↔ [Source](#) □ [Documentation](#)



**Marble**

Versatile, yet easy to use. Use Marble similar to a desktop globe; pan around an...

[Website](#) ↔ [Source](#)



**OpenLayers**

OpenLayers makes it easy to put a dynamic map in any web page. It can display ma...

[Website](#) ↔ [Source](#) □ [Documentation](#)



**Orfeo ToolBox**

Orfeo ToolBox is an open-source project for state-of-the-art remote sensing, inc...

[Website](#) ↔ [Source](#) □ [Documentation](#)



**GeoServer**

Designed for interoperability, GeoServer publishes data from any major spatial d...

[Website](#) ↔ [Source](#) □ [Documentation](#)



**GeoTools**

An open source Java library providing a standards compliant approach for visuali...

[Website](#) ↔ [Source](#) □ [Documentation](#)



**GRASS**

GRASS is a powerful computational engine for raster, vector, and geospatial proc...

[Website](#) ↔ [Source](#) □ [Documentation](#)



**OSGeoLive**

OSGeoLive is a self-contained bootable DVD, USB thumb drive or Virtual Machine b...

[Website](#) ↔ [Source](#) □ [Documentation](#)



**pgRouting**

pgRouting extends the PostGIS / PostgreSQL geospatial database providing routing...

[Website](#) ↔ [Source](#) □ [Documentation](#)



**PostGIS**

PostGIS adds GIS spatial types and support to PostgreSQL. It is used by Database...

[Website](#) ↔ [Source](#) □ [Documentation](#)

# Africa-BB-Maps – Geospatial Open Source Projects



**PROJ**

PROJ is a generic coordinate transformation software that transforms geospatial ...

[Website](#) [Source](#) [Documentation](#)



**pycsw**

pycsw is an OGC CSW server implementation written in Python. Started in 2010 (mo...

[Website](#) [Source](#) [Documentation](#)



**pygeoapi**

pygeoapi is an OGC API to geospatial data

[Website](#) [Source](#) [Documentation](#)



**Feature Data Objects**

**FDO**

FDO Data Access Technology is an API for manipulating, defining and analyzing ge...

[Website](#) [Documentation](#)



**GC2/Vidi**

A platform for building spatial data infrastructure and deploying browser based ...

[Website](#) [Source](#) [Documentation](#)



**GeoExt**

A JavaScript Toolkit for Rich Web Mapping Applications

[Website](#) [Source](#) [Documentation](#)



**PyWPS**

PyWPS is an implementation of the Web Processing Service standard from the Open ...

[Website](#) [Source](#) [Documentation](#)



**QGIS Desktop**

QGIS is the leading Free and Open Source Desktop GIS. It allows you to create, e...

[Website](#) [Source](#) [Documentation](#)



**ZOO-Project**

ZOO-Project is a C-based WPS (Web Processing Service) implementation. It is an o...

[Website](#) [Source](#) [Documentation](#)



**GeoHealthCheck**

GeoHealthCheck is a Python application to support monitoring OGC Web Services up...

[Website](#) [Source](#) [Documentation](#)



**GeoServer Client PHP**

GeoServer Client PHP is library for interacting with the GeoServer API.

[Website](#) [Source](#) [Documentation](#)



**GeoStyler**

generic styler for geodata

[Website](#) [Source](#) [Documentation](#)



**actinia**

Actinia is an open source REST API for scalable, distributed, high performance p...

[Website](#) [Source](#) [Documentation](#)



**EOEPCA+**

EOEPCA+'s vision is to streamline the access to and processing of earth observat...

[Website](#) [Documentation](#)



**ETF**

ETF is a testing framework for validating data and APIs in Spatial Data Infrastr...

[Website](#) [Source](#) [Documentation](#)



**GeoWebCache**

GWC is a tile server and caching proxy written in Java.

[Website](#) [Source](#) [Documentation](#)



**Giswater**

An intelligent technology, free and open source for the integral water cycle man...

[Website](#) [Source](#) [Documentation](#)



**istSOS**

IstSOS is an OGC Sensor Observation Service server implementation written in Pyt...

[Website](#) [Source](#) [Documentation](#)

# Africa-BB-Maps – Geospatial Open Source Projects



### Loader

A loader for geographic data in GML and KML (that needs some preparation before ...)

[Website](#) ↔ [Source](#) □ [Documentation](#)



### mapfish

Create reports that contain maps!

[Website](#) ↔ [Source](#) □ [Documentation](#)



### MapGuide Open Source

MapGuide Open Source is a web-based platform that enables users to develop and d...

[Website](#) ↔ [Source](#) □ [Documentation](#)



### OSSIM

OSSIM is an open source, C++ (mostly), geospatial image processing library used ...

[Source](#)



### OWSLib

OWSLib is a Python package for client programming with Open Geospatial Consortium...

[Website](#) ↔ [Source](#) □ [Documentation](#)



### Portable GIS

GIS on a USB stick, for windows

[Website](#) ↔ [Source](#) □ [Documentation](#)



### mappyfile

A Python library to create, parse, modify, and format MapServer Mapfiles....

[Website](#) ↔ [Source](#) □ [Documentation](#)



### Mesh Data Abstraction Library (MDAL)

Mesh Data Abstraction Library (MDAL) is a translator library for more than 15 un...

[Website](#) ↔ [Source](#) □ [Documentation](#)



### MobilityDB

An open source geospatial trajectory data management & analysis platform...

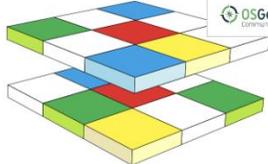
[Website](#) ↔ [Source](#) □ [Documentation](#)



### PROJ-JNI

PROJ-JNI provides a Java Native Interface for PROJ C/C++ library...

[Website](#) ↔ [Source](#) □ [Documentation](#)



### Pronto Raster

Pronto Raster is a C++ library for calculations with raster data. The library is...

[Website](#) ↔ [Source](#) □ [Documentation](#)



### rasdaman

Scalable datacube analytics

[Website](#) ↔ [Source](#) □ [Documentation](#)



### Open Data Cube

The Open Data Cube is a Python library and suite of supporting applications that...

[Website](#) ↔ [Source](#) □ [Documentation](#)



### Opticks

Opticks is an expandable remote sensing and imagery analysis software platform t...

[Website](#) ↔ [Source](#)



### OSGeo4W

OSGeo4W is a binary distribution of a broad set of open source geospatial softwa...

[Website](#) ↔ [Source](#) □ [Documentation](#)



### TEAM Engine

The Test, Evaluation, And Measurement (TEAM) Engine is a testing facility that e...

[Website](#) ↔ [Source](#) □ [Documentation](#)



### TorchGeo

TorchGeo: datasets, samplers, transforms, and pre-trained models for geospatial ...

[Website](#) ↔ [Source](#) □ [Documentation](#)



### XYZ / MAPP

Open source presentation, controller, domain, and service layers for cloud nativ...

[Website](#) ↔ [Source](#) □ [Documentation](#)

# Africa-BB-Maps – Geospatial Open Source Projects



**Bezitopo**  
A land surveying CAD package under development

[Website](#) [Source](#)



**CoastalME**  
CoastalME (Coastal Modelling Environment) is a Free Open Source and Software for...

[Website](#) [Source](#) [Documentation](#)



**DigiAgriApp**  
DigiAgriApp is a software solution aimed at anyone with cultivated land...

[Website](#) [Source](#) [Documentation](#)



**GeoMesa**  
GeoMesa is an open-source, distributed, spatio-temporal database built on a numb...

[Website](#) [Source](#) [Documentation](#)



**Geoparazzi**  
Geoparazzi is a tool developed to do very fast qualitative engineering/geologi...

[Website](#) [Source](#) [Documentation](#)



**geOrchestra**  
geOrchestra is the free, modular, interoperable & secure Spatial Data Infras...

[Website](#) [Source](#) [Documentation](#)



**eodash**  
Publish and integrate Earth Observation data in a dashboard application through ...

[Website](#) [Source](#) [Documentation](#)



**EOxServer**  
EOxServer is a Python application and framework for presenting Earth Observation...

[Website](#) [Source](#) [Documentation](#)



**ESA-NASA WorldWind**  
WorldWind is a free, open source API for a virtual globe. WorldWind allows devel...

[Website](#) [Source](#)



**GeoTrellis**  
GeoTrellis is a geographic data processing library designed to work with large g...

[Website](#) [Source](#) [Documentation](#)



**GeoWave**  
GeoWave is a software library that connects the scalability of distributed compu...

[Website](#) [Source](#) [Documentation](#)



**GET-IT - Geoinformation Enabling ToolKIT starterkit®**  
The Geoinformation Enabling ToolKIT starterkit® (GET-IT) is the software suite f...

[Website](#) [Source](#) [Documentation](#)



**First Draft GIS**  
First Draft GIS is an Artificial Intelligence that makes the first draft of a ma...

[Website](#) [Source](#) [Documentation](#)



**Flexurba**  
Flexurba is an open-source R package to flexibly reconstruct the Degree of Urban...

[Website](#) [Source](#) [Documentation](#)



**Geomajas - OSGeo Heritage Project**  
Note: This project is an OSGeo Heritage Project - it is no longer maintain...

[Source](#)



**GIFramework Maps**  
GIFramework Maps is a .NET based web mapping application designed and developed ...

[Website](#) [Source](#) [Documentation](#)



**Giro3D**  
Giro3D is an open-source JavaScript framework for visualizing and interacting wi...

[Website](#) [Source](#) [Documentation](#)



**Gisquick**  
Let's share GIS much quicker!

[Website](#) [Source](#) [Documentation](#)

# Africa-BB-Maps – Geospatial Open Source Projects



## HOT Tasking Manager

The purpose of the Tasking Manager is to divide a large mapping project into sma...

[Website](#) [↔](#) [Source](#) [□](#) [Documentation](#)



## JTS Topology Suite

JTS is an open source spatial library defining geometry, spatial relationships, ...

[Website](#) [↔](#) [Source](#) [□](#) [Documentation](#)



## Kaoto

Kaoto is an integration editor to create and deploy workflows in a visual, low-c...

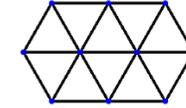
[Website](#) [↔](#) [Source](#) [□](#) [Documentation](#)



## pdal

The Point Data Abstraction Library (PDAL) provides command line tools and a libr...

[Website](#) [↔](#) [Source](#) [□](#) [Documentation](#)



## PerfectTIN

Converts point clouds to TINs

[↔](#) [Source](#)



## py3dtiles

Python library and command-line for 3dtiles

[Website](#) [↔](#) [Source](#) [□](#) [Documentation](#)



## Koop

An Open Geospatial ETL Engine so you can leave geospatial data where it lives an...

[Website](#) [↔](#) [Source](#) [□](#) [Documentation](#)



## Leaflet

Open-source JavaScript library for mobile-friendly interactive maps

[Website](#) [↔](#) [Source](#) [□](#) [Documentation](#)



## LERC Limited Error Raster Compression

LERC is an open-source image or raster format which supports rapid encoding and ...

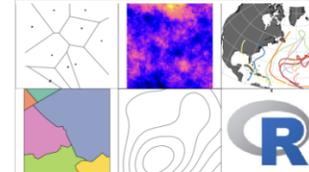
[Website](#) [↔](#) [Source](#) [□](#) [Documentation](#)



## QField

Get your QGIS fieldwork done efficiently and comfortably.

[Website](#) [↔](#) [Source](#) [□](#) [Documentation](#)



## R-Spatial

A set of R packages for handling and analysing spatial data, built upon OSGeo co...

[Website](#) [↔](#) [Source](#) [□](#) [Documentation](#)



## RasterFrames

RasterFrames® enables analysts, data scientists and EO specialists to easily...

[Website](#) [↔](#) [Source](#) [□](#) [Documentation](#)



## Masterportal

Masterportal is an open source geoviewer (WebGIS) compliant to OGC standards. It...

[Website](#) [↔](#) [Source](#) [□](#) [Documentation](#)



## MOSS

Map Overlay and Statistical System (MOSS) The Map Overlay and Statistical System...

[Website](#) [↔](#) [Source](#) [□](#) [Documentation](#)



## MovingPandas

Python library for movement trajectory data exploration and analysis.

[Website](#) [↔](#) [Source](#) [□](#) [Documentation](#)



## SFCGAL

SFCGAL is a C++ wrapper library around CGAL (Computational Geometry Algorithms L...

[Website](#) [↔](#) [Source](#) [□](#) [Documentation](#)



## Tegola

Tegola is a high performance Mapbox Vector Tile server written in Go. In a nutsh...

[Website](#) [↔](#) [Source](#)



## Terra Draw

Terra Draw is an open source JavaScript library for drawing and editing geometri...

[Website](#) [↔](#) [Source](#) [□](#) [Documentation](#)

# Geospatial Open Data

‘Open Data applies the principles of *free and open* to geospatial data’

# Africa-BB-Maps – Geospatial Open Data (Global)



<https://www.openstreetmap.org>



# Africa-BB-Maps – Geospatial Open Data (Global)



<https://www.copernicus.eu/en/access-data/conventional-data-access-hubs>



# Africa-BB-Maps – Geospatial Open Data (Africa)



Focus Areas ▾ Platforms ▾ About ▾ Learning Insights Resources ▾

Contact



## Digital Earth Africa

Unlocking the promise of tomorrow from patterns of the past

Learn More



[https://digitalearthafrica.org/en\\_za](https://digitalearthafrica.org/en_za)



# Africa-BB-Maps – Geospatial Open Data (Africa)



Data Library

Learning Center

Geospatial Tools

Community ▼

## The Africa GeoPortal

Inspiring communities through geography



Location intelligence is the ability to analyze and find spatial patterns in data, to provide powerful insights into understanding our world and communicating our needs. This is made possible through a combination of local data and advanced geospatial tools, along with training that's included for anyone working on geographic challenges across the continent.

GET STARTED



# Africa-BB-Maps – Geospatial Open Data (Zambia)



Data Library

Learning Center

Geospatial Tools

Community ▾



<https://www.africageoportal.com>



Thank you

Any questions?



# Lunch Break



# SESSION 6: Policy Deep-Dive: Presentation of Upcoming Policy Analysis Work

Moderation: Mr. Elind Sulmina, Project Officer, Africa-BB-Maps, ITU

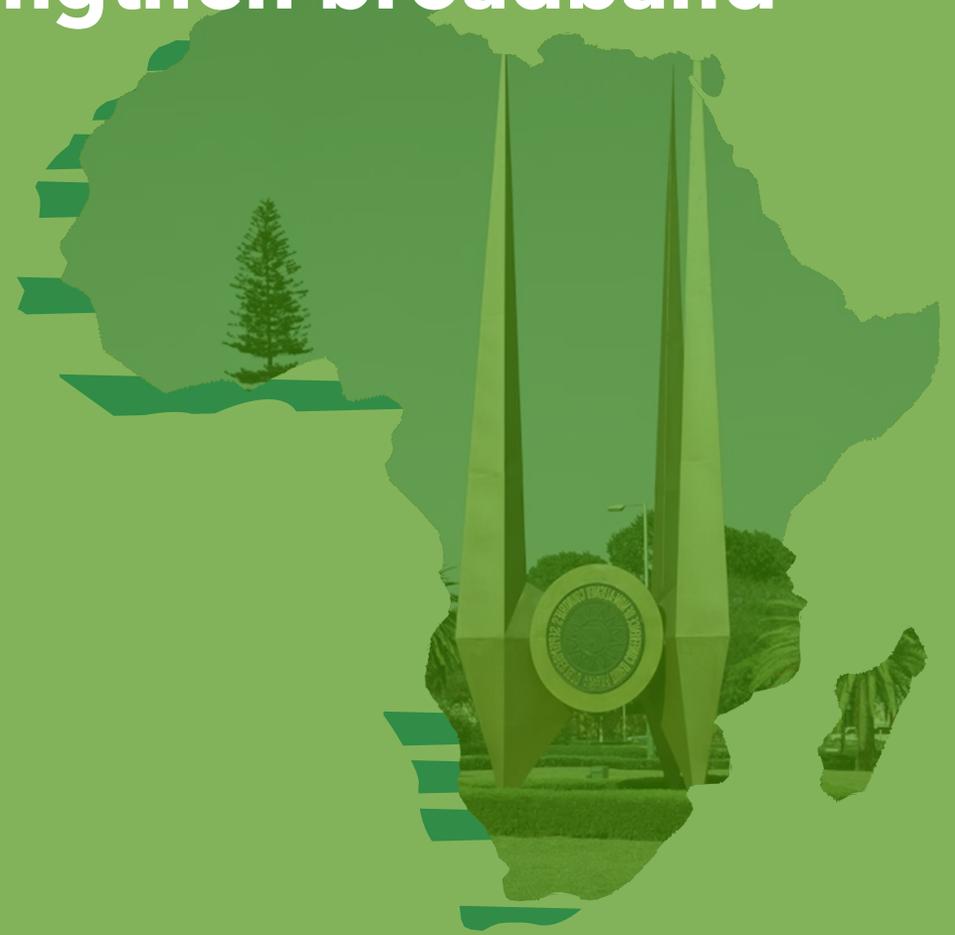


# Framework for our policy action

## Global Gap analysis on National Broadband Mapping Systems Initiatives



# Policy Analysis to establish or strengthen broadband mapping systems in Zambia



<b>Title</b>
Introduction
Purpose and Objectives
Methodology and Approach
Structure of the Report
Disclaimer

# Strategies, policies and regulatory environments for broadband mapping

Policy and Strategic Context

International Framework

EU Country Experience and Best Practices

Geographic and Institutional Overview

**Countrywide Assessment and Justification**

Geographic and Institutional Overview

Economic and Telecom Market Overview

Broadband Development to Date

Review of Existing Mapping Initiatives

Stakeholder Engagement

Impact Assessment



# Project setup and technical requirements for broadband mapping : Project Management / Common Challenges

<b>4.1</b>	<b>Data quality</b>
4.1.1	Data confidentiality
4.1.2	Data sources
4.1.3	Reporting types
4.1.4	Regulation
4.1.5	Stakeholder costs

<b>4.2 General Success Factors</b>
4.2.1 Stakeholder involvement
4.2.2. Clear definition on types of mapping
4.2.3. Internal sponsorship
4.2.4 Efficient reporting tool
4.2.5 Reporting support

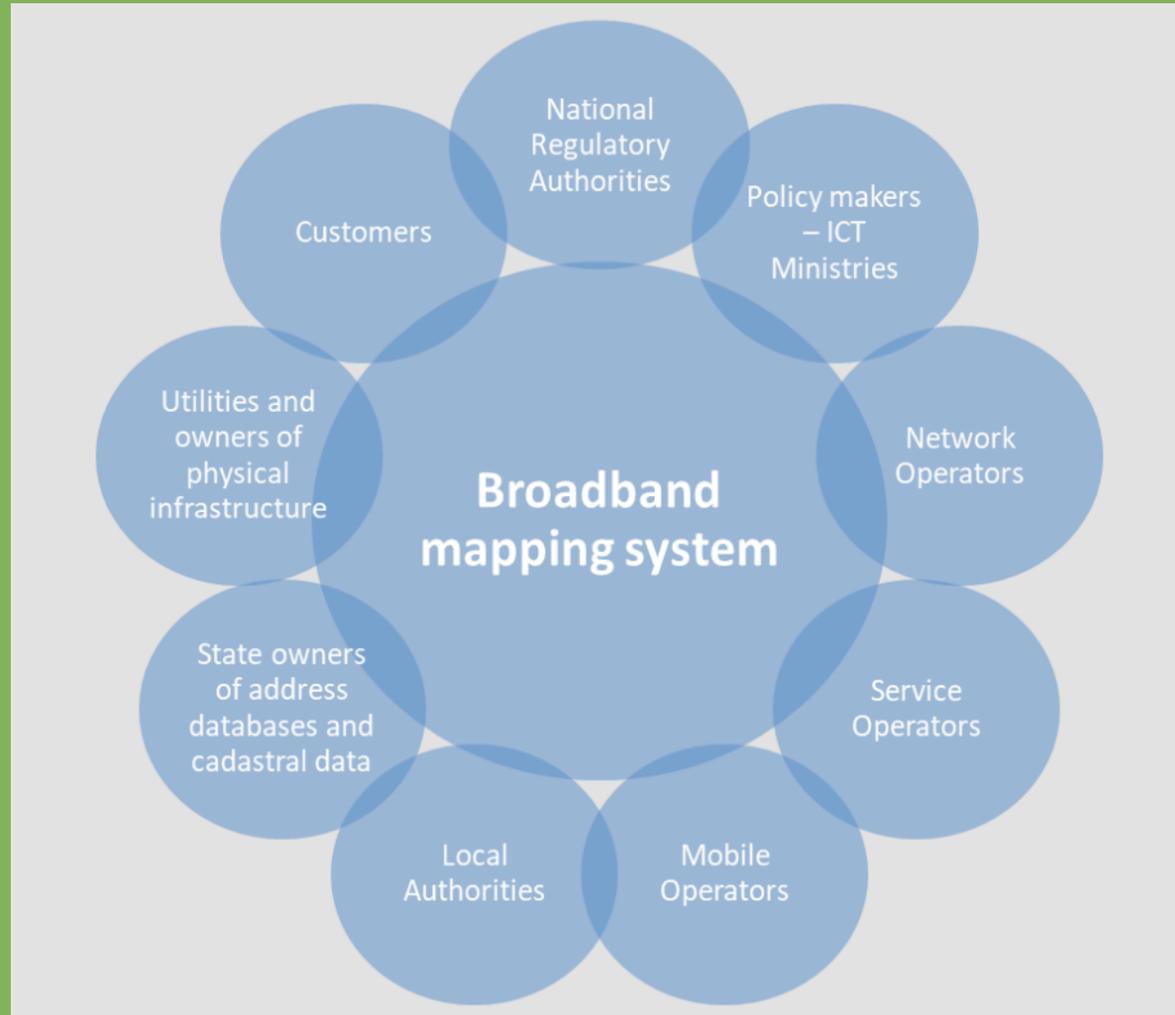
<b>4.3 Long term sustainability</b>
4.3.1 Investment in reporting tools
4.3.2 Collection tool adaptability and development
4.3.3 Visualisation tools
4.3.4 Tools' promotion
4.3.5 Data application
4.3.6 Open-source solutions
4.3.7 Change management

Infrastructure Mapping	Service Mapping
<p>The activity entailing the gathering, structuring and representing:</p> <p>georeferenced data on passive physical infrastructure (e.g., pipes, ducts, poles, manholes, base stations, mobile towers, etc.) represented in lines and nodes;</p> <p>information about the type of infrastructure deployed (fiber/copper, water pipes, electricity);</p> <p>information about the owners of that infrastructure (fixed/mobile telecommunications, other network operators, national and local government, etc.)</p>	<p>The activity entailing the gathering, structuring and representing:</p> <p>data about service availability (including bandwidth and or type of technology used to offer the service),</p> <p>data about the number of broadband service offers from operators</p> <p>data about the estimated quality of service available for a specific address and/or a specifically defined geographical area (e.g., 100m x 100m grid)</p>
Investment Mapping	Demand Mapping
<p>The activity entailing the gathering, structuring and representing:</p> <p>data about planned investments aimed at developing broadband infrastructure and services in a defined geographical area (e.g., region, municipality), including relevant information about publicly and/or privately funded projects.</p> <p>Investment maps may include reports about areas characterized by market failure or sub optimal outcomes</p>	<p>The activity entailing the gathering, structuring and representing:</p> <p>data about the quantity and quality of broadband demand for bandwidth desired by the end user.</p> <p>the level of financial allocation foreseen in association with that given broadband fixed service.</p>

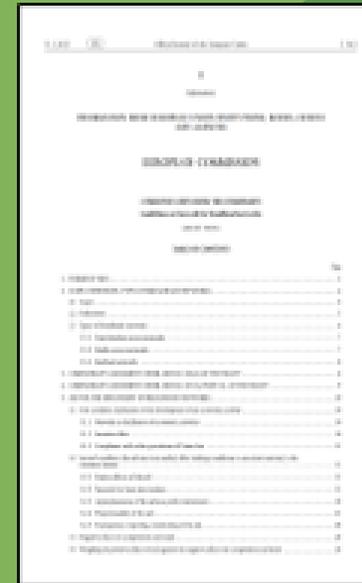
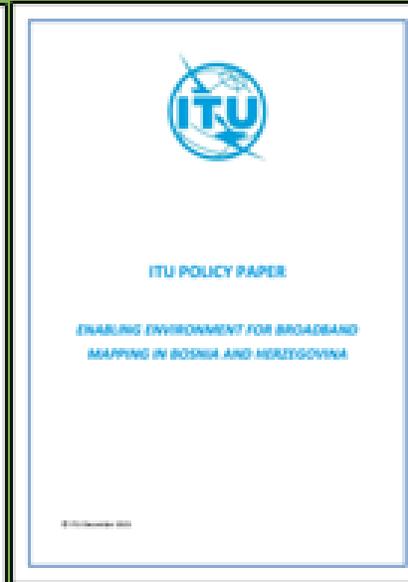
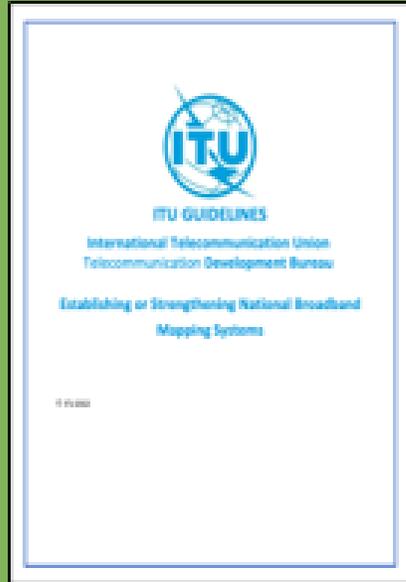
Table 1 Four Types of Broadband Mapping Systems

### Checklist 1 - Policy and Regulatory Checklist

1. Define the rationale and objectives for broadband mapping at the country level
2. Identify relevant institutions and stakeholders and their roles
3. Include the rationale and mandate in strategic documents (e.g., broadband plans, ICT strategies)
4. Provide a platform for long term engagement and consultation with all stakeholders (operators, regional and local administrations, etc.)
<p><b>5. Analyse the legislative framework and propose reform as needed</b></p> <ul style="list-style-type: none"> <li>- Infrastructure sharing (infrastructure mapping)</li> <li>- Allocation of public funding (service mapping)</li> <li>- Objective of the map</li> <li>- Obligation for the authority to deliver the map</li> <li>- Obligation for stakeholders to provide information</li> <li>- Other</li> </ul>
6. Ensure the NRA (or other Competent Authority) has the necessary mandate, budget and human resources to implement the provisions of the law
7. Define common technical definitions and methods to carry out the broadband mapping exercise. Consult with stakeholders.
8. Establish a dispute settlement mechanism fit for the national context
9. Plan regular evaluations of the mapping and of its the usefulness in fulfilling its objectives. adjust the map and any related normative provisions, if necessary, in accordance with the assessment, changes in objectives or legal/regulatory framework every 4-5 years to ensure they are fit for purpose
<b>OUTPUT: <u>review of enabling environment and recommendations and/or report describing existing boundaries of the regulatory framework for broadband mapping</u></b>



# Regulatory Practices & Frameworks



# Checklist 1

## Checklist 1 - Policy and Regulatory Checklist

- |   |
|---|
| 1. Define the rationale and objectives for broadband mapping at the country level   |
| 2. Identify relevant institutions and stakeholders and their roles  |
| 3. Include the rationale and mandate in strategic documents (e.g., broadband plans, ICT strategies)   |
| 4. Provide a platform for long term engagement and consultation with all stakeholders (operators, regional and local administrations, etc.)   |
| <b>5. Analyse the legislative framework and propose reform as needed</b> <ul style="list-style-type: none"><li>- Infrastructure sharing (infrastructure mapping)</li><li>- Allocation of public funding (service mapping)</li><li>- Objective of the map</li><li>- Obligation for the authority to deliver the map</li><li>- Obligation for stakeholders to provide information</li><li>- Other</li></ul> |
| 6. Ensure the NRA (or other Competent Authority) has the necessary mandate, budget and human resources to implement the provisions of the law   |
| 7. Define common technical definitions and methods to carry out the broadband mapping exercise. Consult with stakeholders.  |
| 8. Establish a dispute settlement mechanism fit for the national context  |
| 9. Plan regular evaluations of the mapping and of its the usefulness in fulfilling its objectives. adjust the map and any related normative provisions, if necessary, in accordance with the assessment, changes in objectives or legal/regulatory framework every 4-5 years to ensure they are fit for purpose   |
| <b>OUTPUT: review of enabling environment and recommendations and/or report describing existing boundaries of the regulatory framework for broadband mapping</b>  |

Thank you

Any questions?



# SESSION 7:

## Co-Creation Dialogue on Systems Architecture, Data Governance, and Policy & Regulation

Moderation: Mr. Dana Jon Kamason, Project Manager, Africa-BB-Maps, ITU



# Co-Creation Dialogue on Systems Architecture, Data Governance, and Policy & Regulation

## Group 1

Systems Architecture & Deployment Models

### Key Areas:

- Proprietary / Open source
- Deployment Model

### Architected Pillars

- Security
- Performance
- Scalability
- Integration
- Reliability

## Group 2

Data Governance Framework

### Key Areas:

Data Governance

- Data Classification
- Data Standardisation
- Data Validation
- Data Quality

## Group 3

Policy and Regulation

### Key Areas:

- Policy or regulatory gaps that hinder data sharing or enforcement.
- Coordination issues between data providers and ZICTA
- Institutional capacity or resource limitations.
- National or regional harmonisation challenges.

Each group will summarise and **present its discussions and recommendations** to guide the way forward.



**Day 3**

# Stakeholder Coordination and Roadmap Development



# RECAP of Day 2 and Objectives of Day 3



# SESSION 9 : Alignment on Stakeholder Responsibilities & Implementation Steps



# Coffee Break

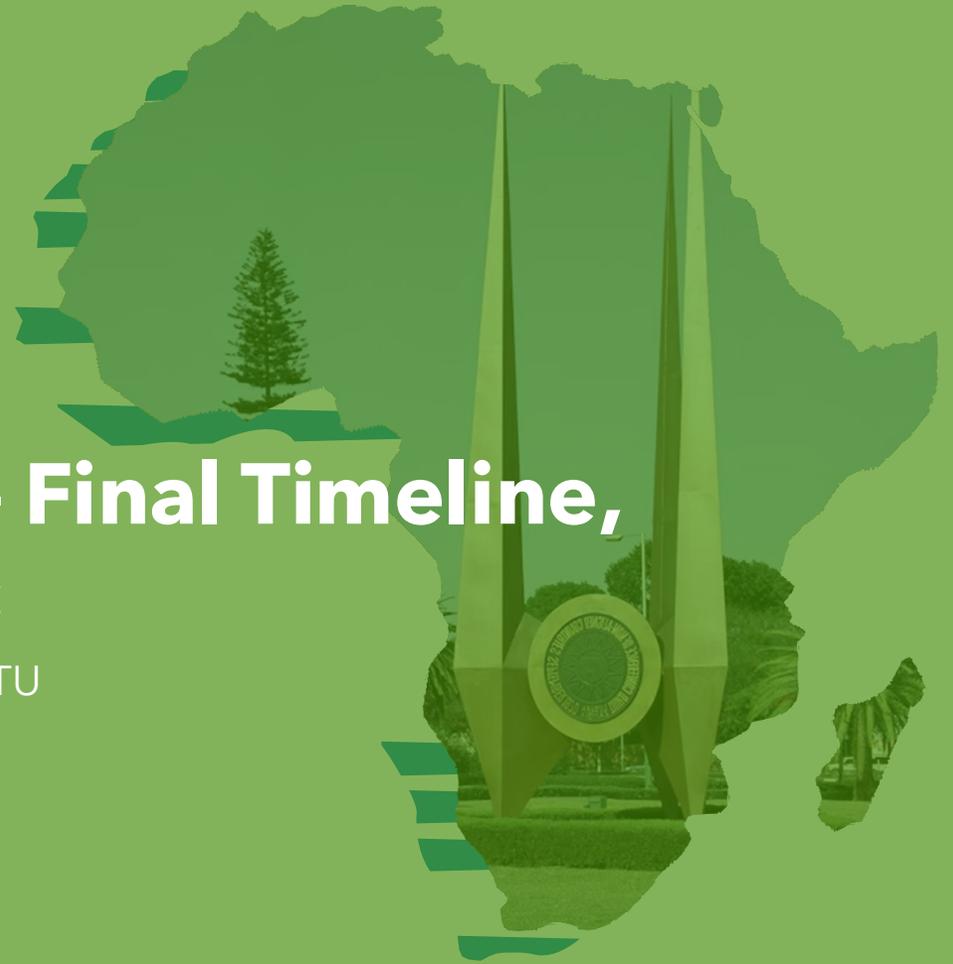


# SESSION 10: National Coordination for Broadband – Stakeholder mapping: Roles and responsibilities



# SESSION 11 : National Roadmap - Final Timeline, Training Programme & Next Steps

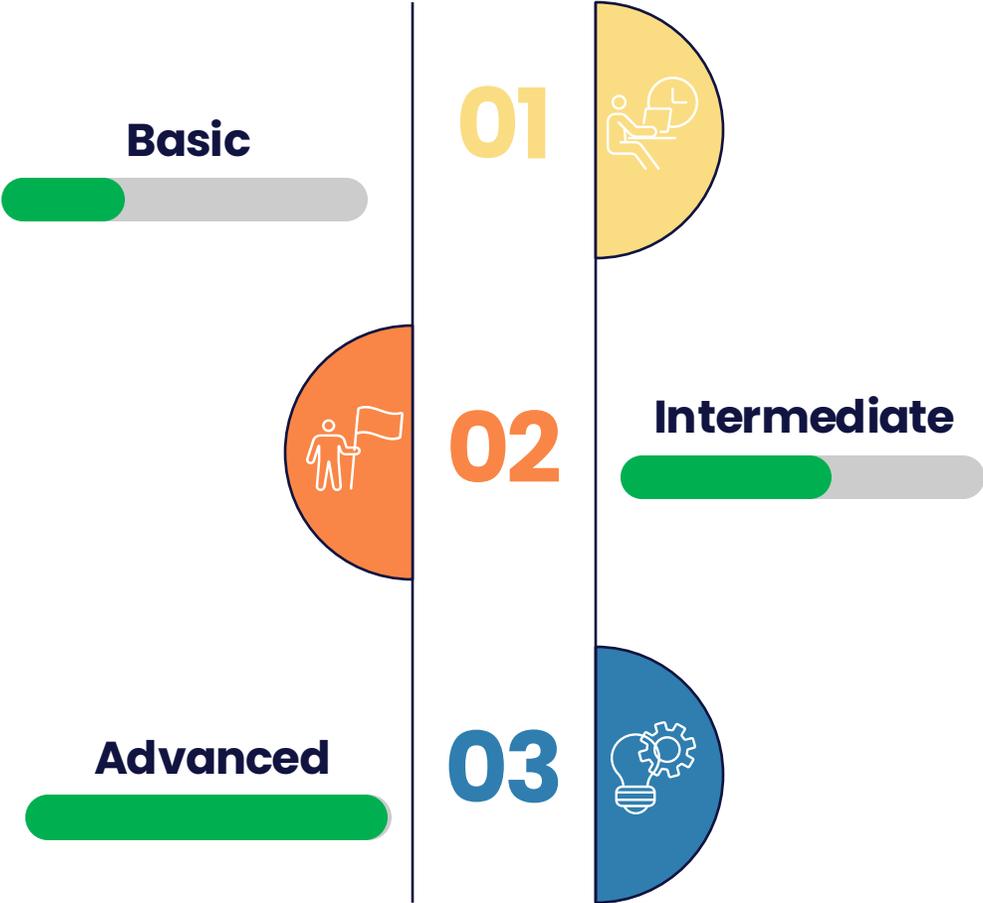
Moderation: Mr. Dana Jon Kamason, Project Manager, Africa-BB-Maps, ITU



# Africa-BB-Maps – ZICTA's Orchestrating Role



# Africa-BB-Maps – Capacity Development Roadmap for Zambia



# Africa-BB-Maps – Capacity Development Delivery Platform



## Welcome to the ITU Academy

The International Telecommunication Union (ITU) gateway for capacity development.

What do you want to learn?

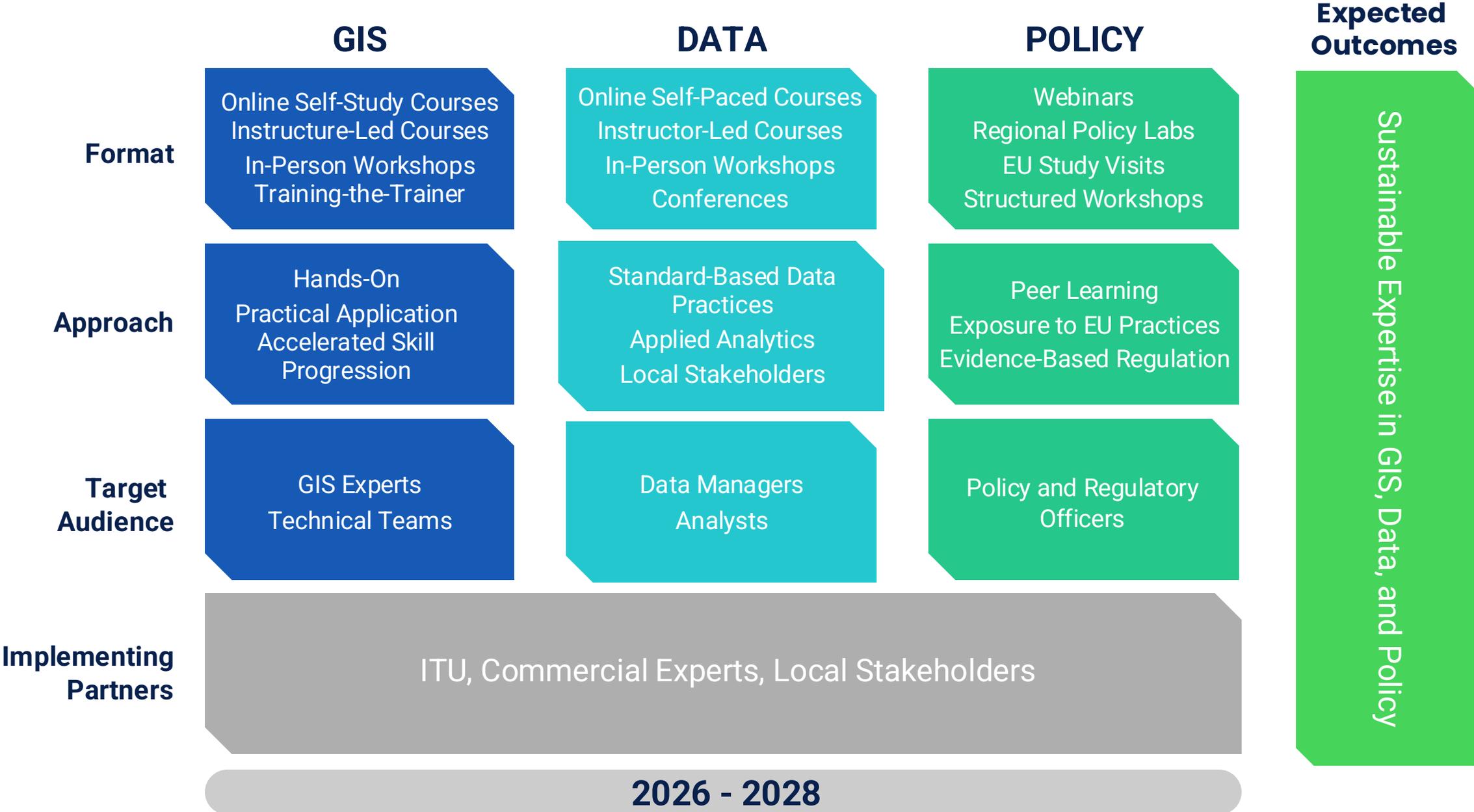


Explore our work

<https://academy.itu.int/>

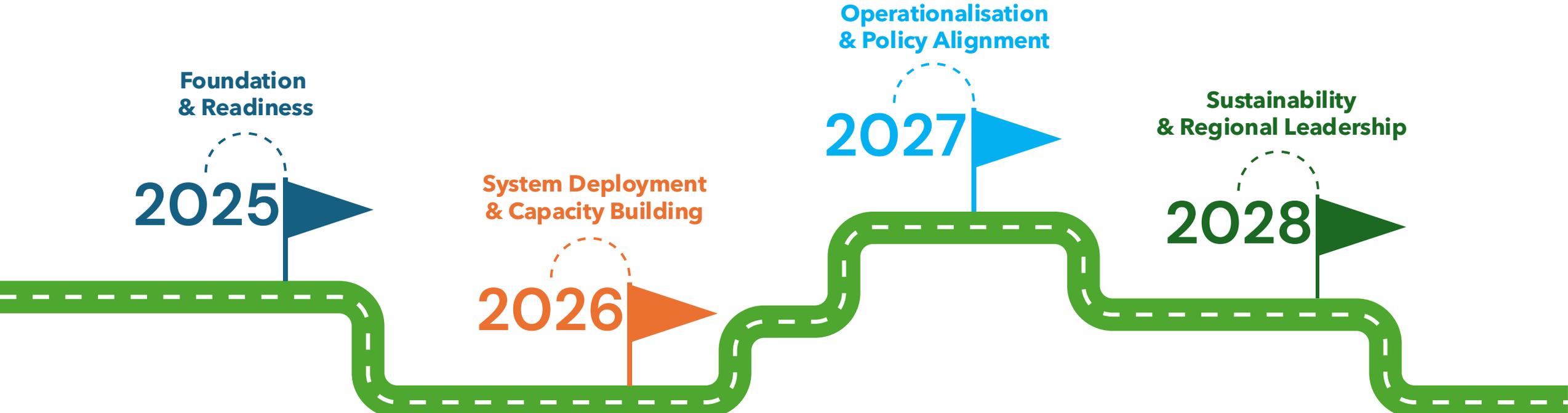


# Africa-BB-Maps – Capacity Development Framework (2026-2028)



2026 - 2028

# Africa-BB-Maps – Next Steps for Zambia



**Identify**



**Improve**



**Innovate**



**Manage**



**Thank you**

**Any questions?**



# Closing Ceremony

