



UN Open GIS Initiative

Challenge & Opportunity

Kyoung-Soo Eom, Chief
Geospatial Information Section
OICT, United Nations



United Nations | Geospatial

UN Geospatial Operations

Geospatial information and services to the United Nations mandates and operations including for:

- UN Security Council
- Executive Committee & Deputy Committee (EC/DC)
- UN Operations & Crisis Centre (UNOCC)
- UN Secretariat (all departments, offices & regional commissions)
- UN Peace operations and field missions (DPO, DPPA & DOS)
- UN-GGIM, as Co-Secretariat (with DESA/Statistics Division)
- Member States for technical assistance on international boundaries
- UN agencies, funds and programmes



**United
Nations**

Geospatial

UN requirements



GIS enables the Situational Awareness Platforms

- Geospatial visualisation for improving situational awareness
- Geospatial analysis for supporting decision making
- Smart knowledge-based platform for UN operations



GIS supports the fulfilment of core mandates

- Monitors ceasefire agreement & armed groups activities
- Protection of civilians, electoral assistance, humanitarian operations, etc.
- Sustainable development, disaster risk reduction, etc.



GIS saves lives and supports emergency operations

- Identify locations, and search & rescue operations
- Crisis management, evacuations, humanitarian/disaster response
- Go-NoGo, and Minefield area



GIS enables cost-effective operations

- Minimise ground visits at planning and operational stages
- Better understanding of UN operating environment
- Ground water exploration, etc.



**United
Nations**

Geospatial

UN Geospatial Operations

UN Headquarters
New York, USA

UN Global Service Centre
Brindisi, Italy

Enterprise Geospatial System
Global Geospatial Data
Global Satellite Imagery
Advanced Analytics
Geospatial Intelligence
UN Geospatial Policies
UN Open GIS Initiative
UN GeoPortal
UN-GGIM

MINUJUST

UNVMC

ECLAC

MINURSO

MINUSMA

MINUSCA

MONUSCO

UNMIL

ECE

ESCWA

UNFICYP

UNDOF

UNIFIL

UNTSO

UNAMA

UNAMID

UNMISS

UNMHA

UNSOS

BINUB

ECA

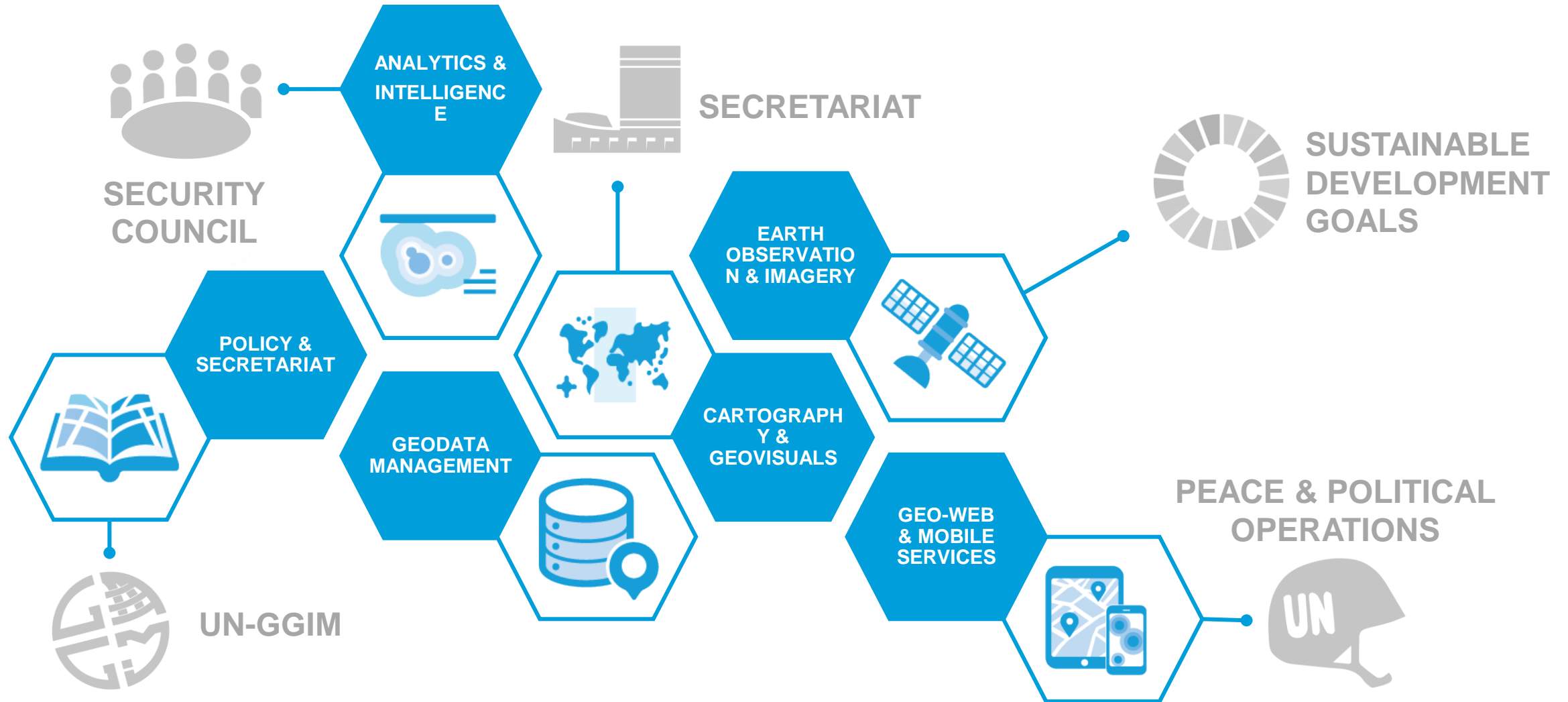
ESCAP



United
Nations

Geospatial

UN Geospatial Operations



**United
Nations**

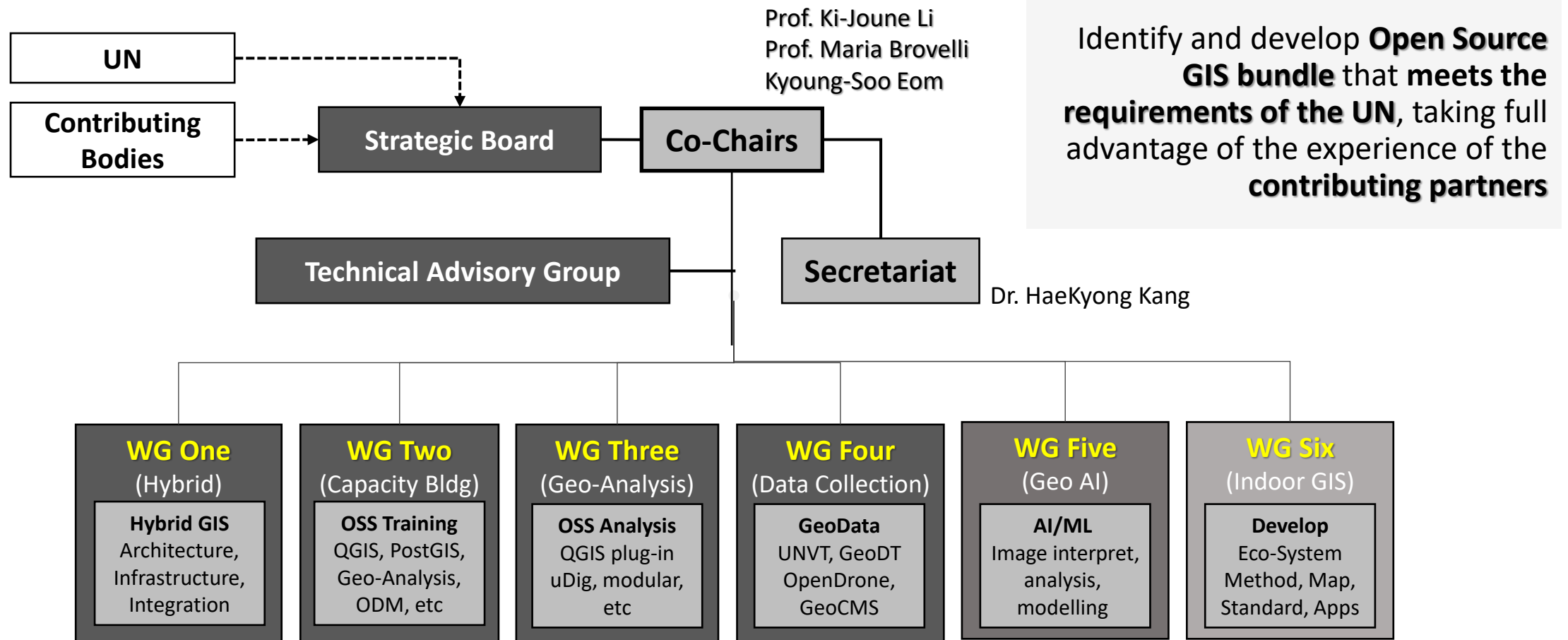
Geospatial

Why Open GIS?

1. Support the increasing **UN operational demands**
2. Constraint with current approach
3. Limit to support **Member States** for capacity building & technology transfer
4. Increase **flexibility** and **scalability**
5. Improve access to **open content**
6. Share social value of **FOSS4G**

UN Open GIS Initiative

(since 2016)

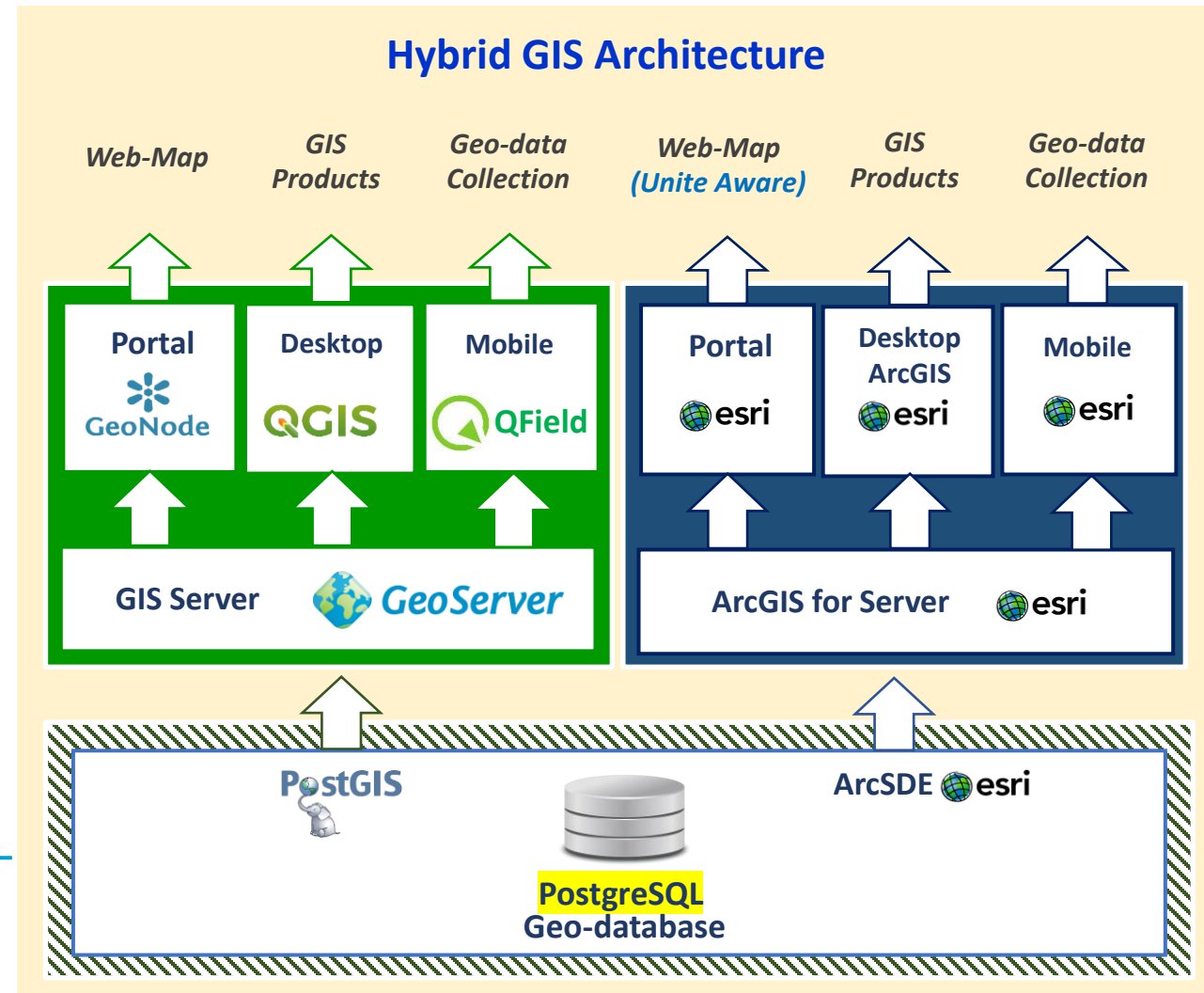


Hybrid GIS Architecture

Hybrid is the best approach to effective support UN operations

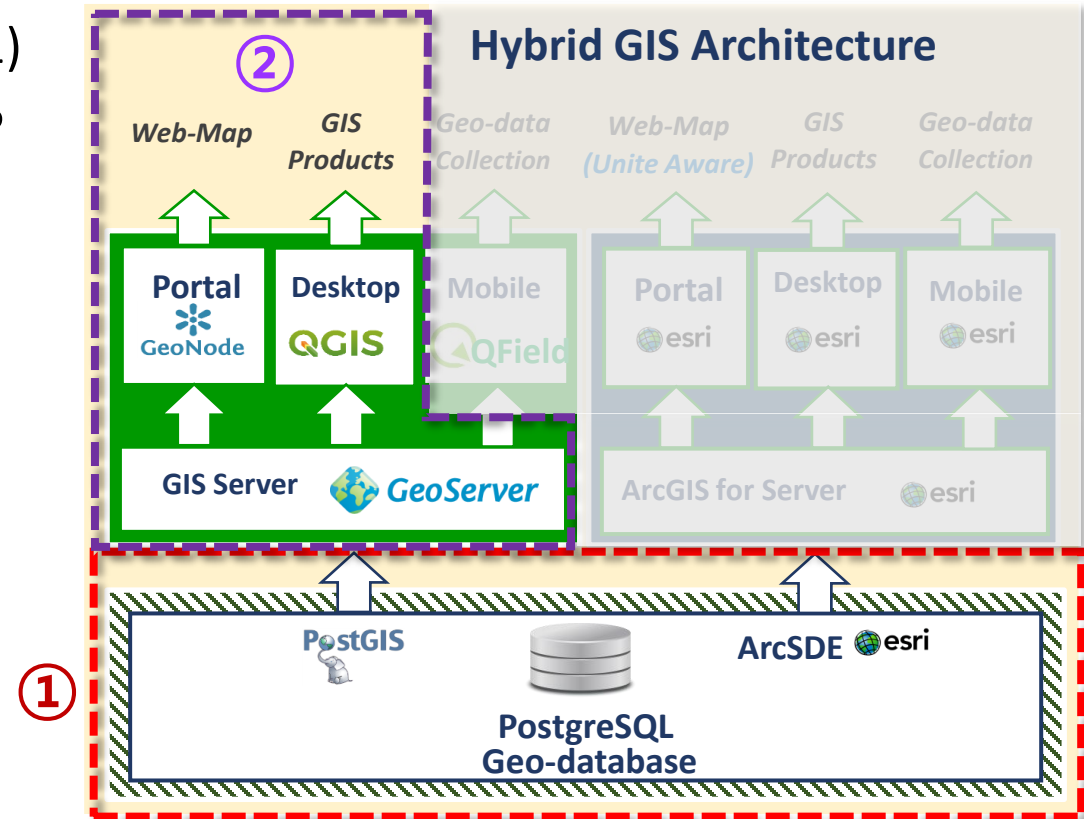
■ HYBRID APROACH:

- **Integration of Geo-database** to serve **esri** and **open-source**
- **Complementing** systems to support every UN requirement
- **Cost effective**
- **Flexible**
- **Scalability**
- **Innovations**
- **Social value**



Hybrid GIS Pilot Project

- **Purpose:** Proof of concept through design & implement *hybrid prototype* to support ① Unite Map, ② Open GeoPortal
- **Duration:** 6 months (October 2020 - March 2021)
- **Contributors:** KRIHS/Korea, UNGIS, UNGSC, WFP
- **Scope:** see figure
- **Next step** (Mid-/Long-term plan):
Develop a **global rollout plan** to implement Hybrid GIS infrastructure based on the outcome of pilot project



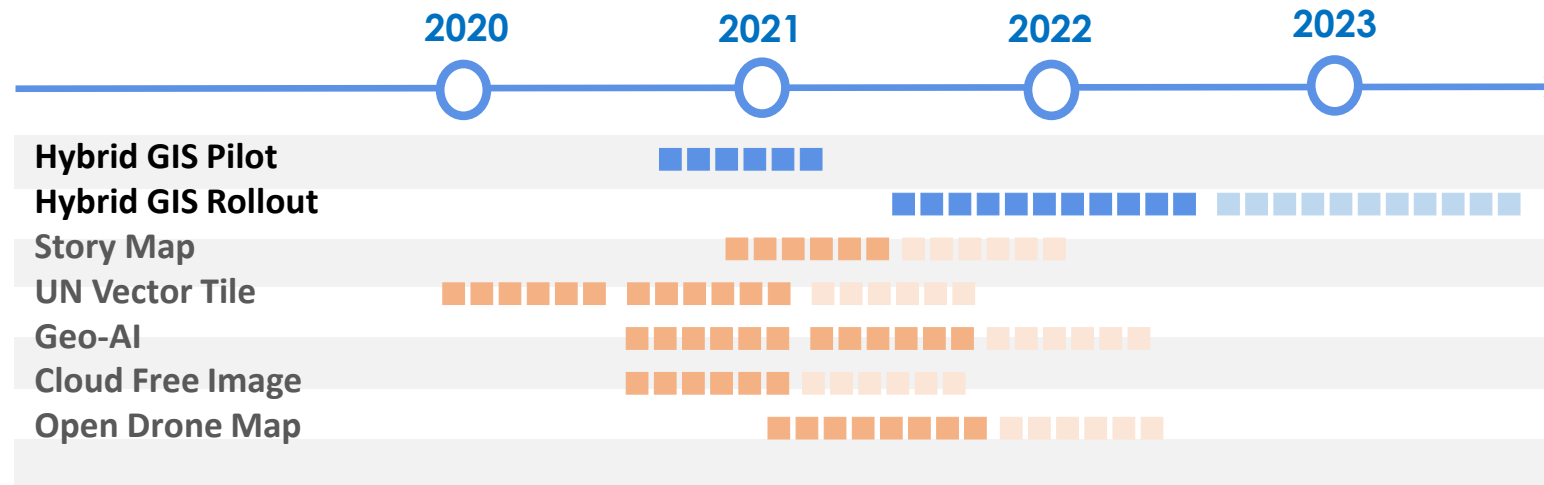
Vision and Roadmap

Hybrid GIS Architecture

- Vision:**

Provide full scale of **Hybrid GIS solutions** for UN Secretariat (including UN field missions and regional commissions), and then expand to UN agencies, UN operating partners and developing countries.

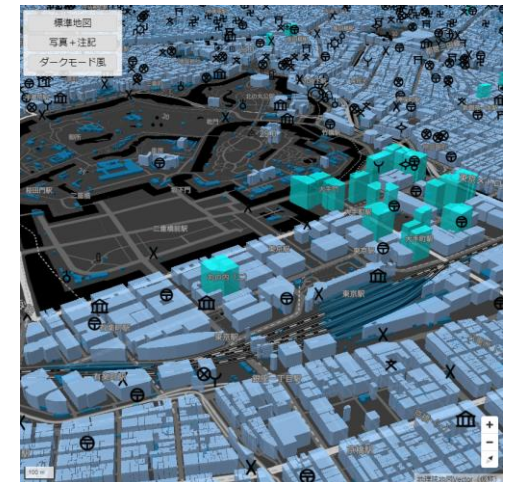
- Roadmap:**



Pilot: UN Vector Tile Toolkit (UNVT)

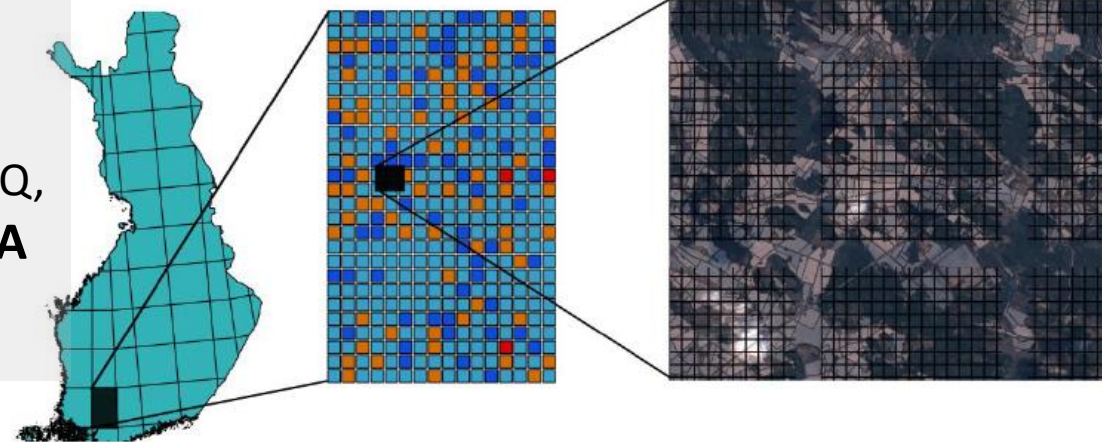
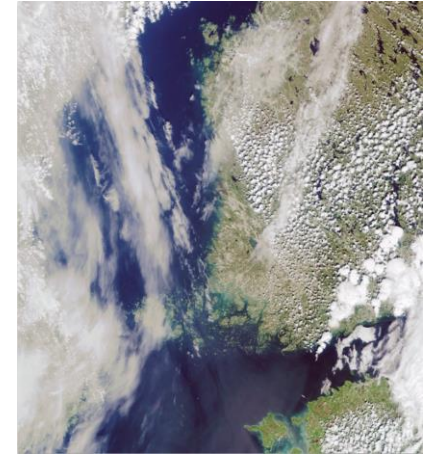
- To provide the latest & efficient web map technology (NGAs, UN agencies)
- UNVT provides a set of **Node.js** open source scripts
- Tools are developed and released in **GitHub**
<https://github.com/un-vector-tile-toolkit>
- Implement in UNGSC for cost-effective map dissemination & pilot explore on DRR in Japan
- Leading contributor: **GSI Japan**

The UNVT community



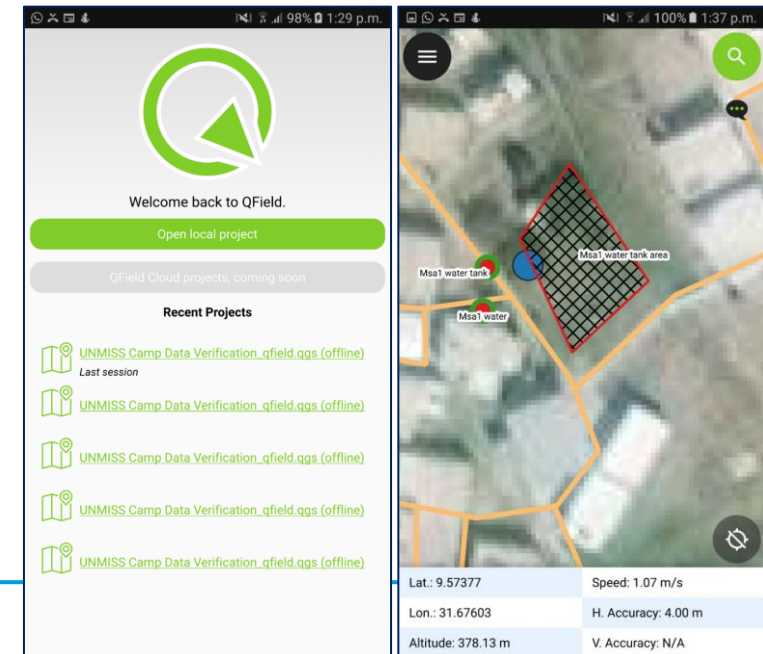
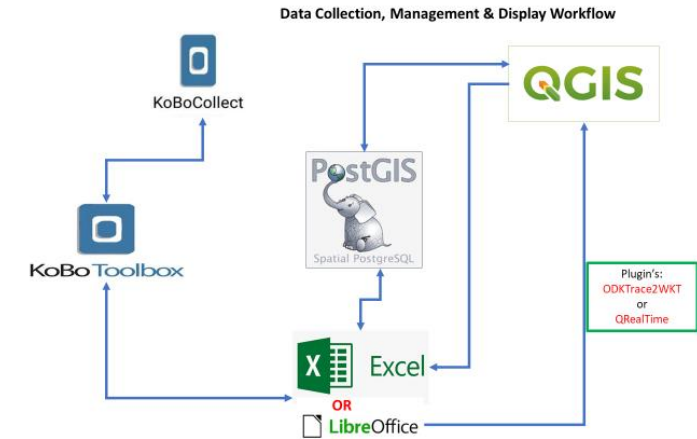
Pilot: Cloud-Free Satellite Imagery

- Cloud coverages limit application of optical satellite images; conduct use case analysis using **Sentinel 2** satellite (10 m resolution)
- Test the developed algorithm to **higher** resolution satellite image (WorldView, QuickBird, etc.)
- Initial funding: **Finland**
- Project development team: **GISPO** with Finnish partners
- Operational requirements and field testing (UNHQ, UNGSC and UN field missions). Testing bed – **UNISFA**
- Project timeline: Oct 2020 - Mar 2021



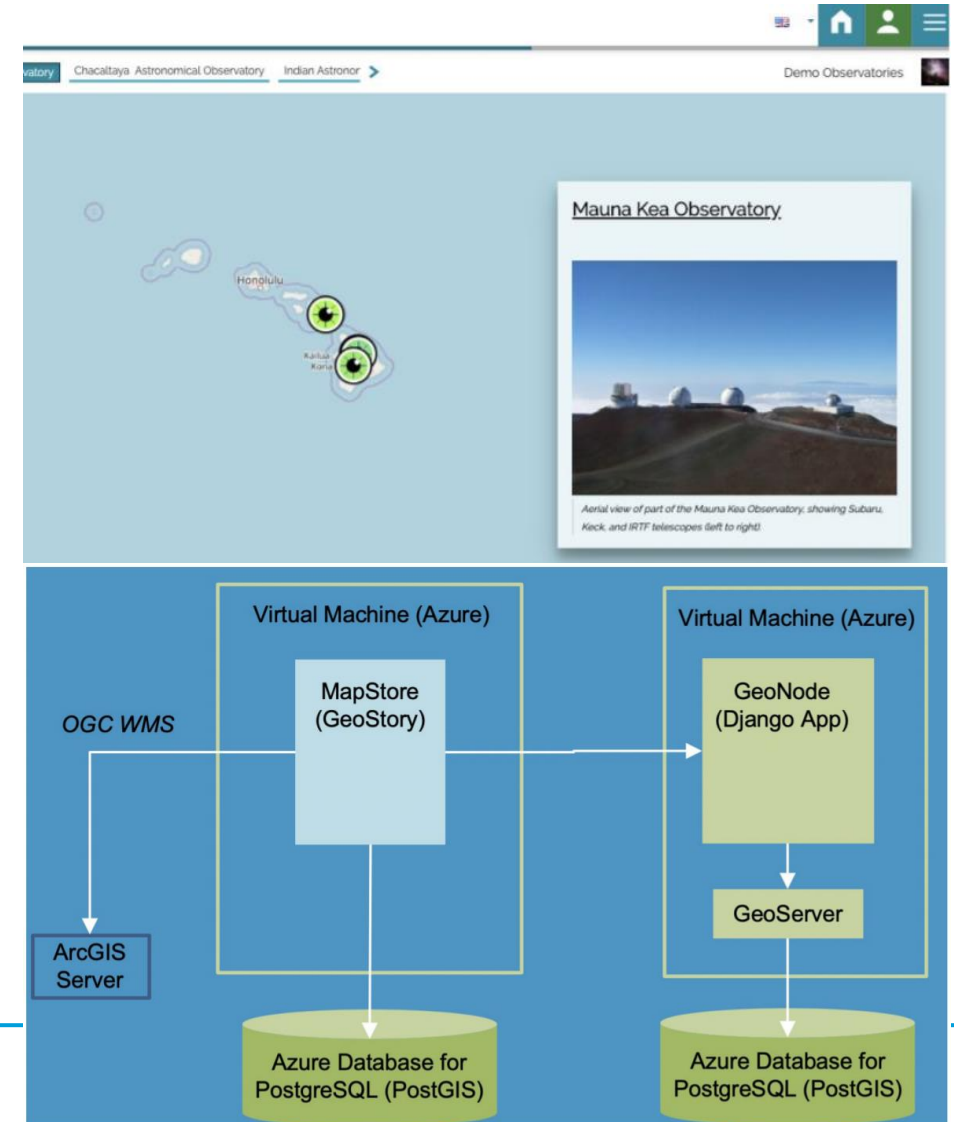
Pilot: Mobile Open GIS

- Field assessment of **QField**, **KoBo Toolbox**, and **Geopaparazzi** in UNMISS and MONUSCO
 - Evaluate the **effectiveness** in field
 - Setup the **fundamental process** for integration, implementation and mobile application
 - **Test** open mobile solution compatibility with QGIS, GeoServer and PostgreSQL/PostGIS
- **Expected Benefits:**
 - Better availability of **open** mobile solutions
 - Better integrated **open** GIS solutions
 - Increase operational efficiency and effective support decision-making



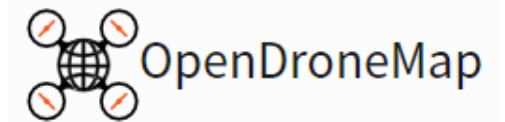
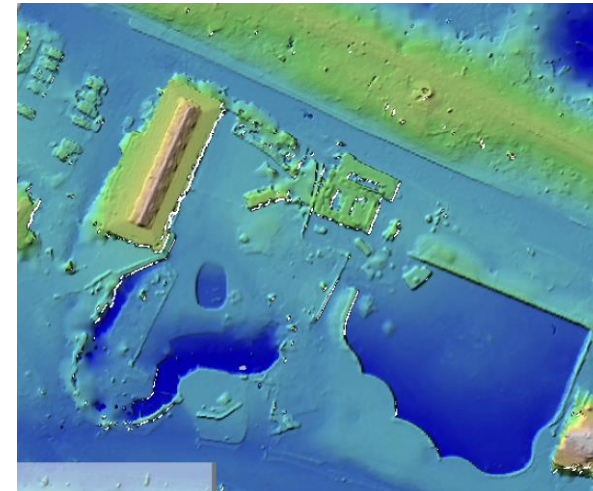
Pilot: UNMISS Story Map

- To develop an **open source platform** to provide a Story Map to geolocate and geotag public information stories
- The Story Map will utilize **open source solutions** and Microsoft **Azure cloud** environment
- **Expected Benefits:**
 - Cost-efficient access to the project information and data
 - Cost-efficient to operate and maintain the Story Map portal
 - Scalability



Partnership with OpenDroneMap

- **OpenDroneMap (ODM)** is an open source toolkit for aerial drone imagery, as modern photogrammetry – fully automated matching, digital surface modelling and mosaicking
- Partnership to apply ODM technology in **UN operational environment** (peacekeeping, humanitarian, DRR, SDG, etc.)
- Train UN staff, and **Pilot to install ODM** in UNGSC to support UN field missions, Regional commissions and UN agencies



Online PostGIS training course

- **WG Two (Capacity Building)** is offering a series of trainings on PostGIS, in cooperation with **Politecnico di Milano**
- The first training is starting 1 November on **Geospatial Data Management using PostGIS** (PostgreSQL 11 and PostGIS 2.5) for 1.5 months
- Main topics:
 - Database creation and data upload
 - SQL language and queries
 - Raster functions
 - Maintenance

