

Challenge & Opportunity

UN Open GIS Initiative



Kyoung-Soo Eom
Co-Chair of UN Open GIS
Chief UNGIS

 @UNopenGIS

United Nations

We the people of the United Nations determined to save succeeding generations from the scourge of war, which twice in our lifetime has brought untold sorrow to mankind

- To maintain International Peace and Security
- To promote Economic and Social Development
- To promote and protect Human Rights

UN General Assembly

United Nations

- The General Assembly
- The Security Council
- The Trusteeship Council
- The Economic and Social Council
- The Secretariat
- The International Court of Justice

UN Security Council



The United Nations System

UN Principal Organs

General Assembly

Security Council

Economic and Social Council

Secretariat

International Court of Justice

Trusteeship Council⁵

Subsidiary Bodies

Main and other sessional committees
Disarmament Commission
Human Rights Council
International Law Commission
Standing committees and ad hoc bodies

Subsidiary Bodies

Counter-terrorism committees
International Criminal Tribunal for Rwanda (ICTR)
International Criminal Tribunal for the former Yugoslavia (ICTY)
Military Staff Committee
Peacekeeping operations and political missions
Sanctions committees (ad hoc)
Standing committees and ad hoc bodies

Functional Commissions

Crime Prevention and Criminal Justice
Narcotic Drugs
Population and Development
Science and Technology for Development
Social Development
Statistics
Status of Women
Sustainable Development
United Nations Forum on Forests

Programmes and Funds

UNCTAD United Nations Conference on Trade and Development
• **ITC** International Trade Centre (UNCTAD/WTO)
UNDP United Nations Development Programme
• **UNCDF** United Nations Capital Development Fund
• **UNV** United Nations Volunteers
UNEP United Nations Environment Programme
UNFPA United Nations Population Fund

UN-HABITAT United Nations Human Settlements Programme

UNHCR Office of the United Nations High Commissioner for Refugees

UNICEF United Nations Children's Fund

UNODC United Nations Office on Drugs and Crime

UNRWA¹ United Nations Relief and Works Agency for Palestine Refugees in the Near East

UN-Women United Nations Entity for Gender Equality and the Empowerment of Women

WFP World Food Programme

Research and Training Institutes

UNICRI United Nations Interregional Crime and Justice Research Institute

UNIDIR¹ United Nations Institute for Disarmament Research

UNITAR United Nations Institute for Training and Research

UNRISD United Nations Research Institute for Social Development

UNSSC United Nations System Staff College

UNU United Nations University

Other Entities

UNAIDS Joint United Nations Programme on HIV/AIDS

UNISDR United Nations International Strategy for Disaster Reduction

UNOPS United Nations Office for Project Services

Related Organizations

CTBTO PrepCom Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization

IAEA² International Atomic Energy Agency

OPCW Organisation for the Prohibition of Chemical Weapons

WTO³ World Trade Organization

Advisory Subsidiary Body

UN Peacebuilding Commission

Specialized Agencies⁴

ILO International Labour Organization
FAO Food and Agriculture Organization of the United Nations
UNESCO United Nations Educational, Scientific and Cultural Organization
WHO World Health Organization
World Bank Group
• **IBRD** International Bank for Reconstruction and Development
• **IDA** International Development Association
• **IFC** International Finance Corporation
• **MIGA** Multilateral Investment Guarantee Agency
• **ICSID** International Centre for Settlement of Investment Disputes

IMF International Monetary Fund

ICAO International Civil Aviation Organization

IMO International Maritime Organization

ITU International Telecommunication Union

UPU Universal Postal Union

WMO World Meteorological Organization

WIPO World Intellectual Property Organization

IFAD International Fund for Agricultural Development

UNIDO United Nations Industrial Development Organization

UNWTO World Tourism Organization

Regional Commissions

ECA Economic Commission for Africa
ECE Economic Commission for Europe
ECLAC Economic Commission for Latin America and the Caribbean
ESCAP Economic and Social Commission for Asia and the Pacific
ESCWA Economic and Social Commission for Western Asia

Other Bodies

Committee for Development Policy
Committee of Experts on Public Administration
Committee on Non-Governmental Organizations
Permanent Forum on Indigenous Issues
United Nations Group of Experts on Geographical Names
Other sessional and standing committees and expert, ad hoc and related bodies

Departments and Offices

EOSG Executive Office of the Secretary-General
DESA Department of Economic and Social Affairs
DFS Department of Field Support
DGACM Department for General Assembly and Conference Management

DM Department of Management
DPA Department of Political Affairs
DPI Department of Public Information
DPKO Department of Peacekeeping Operations
DSS Department of Safety and Security
OCHA Office for the Coordination of Humanitarian Affairs

OHCHR Office of the United Nations High Commissioner for Human Rights
OIOS Office of Internal Oversight Services
OLA Office of Legal Affairs
OSAA Office of the Special Adviser on Africa
OSRSG/CAAC Office of the Special Representative of the Secretary-General for Children and Armed Conflict

UNODA Office for Disarmament Affairs
UNOG United Nations Office at Geneva
UN-OHRLS Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States
UNON United Nations Office at Nairobi
UNOV United Nations Office at Vienna

NOTES:

¹ UNRWA and UNIDIR report only to the General Assembly.

² IAEA reports to the Security Council and the General Assembly.

³ WTO has no reporting obligation to the General Assembly (GA) but contributes on an ad-hoc basis to GA and ECOSOC work inter alia on finance and developmental issues.

⁴ Specialized agencies are autonomous organizations working with the UN and each other through the coordinating machinery of ECOSOC at the intergovernmental level, and through the Chief Executives Board for Coordination (CEB) at the inter-secretariat level. This section is listed in order of establishment of these organizations as specialized agencies of the United Nations.

⁵ The Trusteeship Council suspended operation on 1 November 1994 with the independence of Palau, the last remaining United Nations Trust Territory, on 1 October 1994.

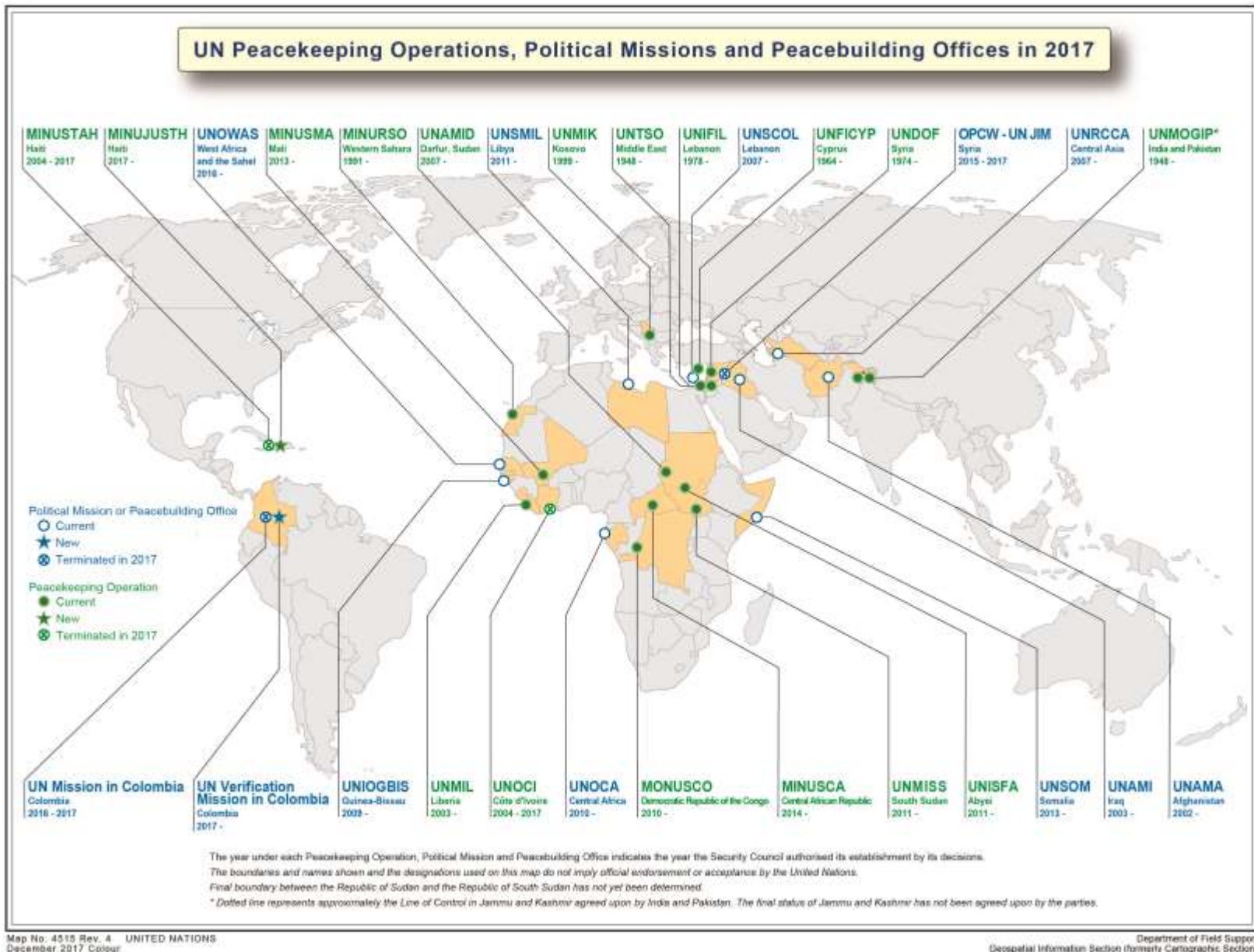
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United Nations Peace Operations



UN Peace Operations



UN Peacekeeping Operations

UNITED NATIONS PEACEKEEPING WE ARE A GLOBAL PARTNERSHIP

COUNTRIES CONTRIBUTING TO PEACEKEEPING

OVER **128** COUNTRIES 
CONTRIBUTE
TROOPS, POLICE AND CIVILIAN PERSONNEL

\$ *BUDGET **7.3**
BILLION
LESS THAN
0.5% OF GLOBAL
MILITARY
EXPENDITURES

OVER **112,000**
FIELD PERSONNEL
INCLUDING MILITARY,
POLICE AND CIVILIANS

WORKING WITH INTERNATIONAL PARTNERS

SUCH AS { **AU** **EU** }
African Union European Union
& SUPPORTED BY
193 MEMBER
STATES 
WHICH PROVIDE
PERSONNEL, EQUIPMENT, FUNDS,
TECHNOLOGY & TRAINING







PEACEKEEPING INCLUDES

15 MISSIONS ACROSS **4** CONTINENTS 
Peacekeeping operations since 1948: **71**

LARGEST MISSION IS IN

[MONUSCO] **DR Congo**
22,461 authorized strength
Troops: 16,215
Military observers: 660
Police: 1,441
Civilian staff: 4,145

A GLOBAL LOGISTICS OPERATION

	54	AIRPLANES
	158	HELICOPTERS
	26	UUAV unarmed, unmanned aerial vehicle
	7	SHIPS
	14,000	VEHICLES
	310	MEDICAL CLINICS

WORKING IN PARTNERSHIP WITH THE HOST COUNTRIES WE HELP PEOPLE AROUND THE WORLD

7 Million TOTAL SQUARE KILOMETRES
IN WHICH WE OPERATE | **125 Million** TOTAL POPULATION OF AREAS
IN WHICH WE OPERATE

 United Nations
Peacekeeping
un.org/peacekeeping

Data used from 2016-2017
*Approved resources for the period from 1 July 2016 to 30 June 2017

Operational Constraints









Transforming our World: The 2030 Agenda for Sustainable Development



Transforming our World: The 2030 Agenda for Sustainable Development

Transforming our World: The 2030 Agenda for Sustainable Development



- 1. People** ... to end poverty & hunger
- 2. Planet** ... to protect the planet
- 3. Prosperity** ... enjoy prosperous & fulfilling lives
- 4. Peace** ... to foster peaceful societies
- 5. Partnership** ... to mobilize the means required





UN Geospatial Services



UN Geospatial Services

Mandate:

UN GIS (UNHQ, UNGSC and UN field missions) provides geospatial information & services to the full range of UN operations

Vision:

The **vision** of geospatial information services focuses on the need to ensure that UN is provided with **meaningful geospatial information** in a **timely** and **effective** manner for **shared situational awareness** and **monitoring activities** and to meet the requirements of **inter-operability** among the UN missions, as well as between the missions and the Secretariat and other UN agencies.



Why GIS for UN operations



GIS supports fulfilment of mandate, saves lives and supports emergency operations, achieves cost saving, enables common understanding and situational awareness.

Global UN GIS Services

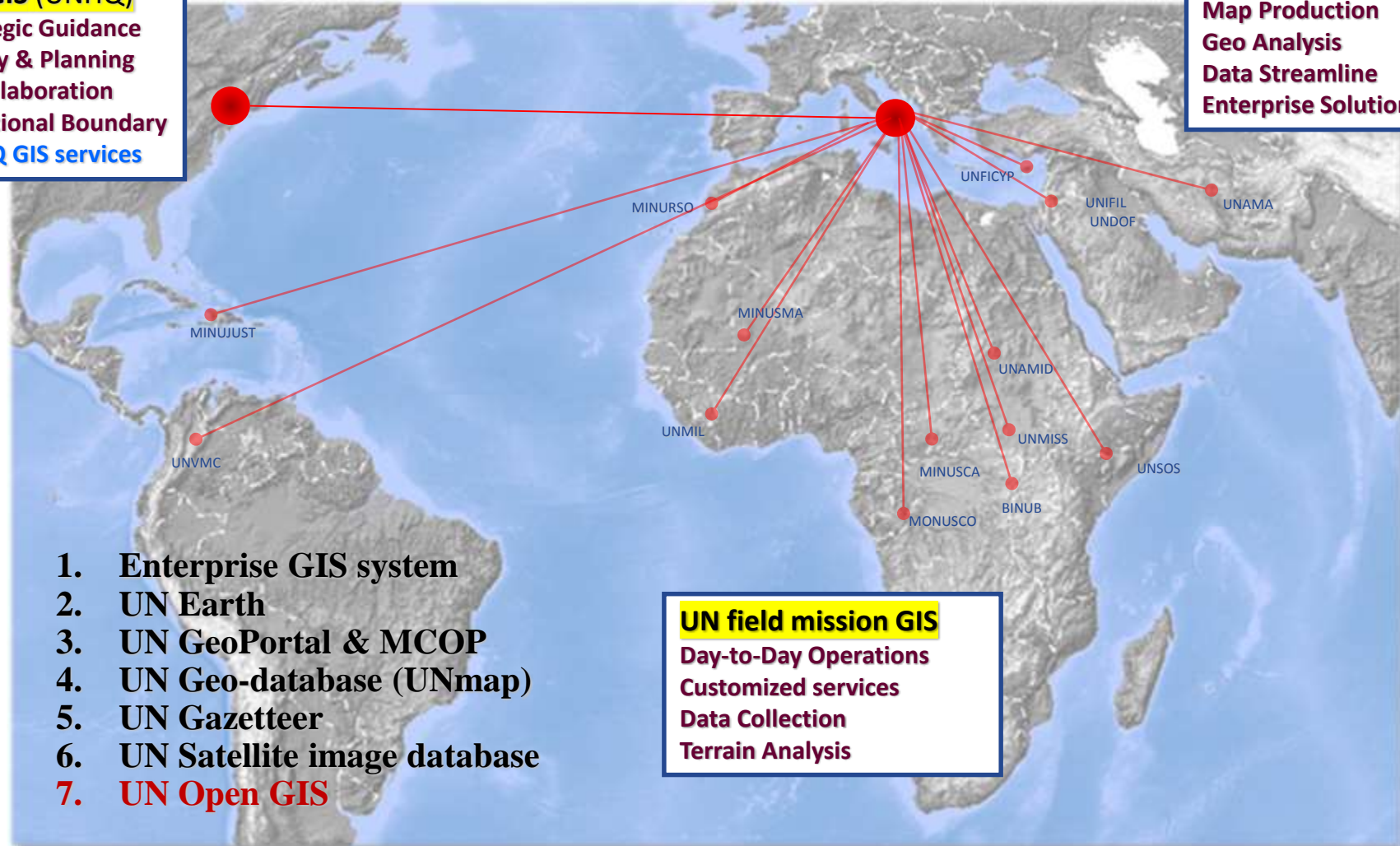
3-tier: UNHQ–UNLB/GSC–Missions

UNGIS (UNHQ)

Strategic Guidance
Policy & Planning
Collaboration
International Boundary
UNHQ GIS services

GSC CSDS (GIS)

Map Production
Geo Analysis
Data Streamline
Enterprise Solutions



1. Enterprise GIS system
2. UN Earth
3. UN GeoPortal & MCOP
4. UN Geo-database (UNmap)
5. UN Gazetteer
6. UN Satellite image database
7. **UN Open GIS**

UN field mission GIS

Day-to-Day Operations
Customized services
Data Collection
Terrain Analysis

Why Open GIS

1. Increasing **UN operational demands**
2. Constraint with current proprietary approach
3. Constraint to support **Host Nation** capacity building & technology transfer
4. Increase **flexibility** and **scalability**
5. Improve access to **open content**
6. Social value of **FOSS4G**

“Hybrid GIS platform”



UN Open GIS Initiative

Progress, Achievement and Way Forward



Co-Chairs:
Prof. Ki-Joune Li
Mr. Ricardo Arias
Mr. Kyoung-Soo Eom

 @UNopenGIS

UN Open GIS Initiative

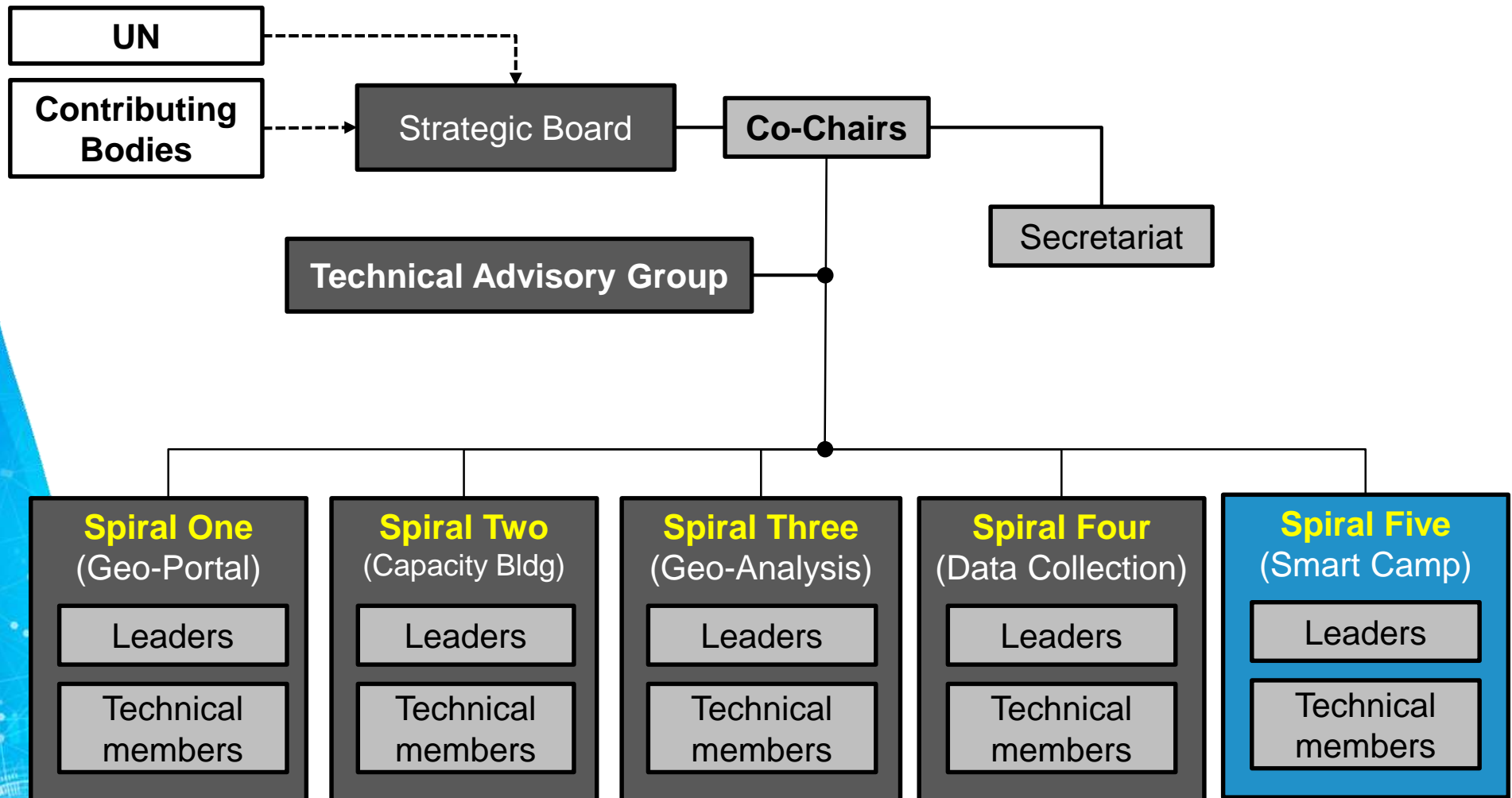
Established: March 2016



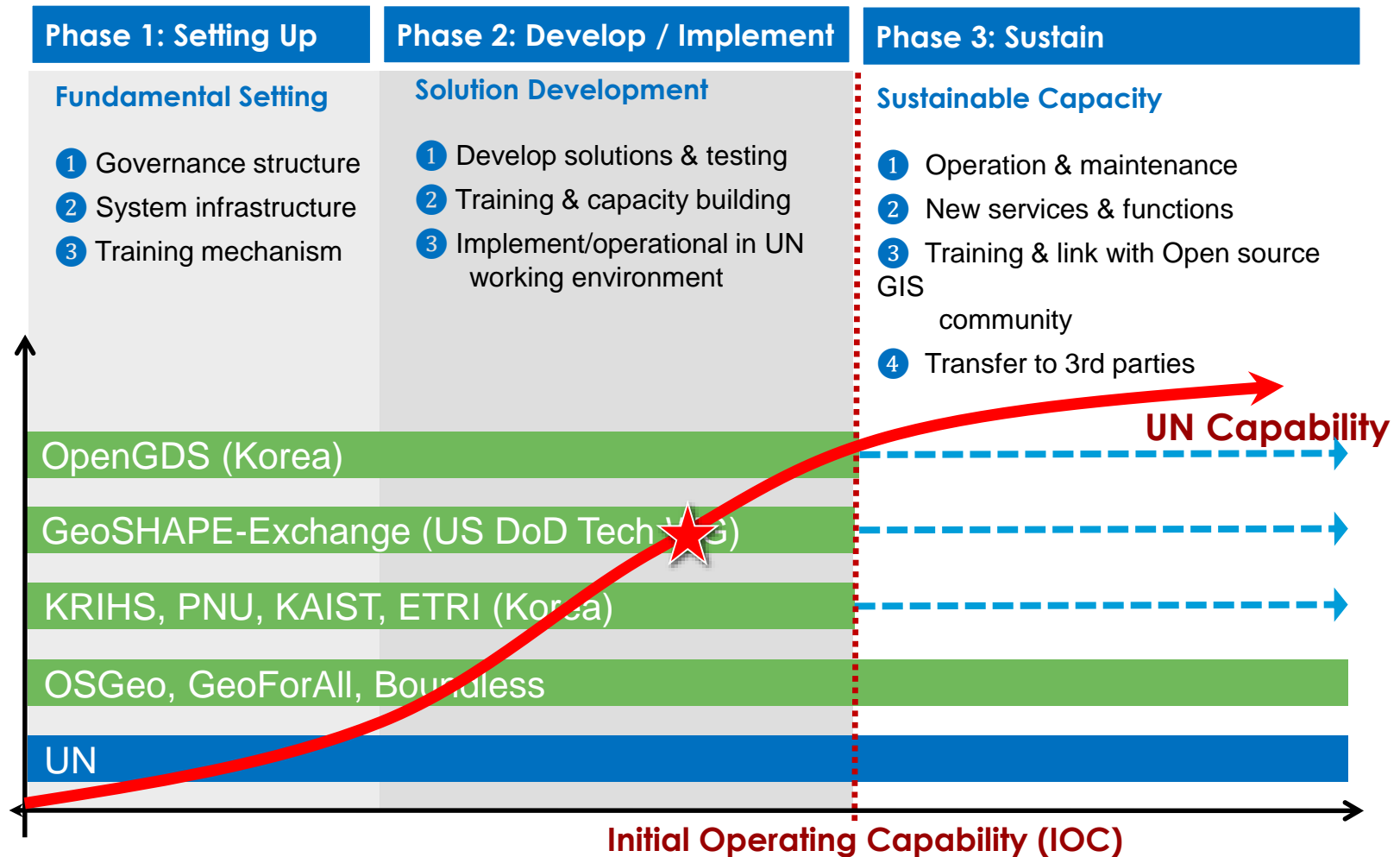
The **UN Open GIS Initiative** is to **identify and develop** an **Open Source GIS bundle** that **meets the requirements of UN operations, taking full advantage of the expertise of partners** (member states, technology contributing countries, international organizations, academia, NGO's, private sector)



Governance Structure



Implementation Phases



Progress and Achievement

2016

MAR

First UN Open GIS
Workshop in Brindisi
Established UN Open
GIS Initiative

AUG

Strategic Board
meeting in Seoul

NOV

Second UN Open GIS
Workshop,
Technology Partnership
Symposium in Seoul

SEP-DEC

QGIS online training
(39 UN staff)

2017

Monthly VTC meeting

JAN-MAY

QGIS online training (22
UN staff)

PostGIS online training
(61 UN staff)

APR

Demo for UAV GIS
solution in Brindisi

SEP

SP-1 Tech Demo of
GeoSHAPE-Exchange in
Brindisi

NOV

SP-3 Geospaital
Analysis Workshop in
Sejong, Korea

2018

Monthly VTC meeting

APR

**SP-1 Operational Demo
of GeoSHAPE-Exchange
in Entebbe**

APR

SP-5 UN Smart Camp
Workshop in Brindisi

MAY

Third UN Open GIS W/S
Technology Partnership
Symposium in Berlin

AUG

Tech Workshop, St.
Louis, USA

DEC

Piloting UN open GIS
Prototype in UNMISS
(TBC)

2019

Monthly VTC meeting

JAN-JUN


Piloting UN open GIS
Prototype in UNMISS
(TBC)

FEB

SP-3 Geo Analysis Tech
Demo (TBC)

AUG

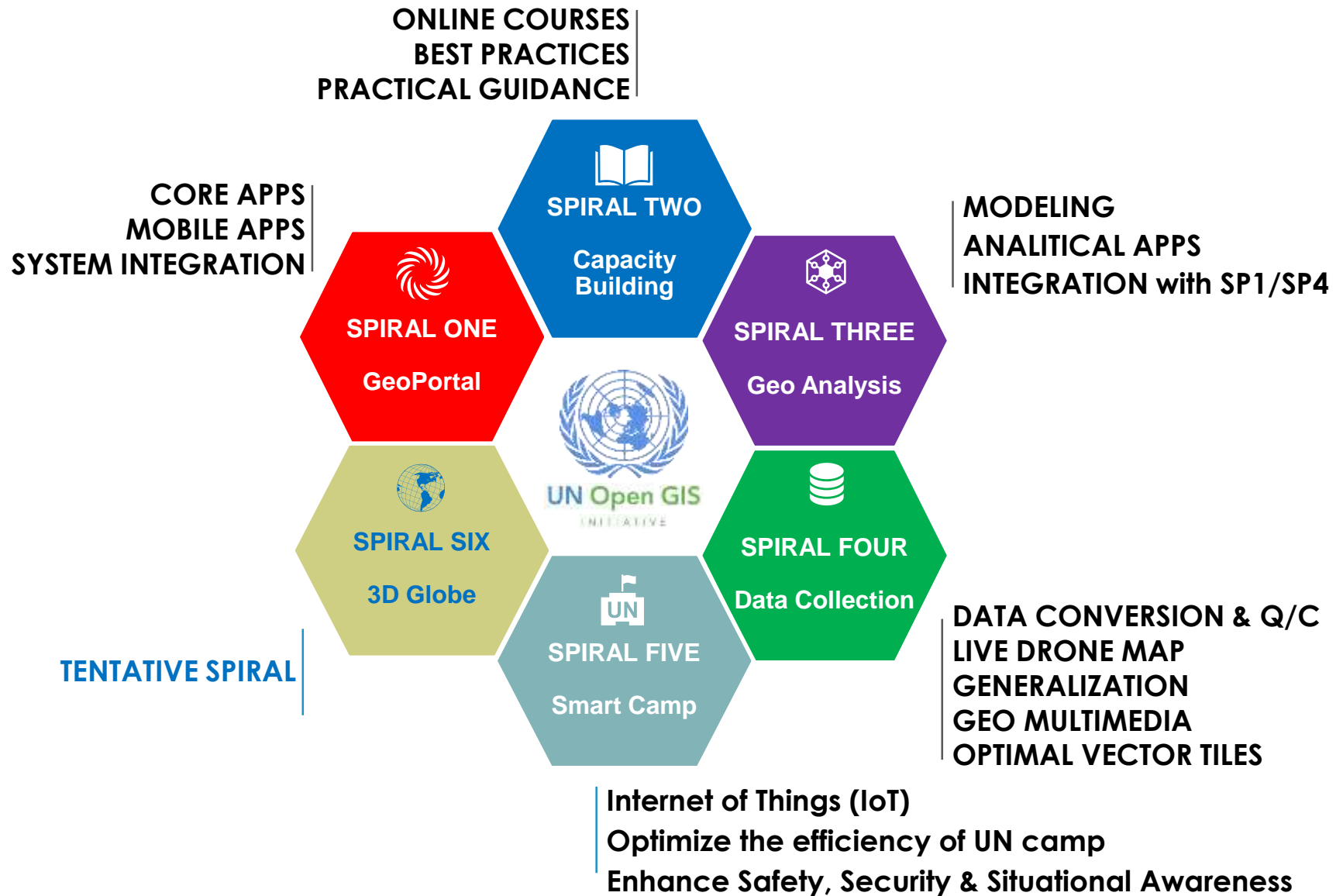
SP-3 Geo Analysis
Operational Demo
(TBC)

 **we are here!**

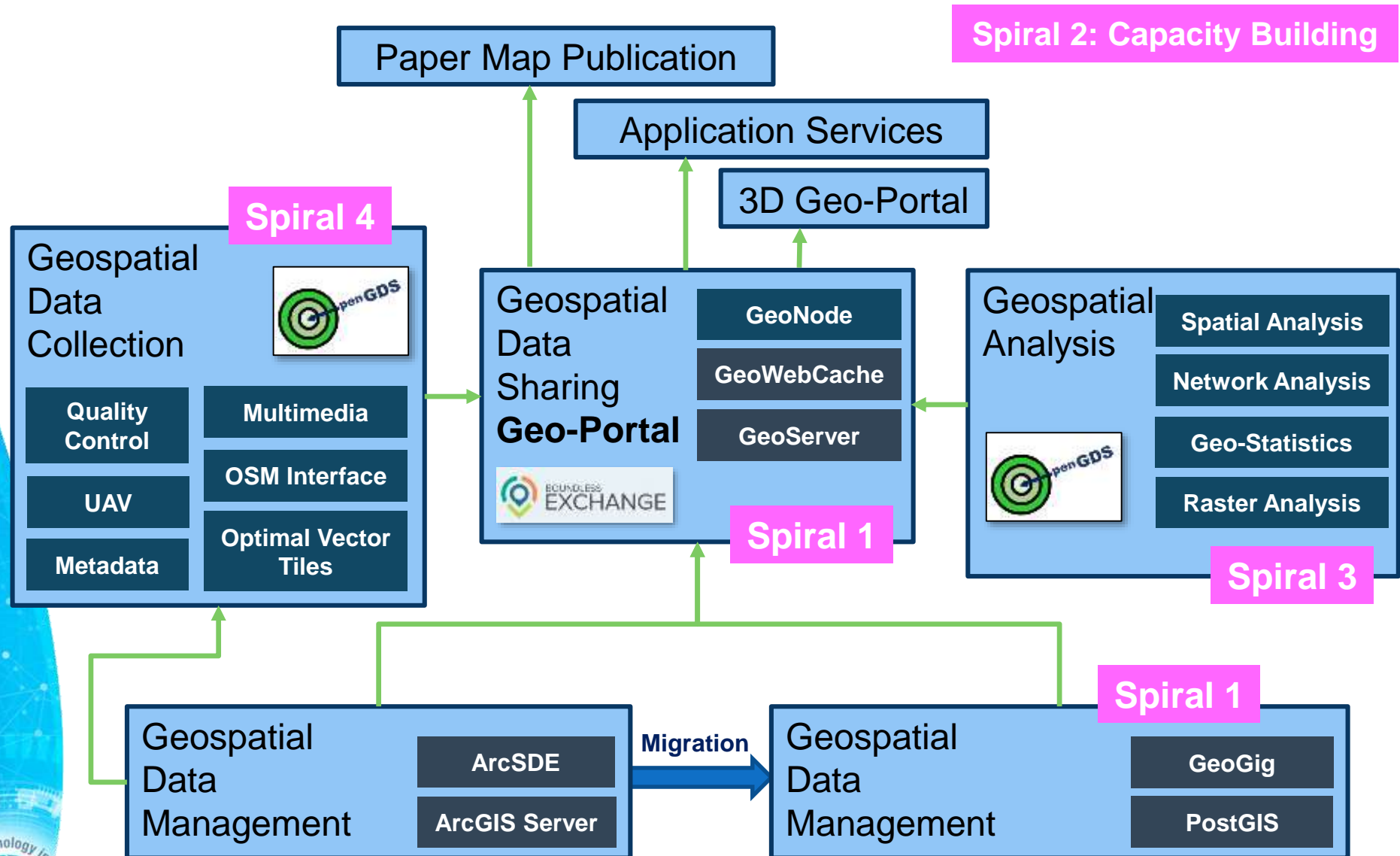
Major contributors:

Italy (PolMi), Japan (GSI, OSGeo/Japan), Rep. of Korea (OpenGDS, KRIHS, PNU, KAIST, ETRI)
USA (DoD, US Africa Command), OSGeo, GeoForAll, Boundless Geospatial

Six Spirals of UN Open GIS



System Architecture



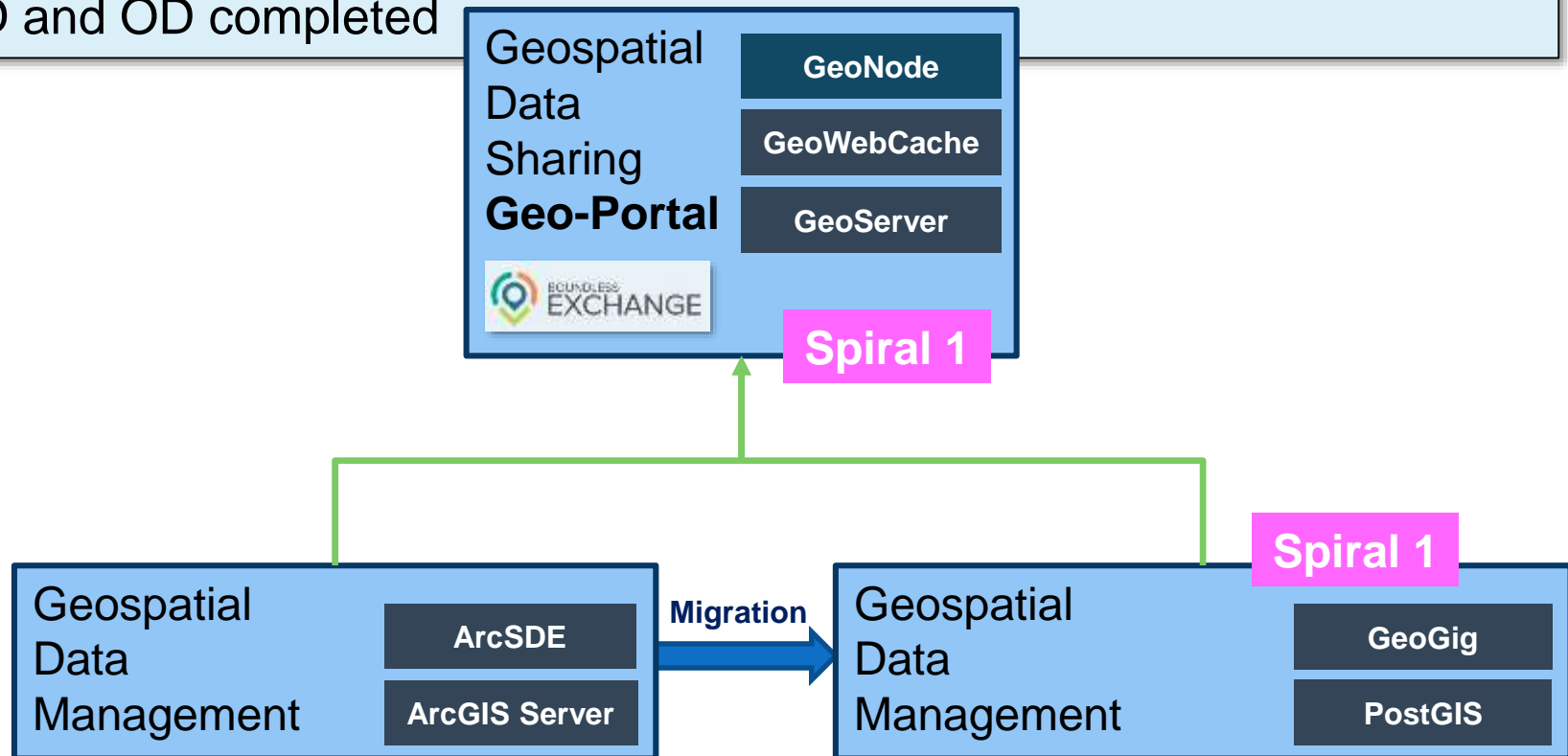
System Architecture – SP 1

Goals of Spiral 1

- Implementation of the Infrastructure System
- Deployment of **GeoSHAPE-Exchange** at UN operational environment
- Geo-Portal for data sharing

Progress and Planning

- TD and OD completed



Spiral 2: Capacity Building

Goals of Spiral 2

- Capacity Building of UN
 - 1) System Administrators
 - 2) Power Users and Application Developers
 - 3) End-Users
- Training Methods
 - 1) Online Training
 - 2) Self-paced Training
 - 3) Offline Training

Progress and Planning

- QGIS: Online Training (4 rounds)
- PostGIS: Online Training (3 rounds)
- Planning for **GeoSHAPE-Exchange**



System Architecture – SP 3

Goals of Spiral 3

- Geo-Analytic functions (over 140 functions)

Progress and Planning

- Case-Study for Ebola Virus Spread
- Integration with Spiral 1
- Planning: TD and OD in 2018 and 2019

Geospatial
Analysis



Spatial Analysis

Network Analysis

Geo-Statistics

Raster Analysis

Spiral 3

Spiral 4

Geospatial
Data
Collection



Quality
Control

Multimedia

UAV

OSM Interface

Metadata

Optimal Vector
Tiles

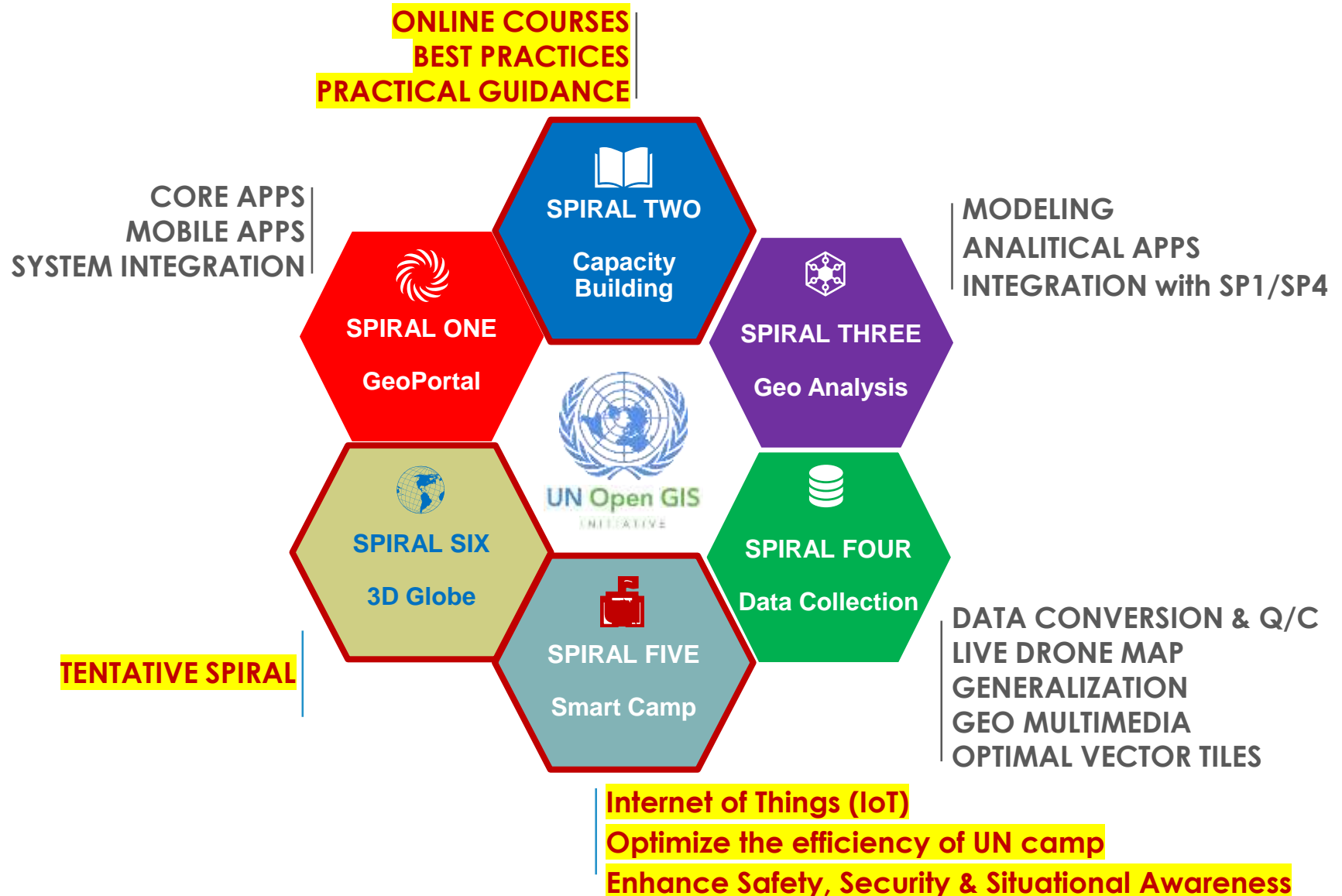
Goal of Spiral 4 – Geospatial Data Collection

- Migration of Legacy Databases
- Quality Control
- Live Drone Maps
- Geo-multimedia Content Management System
- Optimal Vector Tile services (**UN Vector Tile Toolkit**)

Progress and Planning

- Live Drone Map: Field test in Brindisi, 2017
- GeoCMS, Optimal Vector Tiles: Beta Test
- Planning: TD and OD in 2019

Challenges and Opportunities



Challenges and Opportunities

1. Integrate Spirals: SP1+SP3, SP1+SP4, SP1+SP6, etc.
2. Strengthen **Technical Advisory Group**:
leaders/members from FOSS4G community
3. Strengthen SP-2 **Capacity Building** (training, manual, reflect to operational procedure, etc.)
4. Participating **UNMISS (South Sudan) Prototype Pilot Project**
5. Participating for SP-5 **UN Smart Camp**
6. Leading and participating for SP-6 **3D Globe**
7. Participating for **UN Open GIS operations**



Thank You

