



Coordinating and integrating state-of-the-art  
Earth Observation Activities in the regions of  
North Africa, Middle East and Balkans  
and Developing Links with GEO related initiatives  
toward GEOSS

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**GEO-CRADLE Pre Kick-Off Meeting**  
**Thursday, 18<sup>th</sup> of February, 2016**

**inter-Balkan Environment Center**

**Presentation of the Project:**  
**“Implementation of a Balkan Land  
Monitoring System”**



# Implementation of a Balkan Land Monitoring System



## Work-breakdown structure

1. Trends, Drivers and Priorities for Balkan Land Management
2. Analysis of Data Collection Technologies for Balkan Land Monitoring
3. Roadmap for Implementation of an inter-Balkan Land Monitoring System

### TN1

Online survey and interviews

Identification of key drivers and domains to be monitored

### TN2

Analysis of current and planned monitoring systems

Mainly focused on satellite and HAPS platform

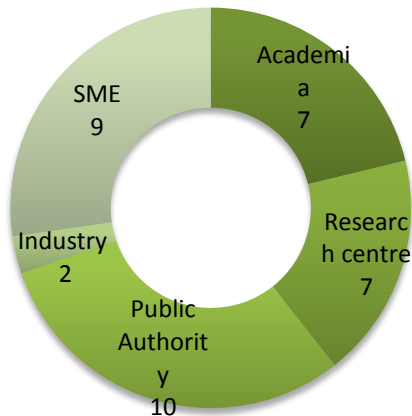
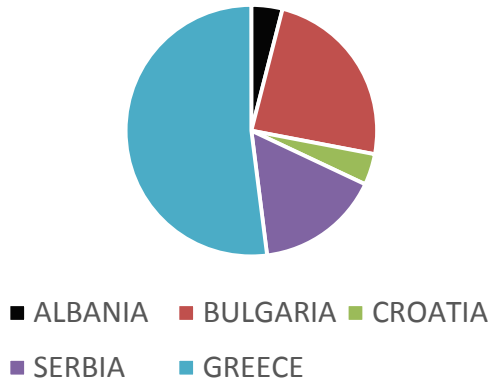
### TN3

Schedule for the implementation of the system

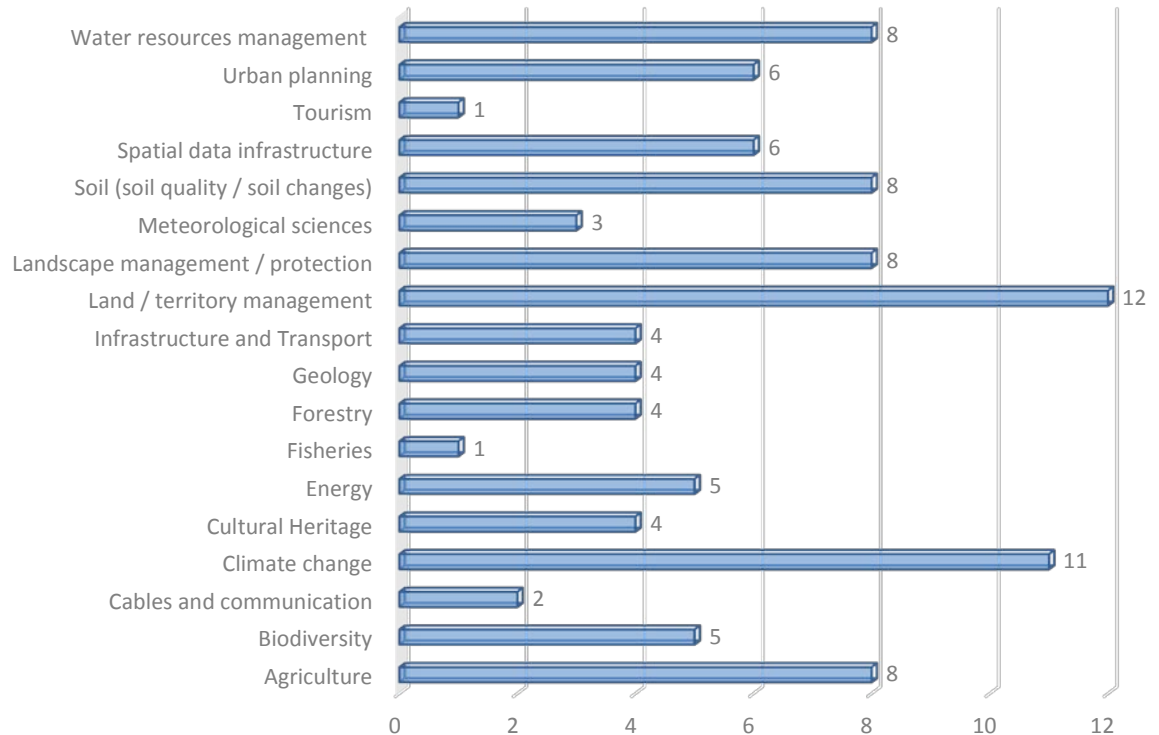
Design of hierarchy, organization, duties and services

- 35 survey responses (running for 20 days)
- 2 interviews with key stake-holders

Participation per country



Participants' areas of interest





# SWOT analysis for the Balkan Area



## Strengths

- High awareness of satellite RS products and GIS
- Land Monitoring understood as key instrument for land management

## Weaknesses

- No systematic use of RS satellite imagery
- Lack of funding
- Low support from decision makers

## Opportunities

- New trans-regional projects on Land Monitoring
- Tackling climate change
- Innovation policies to include Land Monitoring & Management

## Threats

- Low public incentives and policy support
- Low update of services



## Drivers and priority changes

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Main **drivers** for changes in the Balkan region:

- **Political**: accession to EU, implementation of environmental laws, introduction of sustainability policies and innovation policies
- **Social**: awareness rising towards environmental issues and innovation policies
- **Environmental**: characterization of climate change indicators, evaluation of impact and risk mitigation strategies

**Priority changes** over the time period to 2030:

- Awareness raising for land monitoring technologies
- Strengthening the land monitoring network of experts
- Implement specific funding and capacity building measures
- Set up risk mitigation strategies (esp. for flooding and fire events) that would include systematic use of land monitoring technologies, services and products
- Propose coordinated trans-regional actions on specific topics of interest such as: Agriculture, Land management, Forestry, Climate change, Soil quality, Water resources management



## Satellite EO data sources

- Currently active: Sentinel-2, Landsat 8, Worldview 2, Sentinel-1, COSMO SkyMed, RADARSAT-2, TerraSAR-X
- Planned: PRISMA, EnMAP, SHALOM, VENUS



## In-situ monitoring networks

- Common in the region
- Field spectroscopy
- Energy-independent telemetry stations with multi-parameter measuring equipment



## Airborne platforms

- Low altitude UAVs (drones)
- EUFAR2
- Airbus HAPS



- Real-time data
- High revisiting frequency
- Higher persistence than commercial UAVs
- Large area coverage
- High spatial resolution



Suitable for a wide range of monitoring applications such as: Agriculture, soil monitoring, forestry, quality assessment of water resources, animal monitoring, degradation of ecosystems and biodiversity, disaster monitoring, climate change.



## Gaps in EO data collection in the Balkans

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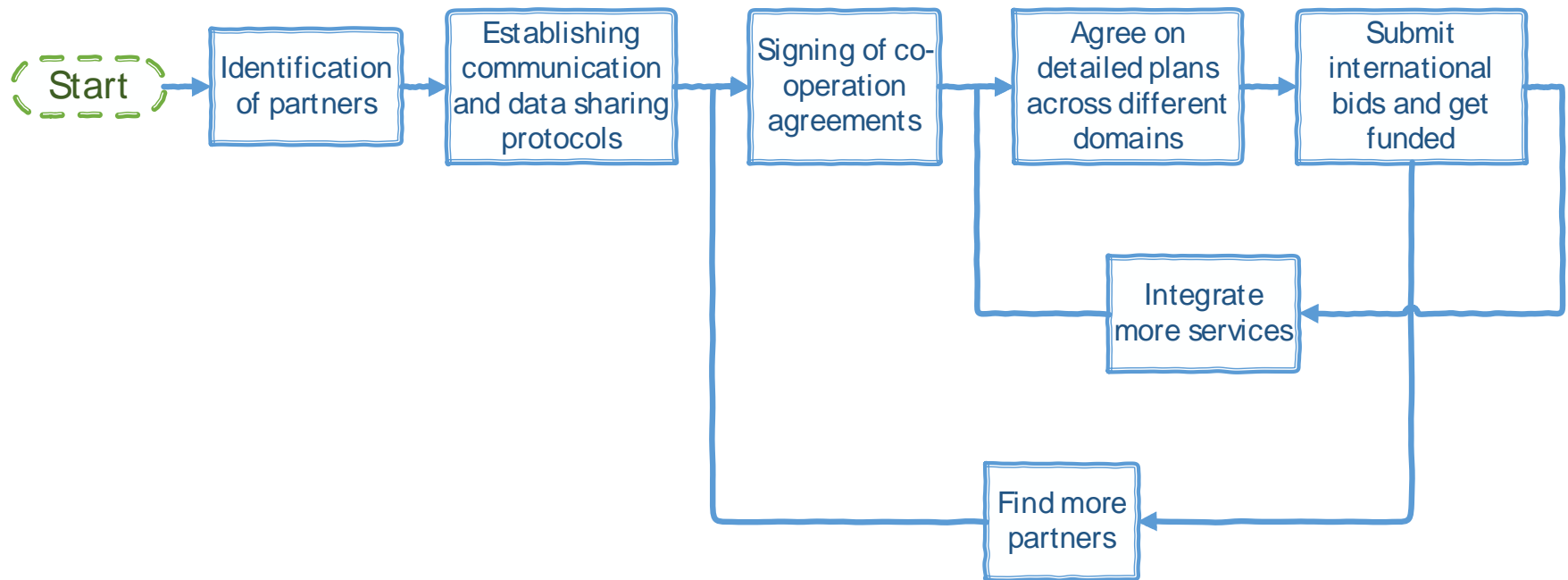
The proposed BLMS will mitigate the following issues:

- EO communities in the Balkans still developing at different rates
- “Bottom-up” approach in addressing EO issues, driven by sporadic and insufficiently coordinated user needs
- Most data providers and producers disagree with free data access
- Lack of utilization of existing standards for data collection, storage and sharing
- Low awareness regarding the benefits of a global EO system





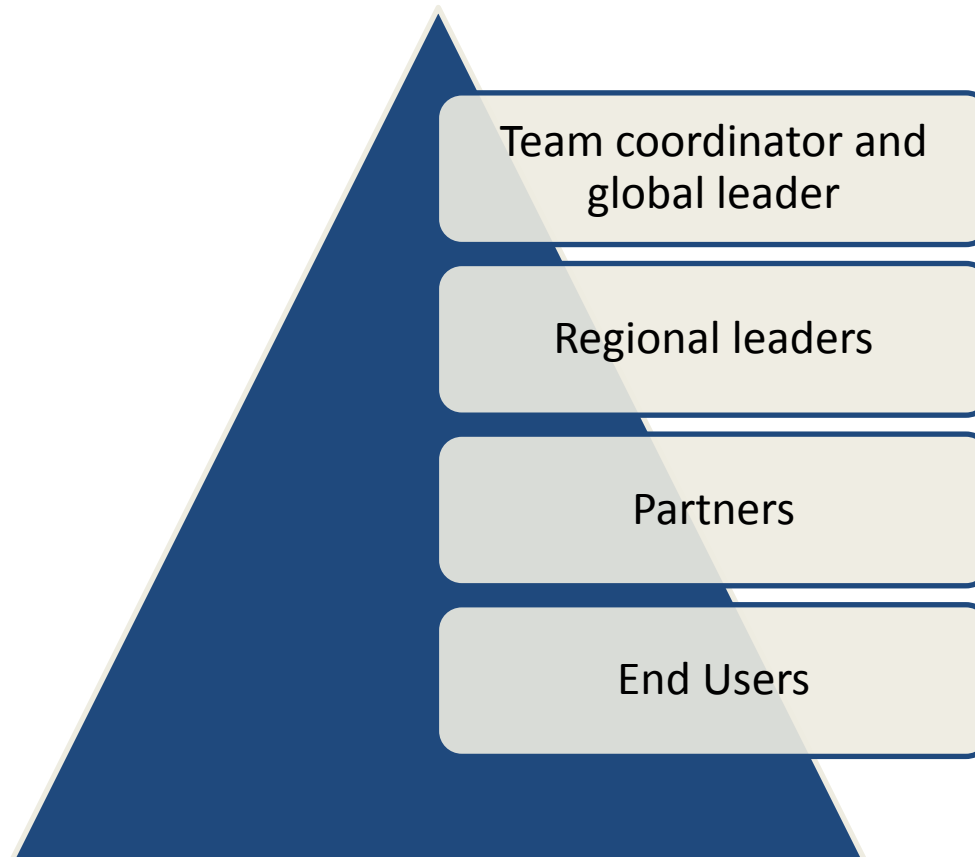
## WP3 - Principal Implementation Milestones





## WP3 - Roles and Responsibilities - 1

- Top down approach
- Cooperation of all levels through a continuous feedback loop





## WP3 - Roles and Responsibilities - 2

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### Team coordinator and global leader

- International representation of the group
  - Determination of policies
  - Establishment of rules and communication protocols
  - Acquiring the external capabilities (e.g. Airbus HAPS)
  - Identifying potential funding sources
  - Cooperation with regional leaders to develop plans for land monitoring activities
  - Development and maintenance of the central data repository
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### Regional leaders

- At least one regional leader per country
  - In direct communication with the global leader regarding policies, rules, protocols, funding and project proposals.
  - Responsible for managing the partners, submitting project proposals and raising awareness for land monitoring in the respective country
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## WP3 - Roles and Responsibilities - 3

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### Partners

SMEs, regional institutions, universities, research facilities, medium-sized public organizations etc.

Collecting and processing the data

Implementing the products and services that will be used by the end users

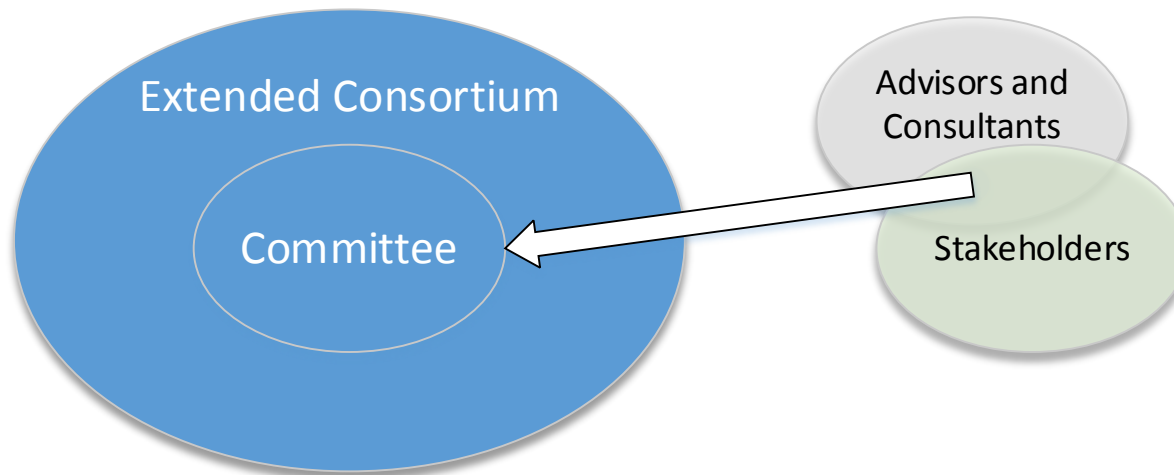
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### End users

All possible groups or individuals that benefit by the use of the system

Giving feedback to the partners about how the services can be improved or how new services can be incorporated into the system

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### Committee:

- Global leader
- Regional leaders

### Extended Consortium:

- Committee + Partners + End Users

### Advisors:

- Provide expertise, help to accelerate the technology transfer

### Stakeholders:

- Provide directions and observations to facilitate the operation of the system
- ESA, EC



## WP3 - Funding sources

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Possible funding sources for the BLMS are:

- Horizon 2020 programs
- EGTC
- Industrial Policy and Geographical Distribution (GeoReturn)
- Other EC programs (e.g. Interreg programs, etc.)
- National and regional projects
- Partially self-funded by the services provided
- Private investments