

→ THE ESA EARTH OBSERVATION Φ -WEEK

EO Open Science and FutureEO

12–16 November 2018 | ESA–ESRIN | Frascati (Rome), Italy

Sector Skills Alliance

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“Nothing in life is to be **feared**,
it is only to be **understood**”
(MARIE CURIE)

all about today is an **holistic approach** of
new education which enables
**knowledge, attitude and share
experience and lessons learned.**

It is matter of **understanding** communities

Trends, challenges & opportunities



Data analytics

Crowdsourcing

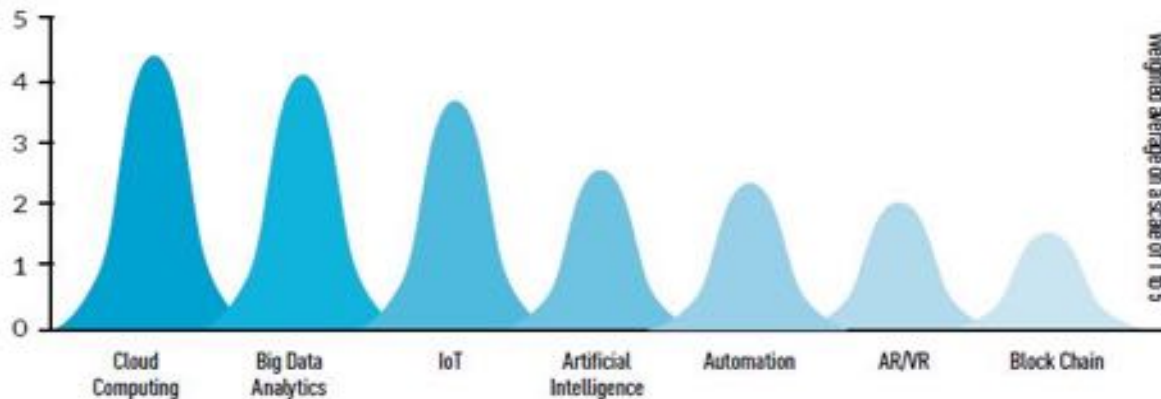
IoT

Cloud computing

AI

Blockchain

(many) new sensors



Source: Geospatial Media Analysis

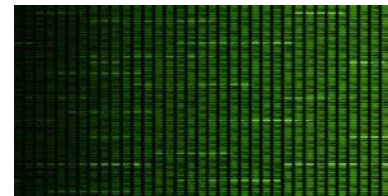
Service oriented

Integration of data sources

Reduced costs

Higher resolution/frequency

More, smaller satellites

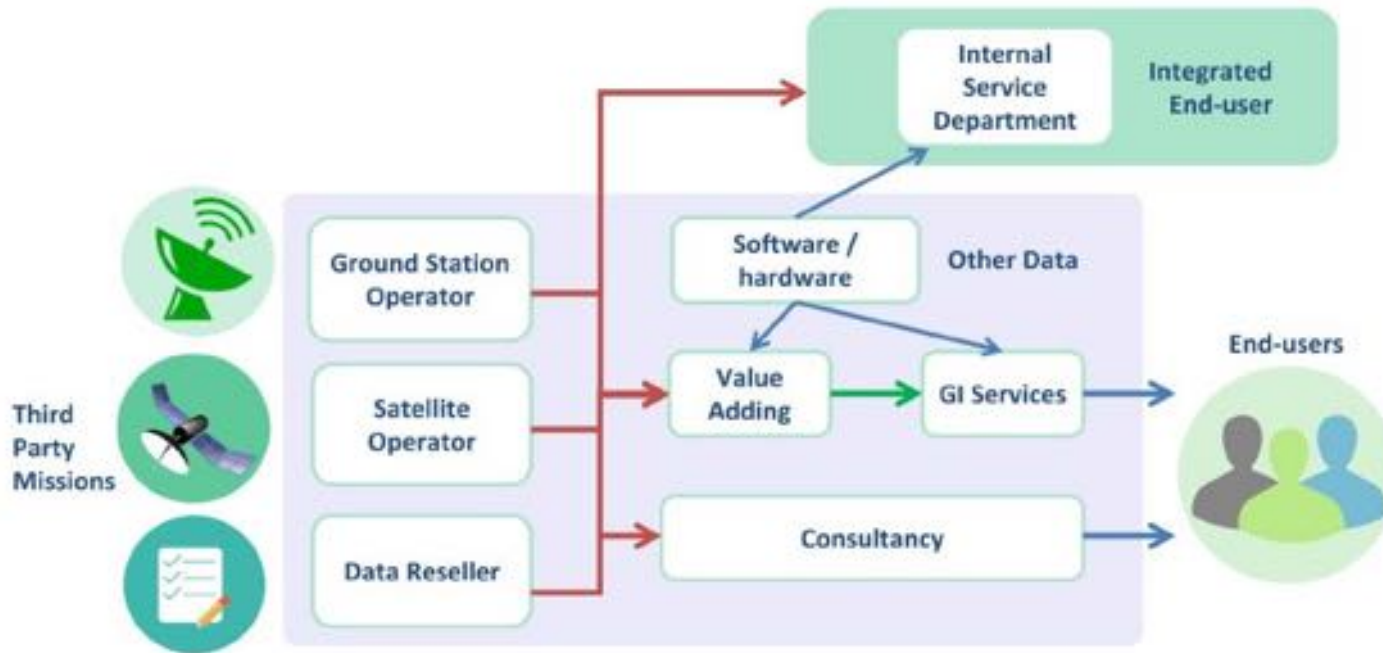


Satellite
Data

Automatic Selection &
Download

Continuous flow
of information

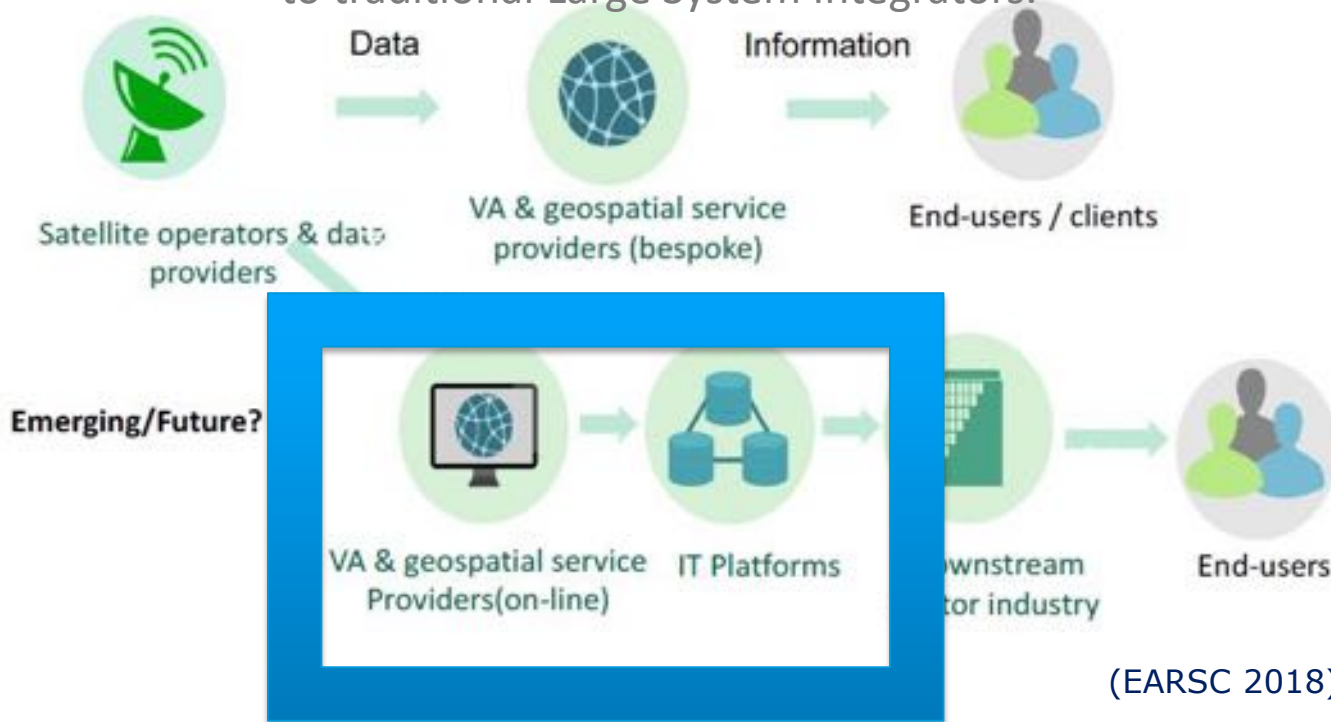
Automatic Processing



(EARSC 2018)

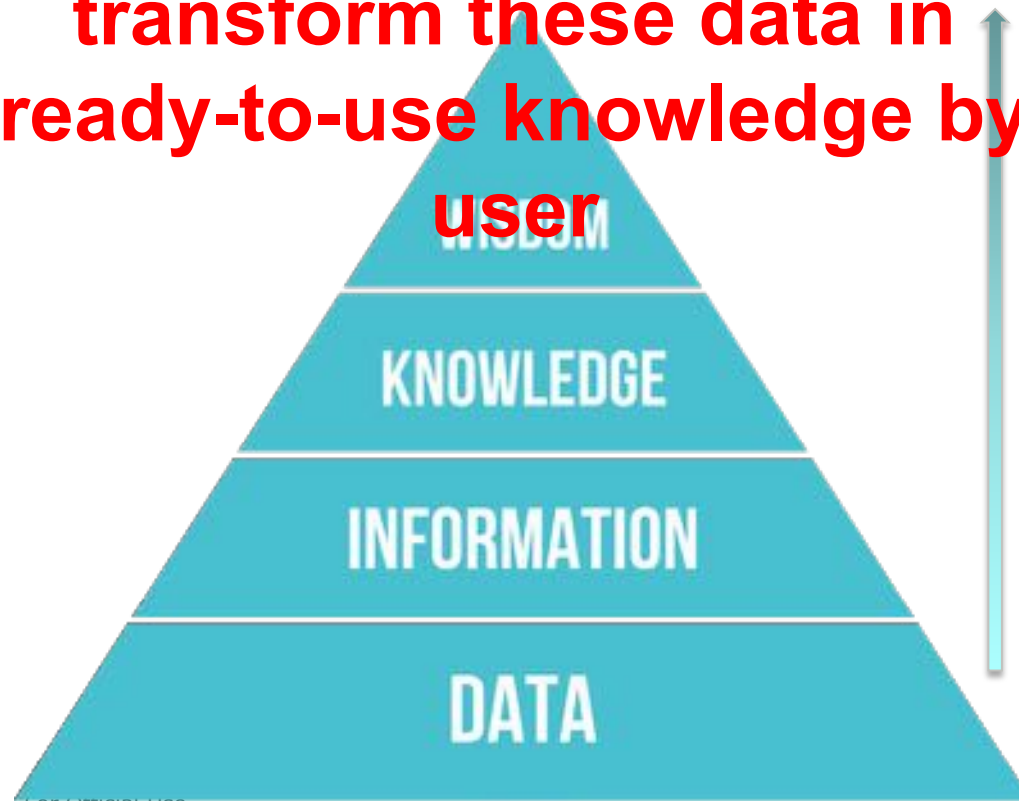
The EO services value chain – future vision

This approach is disruptive of the traditional space value chain and put a strong competitive hedge to traditional Large System Integrators.



(EARSC 2018)

**transform these data in
ready-to-use knowledge by
user**



**DECISION SUPPORT
SERVICES and
APPLICATIONS**

**DATA ANALYSIS
AND MODELLING**

**DATA PROCESSING
AND STORAGE**

DATA ACQUISITION





Strategic axes for enhancing education and skills development through Copernicus



Awareness/ Outreach

- Communication**
- Outreach material
 - Events
 - Branding
 - Promotion support actions (COSME)

Information/ Networking

- Users uptake**
- National training & info sessions
 - CEST (Copernicus Ecosystem)
 - Industry workshops

Skills training

- Users uptake**
- Copernicus Accelerator/ Incubation programme
 - Professionals training (KICs)
 - RUS (Researchers support)
 - Students training (KICs)
 - PhDs & post-PhDs scholarships (KICs)

Skills enhancing

- Users strategy**
- DIAS (Digital Infrastructure)
 - Copernicus Academy and Relays networks
 - FPA and COP FWC
 - HQ020
 - E4GEO partnership (Erasmus+)

ERASMUS PLUS SECTOR SKILLS ALLIANCE

TO DEVELOP A STRATEGIC APPROACH (BLUEPRINT)

Author | ESRIN | 18/10/2016 | Slide 8



SUPPORT THE SPACE STRATEGY FOR EUROPE BY ENHANCING SKILLS, LEARNING AND KNOWLEDGE TRANSFER

GISIG	KU Leuven	PLUS	UR	GEOF	UPAT	FSU-ED
UT-ITC	UNIBAS	IGIK	Planetek	IGEA	EPSIT	
NOVOGIT	GIB	Spatial Services	CLIMATE-KIC	EARSC	ROSA	
UNEP-GRID	NEREUS	VITO	CNR-IREA	VRIES	ISPRA	ALFA

STRATEGY

why, where, how

EO4GEO is a Erasmus+ Sector Skills Alliances

implementing a new strategic approach to sectoral cooperation on skills (**sectoral skills strategy**)

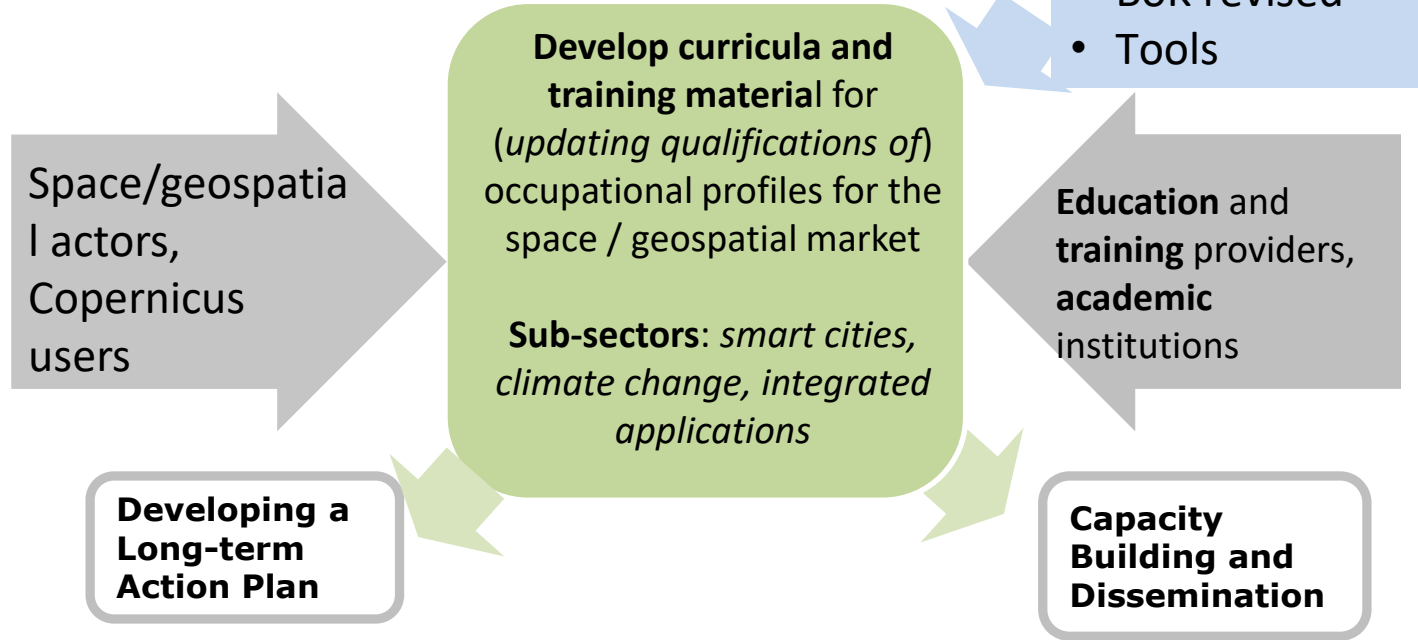
offer a **strategic response to sectoral skills needs**

improve the **quality and relevance** of training and other ways of acquiring skills

make **skills more visible and comparable**

enable people make better **career choices**, find quality jobs and improve their life chances.

- A **Sector Skills Strategy** with recommendations on how to respond to skills shortages in the spatial and geo-spatial sectors
- An ontology-based **Body of Knowledge** for the space/geospatial sector;
- A **series of curricula** and a rich portfolio of **training modules** directly usable in the context of Copernicus and other relevant programmes;
- A series of training actions for a selected set of scenario's in the three sub-sectors - integrated applications, smart cities and climate change to test and validate the approach;
- A long-term **Action Plan** will be developed and endorsed to roll-out and sustain the proposed solutions;



design and develop a series of curricula for different types of occupational profiles, making use of the BoK and taking into account the identifies needs, and to develop a rich portfolio of **training methods** directly usable in the context of **Copernicus** and other relevant programmes.”

TARGET AUDIENCES



PRIMARY AUDIENCE

- ✓ **High Education (HEI) and VET institutions** providing training in EO/GI
- ✓ **SMEs** and industry hiring EO/GI professionals
- ✓ **Public** administrations and agencies (all levels)
- ✓ EO/GI **students**
- ✓ **Stakeholder associations** in the EO/GI sector (students, universities, private sector)

SECONDARY AUDIENCE

- ✓ **Research centers** active in the field of Earth Observation
- ✓ Various **stakeholders** along the Earth Observation / Geospatial value chain
- ✓ **European stakeholder associations** representing students, companies and public administrations in relevant sectors (space, geospatial, aerospace, public sector, innovation, training, digital skills, green skills and soft skills, climate change, integrated applications, smart cities, ecc.)
- ✓ **Innovation agencies**

SURVEY ON SUPPLY

Survey on supply of EO and GI education and training

The survey focuses on the supply of academic and Vocational Education and Training (VET) in Europe in the space/geospatial sector.

It is finalized at an analysis of existing and planned training educational offer in the sector and at identifying the organizations (from academy and from the private sector) which can contribute to the improvement of the skills for the user uptake of Copernicus data and services.

Thanks for your time!

FILL IN THE SURVEY ON SUPPLY

SURVEY ON DEMAND

Survey on demand for EO and GI skills and occupational profiles

The objectives of the demand survey are to better understand the demands of current professional workforce and to highlight skills required on the EO/GI sector in the future.

Your participation in the survey will support research, academic institutions and companies to identify solutions to overcome present and future skills gaps and skills mismatches.

Thanks for your time!

FILL IN THE SURVEY ON DEMAND

Match of skills with demand (and vice versa)

EU Survey All public surveys

www.eo4geo.eu/surveys

Objectives:

- To identify space/geospatial training resource produced in Europe and (if possibly) open for reuse, with an **on-line survey**.
- To establish a **database of the training resources** identified and of the training providers, so that they can be further analysed and exploited in the following phases of the project.
- To widely investigate the availability of online of training resources: a deep **web investigation** allows to complement the survey with structured training resources accessible on line provided by institution operating in the EO/GI sector or as results of previous initiatives.

Two main blocks of responses were identified:

- **GIS and Geomatics courses** (including knowledge in Remote Sensing)
- Training materials entirely focused in Remote Sensing

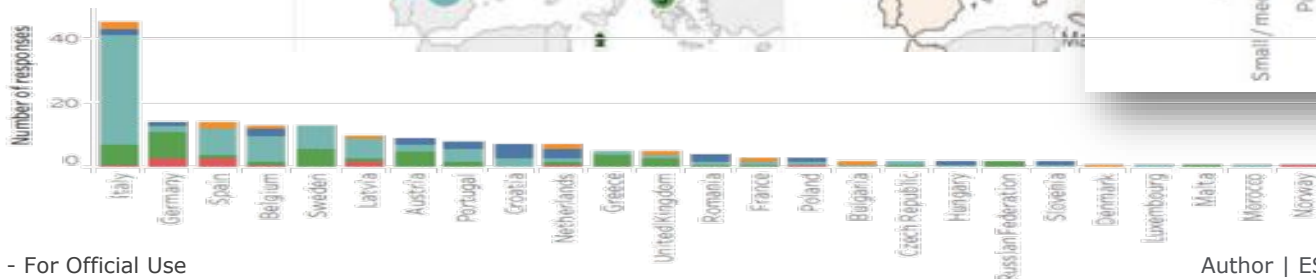
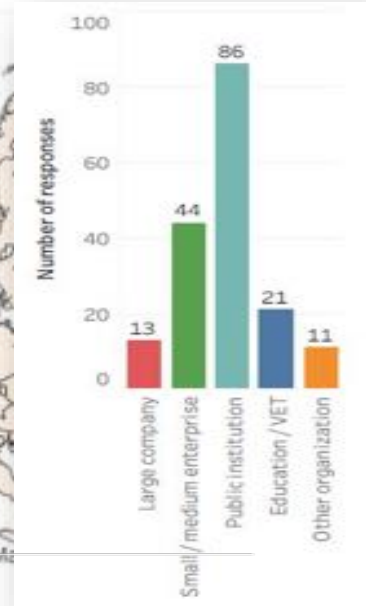
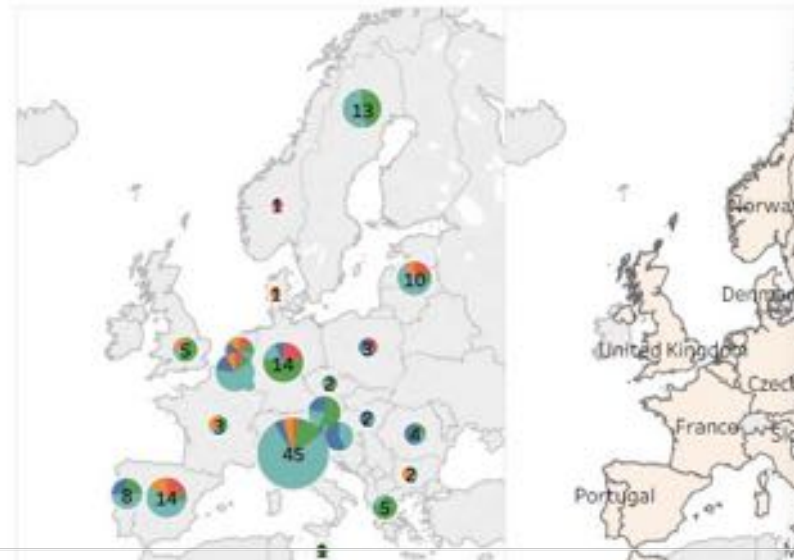
Regarding the knowledge level, three types of educational resources were identified:

- Basic knowledge
- Advanced knowledge
- Domain-specific (focused on the application of Remote Sensing in a particular scientific field) **More than 1000 resources**

Facts and Figures: Survey on Demand for EO/GI Skills and Occupational Profiles



of responses: 175
 (June 28, 2018)
 # of countries: 25
 85% of respondents with PhD or Master degree
 Respondents mostly data/service experts

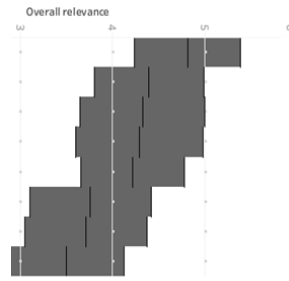


Relevance Ratings by Organisation

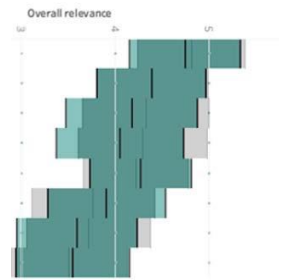
Type

Space/Geospatial Data Skills

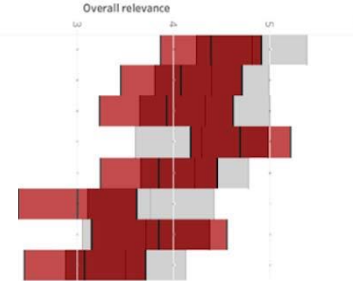
- Visualization and Cartography
- Analytical Methods
- Programming and Development
- Data Capture and Management
- EO/GI and Society
- Computing Resources and Platforms



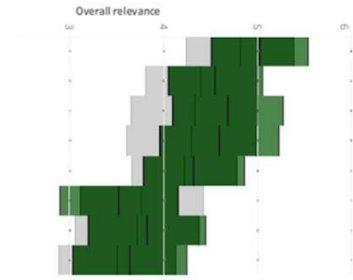
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- EO/GI and Society
- Computing Resources and Platforms
- Organizational and Inst. Aspects



- Space/Geospatial Data Skills
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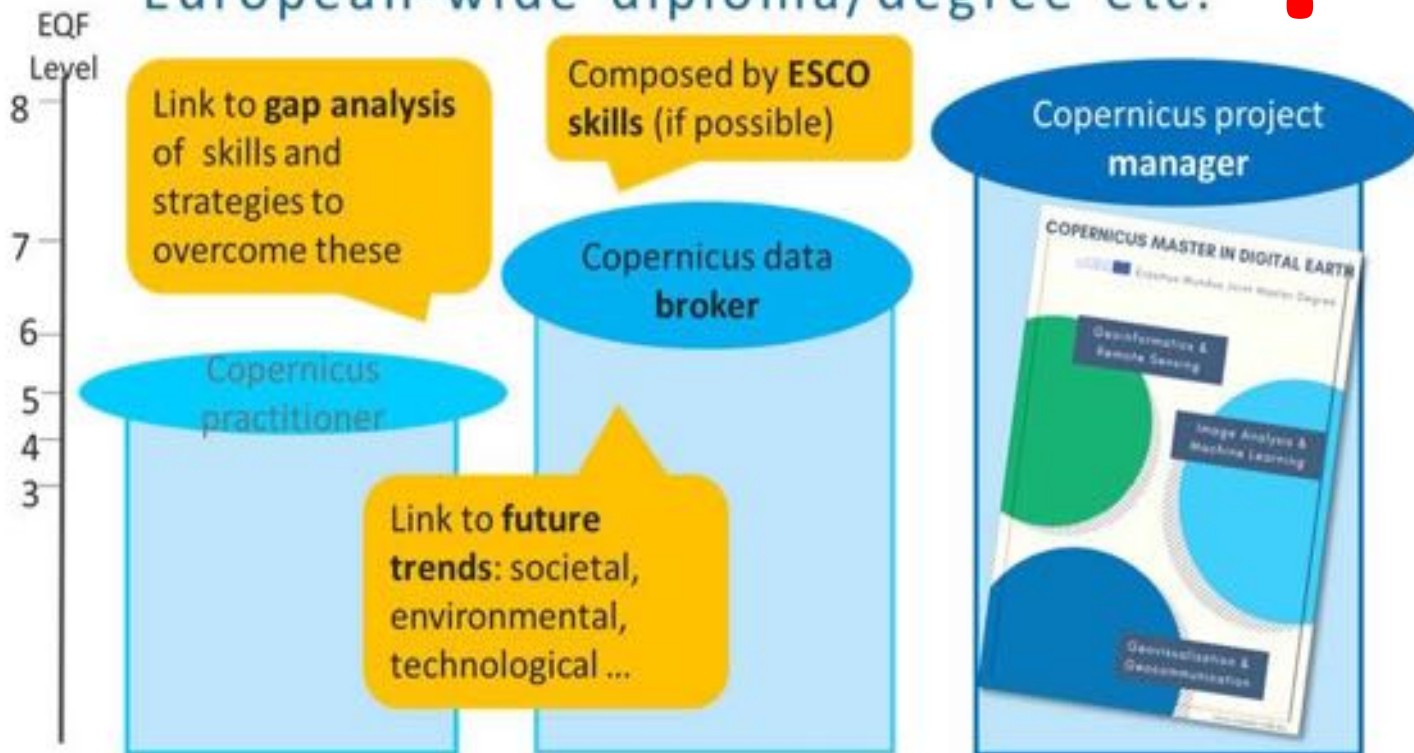


Required levels:
52% Master level
34% PhD level

Occupational profiles differ for organisations and the business areas of the organisations →

Work reality depends on organisation type (generalists vs. specialists, etc.)

Vision: Copernicus expert with European-wide diploma/degree etc.



Extend the existing EO/GI (G) EO

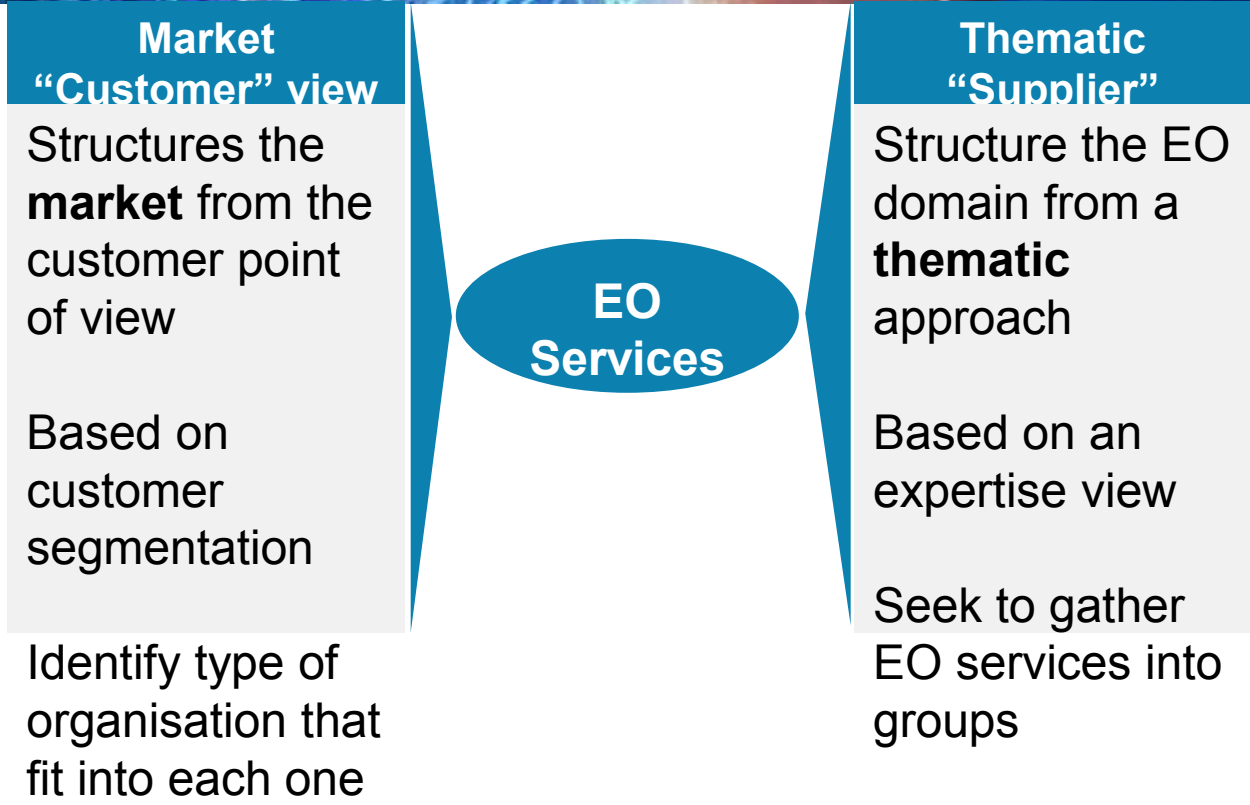


**Geospatial
Information**

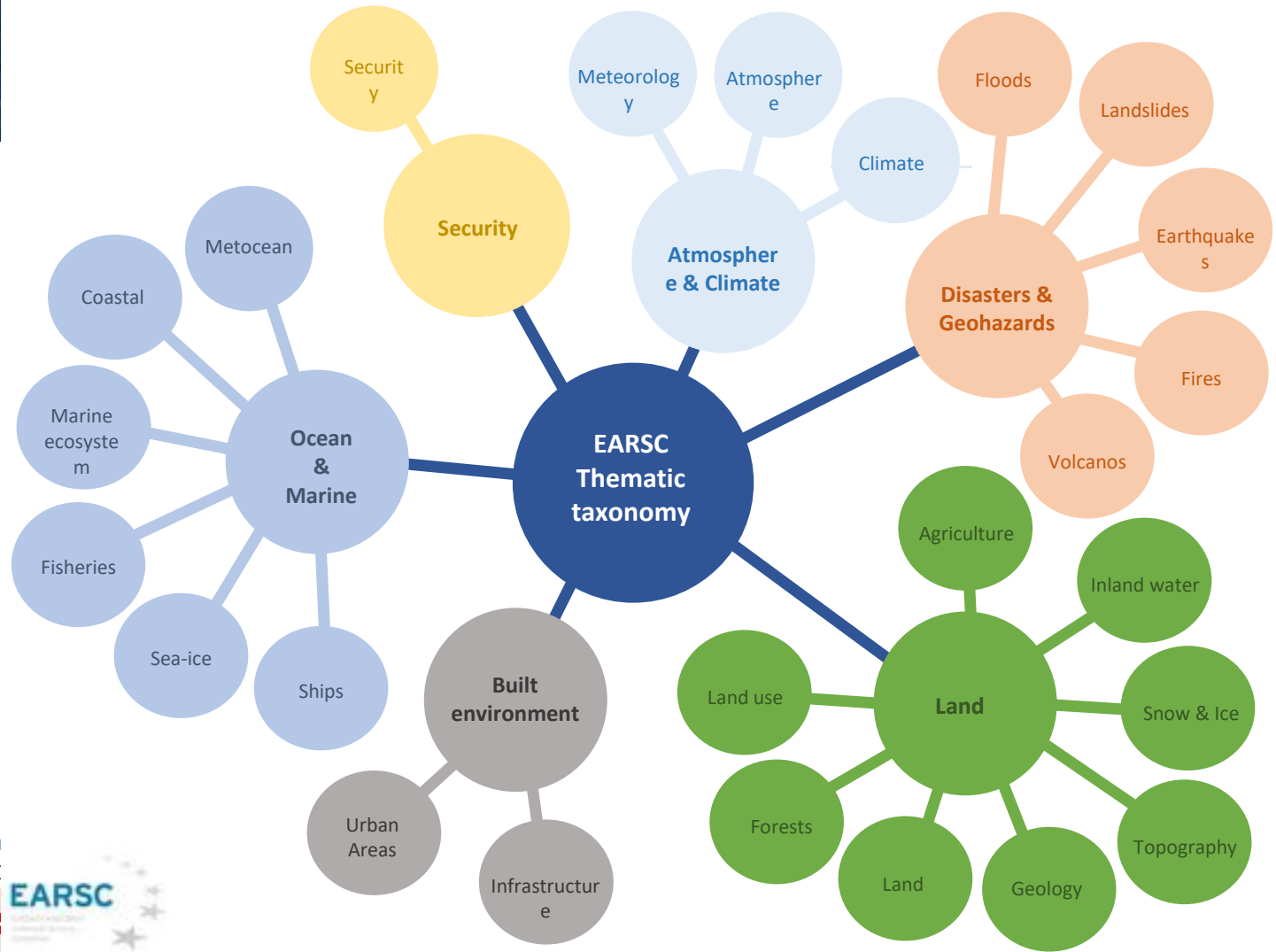
**Copernicus /
Earth
Observation**

**EO4GEO
Body of
Knowledge**

Two points of view







LONG-TERM ACTION PLAN

✓ **AWARENESS** →



✓ **ATTRACTION** →



✓ **ENGAGEMENT** →



✓ **CONSOLIDATION**

✓ **MAINTENANCE** →





EO/GI BODY OF KNOWLEDGE

EO4GEO will develop a commonly agreed Body of Knowledge (BoK) describing an **ontology for the space/geospatial domain** that can be permanently updated by making use of a set of collaborative tools



EO/GI CURRICULA

A series of curricula carefully designed, discussed and agreed upon within the community, linked to a series of **occupational profiles** in the sector making use of the BoK and other competency frameworks



EO/GI COURSES

A portfolio of VET training modules based on **existing training materials or newly developed ones** and a case-based learning method that is applicable for different scenarios and in any sub-sector of the space/geospatial domain



TRAINING ACTIONS

A series of training actions for different case-based learning scenarios in the sub-sectors '**integrated applications**', '**smart cities**' and '**climate change**' including group work and internships making use of collaborative methods and tools

*TAKE
ACTION!*

HAVE YOUR SAY – Participate in the surveys

CONTRIBUTE TO THE BoK – Apply for the Call for Experts


JOIN THE ALLIANCE – Become an Associate Member

KEEP IN TOUCH – Subscribe to the Newsletter

STAY TUNED – Follow us on Social Media

Many thanks!

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