



20 & 21 October 2014
Athens, Greece

2nd South-Eastern Europe GEO Workshop on Integrating Earth Observation Data and Services for monitoring the Environment, protecting the citizens and stimulating the regional economic growth

Remote sensing activities in Romania

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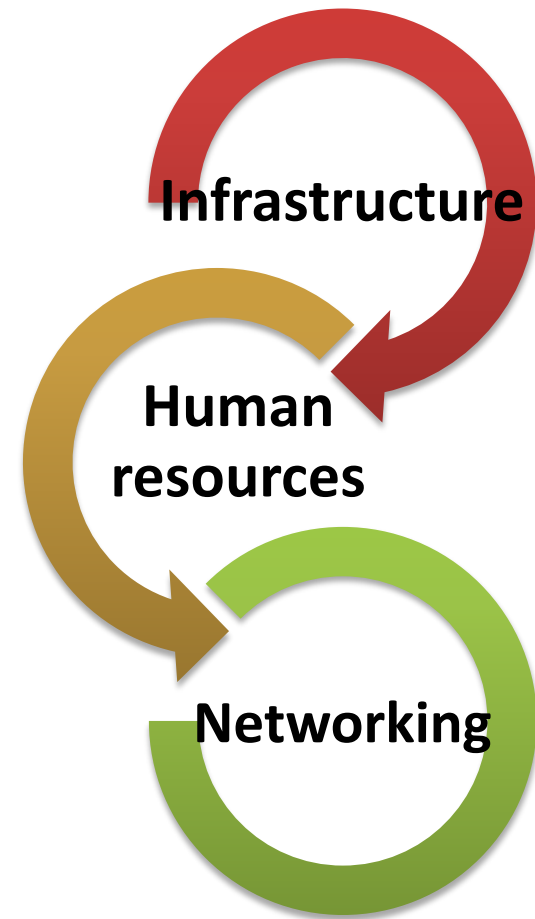
- Non-profit organisation, under the coordination of the Ministry for National Education
- Staff: 240 employees, out of which 205 researchers
- Expertise: optoelectronic applications (art restoration, new materials, bio-medical, **environment**)

↳ Remote Sensing Dept.

↳ CARESSE

Centre for **A**tmospheric **RE**mote **S**ensing and **S**pace **E**arth observation

- **CARESSE** = to concentrate and organize existing capacities for atmospheric remote sensing in Romania >> relevant and competent partner for ESA's EO missions.
 - atmospheric composition and processes
 - participation EO activities (e.g. validation of retrieval algorithms or products for Sentinels, EarthCARE and ADM-Aeolus, mission preparation, measurement technology, CAL-VAL, data exploitation)
- **General Objective** - to create a platform for collaboration between research and industry



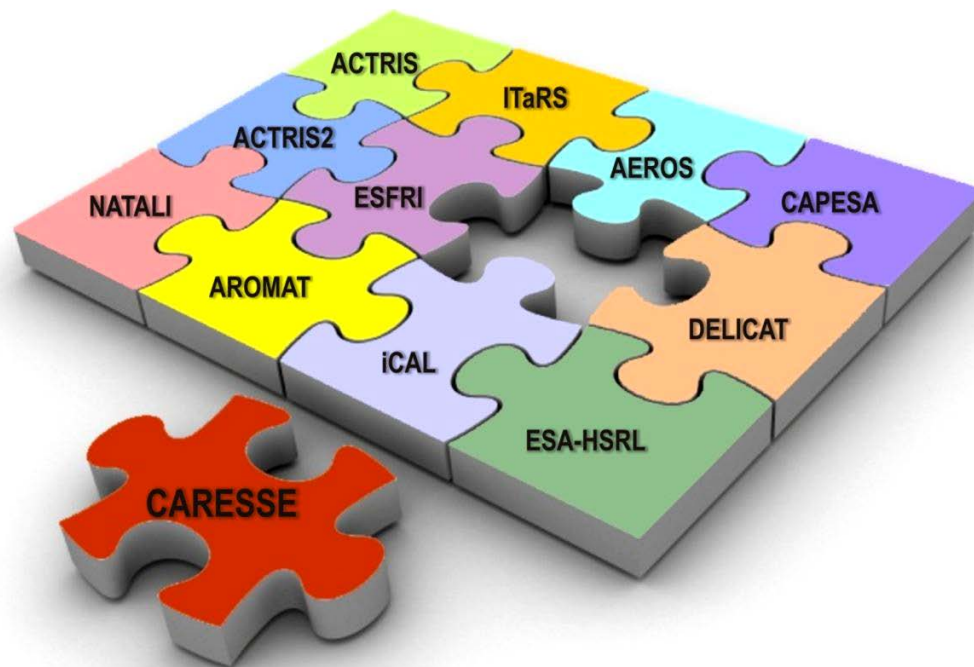
Funding programs

National

1. Program for research-Space Technology and Advanced Research
2. Core funding program

International

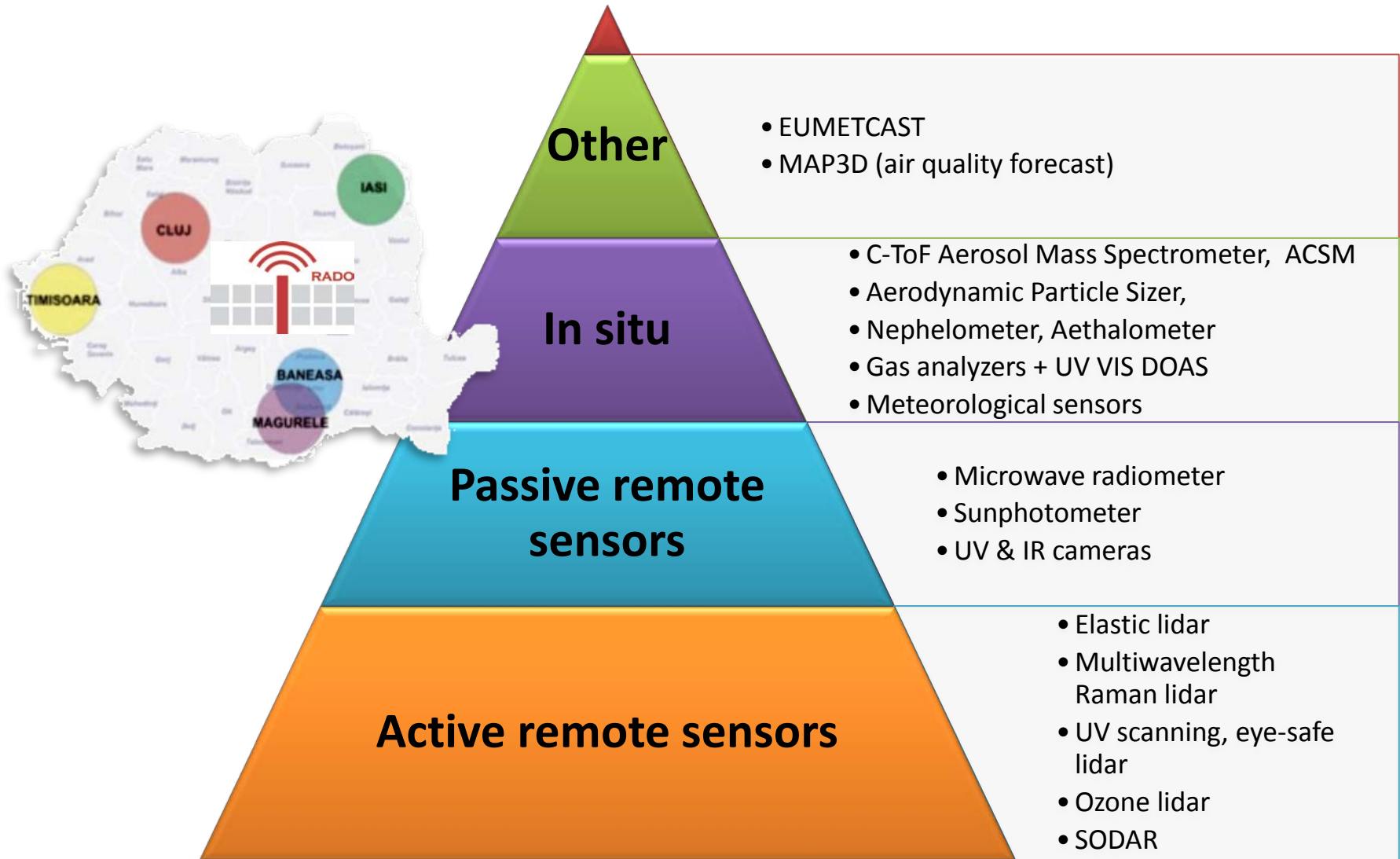
3. 7th Framework Program
4. Bilateral projects
5. European Space Agency



CARESSE

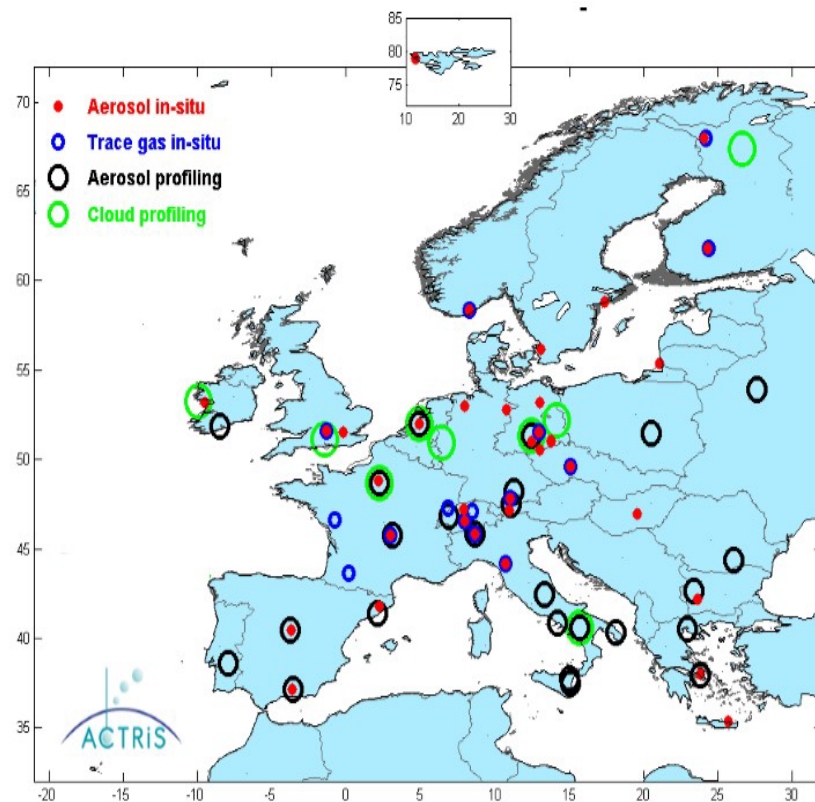
to organize & manage the pieces of the puzzle

National infrastructure

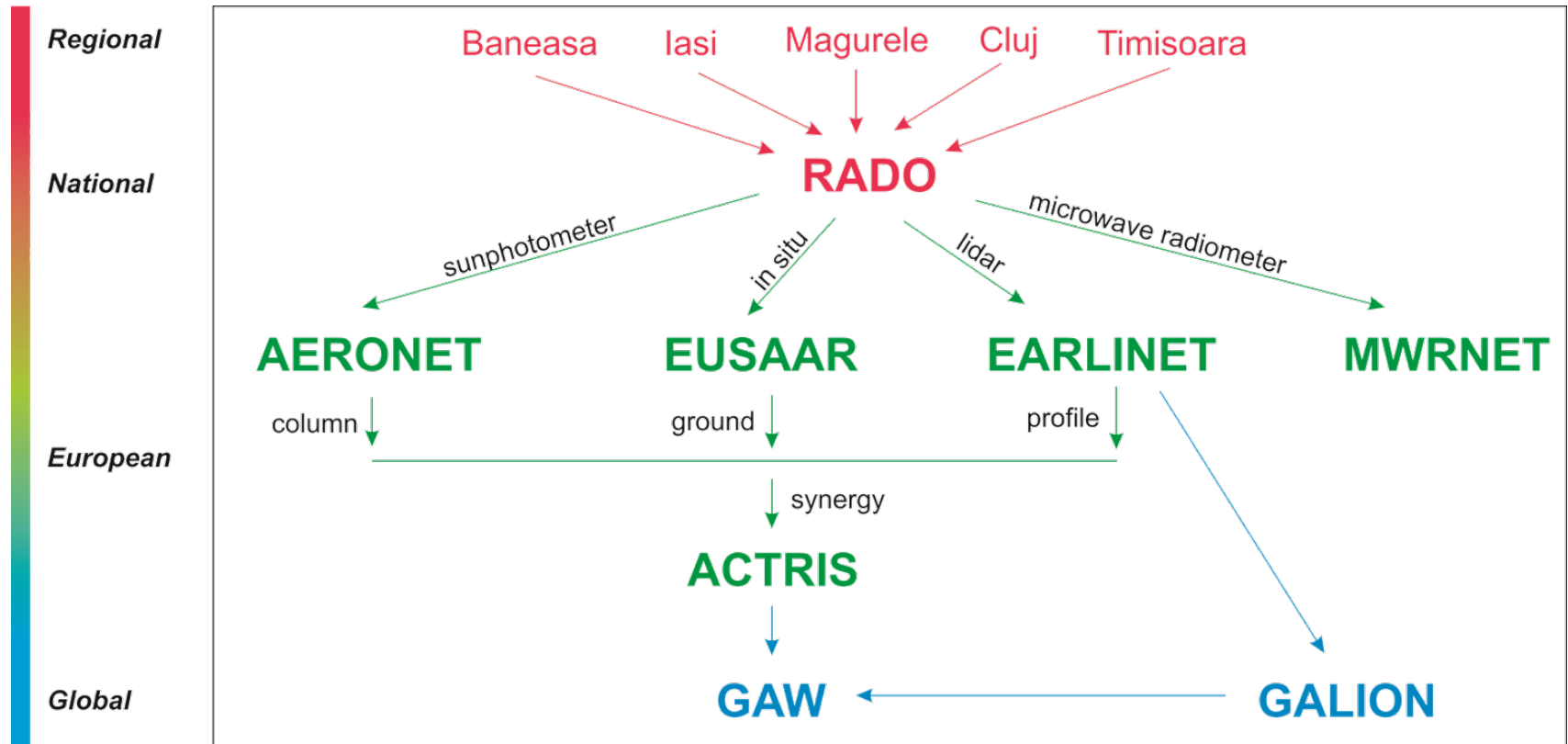


Partnership

- Romanian Atmospheric 3D research Observatory – RADO
 - 5 multi-instrument stations
 - centralized data processing & storage
- EARLINET
 - 27 lidar stations covering Europe
- AERONET
 - Global sun photometer network
- ACTRIS
 - EARLINET + CLOUDNET + EUSAAR + AERONET-EU
 - National: RADO + INCAS + ROMATSA + industry
- ESA
 - BIRA- Belgian Institute for Space Aeronomy
 - NOA – National Observatory of Athens
 - MPI – Max Planck Institute
 - NLR - National Aerospace Laboratory of the Netherlands
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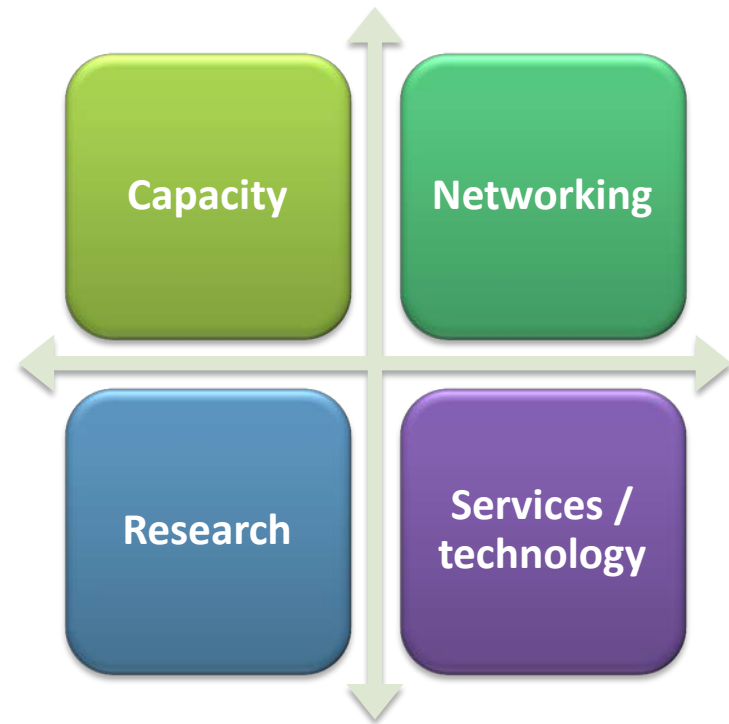


Networking activities

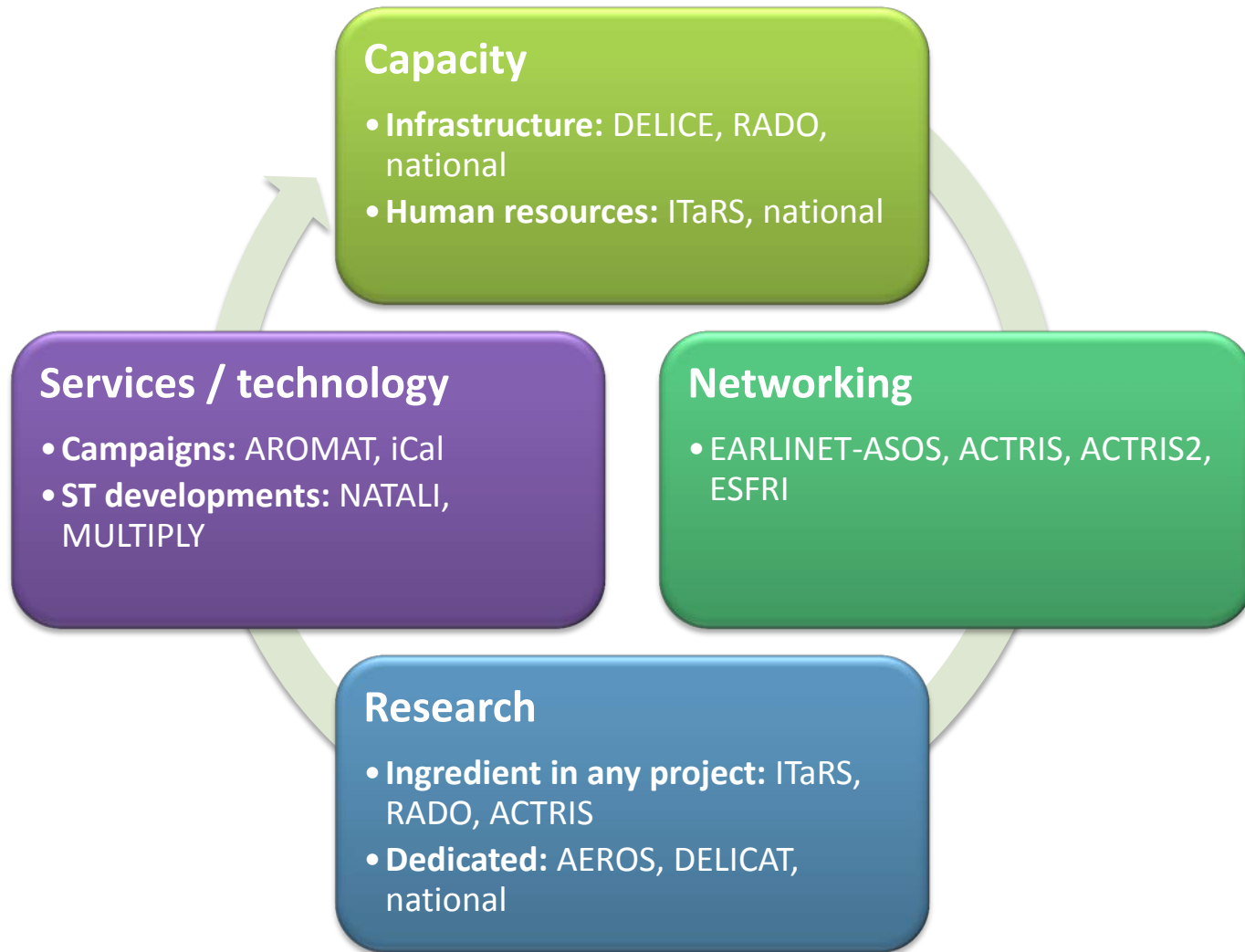


Consolidating the pyramid

- Approx. 80% of the funds are obtained by competition → “random” success → difficult to maintain a “straight line”
- Medium-term sustainability → diversity & flexibility
 - pieces of the puzzle are only apparently chaotic
 - they are logically inter-linked, but not always at the same time scale
- Long-term sustainability → continuous investment in all 4 major pillars
 - Capacity – to be competitive
 - Networking – to be included
 - Research – to advance knowledge
 - Services & technology – to build, to offer back

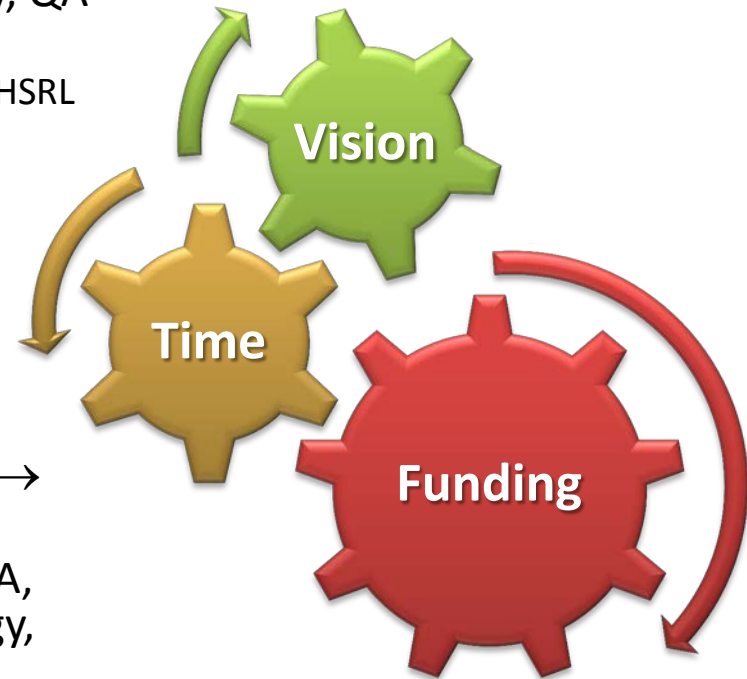


Project puzzle



Objectives for the near future

- Improvement of our capacities
 - infrastructure: towards 24/7, NRT data delivery, QA
 - AMS → ACSM
 - Multiwavelength Raman lidar → Multiwavelength HSRL
 - “Manual” → Automatic data processing
 - team: specialization, productivity
 - international exposure
 - more publications
- Contribution to EO field
 - national: Atmospheric Remote Sensing school → continuity
 - international: research infrastructures (NA, TNA, JRA), space applications (algorithms, technology, CAL/VALs)
 - stakeholders: new products & services, tailored on their needs





The overall goal

- Better regional capacity to participate in EO programmes
 - Tutor of the new lidar stations (Cluj-Napoca, Iasi, Timisoara, Belgrade, St. Petersburg, Lille)
 - Active involvement in European and global networks and research infrastructures (EARLINET, AERONET, GALION)
 - New directions (PANDONIA)
 - Campaigns (AROMAT, iCAL)
 - Atmospheric Remote Sensing School (Master, PhD, Postdoc)
 - Oriented to the stakeholders' needs (volcanic ash, low-level wind shears, atmospheric structure, pollution,...)
- **Successful?**



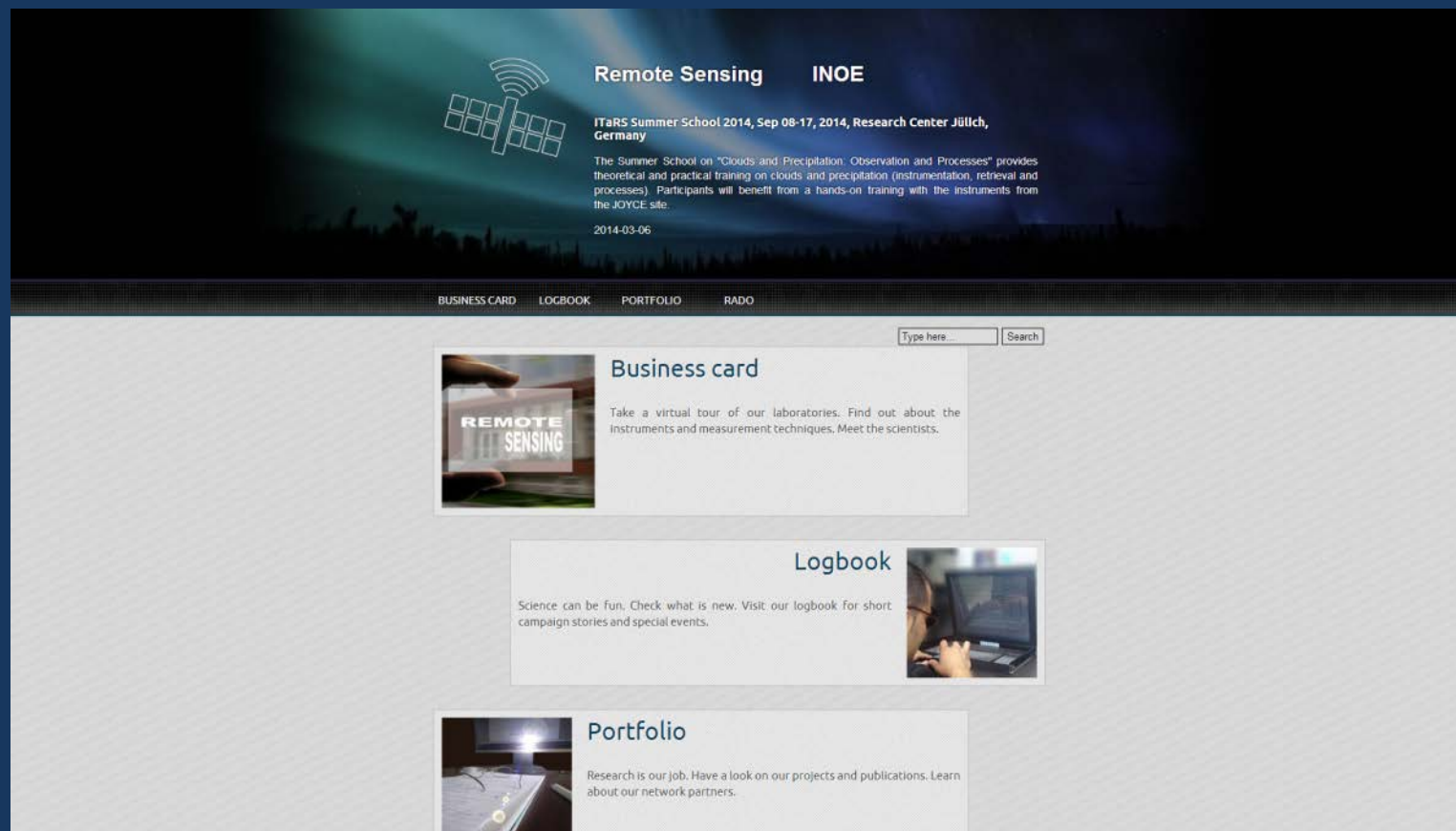
Lessons learned

- Climate
 - geographical representativeness >> networking
 - multi-parameter >> multi-instrument + multi-expertise
 - long-term operation >> sustainability
- Synergy
 - funds
 - capacities
 - topics
- Project-oriented? >> Competition  Uncertainty 

There is no program to support trans-national networks

- “the landscape” is continuously changing
- some expertise is lost
- few continuous data series

How can we make it more economically efficient?



Doina Nicolae

<http://environment.inoe.ro>

GROUND-BASED REMOTE SENSING = NOVEL IN-SITU OBSERVATION SYSTEM

Thank you

