

## DANUBIUS-RI

A new distributed pan-European Research Infrastructure supporting interdisciplinary research on river-sea systems

### Challenge



Many of the most pressing societal challenges related to river-sea systems are multi-faceted. Addressing these problems requires new approaches to world leading research, spanning traditional disciplines, and Research Infrastructure that:

- spans 'catchment-to-coast', including coastal sea
- provides innovative opportunities for cross-disciplinarity/boundary spanning
- facilitates knowledge exchange and attracts young people to science
- maximises the 'impact' of investments in environmental research, driving innovation
- is truly at the centre of the knowledge triangle (Research – Education – Innovation)

### History

- 1996: International Research Centre on life and earth Sciences proposed in the Danube Delta
- 2006: major international meeting in the Danube Delta introduced concept of integrated management of river-delta-sea systems
- 2011: Romanian Government started funding development of plans for International Research Centre for the Danube River-Danube Delta-Black Sea
- 2013: DANUBIUS-RI designated a Flagship Project of the EU Strategy for the Danube Region
- 2013: scope of project widened to large river-sea systems across Europe
- 2016: DANUBIUS-RI included as a new project on the ESFRI (European Strategy Forum on Research Infrastructures) Roadmap
- 2016: (December) start of Preparatory Phase with H2020 funding

### Strategic importance

DANUBIUS-RI:

- will gather scientists from different disciplines instead of focussing on a single, scientific discipline
- will address cross-disciplinary topics and issues related to sustainability of the river-sea system, as a single, connected and highly dynamic system of high social and economic importance
- will take inter disciplinarity and the socio-economic relevance and impact as important criteria for evaluating applications for access.

DANUBIUS-RI will be a platform for collecting, analysing, modelling and retrieving river-sea system data useful to all scientific disciplines. From data to information to knowledge to wisdom

DANUBIUS-RI:

- will create new knowledge through consistent state-of-the-art observation, analysis and modelling, across the science, social and economic disciplines
- will enable stakeholder access to data, knowledge and concepts for more informed decision-making.

### Research questions

**How does global climate change affect river-sea systems?**

- \* Physical dynamics
- \* Nutrient dynamics
- \* Biogeochemical cycles
- \* Geohazards

**How do river-sea systems respond to global climate change and increased human pressure?**

- \* Vulnerability
- \* Structure/function changes
- \* Adaptation
- \* Alien species
- \* Resilience

**How do changing societal demands affect river-sea systems?**

- \* Natural resources
- \* Impact on goods/services
- \* Social dynamics
- \* Sustainable development

**How to increase the effectiveness of measures for river-sea systems?**

- \* Restoration of impacted systems
- \* Understanding system connectivity
- \* Enhancement of resilience

### Components

Hub (Romania)

Nodes:

- Observation (UK)
- Analysis (Germany)
- Modelling (Italy)
- Impact (Netherlands)

Supersites:

- Elbe Estuary (Germany)
- Thames Estuary (UK)
- Nestos (Greece)
- Danube Delta (Romania)
- Ebro-Llobregat Deltaic System (Spain)
- Po Delta-North Adriatic Lagoons (Italy)
- Szigetkoz (Hungary)
- Lake Lunz (Austria)

Data Centre (Romania)

Technology Transfer Office (Ireland)

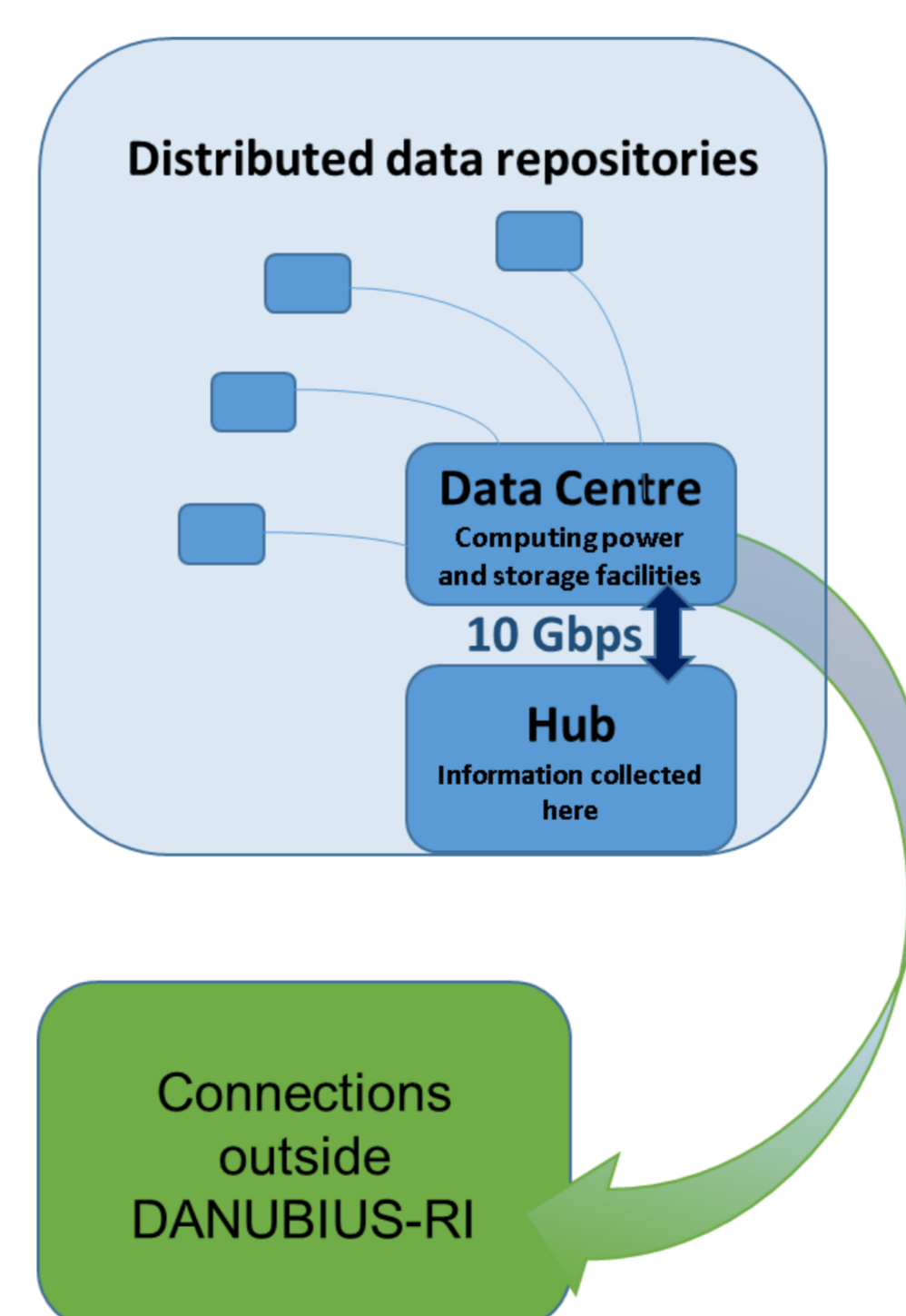
### DANUBIUS Commons

Set of harmonised:

- methods
- protocols
- instruments
- data acquisition
- management

Implemented across DANUBIUS-RI to guarantee the quality and consistency of scientific output

Kept under continual review



### Preparatory Phase (DANUBIUS-PP)

Started on 1 December 2016 and running for 3 years

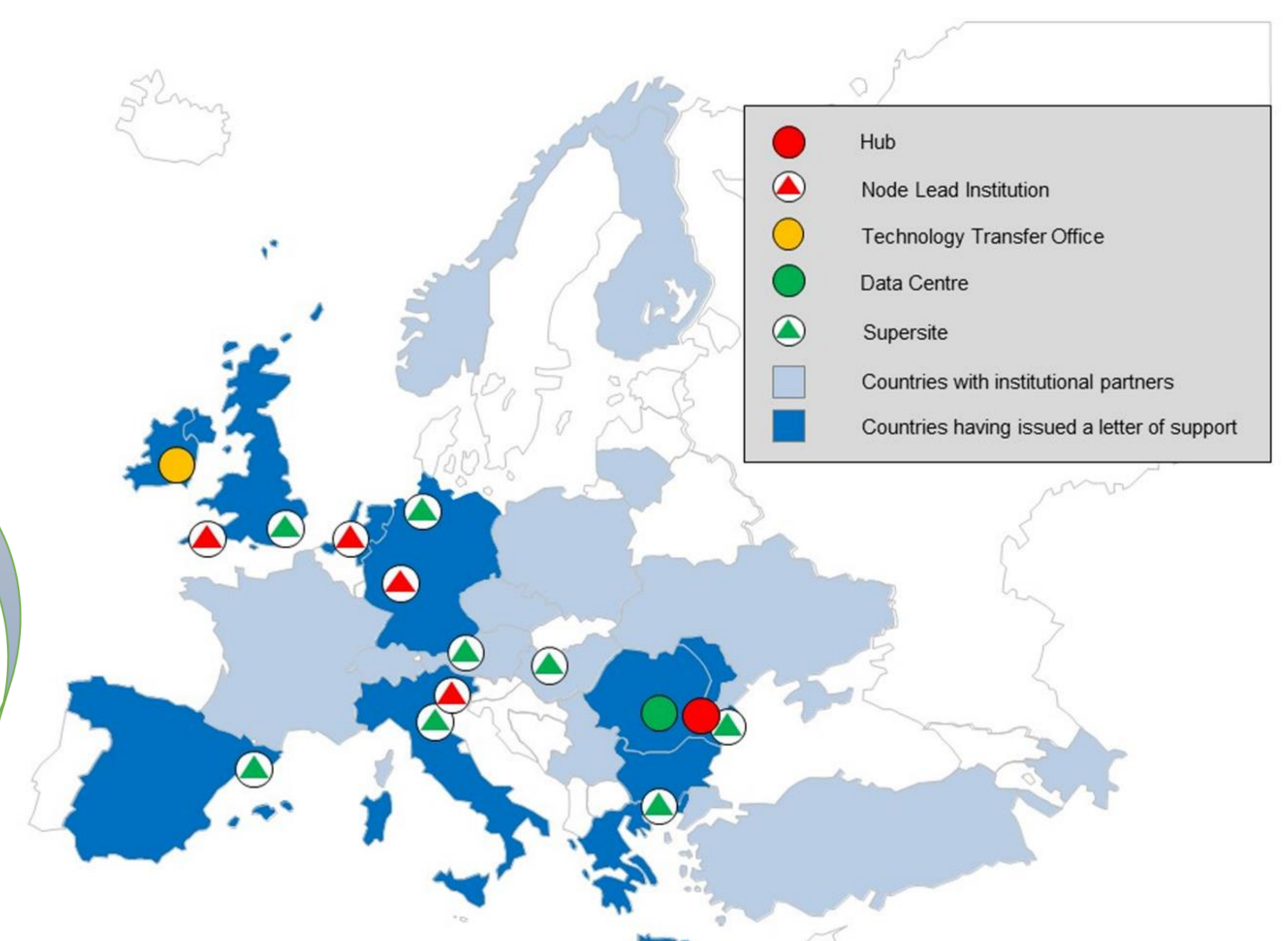
Funding from H2020 R&I Programme under Grant Agreement No 739562

Consortium has 30 partners from 17 countries, including 3 international organisations/programmes

Coordinated by GeoEcoMar (National Institute for Research and Development on Marine Geology and Geocology), Romania

Bulgaria is represented by the Bulgarian Academy of Sciences

Contact: [danubius.research@geoecomar.ro](mailto:danubius.research@geoecomar.ro)



### Access and data use

- DANUBIUS-RI will apply an 'open access' policy based on competition and selection of proposals evaluated on their scientific excellence and social and economic relevance
- Aim to develop *common standards* and *open access* to data and the *harmonisation of data requirements* in particular related to European Strategies
- Data for research purposes will be free, while organisations using data for commercial uses will be charged
- Measures of the success of DANUBIUS-RI will be its impact and the extent to which the data and information developed are both accessible and used by society (at social, economic and policy level)

### DANUBIUS-RI – on the ESFRI Roadmap 2016

ESFRI Roadmap includes new research infrastructure projects to fill important gaps in the European research landscape \* European brand of excellence, attracting new values on funding, education, knowledge exchange and connecting science and policy \* Promotes long-term funding stability and knowledge transfer \* Procedures and monitoring ensure a constant progress \* Opportunity for ERIC status \* Synergistic relations with other ESFRI Research Infrastructures

Flagship conference "RIs beyond 2020 – sustainable and effective ecosystem for science and society"  
22-23 March 2018, Sofia