

# AnaEE: Analysis and Experimentation on Ecosystems (terrestrial & aquatic)



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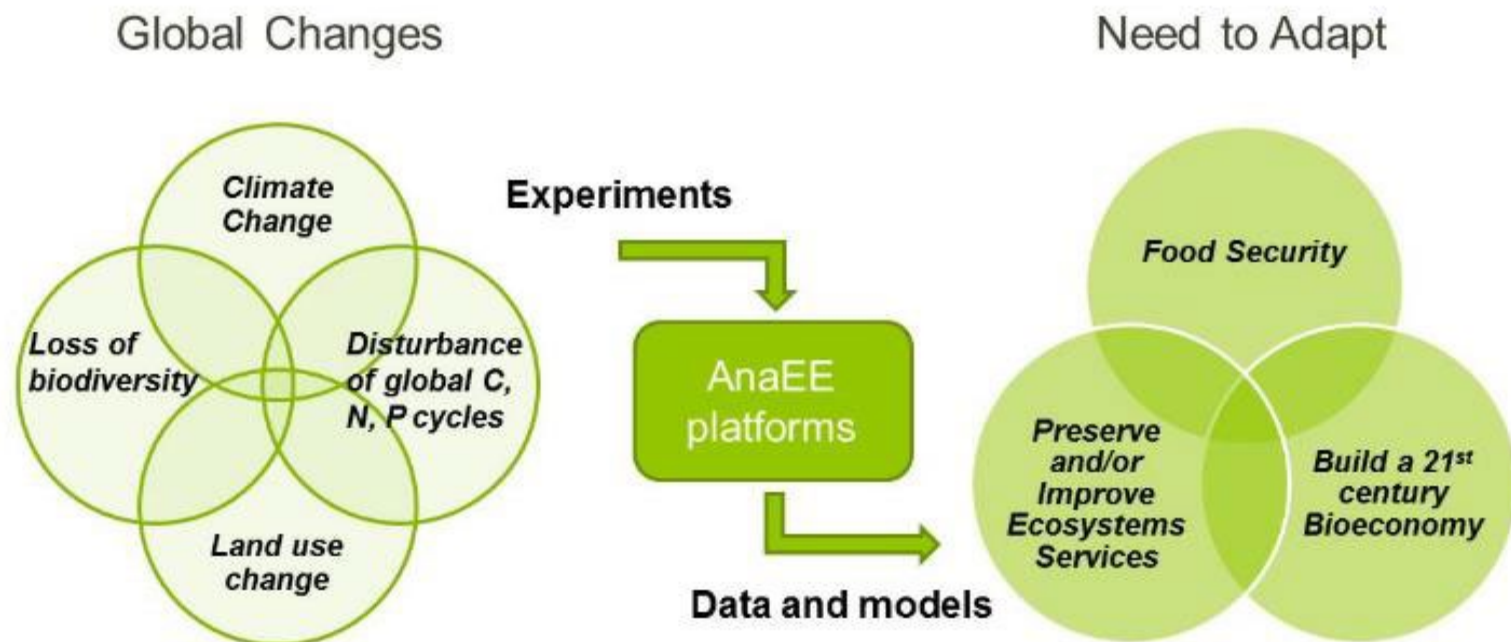
- Concept & Scientific Objectives (Mission)
- Structure and Governance
- Platforms
- Belgium National node
- International projects participation



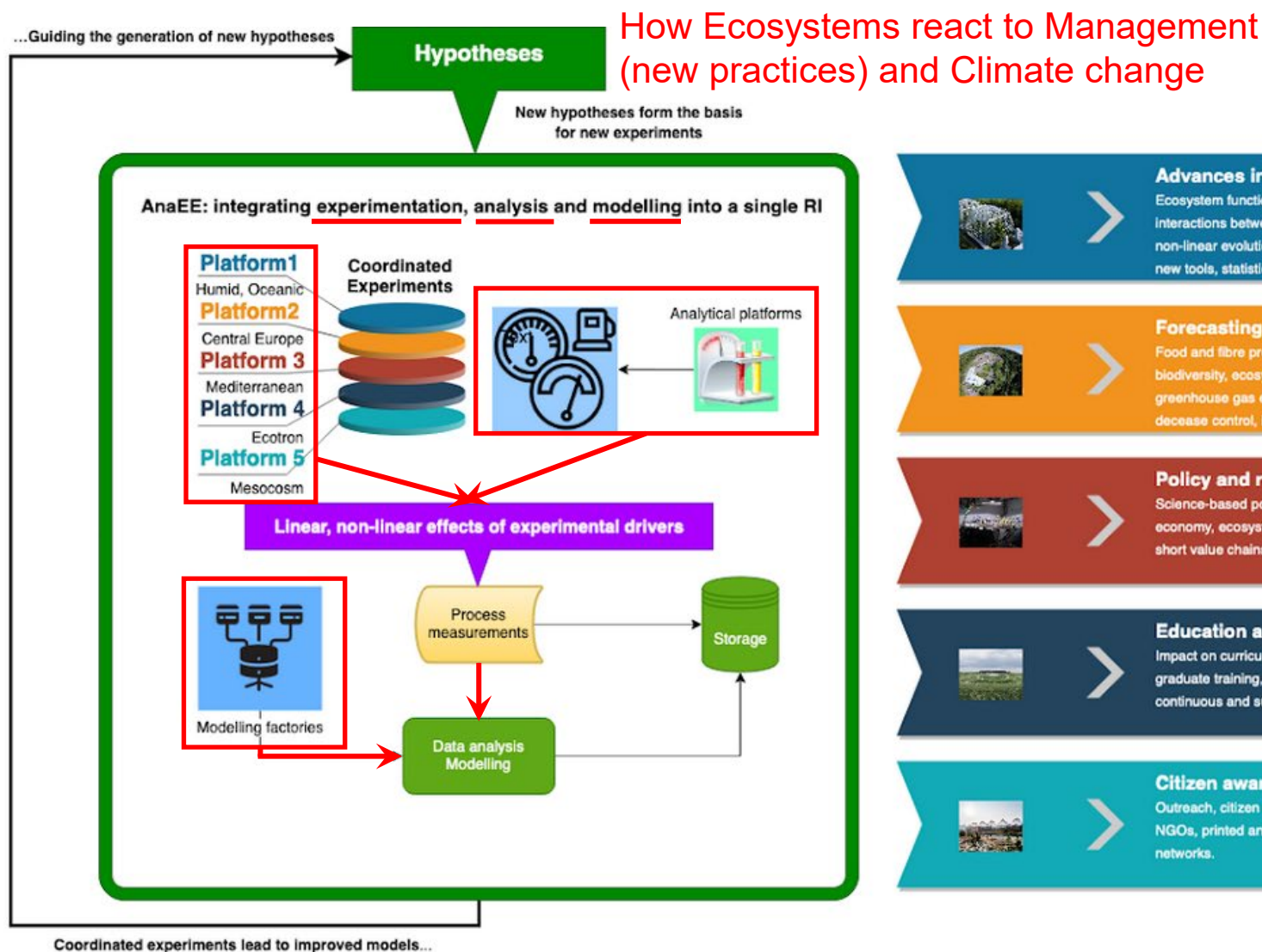
# Concept & Mission

**To enable experiment on managed  
and unmanaged terrestrial and aquatic ecosystems**

**providing data and models  
addressing the challenges of food production, ecosystem services and bio-  
economy**



# Concept & Mission



## Advances in understanding

Ecosystem functioning, ecology, agronomy, interactions between pressures, linear and non-linear evolution, management practices, new tools, statistics, syntheses.

Science



## Forecasting

Food and fibre production. Food security, biodiversity, ecosystem carbon storage, greenhouse gas emissions, pest and disease control, invasive species.

Society



## Policy and regulations

Science-based policies, sustainable bio-economy, ecosystem health and resilience, short value chains.

Policy



## Education and training

Impact on curriculae, undergraduate and graduate training, training of professionals, continuous and sustained education.

Teaching



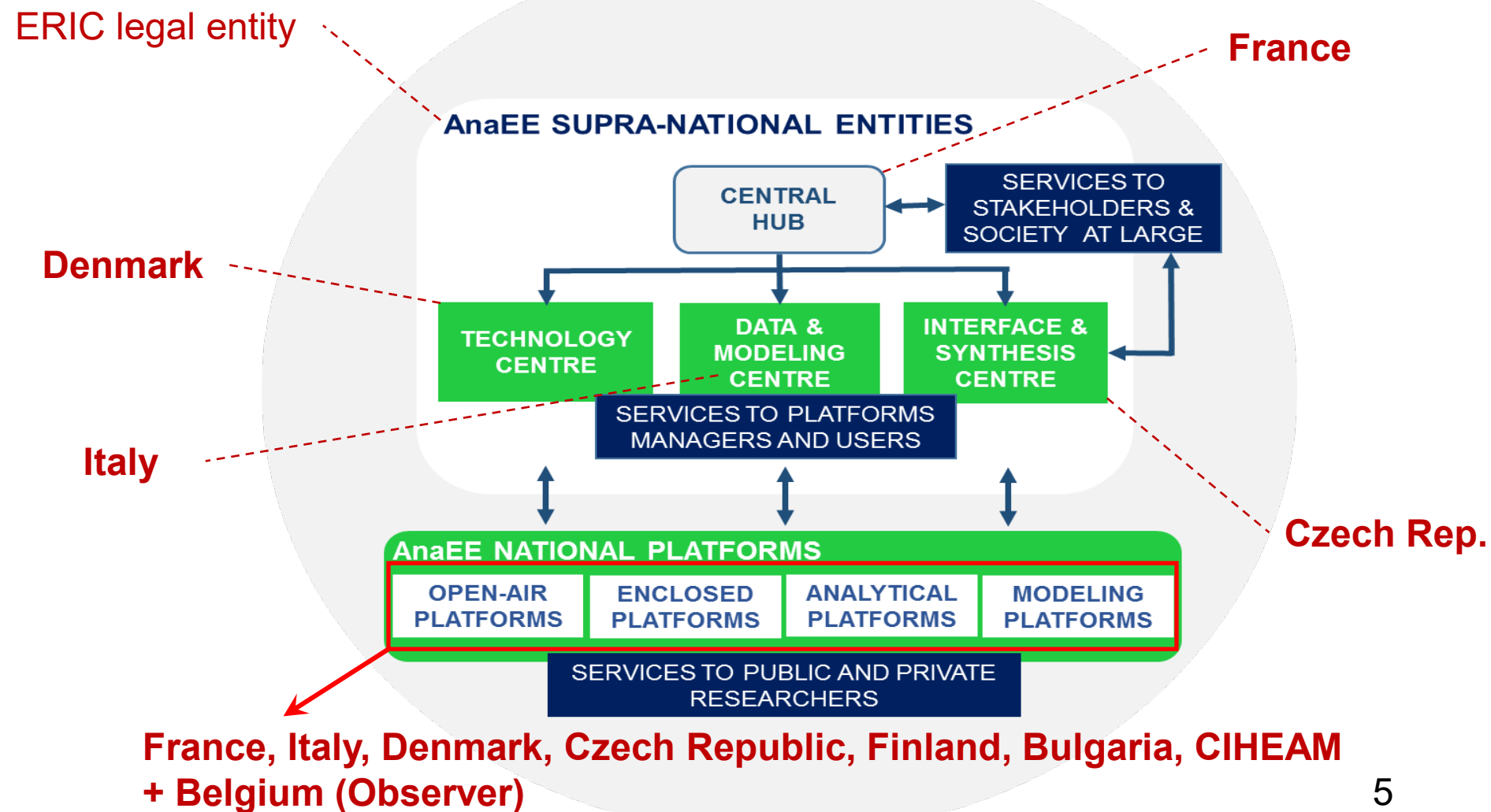
## Citizen awareness

Outreach, citizen science, collaboration with NGOs, printed and online media, social networks.

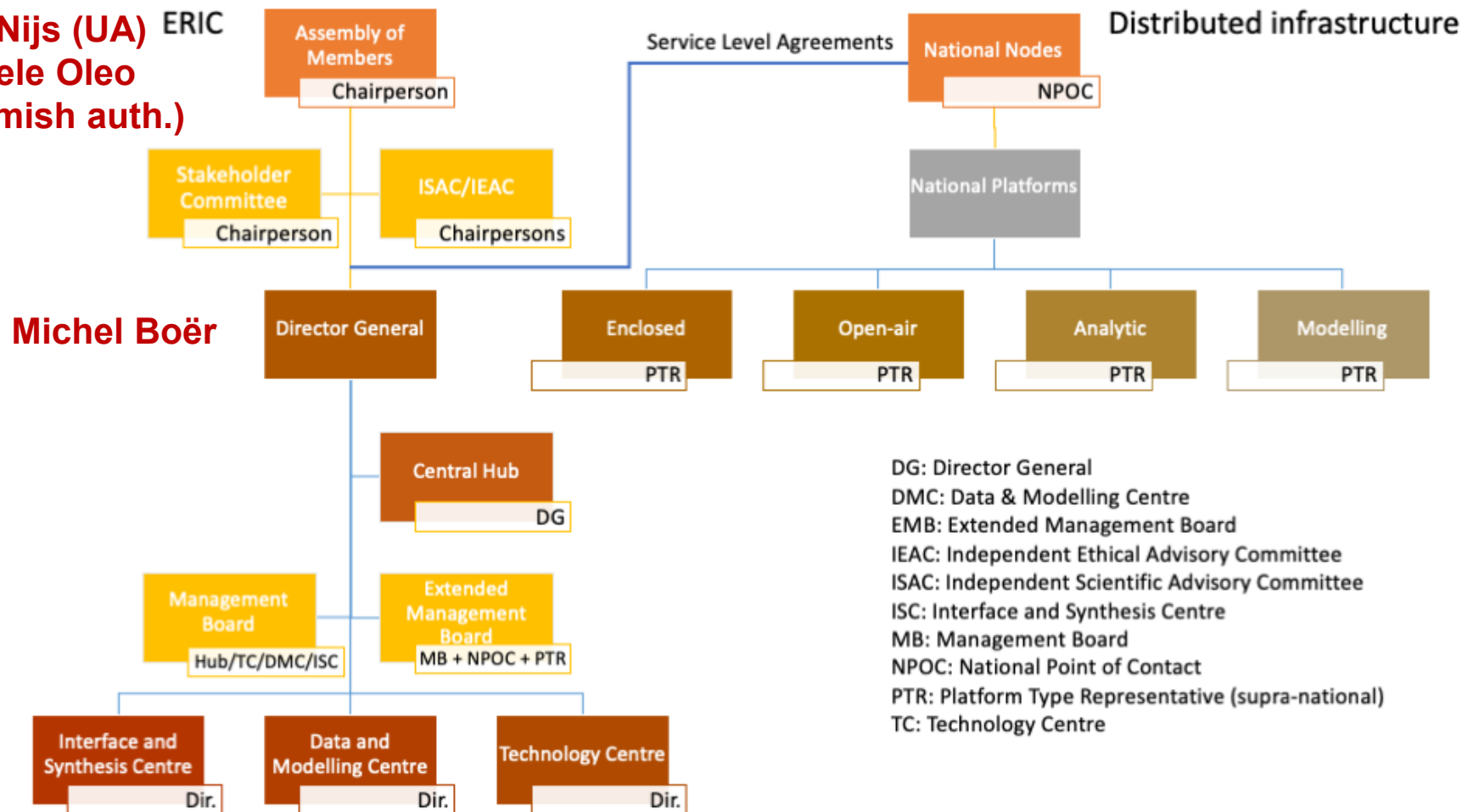
Citizens



## National platforms and Supra-national Hub and Service Centres



**Belgium:**  
**Ivan Nijs (UA)**  
**Michele Oleo**  
**(Flemish auth.)**



# AnaEE Platforms

Open access for public and industry scientists to a wide range of experimental ecosystem platforms

## Open-air ecosystem platforms

covering various land uses and transecting Europe's climatic zones

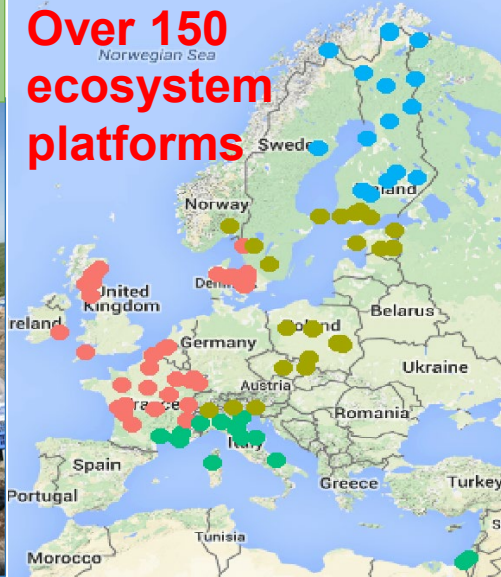


## Enclosed ecosystem platforms

to enable higher environmental control and intensive process measurements



Over 150  
ecosystem  
platforms





# AnaEE Platforms

Open access for public and industry scientists to a wide range of experimental support facilities

## Analytic Platforms

advanced biological, physical, chemical and isotopic analyses for a deeper insight into processes

### Bench analysers

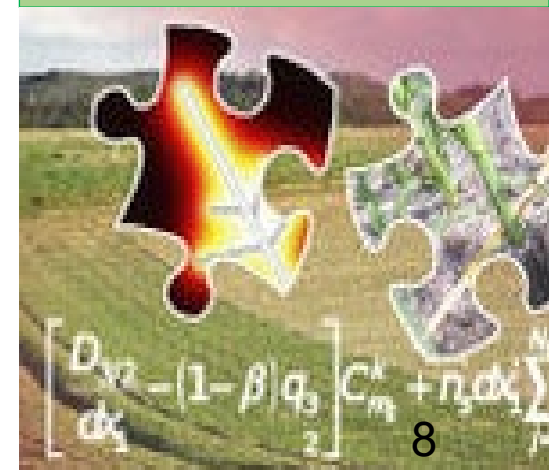


## Modelling Platforms

Models and model factories to improve experimental design, data analysis and generalisation as well as predictions



### Mobile equipment





# AnaEE BELGIUM



**Universiteit  
Antwerpen**



**LIÈGE université**  
**Gembloux**  
**Agro-Bio Tech**



## Universiteit Antwerpen

**Aquatic Facilities:** 16 Ponds + 4 small & 1 large (20m X 2m) experimental rivers: hydrology (flow), water quality (pollutant), (cray)fish, invertebrates, sediments and vegetation



**FATI Platform ('Free-Air Temperature Increase'):** Infrared heater & rain out shelters + irrigation over 20 X 7m<sup>2</sup> of vegetation (grassland)



# AnaEE BELGIUM



Universiteit  
Antwerpen



**New Meso-scale Ecotron:**  
12 units with monoliths of  
 $1\text{m}^2 \times 1\text{m}$  depth for grassland  
and small-sized crops



# AnaEE BELGIUM



**UHASSELT**

**Maasmechelen Ecotron:** 12 domes + closed units with natural light in which climatic conditions are regulated over 3.14 m<sup>2</sup> of vegetation (lysimeters 1.5m depth)



- Pear trees
- Heather + Molinia

# AnaEE BELGIUM



LIÈGE université  
Gembloux  
Agro-Bio Tech



**TERRA-Ecotron:** 6 (8) closed units with artificial light (sun spectrum) in which climatic conditions are regulated over 2 m<sup>2</sup> of vegetation (lysimeters 1.5m depth). Configured to study the impact of climatic events and evolution on agrosystem (plant-soil-water) interactions and yield





# AnaEE BELGIUM

## TERRA-Ecotron

**Winter wheat in 2095:** How future mild winter conditions induce shallow roots system and increase sensitivity to drought



**Banana trees:** Which phenotype can withstand the climatic conditions in the mountains of Rwanda ?



# AnaEE International projects participation



**AgroServ** (EU-Horizon-Infra, 2022-2027, 15M€, Coord. AnaEE, 70 partners): Boost research for resilient and sustainable agriculture and agroecological transitions. Provide customized and integrated research infrastructure services

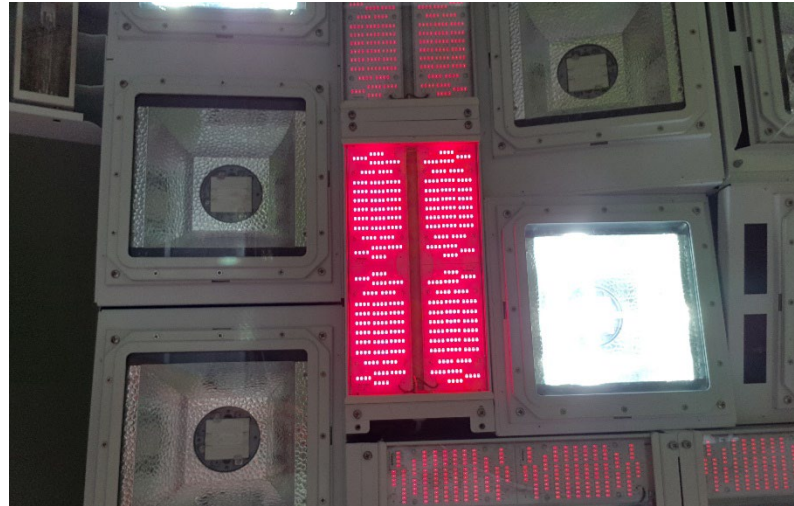


**ENVRI Fair:** (EU-H2020-InfraEosc, 2019-2022, Coord. Jülich RC, 37 partners): Built fair data services available in the European Open Science Cloud



**ENRIITC:** (EU-Horizon-Infra, 2020-2022, 1.5M€, 11 partners): Network of liaisons and contacts industrial officers to become full partner of research infrastructures





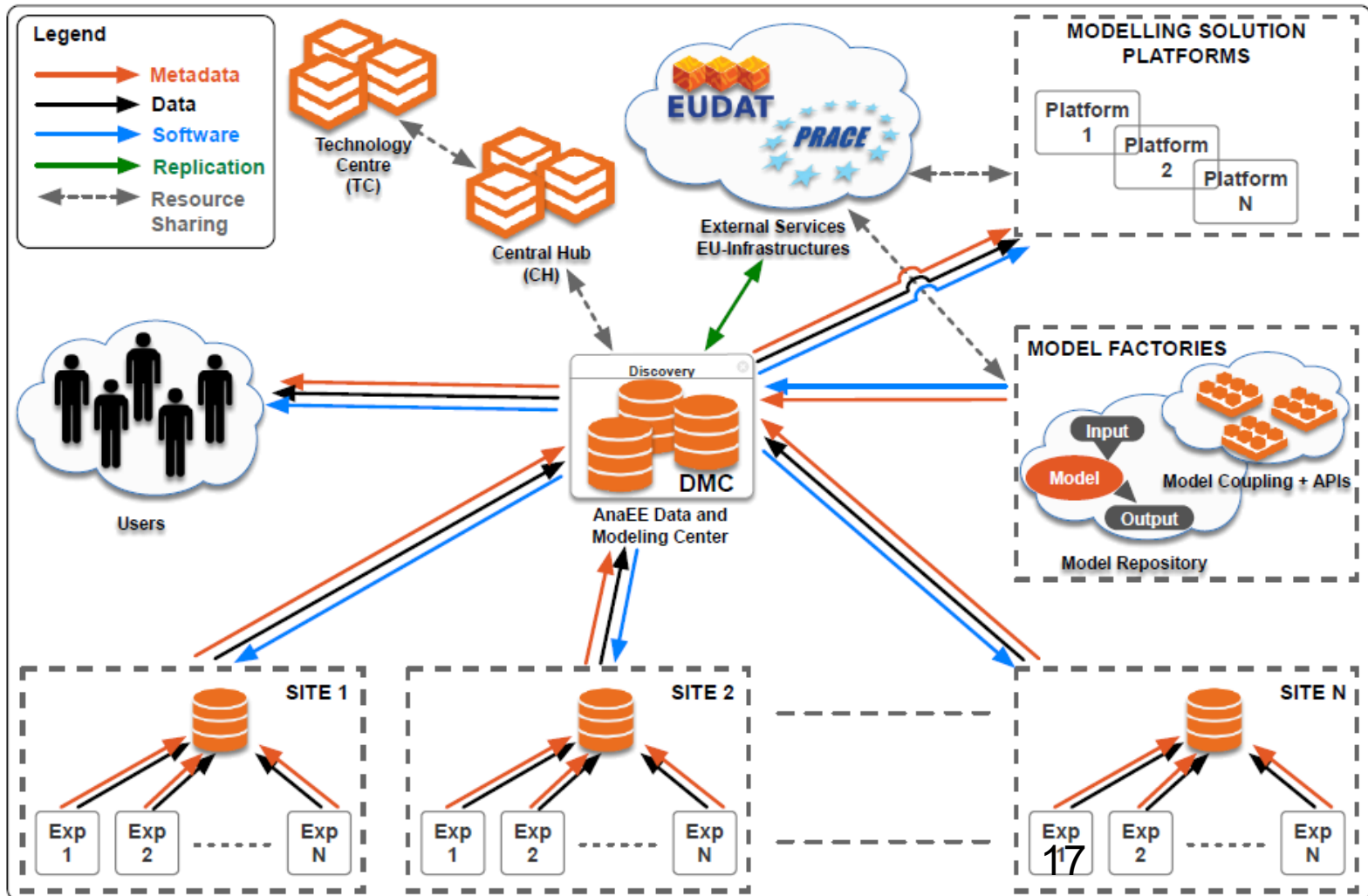
# THANK YOU FOR YOUR ATTENTION





# AnaEE offers

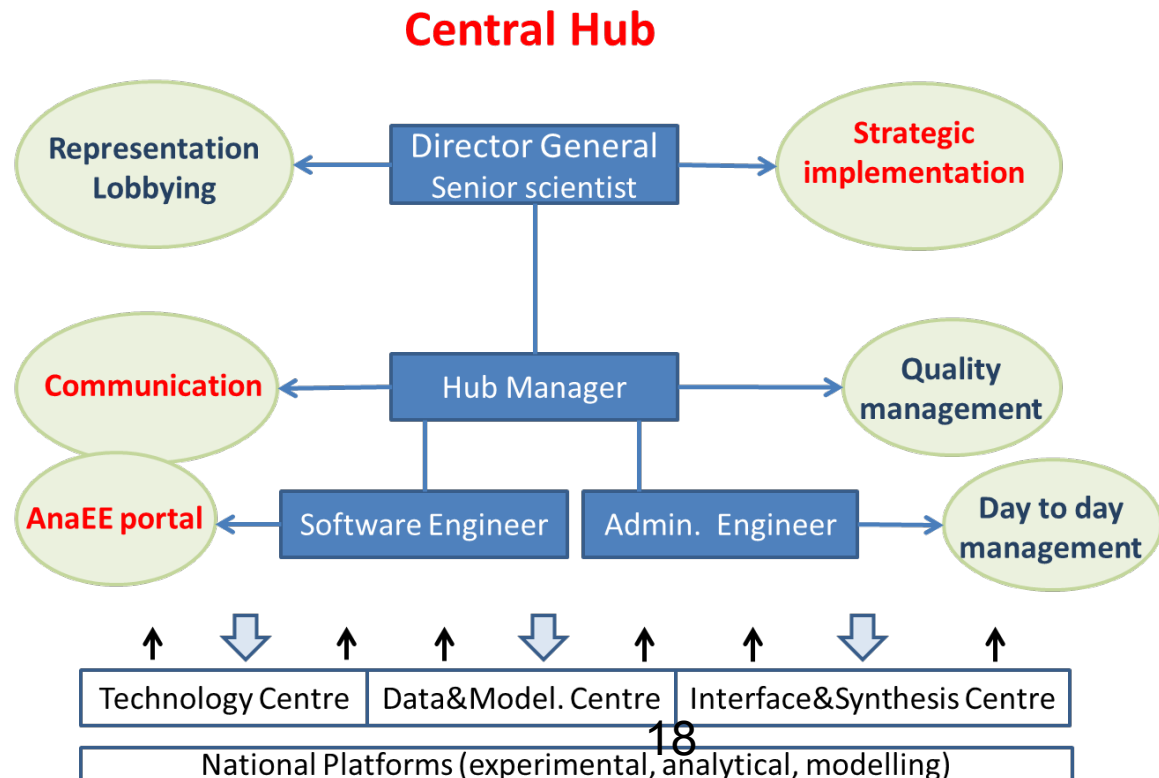
3) open access for scientists, stakeholders, policy makers, medias to data, simulations and syntheses





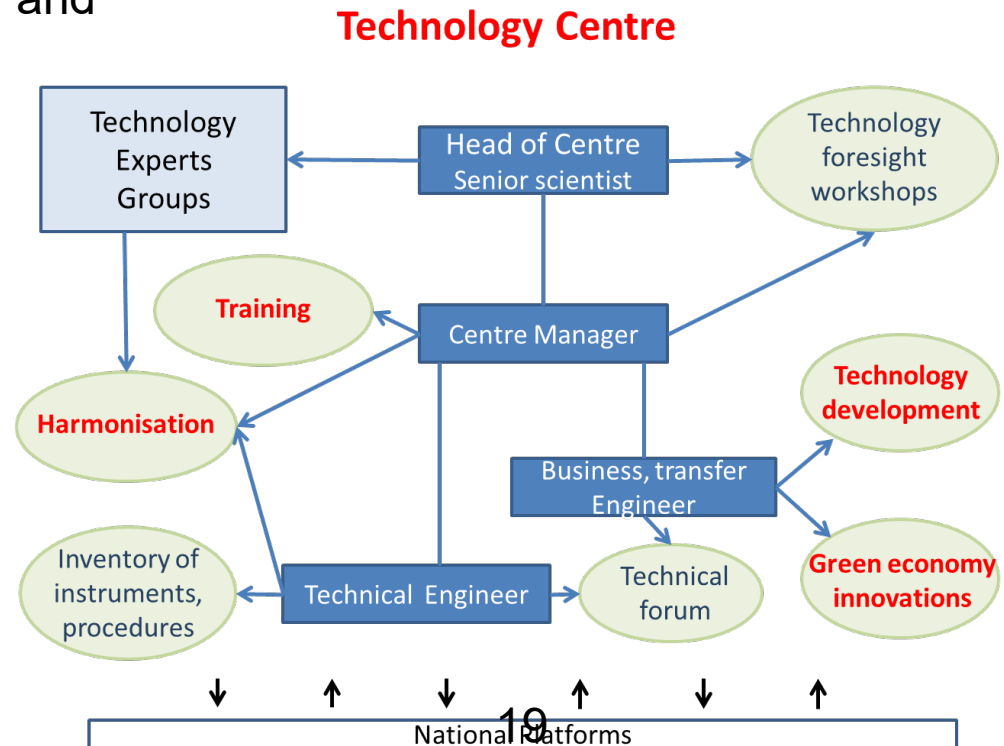
# A Central Hub for:

- i) conducting the implementation of AnaEE and its strategic development
- ii) organising and running AnaEE communication, in particular its general single portal
- iii) promoting quality management
- iv) managing the day to day administrative and financial functioning of AnaEE



# A Technology Centre for:

- i) harmonising and upgrading instruments and procedures across AnaEE platforms,
- ii) organising technology foresight workshops and technology sessions,
- iii) developing innovative technology and contributing to its commercialization process
- iv) training on new technologies and procedures related to Quality, Innovation and Industry Liaisons
- v) feeding the Technology section of the AnaEE portal and managing an open technical forum



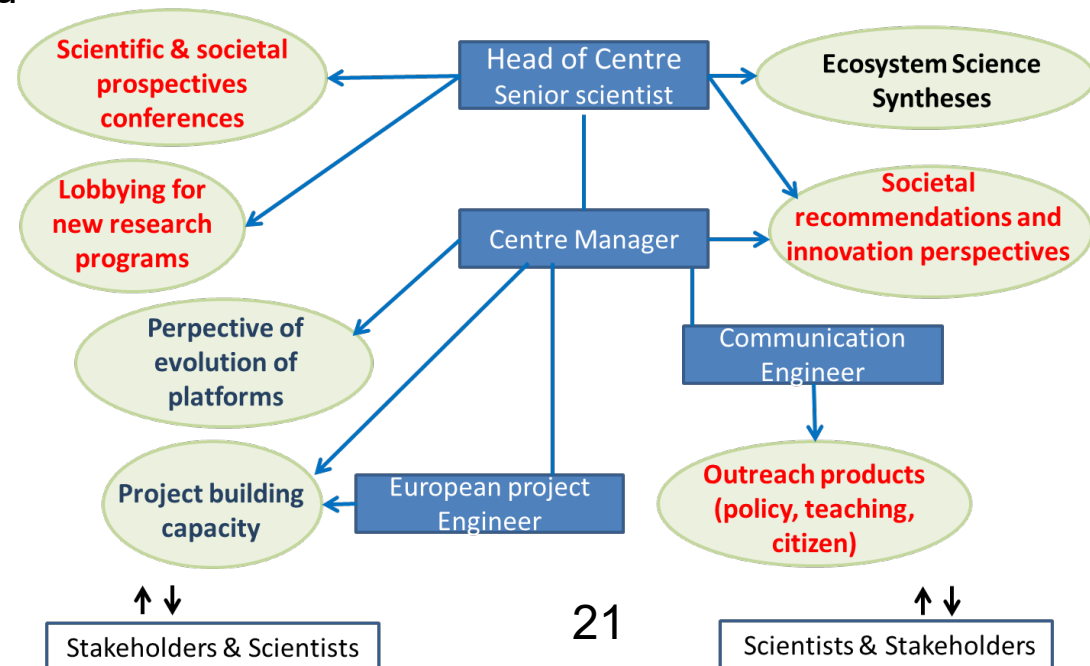
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# An Interface and Synthesis Centre for:

- i) organising scientific and societal prospective studies and the lobbying for new research programs
- ii) setting-up project building capacity
- iii) elaborating outreach material directly related to AnaEE results
- iv) organising worldwide ecosystem science syntheses
- v) elaborating societal scenarios and innovation needs
- vi) feeding the Interface and Synthesis Centre section of the AnaEE portal

## Interface & Synthesis Centre



# Towards an ESFRI operational infrastructure

Lol signatories:

Belgium, Czech Rep., Denmark, France

On the way to sign:

Finland, Italy, Israel, England

