EuroHPC
Infrastructure Advisory Board

Dr. Claus Axel Müller – INFRAG Chair

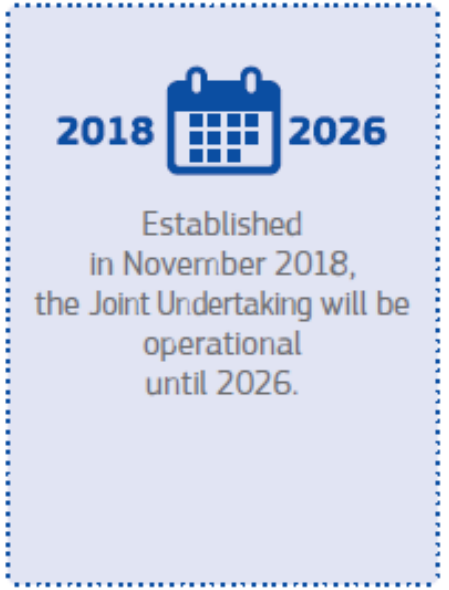
Dublin – 5.3.2020

General information

Establishment, Members of the JU, overall and specific objectives of the JU

Establishment (Art. 1, Reg.)

- Until 31st of December 2026
- Art. 187 AEUV: *"The Union may set up joint undertakings or any other structure necessary for the efficient execution of Union research, technological development and demonstration programmes."*
- Implements the public-private partnership (Art. 209 of Regulation No. 966/2012)
- JU has a legal personality
  - acquisition and disposal of movable/immovable property
  - May be a party to legal proceedings
- Seat: Luxembourg



Establishment (Art. 2, 1, Annex)

Members

- Commission (represents the Union)
- Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and Turkey
- European Technology Platform for High Performance Computing (ETP4HPC)
- Big Data Value Association (BDVA)

Overall Objectives (Art. 3, 2, a-e, Reg.)

(a) To provide the research and scientific communities, as well as the industry incl. SMEs and the public sector from the Union or countries associated to H2020 with the best available and competitive HPC and data infrastructure and to support the development of its technologies and its applications across a wide range of fields;

(b) To provide a framework for the acquisition of a […] world-class petascale and pre-exascale supercomputing and data infrastructure in the Union;

(c) To provide Union-level coordination and adequate financial resources […] which will be accessible to users from the public and private sector primarily for research und innovation purposes;

(d) To support an ambitious research and innovation agenda to develop and maintain in the Union a world-class HPC ecosystem, exascale and beyond, covering all scientific and industrial value chain segments, incl. low-power processor and middleware technologies, algorithms and code design, applications and systems, services and engineering, interconnections, know-how and skills, for the next generation supercomputing era;

(e) To promote the uptake and systematic use of research and innovation results generated in the Union by users form science, incl. SMEs, and the public sector.

Specific Objectives (Art. 3, 3 a-l. Reg.)

(a) To contribute to the implementation of Regulation (EU) No 1291/2013 […]

(b) To align strategies between MS and the Union in a coordinated HPC strategy […]

(c) To pool Union resources and private investment and bring the investments in HPC to a level comparable to that of its global competitors;

(d) To build and cooperate a world-class integrated supercomputing and data-infrastructure with the necessary variety in architecture for addressing different user requirements […]

(e) To provide access to HPC-based infrastructures […]

(f) To support the development in the Union of world-class exascale and post-exascale HPC technologies […]

(g) To bridge the gap between research and development and the delivery of exascale HPC systems […]

(h) To achieve excellence in HPC applications […]

(i) To interconnect and federate regional, national and European HPC supercomputers

(j) To increase the innovation potential of industry, and in particular of SMEs

(k) To improve understanding of HPC and contribute to reducing skill gaps in the Union

(l) To widen the scope of HPC usage

Interest & requirements

Decision making & advice

Implementation

Stakeholders

(academia & industry)

a) **Users forum**
- Science Users
- Users of PRACE and HPC Centres of Excellence
- Industry Users

b) **Technology forum**
- PRACE, GÉANT
- Tier-0 supercomputing centres
- Industry (ETP4HPC, BDVA, PPP etc.)

Governing Board

Public Members

The decision making board

Industrial and Scientific Advisory Board

Research & Innovation Advisory Group

(academia & industry advising on Pillar 2 activities)

Infrastructure Advisory Group

(academia & user industry advising on Pillar 1 activities)

R&I activities

JU funded

HPC machines

Member state-funded activities

PRACE activities

…

The INFRAG Group - **Members**

EuroHPC
Joint Undertaking

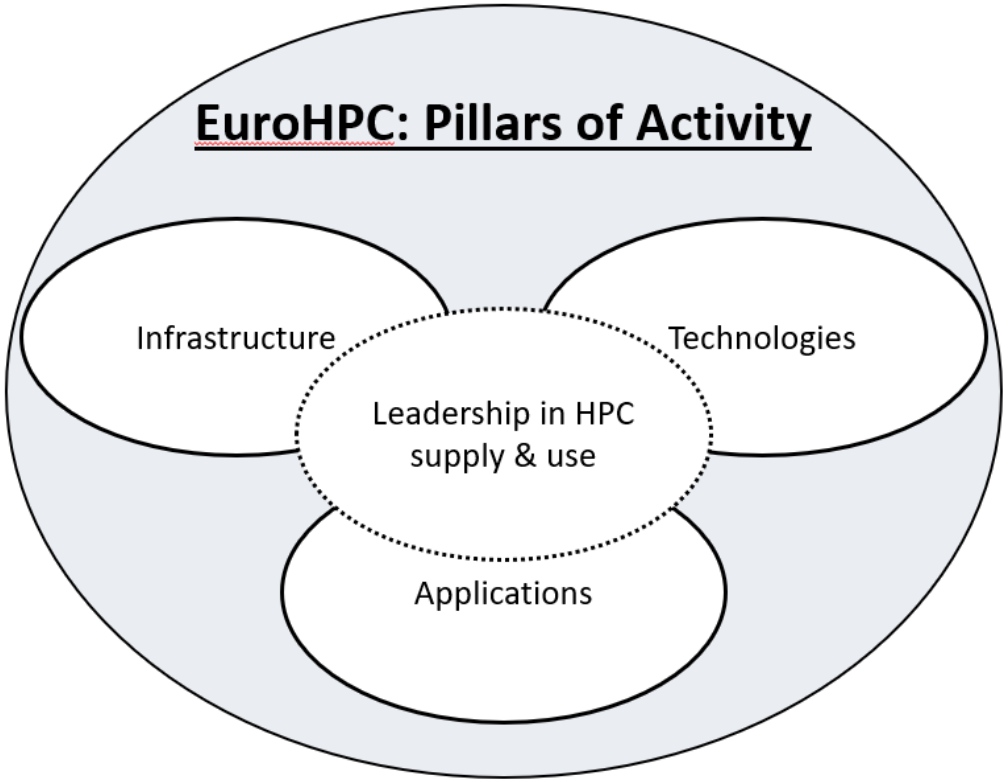
Claus Axel Müller (Chair)	GCS	Germany
Sinéad Ryan (Vice-Chair)	TCD	Ireland
Sergi Girona	BSC	Spain
Sanzio Bassini	CINECA	Italy
Branislav Jansík	IT4Innovations	Czech Republic
Minna Palmroth	Univ. Helsinki	Finland
Norbert Meyer	PSNC	Poland
Stoyan Markov	NCSA	Bulgaria
Lene Krøl Andersen	DeiC	Denmark
Peter Michielse	SARA	Netherlands
Zoe Cournia	Acad. of Athens	Greece
Daniel Verwaerde	TERATEC	France

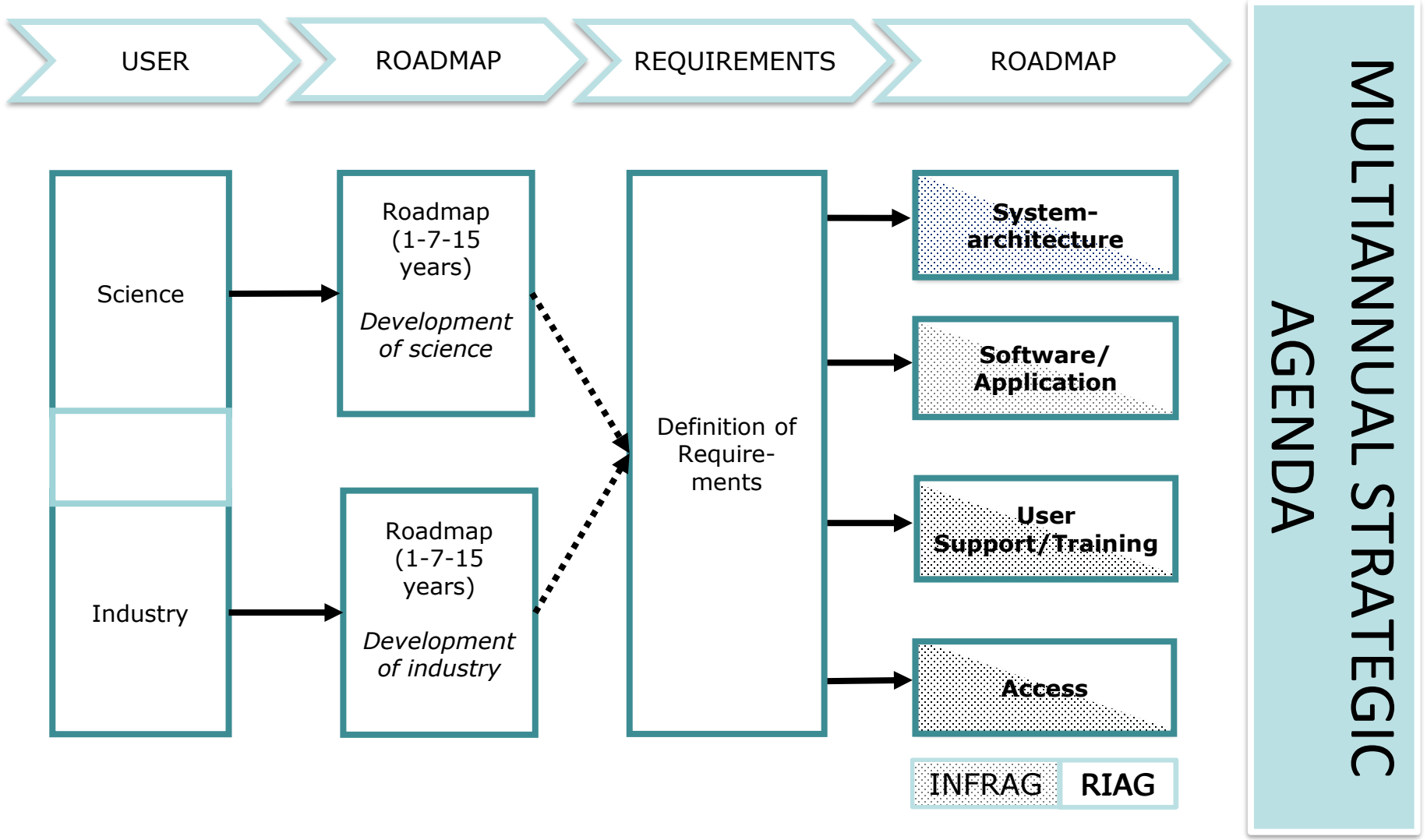
The INFRAG Group - **Observers**

Philippe Geuzaine	Cenaero	Belgium
Dana Petcu	Uni. Timisoara	Romania
Gunnar Bøe	Sigma2	Norway
Manuel Fiolhais	Uni. De Coimbra	Portugal
Jože Duhovnik	Uni. Ljubljana	Slovenia
Herbert Störi	Uni. Vienna	Austria
Erwin Laure	PDC/KTH	Austria/Sweden
Péter Kacsuk	MTA SZTAKI	Hungary

The EuroHPC objectives and pillars

- EuroHPC should provide the best available infrastructure. Co-design will ensure that application, technology, and infrastructure developments follow the needs of the end users.
- EuroHPC should foster synergies between the pillars of the HPC ecosystem closing the gap between European R&I efforts and world-class HPC systems co-designed by European users, developers and suppliers
- EuroHPC should support the whole chain from technology building blocks to the coordinated implementation of leading-class supercomputers, including the wide use and skills development of HPC technologies.




USER
ROADMAP
REQUIREMENTS
ROADMAP
Science
Industry
Roadmap (1-7-15 years)
Development of science
Roadmap (1-7-15 years)
Development of industry
Definition of Require-ments
System-architecture
Software/ Application
User Support/Training
Access
INFRAG
RIAG
MULTIANNUAL STRATEGIC AGENDA

Tasks of the INFRAG next phase

Draw up an regularly update of the draft multiannual strategic agenda

Cover all aspects of implementation, operation and maintenance of the HPC infrastructure based on user requirements

- Supercomputer: aquisition and hosting, (network)
- Application Software: adapt (rewrite), support and maintenance
- User: support and training
- Access:
  - Processes for science and industry
  - Business models
- Co-design

- Input from all users and stakeholders
- Coordination and strong coupling with RIAG (Innovation and Research)
- Organise public consultations

Access Policy working group

- The INFRAG has created a working group to prepare these recommendations. The working group is composed of six members of the INFRAG, external experts from PRACE, including PRACE aisbl and PRACE Hosting Members, and adequate representation of users and user communities, including industry.
- The objective is to provide a recommendation before end of November 2019, to permit adequate time for approval by the GB, publication and start of the implementation. This deadline is set to allow users to access the systems as soon as they become available.
- The working group will organize one open day and/or open consultation, to present the findings and the directions of the proposal. This will allow all users, communities, and stakeholders to comment and contribute to the final proposal.
- The final proposal will be presented to the INFRAG for validation prior to submission to the GB.

EuroHPC INFRAG Access Policy WG composition

INFRAG	
Claus Axel Müller	GCS
Sinead Ryan	TCD
Branislav Jansik	IT4Innovations
Lene Krøl Andersen	eScience Center
Minna Palmroth	Uni. Helsinki
Sergi Girona	BSC
Evangelos Floros	EC (Support)

External Experts	
Duarte Boba	EuroFusion
Enric Gibert	Pharmacelera
Kenneth Ruud	University of Trømso
Lee Margetts	NAFEMS
Marc Baaden	CNRS
Maria Girone	CERN
Philipp Hennig	MPG
Serge Bogaerts	PRACE aisbl
Stephane Requena	GENCI
Sylvie Joussame	CNRS
Vicente Navarro	ESA
Wolfgang Schröder	RWTH Aachen University

EuroHPC Joint Undertaking

Representation of User requirements

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Joint Undertaking

1. Scientific Users
    1. Different groups
        1. Universities
        2. Large Scientific Research Organisations
        3. Large Experimental Facilities

2. Industrial Users
        1. Open Research & Development
        2. (Commercial Access), detailed Analysis ongoing -> Industry Working Group

Factual findings of Consultation

Separate requirements and procedures for science and industry

1. **Principles for scientific access**
    1. Scientific excellence
    2. Fair and transparent access for everybody (guaranty of equal opportunities)
    3. Peer-review based evaluation and grant process

2. **Principles for industrial access**
    1. Open R&D to support innovation excellence
    2. Fair and transparent access for everybody (guarantee of equal opportunities)
    3. Peer-review with modified evaluation criteria

3. **Commercial access**
    1. To be analyzed by Industry working group

Type and duration of access (1/3)

- **Standard access (peer-review based)**
  - **Science**
    - Open Call one or two times per year / 12 months project support
    - Multiyear access, with guaranteed resources over the years
    - Ressource plan of Compute and Data Management required
  - **Industry Open R&D**
    - Open Call three to four times per year or even continous application
    - Aligned to scientific calls to support cooperations
    - shorter project support (6 months)

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Type and duration of access (2/3)

- **Benchmarking access (continuous access)**
  - To collect required technical data to apply for standard access
  - Limited resources, up to 2 months access
  - Technical review of the benchmarking plan required
  - Comprehensive technical support from the center

- **Preparatory Access (continuous access)**
  - For code development, porting, enabling to new hardware and software, scaling, performance improvement
  - Applicable for Centers of Excellence, Urgent Computing (preparation phase), new communities/group at HPC, ...
  - Limited resources, but enough for real executions
  - Duration of the access: from 2 months access to one year (extendible)
  - Technical and scientific review required
    - At a different level than standard access
  - Technical support and High level support required

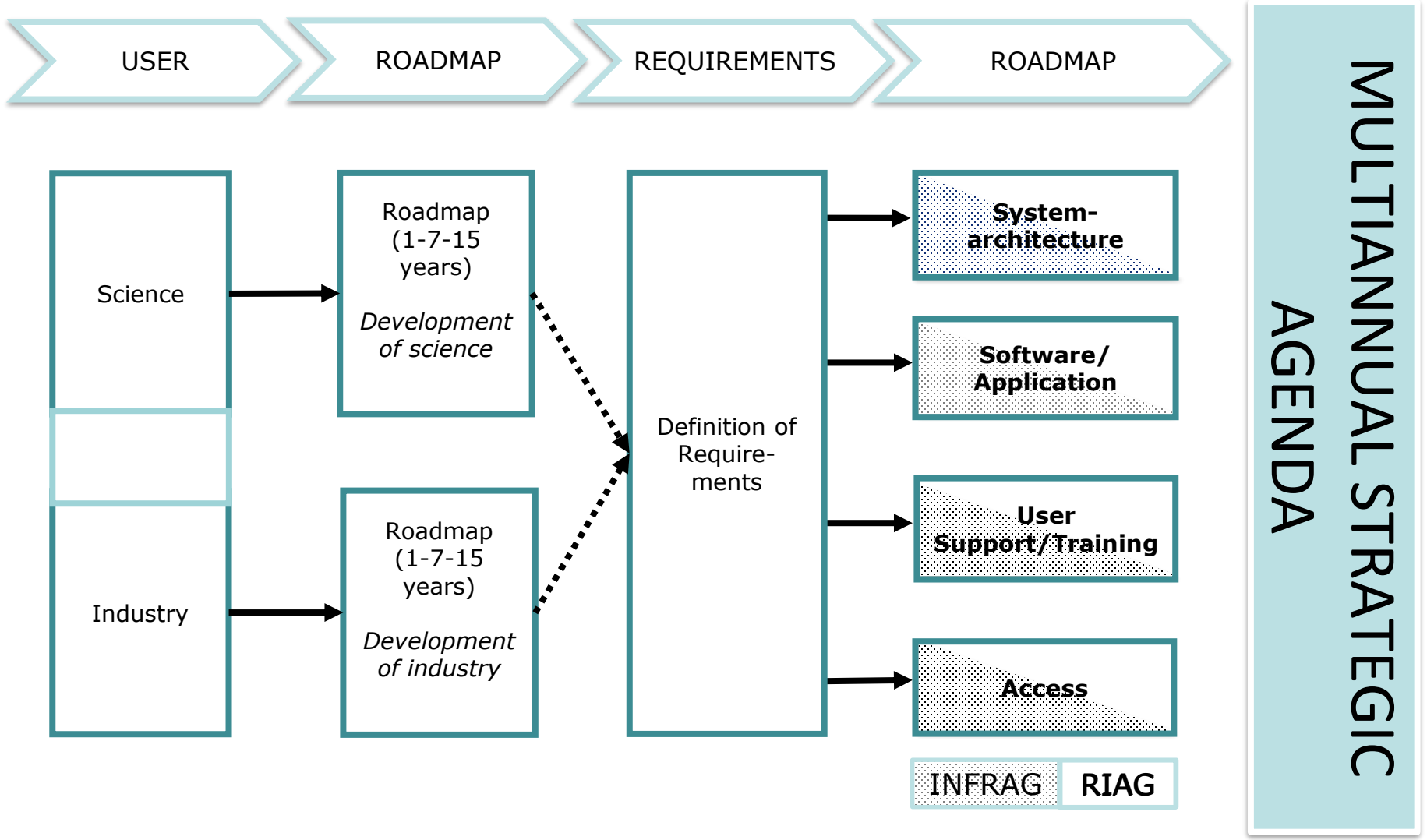
Type and duration of access (3/3)

Strategic Projects and Community Support

- A group of researchers with a long term project that requires guaranteed access to compute resources
- Running projects on this category should also be peer reviewed to guarantee the quality

New methods

- Interactive Computing
- Emergencies and crisis management
  - Floods, earthquake, pollution, …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Today’s focus

“What are the specific needs of you as scientists and your community”

“What are the structures and mechanisms needed to be properly represented?”

"Are you sure that you will be able to receive resources from the new EuroHPC systems?"

“Do you think you are prepared for the application process?"

EuroHPC
Joint Undertaking

Thank you!

Dr. Claus Axel Müller – INFRAG Chair

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