

# RADNEXT: future prospects

Rubén García Alía, Svetlomir Stavrev (CERN)  
RADNEXT 3<sup>rd</sup> Annual Meeting – 10-11 June 2024  
<https://indico.cern.ch/e/radnext-2024>



This project has received funding from the European Union's Horizon  
2020 research and innovation programme under grant agreement No  
101008126

# Recalling last year's presentation on the topic

## RADNEXT 2nd Annual Meeting

9–10 May 2023

Centro Nacional de Aceleradores - CNA (University of Seville / CSIC / JA)

**Prospects of EU calls for possible future RADNEXT funding**

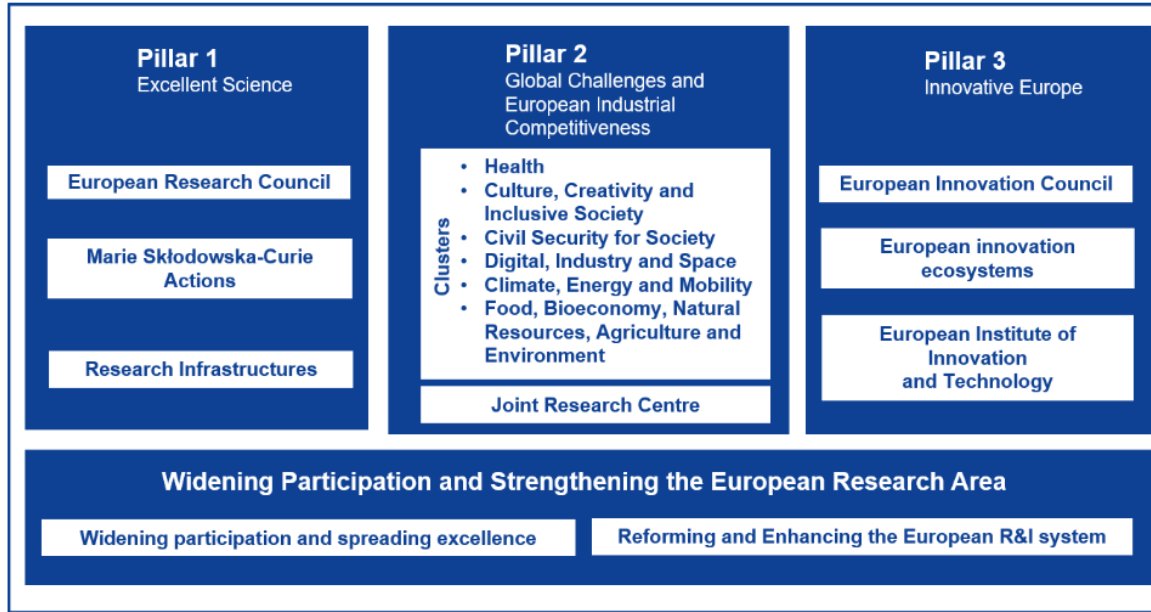
Cloe Levointurier-Vajda



Salón de Actos, Centro Nacional de Aceleradores - CNA (University of Seville / CSIC / JA)

14:30 - 14:50

# Recalling last year's presentation on the topic



**FP9:** 9th framework programme for **research and innovation** funded by EU

**€ 95.5 billion** over 7 years: **2021 – 2027**

# EU Research Infrastructure Work Programme

- CERN expects a draft of the Research Infrastructure Work Programme to be available during the next few weeks, on a confidential basis
- all Starting Communities that received support from the last H2020 Calls, will be now “**Orphan Communities**” since **the EC has discontinued the support to the Integrating Activities in Horizon Europe**
- the **TA** will continue to exist in one form or another, as a separate funding scheme under the **INFRASERV** destination with a mix of bottom-up and top-down calls
- the **Joint Research activities** will continue to be supported under the **INFRATECH** destination

# More on Starting and Advanced Communities

- The notions of Starting and Advanced Communities were introduced by the EC in the second half of H2020. The Starting Communities who successfully completed their first Integrating Activity (5 MEUR) were considered as Advanced Communities in the Mutli-Annual plans of the EC for the Integrating Activity Calls of H2020. These were targeted calls with higher budget (10 MEUR per project), allowing a success rate of 50%.
- AIDA was the fist IA for detector R&D in HEP in FP7. It was followed by AIDA-2020 in H2020. EUCARD was the first IA for accelerator R&D in FP7. It was followed by EUCARD2 in FP7, and ARIES in H2020. Both communities received further support as Innovation Pilots under the last H2020 Call (AIDAInnova and I.FAST).

# More on INFRASERV

- The INFRASERV Destination had three types of calls in 2023-2024:
  - a targeted top-down call for infrastructures supporting research in prioritized areas or topics (one of them was “semiconductors”). In principle, the EC had money to fund one project for each topic.
  - A targeted call for infrastructures supporting frontier-research, in pre-defined areas (e.g. astronomy and astrophysics together). The money was sufficient to fund one large TA project per combined topic
  - An open call for TA based on co-funding (this is something which the EC tested for the first time): no pre-define areas, so there was a lot of competition
  - Not yet clear if the EC will continue with these 3 types of Calls in 2025-2027, but it is certainly a possibility

# Going back to the 2023-24 call

## Programme(s)

[HORIZON.1.3 - Research infrastructures](#) MAIN PROGRAMME

[HORIZON.1.3.2 - Opening, Integrating and Interconnecting Research Infrastructures](#)

## Topic(s)

[HORIZON-INFRA-2023-SERV-01-01 - Research infrastructure services to enable R&I addressing main challenges and EU priorities](#)

## Call for proposal

[HORIZON-INFRA-2023-SERV-01](#)

# Going back to the 2023-24 call

Research infrastructure services advancing frontier knowledge: co-fund pilots with pan-European RIs and/or national RIs

HORIZON-INFRA-2023-SERV-01-03 | Call for proposal

Opening date: **06 December 2022** | Next deadline: **09 March 2023** | Single-stage

 Closed

Programme: **Horizon Europe (HORIZON)** | Type of action: **HORIZON Programme Cofund Actions**

Research infrastructure services to enable R&I addressing main challenges and EU priorities

HORIZON-INFRA-2023-SERV-01-01 | Call for proposal

Opening date: **06 December 2022** | Next deadline: **09 March 2023** | Single-stage

 Closed

Programme: **Horizon Europe (HORIZON)** | Type of action: **HORIZON Research and Innovation Actions**

Research infrastructure services advancing frontier knowledge

HORIZON-INFRA-2023-SERV-01-02 | Call for proposal

Opening date: **06 December 2022** | Next deadline: **09 March 2023** | Single-stage

 Closed

Programme: **Horizon Europe (HORIZON)** | Type of action: **HORIZON Research and Innovation Actions**



# Going back to the 2023-24 call

- RI services to enable research linking environmental factors to human health
- RI services for improving clinical research in the paediatric area
- RI services for climate-change risks
- RI services for sustainable Arctic/polar regions
- RI services for healthy ocean and waters
- RI services for sustainable aquaculture, fisheries and blue economy
- RI services for renewable energy technologies and systems
- RI services for innovative applications of nanoscience and nanotechnology
- **RI services to enhance the EU capacity for the development of semiconductors**
- RI services for shaping the future generation society

# Going back to the 2023-24 call

For RI services to enhance the EU capacity for the development of semiconductors

- enabling research and innovation in support to the competitiveness and autonomy of the European semiconductor industry and to the European Chips Act;
- wider access for academic and industrial researchers to enhanced and further integrated RI services in the field;
- transfer of knowledge and technologies between academic-research institutions and the semiconductor industry in order to advance further the digital transition.

# Going back to the 2023-24 call

## RIs services to enhance the EU capacity for the development of semiconductors

The creation of a competitive European ecosystem for the design and the production of semiconductors is a major EU priority, as underlined by EC President Von der Leyen in her State of Union address. Semi-conductors are nowadays the engine of almost anything we use for economic activities, mobility and leisure and the undoubted basis of the digital transition. The recent production crisis caused by the shortage of semi-conductors demonstrated the worrying dependency of Europe from Asia. The new European Chips Act, announced by the Commission, should precisely address the lack of competitiveness and technological sovereignty of the EU in this field. One of the foreseen actions is to link together and strengthened world-class research, design and testing capacities in the EU.

Waiting for new capacities to be built, the existing research infrastructures (e.g. nano-electronics infrastructure, printing facilities for electronics, facilities for ion beam-modification or cosmic **radiation hardening** of semiconductors, ...), including the ones which in previous Framework Programme have already integrated and opened their services at EU level, should now come together and create a unique entry point, for academic and industrial researchers, to a wide and integrated catalogue of complementary services enabling R&D on leading-edge semiconductors, including the ones for the next generation of computing paradigms, and new innovative way to produce them. In order to better serve this EU priority and facilitate interdisciplinary research, services should also be customised, combined as necessary, and possibly expanded.

Proposals should ensure appropriate links, synergies and complementarities, also in terms of TRLs, with relevant activities in other parts of Horizon Europe and other initiatives at EU level in this field.

For this area an EU contribution between EUR 12.00 and 14.50 million should allow the related outcomes to be addressed appropriately.

*Semiconductors were a topic during the 2023-24 call, and are therefore not expected to be amongst the topics of the 2025 call*

# Semiconductor project from INFRASERV 2023-24



## European Research Infrastructure on Semiconductor Chips

InfraChip is to implement the first integrated, distributed research infrastructure as a wider European research platform for the sustainable development of next-generation and future semiconductor chips. InfraChip will mobilise a critical mass of people, expert knowledge and technology blocks, and capital investment on state-of-the-art equipment to address the EU's twin digital and green transition and ensure Europe's capacity to innovate at the early to medium readiness levels. Building on existing RI communities, namely ASCENT+ on Nanoelectronics, EMERGE on Sustainable Flexible Electronics and EnABLES on Powering the Internet of Things (IoT), the InfraChip initiative will advance the state-of-the-art by supporting comprehensive user projects for multi-and-trans-disciplinary path-finding research on sustainable Information and Communications Technologies (ICT) driven by the secure edge. These challenge-driven projects will target the introduction of new materials, proof-of-concept and feasibility studies of new manufacturing processes or disruptive technologies. To accelerate the translation of results from the lab to the fab, InfraChip will channel project activities to Testing and Experimentation Facilities, European Digital Innovation Hubs and Pilot Lines. InfraChip will also develop talent and train a skilled workforce through its Research Accelerator Programme and additional hands-on courses and education resources to support early career innovators and the high-value semiconductor industry. As a whole, InfraChip will significantly contribute to research and innovation capacity within the objectives of the European Chips Act.

### Project Information

#### INFRACHIP

Grant agreement ID: 101131822

#### DOI

[10.3030/101131822](https://doi.org/10.3030/101131822)

#### EC signature date

27 October 2023

#### Start date

1 January 2024

#### End date

31 December 2027

#### Funded under

Research infrastructures

#### Total cost

€ 14 457 464,38

#### EU contribution

€ 14 457 463,00



#### Coordinated by

UNIVERSITY COLLEGE CORK - NATIONAL

UNIVERSITY OF IRELAND, CORK

 Ireland

# Other INFRA calls (in addition to INFRASERV)

- Taken from 2023-24 work programme (and of potential interest in view of 2025 call)

## Five destinations:

- **INFRADEV**: Developing, consolidating and optimising the European research infrastructures landscape, maintaining global leadership
- **INFRAEOSC**: Enabling an operational, open and fair EOSC ecosystem
- **INFRASERV**: Research infrastructure services to support health research, accelerate the green and digital transformation, and advance frontier knowledge
- **INFRATECH**: Next generation of scientific instrumentation, tools and methods and advanced digital solutions
- **INFRANET**: Network connectivity in research and education - enabling collaboration without boundaries

# Transnational Access in FP10 (2028 onwards)

- In addition, there will be likely a “Coordination and Support Action” (CSA) to define the scope of a new funding scheme for TA in FP10: open platform with continuous funding available for TNA in all research areas. TNA providers make available their facilities, and users seamlessly apply to one or more facilities. Not clear how this will work in practice, since the budget will be limited, hence the need for a CSA.

# Possible EU funding outside of INFRASERV (or other INFRAs)

- EU working on “technology infrastructure” concept, for services with higher TRL level → likely not immediate, timeline-wise
- How about the Space Programme? → Rubén to check with HEARTS Project Officers

# “RADSAGA 2.0” as Marie Curie training network in preparation



**RADIation and reliability challenges for electronics used in Space, Avionics, on the Ground and at Accelerators**

- In discussion between CERN and universities of Montpellier, Saint Etienne and KU Leuven
- Many other partners will be able to join (especially from industry, but not only)
- CERN point of contact: Ygor Aguiar (supported by Daniel and myself)
- Submission deadline is November 2024

## RADSAGA

Grant agreement ID: 721624



### DOI

[10.3030/721624](https://doi.org/10.3030/721624)

Project closed

### EC signature date

29 August 2016

### Start date

1 March 2017

### End date

28 February 2022

### Funded under

EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions

### Total cost

€ 3 882 975,78

### EU contribution

€ 3 882 975,78



### Coordinated by

ORGANISATION EUROPEENNE POUR LA RECHERCHE NUCLEAIRE

Switzerland



# Possible future prospects beyond EU funding

- We can certainly also consider options beyond EU funding, but this likely opens a “pandora box” that might be difficult to streamline
- What would the scope and structure of the activity be, as well as its legal status? Would it receive “external” funding and, if so, from where? How would it co-exist with other existing structures (e.g. the RADECS Association, radiation effects testing companies, etc.)?
- What role would facilities and radiation effects experts/users have in this new scheme?

# Thanks for your attention!

