PIANOFORTE : A European Partnership for Radiation protection research

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What is a Partnership?

- “European partnerships are initiatives where the EU, national authorities and/or the private sector jointly commit to support the development and implementation of a programme of research and innovation activities”

- Partnerships will:
  - address complex challenges outlined in Horizon Europe.
  - support the achievement of EU priorities, such as the European Green Deal,.....
  - be impact-driven by deploying a broad range of R&I activities, from concept to demonstration and validation to regulatory and societal uptake.
  - contribute to a stronger European Research Area (ERA) by avoiding the duplication of efforts, and enhancing synergies between programmes

- In Horizon Europe, a total of 49 Partnerships have been selected (3 within EURATOM : Eurofusion, EURAD and PIANOFORTE)
Work program EURATOM 2021-2022 : NRT-01-09 Expected outcomes

- Establishing improved risk estimates for the justification of practices and optimisation of radiological protection of the members of the public, patients and workers
- Advancing state-of-the-art understanding of the link between exposure characteristics (radiation quality, dose and dose-rate) and the cancer and non-cancer effects
- Developing a knowledge base and analytical tools for the major features of variability in the radiation response
- Advancing integrative radiobiology from basic mechanisms to clinic and epidemiology, including human and social sciences -
- Providing a scientific basis and establishment of priorities for medical applications of ionising radiation, taking a broad approach to the public health impact.
- Providing a scientific basis to recommendations, procedures and tools for improving radiation protection of workers and of the general public
- Providing a scientific basis to recommendations, procedures and tools for assuring and improving preparedness for nuclear and radiological emergency response and recovery
- Reinforcing training through research in the field of radiation protection and encouraging continuous training and career upgrades
- Facilitating access to research infrastructure and promoting the integration of data, FAIRisation processes
- Improving public engagement and the understanding of public perception
Work program EURATOM 2021-2022 : NRT-01-09 Scope

- Implementation of this Partnership would require a cooperation of the entire European research community concerned in order to exploit synergies between different scientific disciplines.
- The Partnership would need to take account of present state of knowledge and priorities identified in the Strategic Research Agenda of MELODI (low dose radiation), ALLIANCE (radioecology), EURADOS (dosimetry), NERIS (nuclear emergency preparedness) and EURAMED (medical exposures), SHARE (social sciences and humanities) and SNETP (sustainable nuclear energy technology platform).
- “….citizens should continue to be involved” by supporting open and participatory approaches to research and innovation in the field of radiation protection.”
- “the Partnership would build on and further develop the research priorities identified by the European Joint Programme CONCERT”
- The Partnership will address the identified research and innovation priorities topics through the launching of several Open Calls.
- Other synergies across programmes such as Horizon Europe Health programme and the EU Mission Cancer will continue to be explored, through dedicated working groups.
- The Partnership will ensure the availability of and facilitate access to state-of-the-art research infrastructures
- Proposals could pool the necessary financial resources from the participating national (or regional) research programmes with a view to implementing joint calls for transnational proposals resulting in grants to third parties
Global policy

EU policy

Challenges

Connections with HE Clusters

R&I needs and Prioritisation

**United Nations Sustainable Development Goals (SDG)**

**Europe’s Beating cancer plan and SAMIRA initiative**
- A European plan to fight cancer, to support Member States in improving cancer care and control

**EU Green Deal**
- To protect health and well-being of citizens from environmental risks and impacts

**Action plan on the Sendai Framework for risk reduction**
- Managing risks to achieve resilience

To improve the detection and treatment of cancer in EU

To consolidate regulations and improve practices by capturing low-dose research advances

To improve the anticipation and resilience in case of radiological or nuclear event and legacy management

Clusters « Civil security for society » and « Food, natural resources, agriculture and environment, biodiversity »

**Optimisation of protocols using AI; harmonisation of practices; development of innovative diagnostic and therapeutic techniques; understanding the magnitude and individual variability of risks, research towards personalized medicine, patient concerns & trust, technology acceptance and uptake**

**Connections with HE Clusters**
- Cancer Cluster « Health »
- Low-dose Cluster « Civil security for society » and « Food, natural resources, agriculture and environment, biodiversity »

**R&I needs and Prioritisation**

Based on the CONCERT JRM, on going H2020 projects, STC opinion, Other EU initiative and MEENAS own activities and taking into account MS research programmes

**Intervention logic of the Pianoforte partnership**

- Improve risk estimates; Better understanding of low-dose effects on health and ecosystems; Understanding basic mechanisms by determining individual reactions to radiation and by quantifying radiation damage from the physical interaction of ionising radiation. Innovation in radiation protection and uptake of research results by decision makers and regulators

- Robust prediction of radiological contamination in the food chain for an integrated dose and risk assessment, optimisation of emergency and recovery preparedness using AI and big data, stakeholder’s involvement strategy, Optimisation process and related values (e.g. reasonableness, tolerability...)
**PIANOFORTE objectives**

**General Objective**: To improve radiological protection of members of the public, patients, workers and environment in all exposure scenarios and provide solutions and recommendations for optimised protection in accordance with the BSS. This objective will be reached by multidisciplinary research, innovation and citizen involvement activities in a collaborative approach of scientists, regulators and stakeholders. Research projects focusing on identified research and innovation priorities will be selected through competitive open calls.

- **To innovate** in ionising radiation based medical applications combating cancer and other diseases by new and optimised diagnostic and therapeutic approaches improving patient health and safety and supporting transfer of the R&I outcome to practice.

- **To improve scientific understanding** of the variability in individual radiation response and health risk of exposure.

- **To support regulations and implementation** of the BSS and improve practices in the domain of low dose exposures of humans and the environment by better understanding and reducing uncertainties in risk estimates.

- **To provide the scientific basis** to recommendations, procedures and tools for assuring better preparedness to response and recovery from a potential radiological event or nuclear accident and to improve the know-how to manage legacy sites.

- **To maintain a sustainable expertise capability** on radiation protection issues across the EU by fostering the availability, the use, and the sharing of existing state-of-the-art infrastructures at European level and beyond, and conducting education and training activities.

- **To involve all the relevant stakeholders** at the different stages of the implementation of research projects and assure efficient dissemination, knowledge management and uptake of results.
PIANOFORTE Identity card

- Co-funded Partnership at a global rate of 65% (EC) / 35% (MS)
- Starting date: 1st June 2022 (kick-off meeting at IRSN headquarters in Fontenay-aux-Roses on June 14&15)
- Duration: 5 years (possibility of a 2 years extension)

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<tr>
<th>59 partners (39 beneficiaries including the 6 RP platforms, 5 Associated partners, 15 Affiliated Entities)</th>
<th>24 countries</th>
<th>30 +16 M€/5 years</th>
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<tbody>
<tr>
<td>Coordination</td>
<td>Research &amp; Innovation SCK-CEN/Belgium</td>
<td>Stakeholder Engagement BFS/Germany</td>
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<tr>
<td>IRSN/France</td>
<td>All platforms involved</td>
<td>All platforms involved</td>
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Governance:
- ExB: WP leaders + one representative of MEENAS
- General assembly: All beneficiaries including 6 platforms representatives (39 members)
- Stakeholder and Advisory Board

Organisation of at least 3 **open** research calls (2023, 2024, 2025)
Who will be able to participate to the Open Calls and co-funded by EC budget?

1) The **beneficiaries** with the exception of organisations involved in the organisation of Calls and in the selection process.

2) The **Affiliated Entities** to the beneficiaries (contributing or not to the integration activities of PIANOFORTE)
   - An entity is affiliated to a beneficiary if it exists a legal link (for example a collaboration agreement) between the two parties

3) All other EU organisations (**Third parties**). However, they will have to demonstrate that they have a complementary funding from their country of origin.
CONCLUSION

« The proposal has the potential for ground-breaking R&I advancing parts of radiation protection beyond the state-of-the-art » (taken from the Evaluation Summary Report, February 2022)

It’s up to us to allow the potential to become reality!

« The approach adopted for the implementation of PIANOFORTE is based on equity, transparency, openness, multi- and inter-disciplinarity and excellence » (taken from the PIANOFORTE proposal, October 2021)

This is the commitment of the coordinator and the ExB!