PIANOFORTE: A European Partnership for Radiation protection research

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IRSN, France
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
## Intervention logic of the Pianoforte partnership

<table>
<thead>
<tr>
<th>Global policy</th>
<th>UNITED NATIONS Sustainable Development Goals (SDG)</th>
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</table>
| **EU policy** | **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 » |
| **Challenges** | **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** |
| **Connections with HE Clusters** | **Cancer** | **Low-dose** |
| **Cluster « Health »** | | **Clusters « 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 |
| 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 | 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**.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
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<tr>
<td>To innovate in ionising radiation based medical applications combating</td>
<td>cancer and other diseases by new and optimised diagnostic and therapeutic approaches improving patient health and safety and supporting transfer of the R&amp;I outcome to practice.</td>
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<td>To improve scientific understanding of the variability in individual</td>
<td>radiation response and health risk of exposure</td>
</tr>
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<td>To support regulations and implementation of the BSS and improve practices</td>
<td>in the domain of low dose exposures of humans and the environment by better understanding and reducing uncertainties in risk estimates.</td>
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<td>To provide the scientific basis to recommendations, procedures and tools</td>
<td>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.</td>
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<td>To maintain a sustainable expertise capability on radiation protection</td>
<td>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.</td>
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<td>To involve all the relevant stakeholders at the different stages of the</td>
<td>implementation of research projects and assure efficient dissemination, knowledge management and uptake of results</td>
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Affiliated Entities and Third Parties inclusion

Research PRIORITIES identification WP2/WP3

OPEN CALL organized by an independent body WP7

RESEARCH PROJECTS implementation

OUTPUTS (publications, database, innovation, trained students, ...)

OUTCOMES (recommendations, improvement of practices, support to regulation, new products, ...)

IMPACT/BENEFITS for Europe and European citizens
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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<th>59 partners</th>
<th>24 countries</th>
<th>30 +16 M€/5 years</th>
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<tr>
<td>(39 beneficiaries including the 6 RP platforms, 5 Associated partners, 15 Affiliated Entities)</td>
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<td></td>
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<tr>
<td>Coordination</td>
<td>Research &amp; Innovation</td>
<td>Stakeholder Engagement</td>
</tr>
<tr>
<td>IRSN/France</td>
<td>SCK-CEN/Belgium</td>
<td>BFS/Germany</td>
</tr>
<tr>
<td>All platforms involved</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!
Filip Vanhavere

PIANOFORTE: priority setting for R&I calls

MEENAS Webinar 6 May 2022 - European radiation protection: from EJP-CONCERT to the PIANOFORTE partnership and beyond
# PIANOFORTE: Work Packages

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<tr>
<th>Title</th>
<th>Lead</th>
<th>Lead Name</th>
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<tr>
<td>Management &amp; Coordination</td>
<td>IRSN</td>
<td>J-C. Gariel</td>
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<td>R&amp;I Calls</td>
<td>SCK CEN</td>
<td>F. Vanhavere</td>
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<td>Stakeholder engagement</td>
<td>BfS</td>
<td>F. Rauser</td>
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<tr>
<td>Education and Training</td>
<td>SU</td>
<td>A. Wojcik</td>
</tr>
<tr>
<td>Infrastructure and Data Man.</td>
<td>DH-PHE</td>
<td>S. Bouffler</td>
</tr>
<tr>
<td>Diss., Comm., Impact</td>
<td>SURO</td>
<td>M. Davidkova</td>
</tr>
<tr>
<td>Open Calls organisation</td>
<td>NCBR</td>
<td>J. Makocka</td>
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Workpackage 2: Research and Innovation Calls

• Major part of the PIANOFORTE budget for Research and Innovation projects: core of PIANOFORTE!!
• This scientific and technological advancement will form the bases of all improvements in radiation protection.

• IMPORTANT:
  • Open calls
  • Competitive call system
  • Research priorities based on the objectives from PIANOFORTE
  • Independent organisation of open calls: WP7

• 3 calls with the 5 years of PIANOFORTE
• WP2 major task: defining research priorities, with input from WP3 (stakeholders input)
Set up the research priorities for 3 open calls

• Lead NNK (Katalin Lumniczky), Partners: CIEMAT, SSM, SCKCEN, all POMs, all Platforms

• Main input:
  • **CONCERT Joint Roadmap**
  • Strategic Research agenda’s of the 6 platforms of MEENAS
  • POM input: priorities should be aligned with the priorities from participating Member States
  • Input from EURATOM Scientific and Technical Committee (STC)
  • Alignment with EURATOM and H2020 projects and initiatives (SAMIRA, MEDIRAD, ...)
  • Radiation Protection stakeholder input (through WP3 and Stakeholder Advisory Board)

• Calls must reflect a multidisciplinary and transnational approach

• Priorities should integrate global EU policies

• Should be aligned with the 3 pillars defined by Horizon Europe: excellent science, industrial leadership, societal challenges

• Coordination between WP2, WP4 and WP5 will assure harmonization among research activities, E&T and infrastructural guidelines
Global EU Policies

- CONCERT
- JRM
- MEENAS own activities
- CST Opinion
- On going H2020 projects (Ex: MEDIRAD, Rocc-n-roll)
- Other EU actions: Ex: SAMIRA

MS research programmes (POMs)

Research Priorities identification WP2/WP3

Open Call organized by an independent body WP7

Research Projects implementation

Outputs (publications, database, innovation, trained students, ...)

Outcomes (recommendations, improvement of practices, support to regulation, new products, ...)

Impact/Benefits for Europe and European citizens
Steps for prioritisation

a) A first synthesis based on: Joint Roadmap, Horizon Europe priorities, EURATOM STC input, EURATOM call priorities

b) A feedback round with the 6 European Radiation Protection Platforms (SRA input)

c) Direct stakeholder involvement with the stakeholder advisory board

   WP3: online target group consultations and points of contact to related entities and organisations

d) Input from POM’s

e) Cross check with international initiatives and on-going and planned European projects and actions

f) Finalisation of the research priorities by the Executive Board and the General Assembly of PIANOFORTE
PIANOFORTE: concept

Systematic stakeholder involvement strategy

- WP2 starts stakeholder consultation for call priorities
- POMs may comment
- Platforms may comment
- SAB comments
- Connected entities comment
- Direct target group consultations (online events)
- WP2 consolidated
- WP2 consolidates and cross check with other initiatives
- WP3 consolidates
- WP3 stakeholders
- Exboard / GA decides upon consolidated suggestions
- Organisational firewall
- Independent call organization
- Research and innovation projects start

Timeline from start of respective call

Month 0
Month 4
Month 7-9
Month 10-12
Prioritisation: difficult and sensitive task...

For a fair selection everybody has to take the same exam: please climb that tree
After each call: evaluation of process

• Lead: CIEMAT (Almudena Real Gallego); Participants: NNK, SSM
• An evaluation of the prioritization procedure of each call will be performed after the close of each call procedure
• Document and analyze feedback received from all interested partners
• Summarize the main conclusions and lessons learned
Scientific follow up and integration of the research projects

• Lead STUK (Teemu Siskonen); Participants: SCK CEN, CEA, INSERM, NCRPP, ISS, U. Exeter

• Goal in PIANOFORTE: to have **focused calls**
  • Different calls can focus on different sub-priorities
  • Not every time same broad call text
  • So some selected projects will work on different aspects of the same priority

• Synergies between projects need to be managed
  • to avoid overlap and to maximise the projects’ impact: topical workshops

• A systematic follow-up and analysis of project outcomes will be carried out: monitoring of scientific progress

• Capture the innovation and development and steer towards application: applications and recommendation forming

• Particular attention will be given to the integration of social sciences and humanities in funded projects.
Other WP2 tasks: update of Joint Roadmap

- Lead: SCK CEN (Nathalie Impens), Participants: JSI, ENEA, EK, all Platforms
- By end of PIANOFORTE: update JRM taking into account scientific progress and evolution of societal needs
  - Analysis of stakeholder feedback on the 1st edition of the Joint Roadmap
  - Identification of changes affecting the Joint Roadmap including the update of platform SRAs
  - Drafting of the updated Joint Roadmap for radiation protection research (M48)
  - Review of the draft and publication through stakeholder consultation through a questionnaire and live/online events
- Second edition of the Joint Roadmap for radiation protection research
Other WP2 tasks: Integration of Artificial Intelligence in Radiation Protection

- Lead NCSRD (Spyros Andronopoulos), Partners: NCSRD, IRSN, OVGU, UExet
- This task will coordinate, harmonize and stimulate activities related to the application of Artificial Intelligence (AI) and big data approaches in radiation protection topical fields.
  - Review on AI implementations in RP
  - Interaction with scientific communities specializing in AI
  - Promoting the uptake of AI in R&I calls
  - Ethical challenges of AI
Call 1 timeline: as fast as reasonably achievable

Call 1
- priority setting
- feedback SAB, POMs, platforms
- SH direct involvement
- finalize call priorities ExB/GA
- preparation call docs WP7
- launch call
- application time
- selection of projects
- administration
- projects start
Calls timeline: in absolute time....

- Start PIANOFORTE: June 2022
- Launch call: **March 2023**
- Deadline application: June 2023
- Start project: **December 2023**

☐ We will try to be faster if possible...

- Next calls:
- Call 2:
  - Launch: **March 2024**
  - Deadline application: June 2024
  - Start project: **November 2024**

- Call 3:
  - Launch: **March 2025**
  - Deadline application: June 2025
  - Start project: **November 2025**

- PS: research can run until after official end of 5 years from PIANOFORTE
WP 7: Organisation and management of R&I Open Calls

• The aim of WP7 is to organize and manage three international open research calls
• This WP and the call process is designed to achieve the highest level on major ethical issues:
  • Ensuring transparency, whilst maintaining confidentiality of processed information,
  • Preventing the occurrence of conflicts of interest,
  • Ensuring equal treatment of the applications made in response to its calls,
  • Taking decision on the sole basis of scientific quality and expected implementation performance and impact with respect to PIANOFORTE’s overall objectives.
• The team involved in WP7 will not respond to the open research calls.
• Partners: NCBR (Poland), UEFSCDI (Rum), MUR (Ita)
  • Task 7.1: Setting up a Calls Secretariat and Call Steering Committee (CSC)
  • Task 7.2: Preparation of the Open Call documents and launch of the calls
  • Task 7.3: Implementation of the open calls
  • Task 7.4 Quality management of open research calls procedures
Conclusion...

Wish us good luck to bring all radiation protection aspects together in widely accepted priority topics...