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EJP-CONCERT

European Joint Programme for the Integration of Radiation Protection Research

H2020 – 662287

D 4.9 - Research funded under the two CONCERT calls

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Abstract

The European Joint Programme for the Integration of Radiation Protection Research (acronym: CONCERT) aims to contribute to the sustainable integration of European and national research programmes in the field of radiation protection.

CONCERT is a co-fund action, funded under Horizon 2020 that aims at attracting and pooling national research efforts with European ones in order to make better use of public R&D resources and to tackle common European challenges in radiation protection more effectively by joint research efforts in key areas. CONCERT is organised in nine Work Packages, three mainly concerned with joint programming as well as administering open research calls. Based on the SRAs of the European radiation protection research platforms, CONCERT developed research priorities and aligned them with priorities from participating Member States.

Within CONCERT, two major open RTD calls have been launched in 2016 and 2017, to support innovative research projects in radioprotection. Universities and research institutes from all over Europe and beyond had the opportunity to join research consortia and submit proposals. CONCERT as a co-fund action (70% EC and 30% national funding) aimed at integrating national and European research programmes and to engage the wider scientific community in funding research projects, with the goal to answer the needs in radiation protection for the public, occupationally exposed people, patients in medicine, and the environment. The main objectives of the calls have been:

- To support transnational research projects that combine innovative approaches in the field of radiation protection in line with the research priorities of CONCERT;
- To actively integrate E&T activities and collaboration with universities in multidisciplinary research projects;
- To make optimal use of research infrastructures.

CONCERT successfully finished both calls for proposals, each with two main topics: topic 1 with a focus on the assessment and governance of health risk at low radiation exposures and topic 2 with a focus on risk assessments and decision making in emergencies and existing exposure situations (see also table 1).

Table 1: Call topics of the two CONCERT calls 2016 and 2017

Call Year	Topic 1	Topic 2
2016	"Improvement of health risk assessment associated with low dose/dose rate radiation"	"Reducing uncertainties in human and ecosystem radiological risk assessment and management in nuclear emergencies and existing exposure situations, including NORM"
2017	"Understanding human health effects from ionizing radiation and improving dosimetry– Radioecology, emergency and social sciences and humanities" Subtopics (with equal relevance): I. Improvement of health risk assessment associated with low dose/dose rate radiation. II. Improvement of occupational dosimetry. III. Patient-tailored diagnosis and treatment: full exploitation and improvement of technology and techniques with clinical and dose structured reporting.	"Radioecology, emergency and social sciences and humanities" Subtopics (with equal relevance): I. Biomarkers of exposure and effects in living organisms, as operational outcomes of a mechanistic understanding of intra- and inter-species variation of radiosensitivity under chronic low dose exposure situations. II. Countermeasure strategies preparedness for emergency and recovery situations. III. Models, tools and rationales for stakeholder engagement and informed decision-making in radiation protection research, policy and practice for situations involving exposures to ionising radiations.

Comprising both CONCERT calls, 37 proposals have been submitted with 9 projects funded in total. This corresponds to a success rate of 24% (25% in the first call and 24% in the second call; see also figure 1).

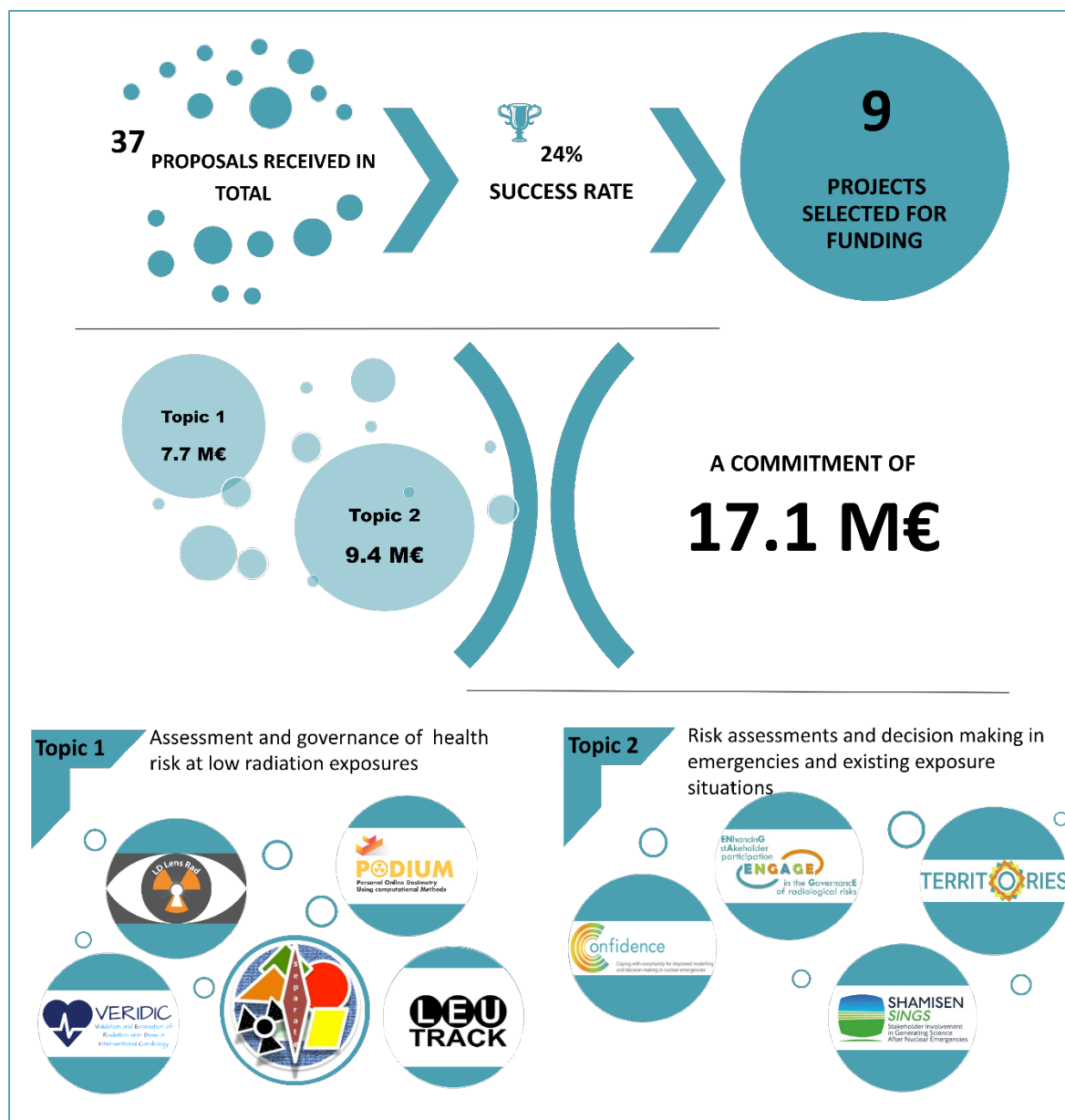


Figure 1: Results for the two open calls on “Radiation Protection Research in Europe”

The EJP CONCERT is committed in both calls to approx. 17.1 M€ (10.5 M€ in call 1 and 6.6 M€ in call 2), with 7.7 M€ going to topic 1 and 9.4 M€ to topic 2 projects.

Within both CONCERT calls, only CONCERT partners (organisations involved in the EJP CONCERT as Beneficiary or Linked Third Party, see also Annex II) could benefit from the EC co-funding. Non-CONCERT partners (Third Parties) could participate in projects in using their own funding or via cash-funding provided by CONCERT partners (70% EC and 30% in-kind contribution of the respective CONCERT partner). Therefore, the implementation of open calls within the EJP CONCERT (the first and only EJP to date to have open calls) was a challenging, but important feature. The funding of all Third Parties involved in the different projects has been successfully executed (including cross-border cash-funding).

The CONCERT partners have demonstrated with both open calls their wish to foster broad, international collaboration. This goal has been successfully achieved.

This document aims to summarise the outcome of both open transnational calls of the European Joint Program CONCERT to fund multidisciplinary innovative research projects in radiation protection.

The report includes:

1. A report on the first CONCERT call 2016;
2. A report on the second CONCERT call 2017;
3. The report of the Independent Observer on the second CONCERT call 2017 (ANNEX I);
4. Both Special Issues of the AIR² bulletin dedicated to the EJP CONCERT calls 2016 and 2017 as well as the nine funded projects (ANNEX III and IV).

For more information about the lessons learnt and the feedback from the Peer Review Panel members please refer to the deliverables 4.2 and 4.5.

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EJP-CONCERT

European Joint Programme for the Integration of Radiation Protection Research

H2020 – 662287

Report on the first CONCERT call 2016

Based on:

Report on the response to the first CONCERT call
Report on the evaluation procedure

EJP CONCERT Joint Call Secretariat



This report is based on and has been adapted from the deliverables 4.2/4.7 of WP4:

- D4.2: Final ranking list and Joint selection list of the projects to be funded from the joint international peer review of full proposals for the CONCERT open RTD Call 1**
- D4.7: Report on the monitoring of the CONCERT open RTD Call 1 to gather suggestions for improvement for the process of the CONCERT open RTD Call 2**

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Objective of this document

This document aims to summarise the input on the first open transnational call 2016 of the European Joint Program CONCERT to fund multidisciplinary innovative research projects in radiation protection.

This report includes:

1. An analysis of the first calls input describing the participation of the radiation protection research community in the first CONCERT call;
2. A report on the evaluation procedure (including the Peer Review Panel meeting) and the summary of the final funding decision;
3. An analysis of the three projects funded, based on the list of indicators developed in WP4.

This report aims to determine whether the first CONCERT call has been efficient and relevant. Additionally, it served to ameliorate the procedures for the second CONCERT call in 2017.

Background information

The aims of the first open transnational call of CONCERT have been:

- To support transnational research projects that combine innovative approaches in the field of radiation protection in line with the research priorities of CONCERT;
- To actively integrate E&T activities and collaboration with universities in multidisciplinary research projects;
- To make optimal use of research infrastructures.

Project proposals had to address multidisciplinary and transnational research. The project proposals had to cover one of the following areas that have been equal in relevance for this call:

- **Topic 1:**
Improvement of health risk assessment associated with low dose/dose rate radiation;
- **Topic 2:**
Reducing uncertainties in human and ecosystem radiological risk assessment and management in nuclear emergencies and existing exposure situations, including NORM.

Due to its characteristic representing an open call, the following organisations have been eligible to be funded:

- Beneficiaries of CONCERT (list of Beneficiaries in February 2017 in Annex II);
- Linked Third Parties of CONCERT (list of Linked Third Parties in February 2017 in Annex II);
- Third Parties:
 - Higher education establishments and other academic research institutions, in particular:

- Research oriented radiation protection institutions;
 - Clinical/public health sector organisations, in particular those employing research teams working in hospitals/public health and/or other health care settings. Participation of Medical Doctors in the research teams is encouraged;
 - Enterprises (all sizes of private companies). Participation of small and medium-size enterprises (SMEs) is encouraged.

Third Parties could participate in transnational projects if they have been able:

- to secure their own funding (without asking for any financial support);
- or to receive a financial support from a CONCERT Beneficiary organisation or one of their Linked Third Parties (see Annex II).

Such partners have been considered as full project partners.

Call preparation and general time sheldule of the call

The call was launched about half a year later than planned on June 2nd in 2016. The submission website was open for 2 months and was closed on August 2nd. In total 12 proposals have been submitted. All were found to be eligible taking into account the following criteria:

- the number of partners per project;
- the number of countries (EU/EURATOM) involved per project;
- Duration of funding period;
- Upload proceeded before submission deadline.

After allocation of proposals to the group of 15 international experts and further remote evaluation of all proposals, the PRP met for 2 days in Paris on October 26-27 2016 to thoroughly discuss all 12 proposals and to rank them in the presence of the EJP CONCERT EC Project Officer, invited as an observer and in the presence of the Call Steering Committee members (CONCERT's WP4). Two ranking lists – one for topic 1 and one for topic 2 – have been established by the PRP.

The Financial meeting of the Management board of CONCERT was prepared during a Work Package 1 (Coordination team of CONCERT) and Work Package 4 (Coordination of the CONCERT Calls) meeting on October 28th 2016.

With the total budget of 10.5 M€ available, the first 3 proposals, according to the ranking list, are funded as decided during the Management Board meeting of CONCERT on the 17th of November 2016.

Discussions about cash-funding for Third Parties within the three winning consortia took place in close collaboration with the proposal coordinators, the CONCERT coordination team and Work Package 4 (coordination of the call). Reallocations and modifications within the projects (in preparation and presentation of adapted work plans) have been validated by the PRP.

The CONCERT Grant Contracts (CGC) have been finalized after the successful approval of the amendment “AMD 57” for the inclusion of new CONCERT Beneficiaries.

Response to the first CONCERT call

In total 12 proposals were submitted by 147 partners from 85 different institutions in 26 countries. Thereof, 8 proposal responded to topic 1, in the area of *Improvement of health risk assessment associated with low dose/dose rate radiation*, and 4 proposals to topic 2, in the area of *Reducing uncertainties in human and ecosystem radiological risk assessment and management in nuclear emergencies and existing exposure situations, including NORM*. All 12 proposals were found to be eligible.

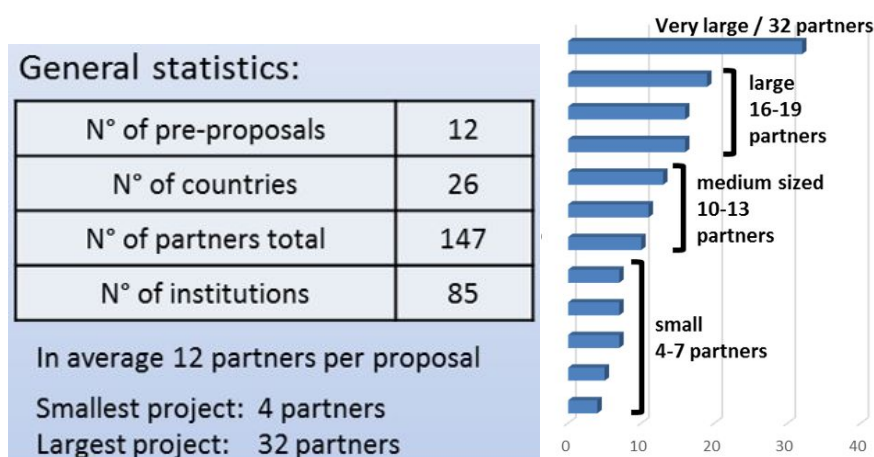


Figure 2: Consortium compositions, number of applicants and number of partners per project

The size of the consortia varied from four partners within the smallest up to 32 partners in the largest project (Fig. 2), with an average of 12 partners per proposals. Besides the 20 EU/EURATOM countries, five third countries participated; Canada, Japan, Kazakhstan, Norway and Russia; and one EURATOM associated country; Switzerland.

Evaluation procedure and PRP meeting

The evaluation procedure comprised a remote evaluation and a physical PRP meeting in Paris on October 26-27 2016. The PRP consisted of 15 international experts (table 2). To avoid conflict of interest, experts have been originated mainly from USA, Japan, Canada, India, Australia and Russia.

As observer, the EC Project Officer of the EJP CONCERT as well as members of the Call Steering Committee (CONCERT's WP4) have been present during the PRP meeting.

Table 2 : List of international experts contributing in the evaluation process of the first CONCERT call

Topic	Name	Institution	Country
1	Mikhail Balonov	Ramzaev Institute of Radiation Hygiene	Russia
1	Mary Helen Barcellos-Hoff	University of California, San Francisco (UCSF)	USA
1	Jonine Bernstein	Memorial Sloan Kettering, Cancer Center	USA
1	Amy Berrington	National Cancer Institute (NCI)	USA
1	Sudhir Chandna	Institute of Nuclear Medicine & Allied Sciences (INMAS)	India
2	Harry Cullings	Radiation effects research foundation (RERF)	Japan
1	Lynn Hlatky (Co-Chair)	Center of Cancer Systems Biology, Tufts	USA
2	Michiaki Kai	University of Oita	Japan
2	Larry Kapustka	LK Consultancy Canada	Canada
1	Aleksei Konoplev	Institute of Environmental Radioactivity	Japan
2	Sheldon Landsberger (Chair)	Texas Atomic Energy Research Foundation	USA
1/2	John D. Mathews	University of Melbourne, Melbourne	Australia
2	Nicholas Priest	Canadian Nuclear Laboratories, Chalk River	Canada
2	Stephen Solomon	Australian Radiation Protection and Nuclear Safety Agency	Australia
1/2	Lydia Zablotska	University of California, San Francisco (UCSF)	USA

The reviewers of the PRP carried out the evaluation according to specific evaluation criteria (see below), using a common evaluation form. The evaluation of submitted proposals has been aligned on the scoring system and criteria given in the European Commission's Work Programme.

A scoring system from 0 to 5 was used to evaluate the proposal's performance with respect to the different evaluation criteria. Scoring system: 0: fails or missing/incomplete information; 1: poor; 2: fair; 3: good; 4: very good; 5: excellent.

Criterion 1: Excellence of the proposal:

a. Clarity and pertinence of the objectives; b. Credibility of the proposed approach and methodology; c. Soundness of the concept; d. Innovative potential; e. Competence and experience of participating research partners in the field(s) of the proposal

Criterion 2: Impact of the proposal:

a. Potential of the expected results; b. Added-value of transnational collaboration; c. Effectiveness of the proposed measures to exploit and disseminate the project results

Criterion 3: Quality and efficiency of the implementation

a. Coherence and effectiveness of the work plan; b. Complementarity of the participants within the consortium; c. Involvement of young scientists; d. Appropriateness of the management structures and procedures, including risk and innovation management; e. Concept for sustainability of infrastructures initiated by the project; f. Budget and cost-effectiveness of the project

Remotely, each member of the PRP evaluated the submitted proposals (about four proposals per member). Each proposal was evaluated by at least three members (one rapporteur and minimum two readers). The proposals' grades given by PRP members before the evaluation meeting in Paris:

- Topic 1: three proposals were graded below threshold (threshold 10), but were thoroughly discussed within the meeting.
- Topic 2: none below threshold.

During the evaluation meeting, all PRP members met physically in Paris to discuss thoroughly the submitted proposals and to establish the ranking lists (topic 1 and topic 2) of projects recommended to be considered for funding. Each proposal was reviewed within the meeting by at least three members (one rapporteur and minimum two readers). During this meeting, the rapporteur introduced the proposal to the PR panel, and summarized the remote evaluations. The readers' task was to challenge the reporter, as well as the other PRP members who were asking questions during the meeting. Other PRP members also brought their complementary expertise/view on the proposal. Five proposals have been selected and ranked by the PRP, including two projects of topic 1 and 3 projects of topic 2 (Fig. 3). Two ranking lists – one for topic 1 and one for topic 2 – have been established by the PRP:

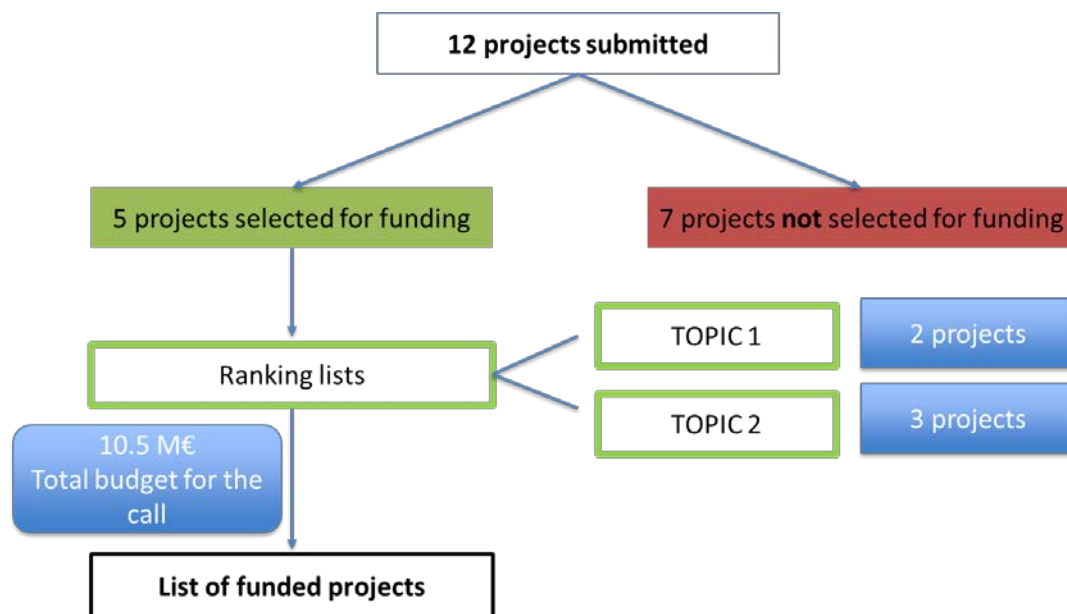


Figure 3: Scheme and result of the evaluation process

Both ranking lists have been merged, with one project of topic 1 and one project of topic 2 at the top and further listing of the projects according to the scoring. The three highest ranked projects funded with the total budget of 10.5 M€ available in the first CONCERT call are listed in the following table 3:

Table 3: List of ranked projects selected for funding

ID	Ranking	Acronym	TOPIC
CONCERT2016-006	1	CONFIDENCE	2
CONCERT2016-004	2	LDLensRad	1
CONCERT2016-013	3	TERRITORIES	2

An Evaluation Summary Report for each proposal submitted to the first CONCERT call 2016 was written by the PRP at the end of the evaluation procedure. These reports have been sent on January 16th 2017 to the respective project coordinators.

Funding decision

The full budget of the three highest ranked projects CONFIDENCE, TERRITORIES and LDLensRad that have been recommended for funding add up to approximatively 13 M€ in total (Fig. 4 left pie). From these costs, CONCERT is committed for 10.5 M€. The remaining 2.5 M€ are provided by partners/countries bringing to the project their own resources. Within this budget, 8 M€ are used to fund TERRITORIES and CONFIDENCE which are both in the topic 2 “Reducing uncertainties in human and ecosystem radiological risk assessment and management in nuclear emergencies and existing exposure situations, including NORM.” Hence, 76% of the budget is dedicated to topic 2, and 24% for topic 1 (Fig. 4 right pie). The project LDLensRad falls into the topic 1, “Improvement of health risk assessment associated with low dose/dose rate radiation” with a budget of 2.5 M€.

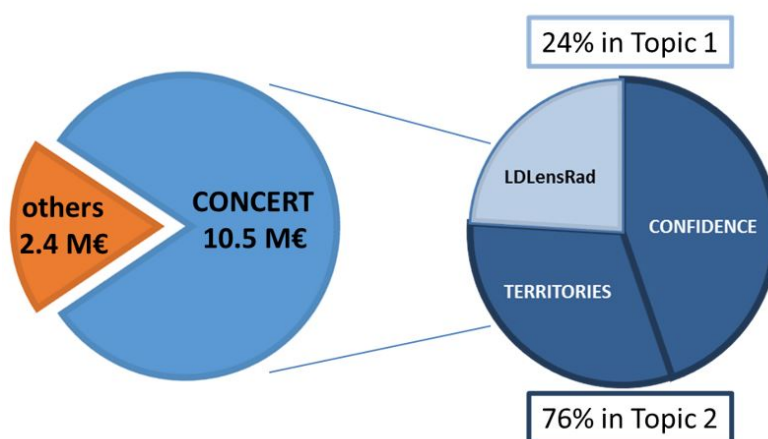


Figure 4: Allocation of budget within the first CONCERT call 2016

Analysis of the projects funded in the first CONCERT call

This part includes a first analysis of the three funded projects of the first CONCERT call, CONFIDENCE, LDLensRad and TERRITORIES, taking into account the initial submitted proposals. The report does not refer to the results of further amendments (change of the status of partners inside the CONCERT consortium) or other changes within the projects after submission of proposals. This chapter represents the first stage for monitoring of funded projects to evaluate their impact and contributions towards the development of radiation protection research in the European Research Area and the implementation of CONCERT objectives. The report is based in the selected output indicators (D4.8).

CONFIDENCE and TERRITORIES are projects falling within topic 2 of the first call while LDLensRad is a topic 1 project. Based on the initial applications, the 48 partners of the three projects are coming from 16 EU/EURATOM countries, one third country; Norway and one EURATOM associated country; Switzerland (Fig. 5A). The full budget of the three funded projects adds up to approximatively 13 M€ in total (Fig. 5B). While 10.5 M€ of these costs are committed to CONCERT, Norway and Ireland are bringing to the projects their own resources (2.5 M€ in total). The number of projects funded per country is presented in figure 5C.

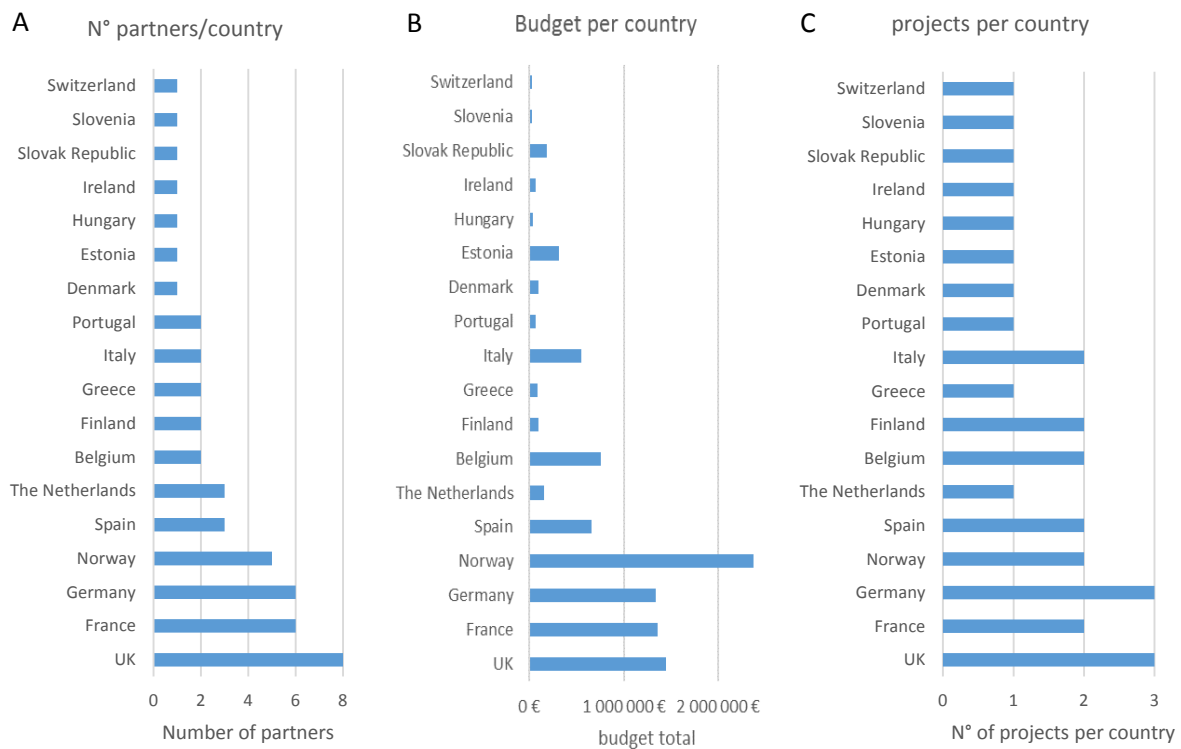


Figure 5: Visualisation of number of partners within and the budget distribution for the funded projects as well as the number of projects per country

The amount of partners within the three funded projects varies from five partners in LDLensRad, up to 11 in TERRITORIES and 32 in CONFIDENCE (Fig. 6). Except of TERRITORIES comprising only CONCERT Beneficiaries and Linked Third Parties, CONFIDENCE and LDLensRad are also including Third Parties.

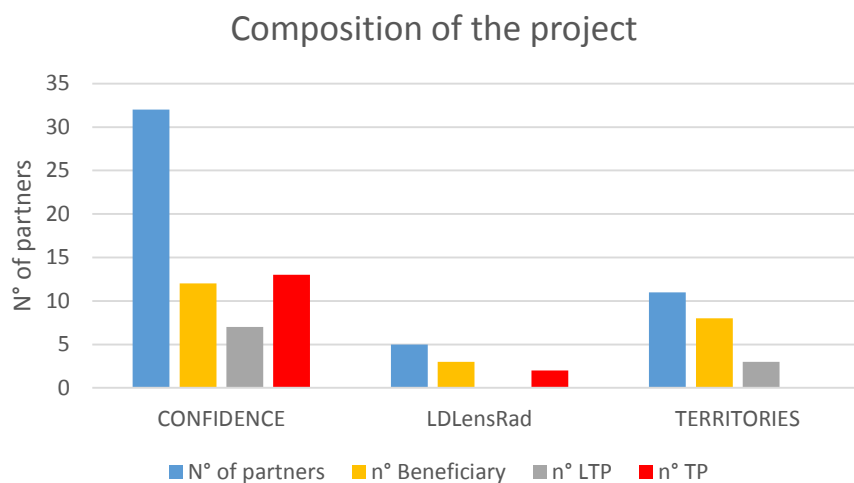
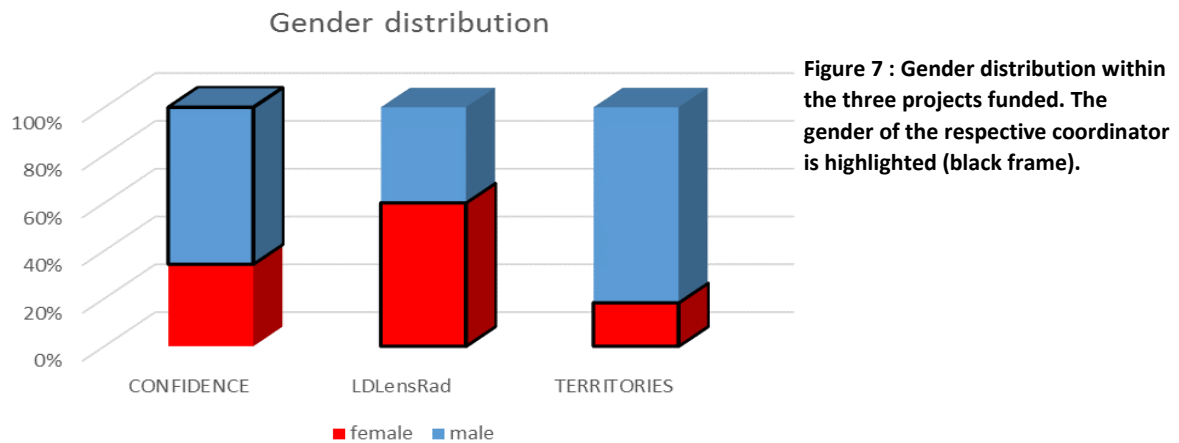


Figure 6: Number of partners within the funded projects and status of partners within CONCERT at the time of project submission

The gender distribution including the main contact person of each partner within the three funded projects is presented in the further picture (Fig. 7):



All three coordinators are coming from institutions having either the status of a Beneficiary or LTP within CONCERT and from the following countries: France, Germany and UK.

The majority of institutions within the funded projects are research oriented radiation protection institutions (30 in total) as indicated in figure 8. Furthermore, there are 14 partners coming from academic organisations, three coming from enterprises and one organisation of the clinical/public health research sector.

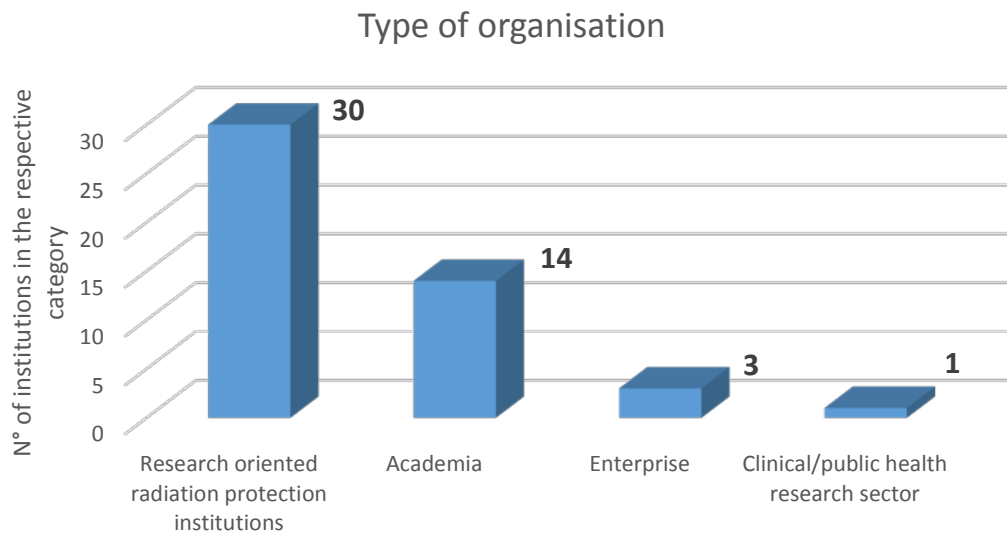


Figure 8: Analysis of the type of organisations participating in the funded projects.

The following graph illustrates the participation of the different types of organisation within the three funded projects:

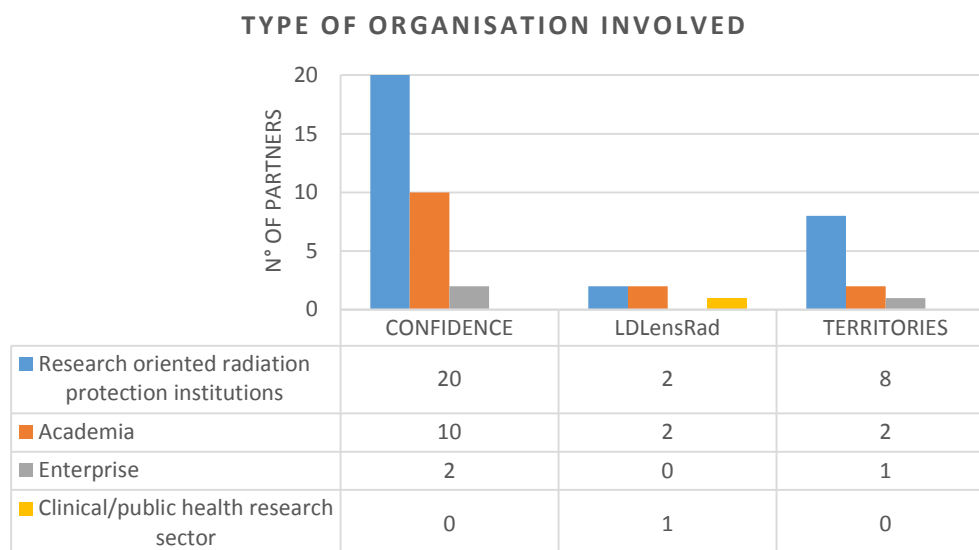


Figure 9: Analysis of types of organisation involved in the three funded projects.

The first report on the use of infrastructures during the project period will be available after the analysis of the mid-term reports of the funded projects. For now, the use of the further infrastructures is indicated in the proposals of the funded projects:

CONFIDENCE:

- ALLIANCE Chernobyl observatory
- ALLIANCE analytical infrastructure and existing datasets

LDLensRad:

- The use of the infrastructures available in the participating collaborating centres (not further indicated in more detail).

TERRITORIES:

- Contaminated sites and radioecology observatories
- Database (e.g. FREDERICA, Wildlife Transfer Parameter Database, etc.)
- Models and tools (for example SYMBIOSE, CROM, PC-CREAM, ERICA-Tool)

All projects consider STORE as an option for data sharing.

CONFIDENCE, LDLensRad and TERRITORIES are involving junior scientists, postdoctoral researchers and PhD students. Exchanges of students and young researchers is planned between the collaboration partners and students and young scientists are encouraged to participate in workshops or seminars as e.g. those included in CONCERT. In particular, the following E&T activities are planned in the three funded projects:

In CONFIDENCE there are several workshop and trainings planned including the following topics:

- Guidance on the use of uncertainty information by decision makers at the various levels within the decision making process;
- Derivation and application of 'process' based models to predict radionuclide activity concentrations in foodstuffs;
- Building of capabilities, trust and confidence in radiation protection issues;
- CONFIDENCE Dissemination workshop.

For LDLensRad the education and training commitment includes a PhD studentship at each participating organisation with general radiobiological training and different focus in the respective centres.

TERRITORIES indicated that E&T activities will be performed in the participating institutions covering areas of monitoring and sampling uncertainty, model uncertainty, and quality management to enhance robustness of radioecological models.

The methodology applied, the impact on Radiation Protection and the scientific community, the communication and dissemination activities (local, regional, national), interaction between researchers, mobility and training as well as the collaboration and consortia sustainability will be analysed on the basis of the mid-term and final report.

EJP-CONCERT

**European Joint Programme for the Integration of Radiation
Protection Research
H2020 – 662287**

Report on the second CONCERT call 2017

Based on:

Report on the response to the second CONCERT call
Report on the evaluation procedure

[EJP CONCERT Joint Call Secretariat](#)



This report is based on and has been adapted from the deliverable D4.5 of WP4:

D4.5: Final ranking list and Joint selection list of the projects to be funded from the joint international peer review of full proposals for the CONCERT open RTD Call 2

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With contributions from:

FCT, SSM, MINECO

Objective of this document

This document aims to summarise the input on the second open transnational call 2017 of the European Joint Program CONCERT to fund multidisciplinary innovative research projects in radiation protection.

This report includes:

1. An analysis of the second call's input, describing the participation of the radiation protection research community in the second CONCERT call;
2. A report on the evaluation procedure (including the Peer Review Panel meeting) and the summary of the final funding decision;
3. An analysis of the six projects funded, based on the list of indicators developed in WP4.

This report aims to present the results of the second CONCERT call and to analyse whether the call has been efficient and relevant.

Background information

The aims of the second open transnational call of CONCERT have been:

- To support transnational research projects that combine innovative approaches in the field of radiation protection in line with the research priorities of CONCERT;
- To actively integrate E&T activities and collaboration with universities in multidisciplinary research projects;
- To make optimal use of research infrastructures.

Project proposals had to address multidisciplinary and transnational research. The second call addressed two main topics (each one with three sub-topics). The project proposals must fall within one of the topics and may answer one or more sub-topics within one of the topics when appropriate:

Topic 1 - Understanding human health effects from ionising radiation and improving dosimetry

- I. Improvement of health risk assessment associated with low dose/dose rate radiation.
- II. Improvement of occupational dosimetry.
- III. Patient-tailored diagnosis and treatment: full exploitation and improvement of technology and techniques with clinical and dose structured reporting.

Topic 2 - Radioecology, emergency and social sciences and humanities

- I. Biomarkers of exposure and effects in living organisms, as operational outcomes of a mechanistic understanding of intra- and inter-species variation of radiosensitivity under chronic low dose exposure situations.
- II. Countermeasure strategies preparedness for emergency and recovery situations.

III. Models, tools and rationales for stakeholder engagement and informed decision-making in radiation protection research, policy and practice for situations involving exposures to ionising radiations.

Due to its characteristic representing an open call, the following organisations have been eligible to be funded:

- Beneficiaries of CONCERT (list of Beneficiaries in February 2017 in Annex II);
- Linked Third Parties of CONCERT (list of Linked Third Parties in February 2017 in Annex II);
- Third Parties:
 - Higher education establishments and other academic research institutions, in particular:
 - Research oriented radiation protection institutions;
 - Clinical/public health sector organisations, in particular those employing research teams working in hospitals/public health and/or other health care settings. Participation of Medical Doctors in the research teams is encouraged;
 - Enterprises (all sizes of private companies). Participation of small and medium-size enterprises (SMEs) is encouraged.

Third Parties could participate in transnational projects if they have been able:

- to secure their own funding (without asking for any financial support);
- or to receive a financial support from a CONCERT Beneficiary organisation or one of their Linked Third Parties (see Annex II).

Such partners have been considered as full project partners.

The total budget available for the second CONCERT transnational Call for proposals was 6.98 M€. CONCERT decided to allocate the funds available for the second call as follows: 80% to topic 1 and 20% to topic 2, respectively. Therewith, CONCERT intended to fund up to three projects in topic 1 and up to two projects in topic 2, respectively. CONCERT considered that proposals with total eligible cost up to 1.86 M€ for topic 1 and up to 0.69 M€ for topic 2 would allow the specific challenges of the open CONCERT RTD calls to be addressed appropriately. Nonetheless, this recommendation did not preclude submission and selection of proposals requesting other amounts.

In contrast to the first call, consortia submitting proposals to the second CONCERT call should integrate as partner at least one external entity (non-CONCERT beneficiary or LTP) to the current CONCERT consortium.

Call preparation and general time schedule of the call

The second CONCERT call was launched on March 1st, 2017. The submission website was open for 2 months and was closed on May 2nd. In total 25 proposals have been submitted. One proposal, not following the formal criteria of the call, was found not to be eligible.

After allocation of proposals to the group of 13 international experts and further remote evaluation of all proposals, the PRP met for 2 days in Paris on July 6-7, 2017 to thoroughly discuss all 24 eligible proposals and to rank them in the presence an Independent Observer, the EJP CONCERT EC Project

Officer, invited as an observer too, and in the presence of the Call Steering Committee members (CONCERT's WP4). Two ranking lists – one for topic 1 and one for topic 2 – have been established by the PRP.

The Financial meeting of the Management board of CONCERT was prepared during a Work Package 1 (Coordination team of CONCERT) and Work Package 4 (Coordination of the CONCERT Calls) meeting on July 10th.

With the total budget of 6.98 M€ available and according to the ranking lists, the first four proposals of topic 1 and the first 2 proposals of topic 2, are funded as decided during the Management Board meeting of CONCERT on 27th of July 2017.

Discussions about cash-funding for Third Parties within the three winning consortia took place in close collaboration with the proposals coordinators, the CONCERT coordination team and Work Package 4 (coordination of the call). For two projects, modifications within the projects have been presented in new work plans provided by the respective project's coordinators. These new work plans have been validated by the PRP.

The CONCERT Grant Contracts (CGC) for all funded projects have been signed in December 2017.

Response to the second CONCERT call

In total, 25 proposals were submitted by 166 partners from 89 different institutions in 24 countries. Thereof, 21 proposal responded to topic 1, in the area of *Understanding human health effects from ionising radiation and improving dosimetry*, and 4 proposals to topic 2, in the area of *Radioecology, emergency and social sciences and humanities*. 24 proposals were found to be eligible. One proposal (topic 1), not following the formal criteria of the call, was found not to be eligible.

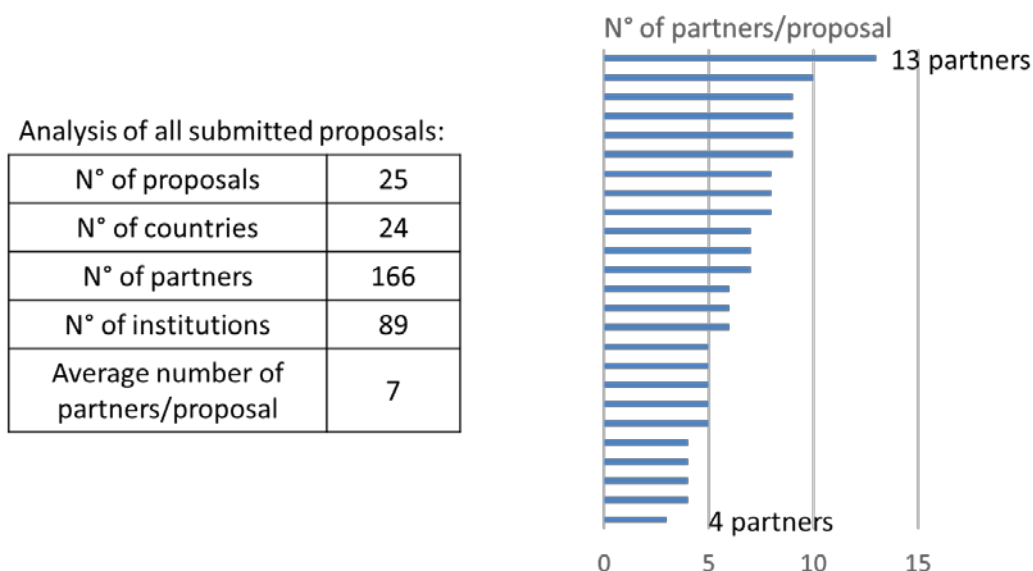


Figure 10: Analysis of the 25 submitted proposals and number of partners per project

The size of the consortia varied from four partners up to 13 partners (fig. 10), with an average of seven partners per proposals. Besides 19 EU/EURATOM countries, four third countries participated; Japan, Serbia, Norway and USA; and one EURATOM associated country; Switzerland.

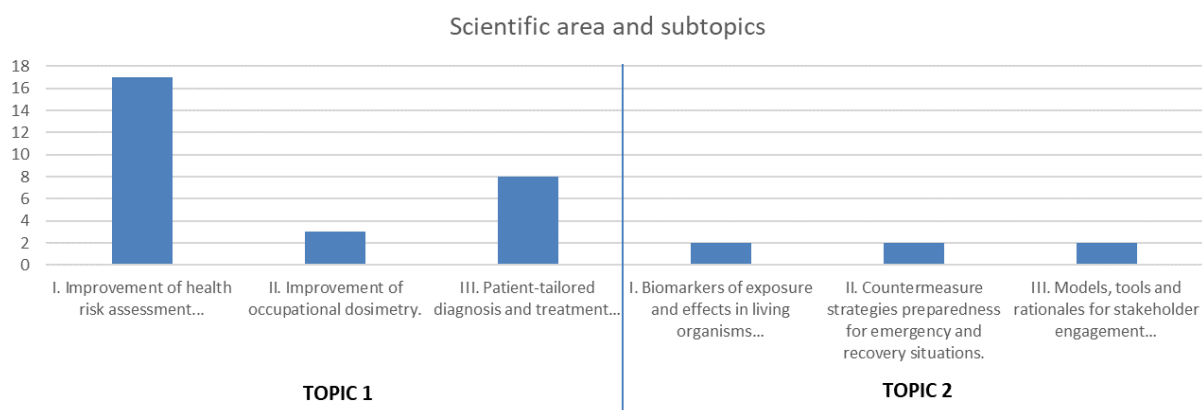


Figure 11: Distribution of the 25 submitted proposals on the different research areas and sub-topics

The selection of the different sub-topics in the different research areas (topic 1 and 2) is presented in figure 11. The project proposals must fall within one of the topics and may answer one or more sub-topics within one of the topics when appropriate. A more detailed analysis of the sub-topics selected and of the combination of different sub-topics within the 25 submitted proposals is shown in figure 12.

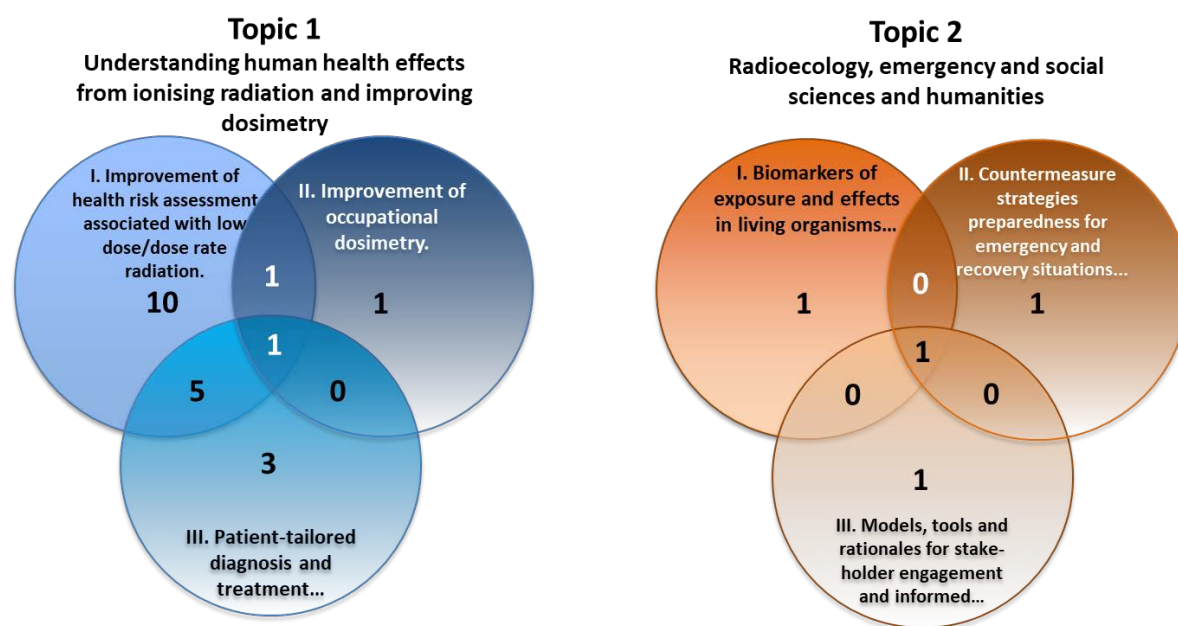


Figure 12: Sub-topics selected and combination of the different sub-topics within the 25 submitted proposals

Evaluation procedure and PRP meeting

The evaluation procedure comprised a remote evaluation and a physical PRP meeting in Paris on July 6-7, 2017. The PRP consisted of 13 international experts (table 4). To avoid conflict of interest, mainly non-European experts have been invited. A list of experts, prepared by the EJP CONCERT consortium, has been provided to WP4 by the CONCERT coordination team.

Table 4 : List of international experts contributing in the evaluation process of the second CONCERT call

Name	Institution	Country
Edouard Azzam	New Jersey Medical School	USA
Mary Helen Barcellos-Hoff (Co-chair)	University of California, San Francisco (UCSF)	USA
Janet Baulch	University of California	USA
Mike Boyd	U.S. Environmental Protection Agency (EPA)	USA
Sudhir Chandna	Institute of Nuclear Medicine & Allied Sciences (INMAS)	India
Nolan Hertel	George W. Woodruff School of Mechanical Engineering	USA
Kathryn Higley	Oregon State University	USA
Thomas Kron	Peter McCullum cancer centre	Australia
Amy Kronenberg	Lawrence Berkeley National Laboratory	USA
Sheldon Landsberger (Chair)	Texas Atomic Energy Research Foundation	USA
Wayne Newhauser	Louisiana State University	USA
Marianne Sowa	NASA - Space Biosciences	USA
Duncan Campbell Thomas	University of South California	USA

The following persons have been present during the PRP meeting as observers:

Name	Institution	Country	Role
Christine Bunthof	Wageningen University and Research	The Netherlands	Independent Observer
André Jouve	European Commission	Belgium	Project Officer
Véronique Briquet-Laugier	Agence nationale de la recherche (ANR)	France	WP4
Monika Frenzel	Agence nationale de la recherche (ANR)	France	WP4/JCS
Rita Cavaleiro	Fundação para a Ciência e a Tecnologia (FCT)	Portugal	WP4
Alberto Abánades Velasco	Ministerio de Economía y Competitividad (MINECO)	Spain	WP4
Lars Gedda	Stralsakerhetsmyndigheten (SSM)	Sweden	WP4

The PRP carried out the evaluation according to specific evaluation criteria (see below), using a common evaluation form. The evaluation of submitted proposals has been aligned on the scoring system and criteria given in the European Commission's Work Programme.

A scoring system from 0 to 5 was used to evaluate the proposal's performance with respect to the different evaluation criteria. Scoring system: 0: fails or missing/incomplete information; 1: poor; 2: fair; 3: good; 4: very good; 5: excellent.

Evaluation criteria:**Criterion 1: Excellence of the proposal:**

a. Clarity and pertinence of the objectives; b. Credibility of the proposed approach and methodology; c. Soundness of the concept; d. Innovative potential; e. Competence and experience of participating research partners in the field(s) of the proposal (previous work in the field, specific technical expertise)

Criterion 2: Impact of the proposal:

a. Potential of the expected results to add to the scientific evidence base to improve radiation protection and, consequently, its regulation; b. Added-value of transnational collaboration: gathering a critical mass, sharing of resources, harmonization of data, sharing of specific know-how and/or innovative technologies, etc.; c. Added-value for competence building in the European radiation protection research community and the European radiation protection regulatory system; d. Effectiveness of the proposed measures to exploit and disseminate the project results (including management of intellectual property rights - IPR), to communicate the project, and to manage research data where relevant

Criterion 3: Quality and efficiency of the implementation

a. Coherence and effectiveness of the work plan, including appropriateness of the allocation of tasks, resources and time-frame; b. Scientific competence and complementarity of the participants within the consortium; c. Involvement of young scientists (MSc, PhD, Post-Doc...), when applicable; d. Appropriateness of the management structures and procedures, including risk and innovation management; e. Concept for sustainability of infrastructures initiated by the project, when applicable; f. Budget and cost-effectiveness of the project (rational distribution of resources in relation to project's activities, partners' responsibilities and time frame)

The PRP evaluated remotely the submitted proposals (about 7 proposals per PRP member). Each proposal of topic 1 was evaluated by four and each proposal of topic 2 was evaluated by three members (one rapporteur and two to three readers). The proposals' grades given by PRP members before the evaluation meeting in Paris:

- Topic 1: five proposals were graded below threshold (threshold 10).
- Topic 2: two proposals were graded below threshold (threshold 10).

All 24 eligible proposals have been discussed during the PRP meeting. During the evaluation meeting, the PRP members met physically in Paris to discuss thoroughly the submitted proposals and to establish the two ranking lists (topic 1 and topic 2) of projects recommended to be considered for funding. Each proposal was reviewed within the meeting by at least three members (one rapporteur and minimum two readers). During this meeting, the rapporteur introduced the proposal to the PR panel, and summarized the remote evaluations. The readers' task was to challenge the reporter, as well as the other PRP members who were asking questions during the meeting. Other PRP members also brought their complementary expertise/view on the proposal. The CONCERT consortium agreed to use the threshold of 10, by summing up the scores of the three criteria, for the final ranking. When below threshold, proposals were not ranked. In total, 15 proposals have been selected and ranked by the PRP, including 13 proposals of topic 1 and 2 proposals of topic 2 (Fig. 13). Two ranking lists – one for topic 1 and one for topic 2 – have been established by the PRP:

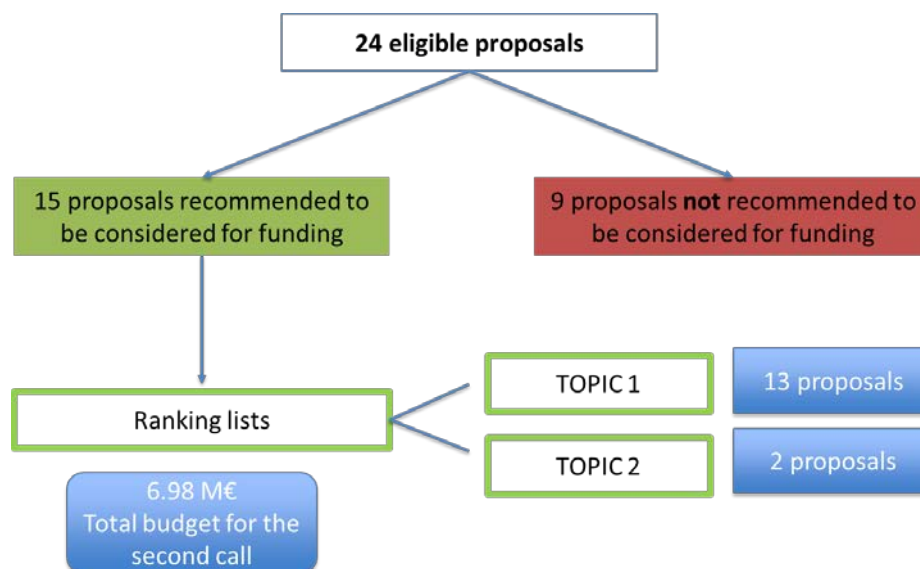


Figure 13: Scheme and result of the evaluation process

With the total budget of 6.98 M€ available for the second CONCERT call, and taking into consideration the budget allocated to the different topics (see also point “Background information”), the four highest ranked projects in topic 1 (table 5) and the two ranked projects in topic 2 (table 6) could be funded:

Table 5: List of funded projects - selected and recommended to be funded by the PRP - in topic 1

Proposal ID	Acronym	Topic	Ranking
CONCERT2017-016	LEU-TRACK	1	1
CONCERT2017-007	PODIUM	1	2
CONCERT2017-033	VERIDIC	1	3
CONCERT2017-010	SEPARATE	1	4

Table 6: List of funded projects - selected and recommended to be funded by the PRP - in topic 2

Proposal ID	Acronym	Topic	Ranking
CONCERT2017-039	SHAMISEN-SINGS	2	1
CONCERT2017-041	ENGAGE	2	2

An Evaluation Summary Report (ESR) for each proposal submitted to the second CONCERT call 2017 was written by the PRP at the end of the evaluation procedure. The reports have been sent on August 28th 2017 to the respective project coordinators.

For the second CONCERT call, a template for the ESR has been established by the WP4. Besides information about the scores given for the individual criteria and the mean score attributed to the proposal, the report includes:

1. A comment about the relevance of the respective proposal to the call.
2. Separated comments on the three evaluation criteria.
3. A section for an overall comment regarding strengths and weaknesses of the respective submitted proposal.

Funding decision

Based on the repartition of budget between topic 1 and 2 in the first call (see also figure 14), CONCERT decided to allocate the funds of 6.98 M€ in total available for the second call as follows: 80% to topic 1 and 20% to topic 2, respectively. As mentioned, CONCERT intended to fund up to three projects in topic 1 and up to two projects in topic 2, and recommended total eligible costs per proposal up to 1.86 M€ for topic 1 and up to 0.69 M€ for topic 2 within the call text.

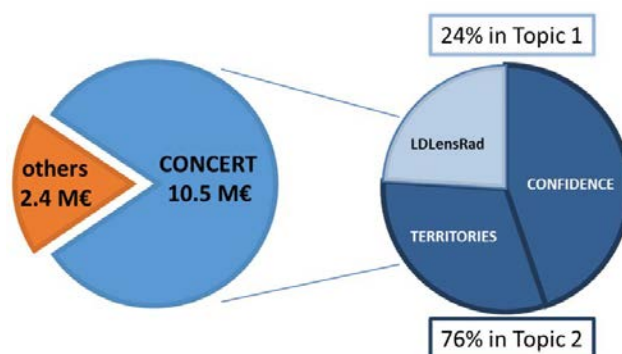


Figure 14: Allocation of the budget within the first CONCERT call 2016

The total budget of the six highest ranked projects LEU-TRACK, PODIUM, VERIDIC, SEPARATE, SHAMISEN-SINGS and ENGAGE, that have been selected and recommended for funding by the PRP, add up to approximatively 6.7 M€ in total (Fig. 15 left pie). From these costs, CONCERT is committed for approx. 6.6 M€. The remaining 2% are provided by partners/countries bringing to the project their own resources.

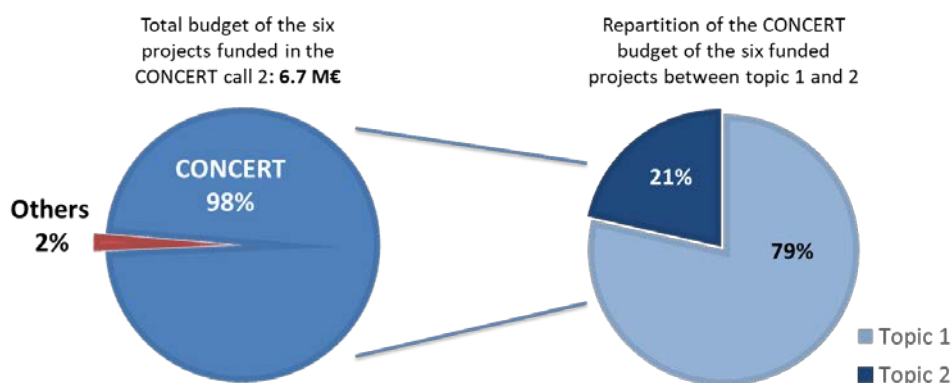


Figure 15: Allocation of the budget within the second CONCERT call 2017

Within this budget, 5.2 M€ are used to fund the four highest ranked projects in topic 1 *“Understanding human health effects from ionising radiation and improving dosimetry”* and 1.4 M€ to fund the two ranked projects in topic 2 *“Radioecology, emergency and social sciences and humanities”*. Hence, 79% of the budget used for funding of transnational research projects in the second CONCERT call is going to topic 1, and 21% to topic 2 (Fig. 15 right pie).

In contrast to the first call, where all the budget available was spent to fund the three highest ranked projects, in the second CONCERT call, 6% of the budget dedicated to the call (approximately 400.000€) was not used for funding. This remaining budget was not sufficient to fund the next proposal (position 5) in the ranking list of topic 1.

Analysis of the projects funded in the second CONCERT call

This part includes a first analysis of the six funded projects of the second CONCERT call, LEU-TRACK, PODIUM, VERIDIC, SEPARATE, SHAMISEN-SINGS and ENGAGE, taking into account the initial submitted proposals. The report does not refer to the results of further amendments (change of the status of partners inside the CONCERT consortium) or other changes within the projects after submission of proposals. This chapter represents the first stage for monitoring of funded projects of the second CONCERT call to evaluate their impact and contributions towards the development of radiation protection research in the European Research Area and the implementation of CONCERT objectives. The report is based in the selected output indicators (D4.8).

LEU-TRACK, PODIUM, VERIDIC and SEPARATE are projects falling within topic 1 of the second call, while SHAMISEN-SINGS and ENGAGE are topic 2 projects. They are responding together to all of the six sub-topics of both scientific areas as presented in figure 16 and table 7:

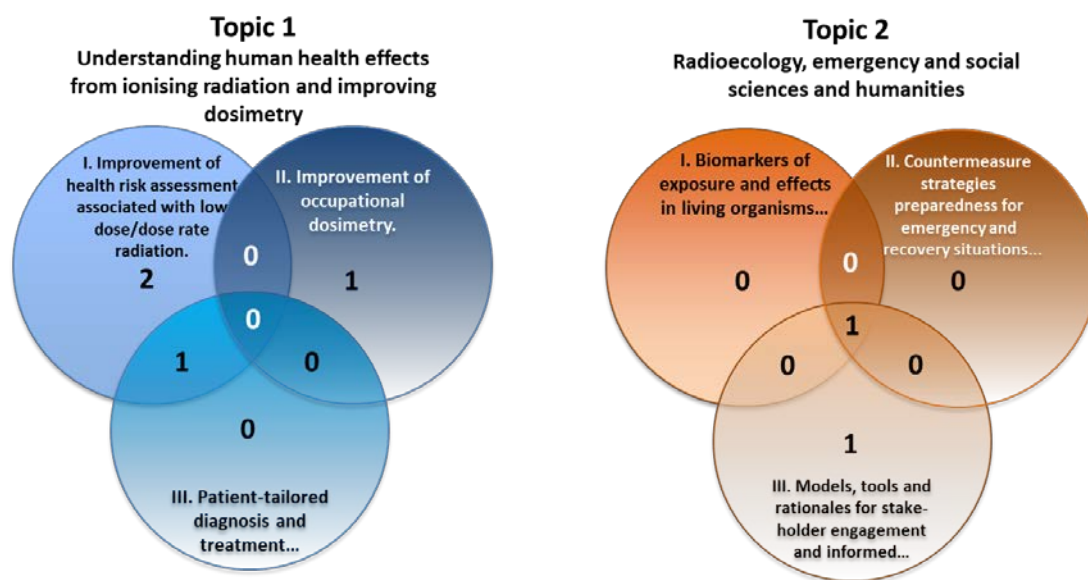


Figure 16: Sub-topics selected and combination of the different sub-topics within the six funded projects

Table 7: Sub-topics selected and combination of the different sub-topics within the six funded projects

	TOPIC 1			TOPIC 2		
	I. Improvement of health risk assessment...	II. Improvement of occupational dosimetry.	III. Patient-tailored diagnosis and treatment...	I. Biomarkers of exposure and effects in living organisms...	II. Countermeasure strategies preparedness for emergency and recovery situations.	III. Models, tools and rationales for stakeholder engagement...
SEPARATE	X					
LEU-TRACK	X					
PODIUM		X				
VERIDIC	X		X			
ENGAGE						X
SHAMISEN-SINGS				X	X	X

Based on the initial applications, the 46 partners of the six projects are coming from 14 EU/EURATOM countries, three third countries; Japan, Norway and Serbia and one EURATOM associated country;

Switzerland (Fig. 17A). The total budget of the six funded projects adds up to approximatively 6.7 M€ in total (Fig. 17B). While 6.6 M€ of these costs are committed to CONCERT, some partners are bringing to the projects their own resources (Norway, Serbia and Japan as well as partners from Switzerland and France). The number of projects per country is presented in figure 17C.

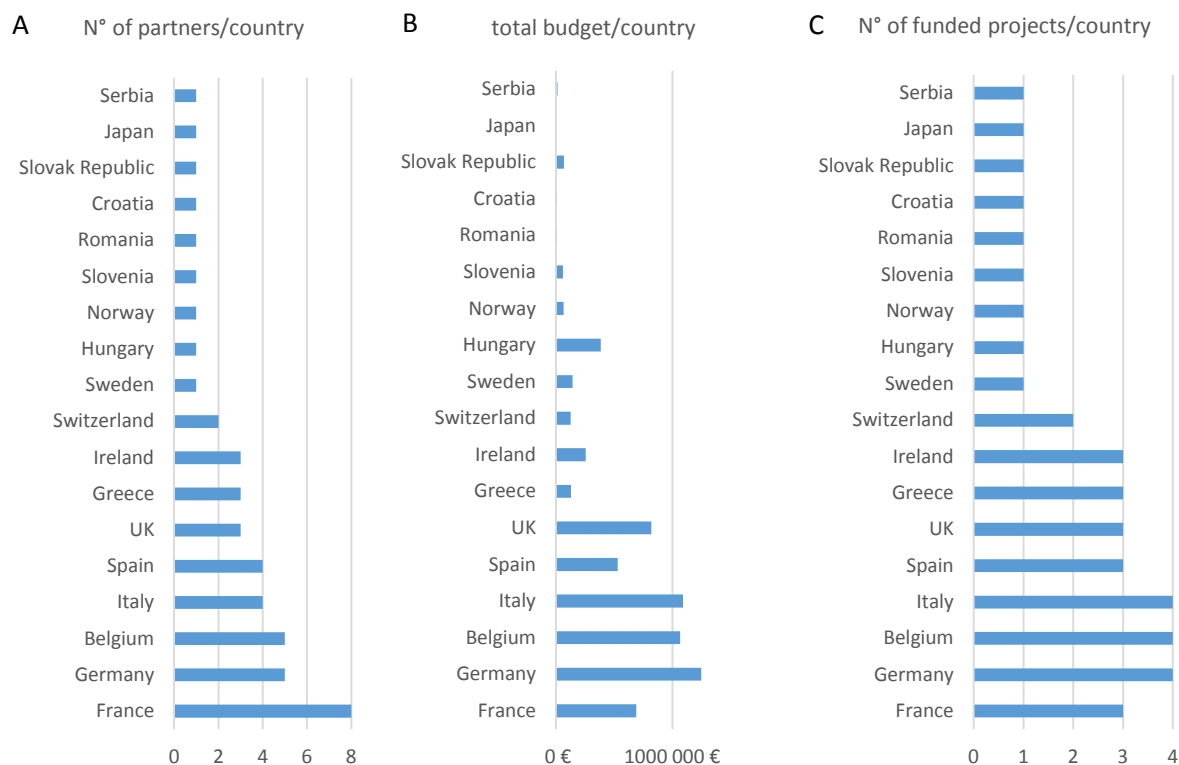


Figure 17: Visualisation of number of partners within and the total budget of the six funded projects as well as the number of projects per country

The size of the consortia of the six funded projects varies from 4 to 13 partners with at least one TP (besides CONCERT Beneficiaries and Linked Third Parties) as required by the call text (fig. 18).

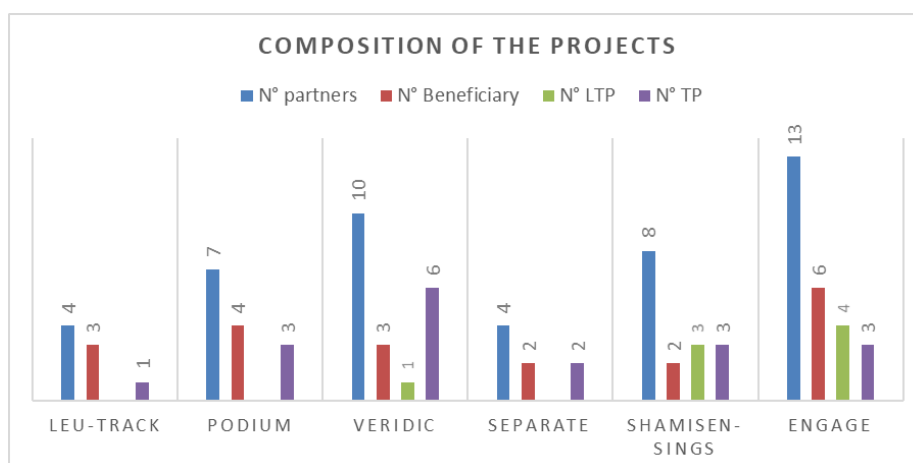


Figure 18: Number of partners within the six funded projects and status of partners within CONCERT at the time of proposal submission

The gender distribution including the principal investigator of each partner within the six funded projects is presented in figure 19. The gender of the coordinator is highlighted for every project (black

frame). All six coordinators are coming from institutions having either the status of a Beneficiary or LTP within CONCERT and from the following countries: Belgium (3x), Hungary, Italy and Spain.

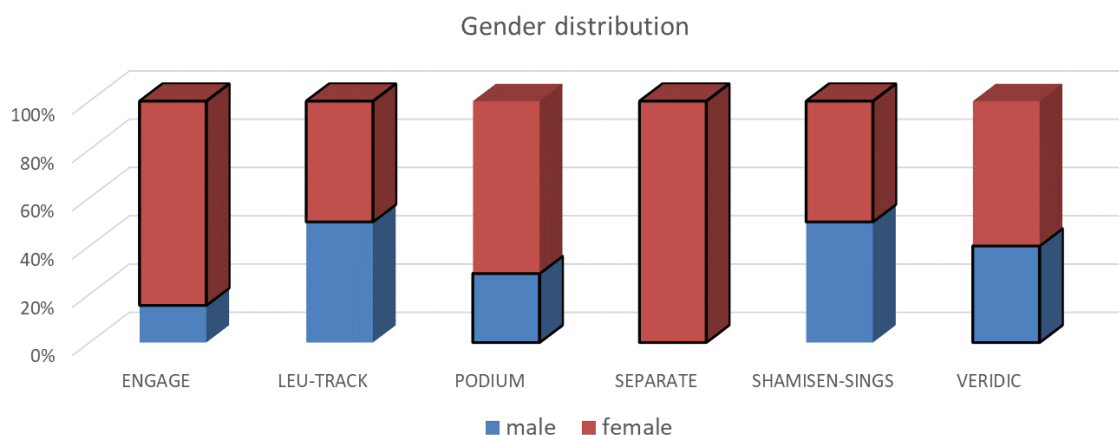


Figure 19: Gender distribution within the six funded projects. The gender of the respective coordinator is highlighted (black frame).

The majority of partners within the funded projects are coming from research oriented radiation protection institutions as indicated in figure 20. Furthermore, there are partners coming from organisations of the clinical/public health research sector, academic organisations as well as from two enterprises.

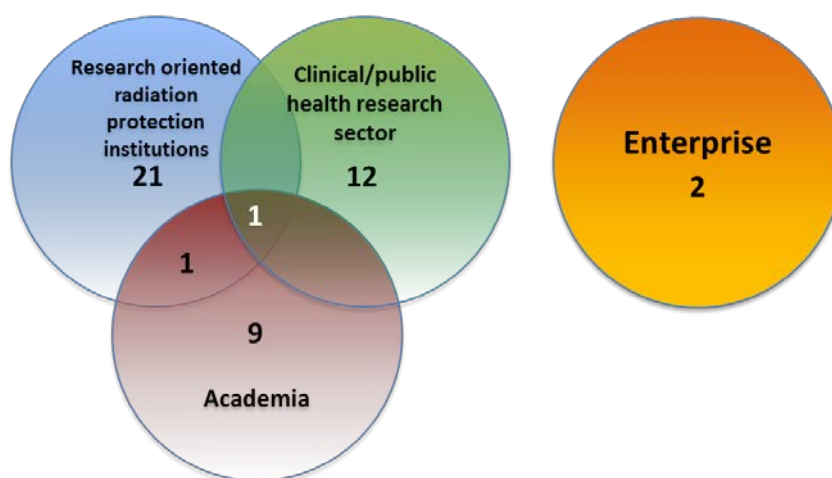


Figure 20: Analysis of the type of organisations participating in the funded projects.

The following graph (figures 21) illustrates the different type of organisations participation in the six funded projects:

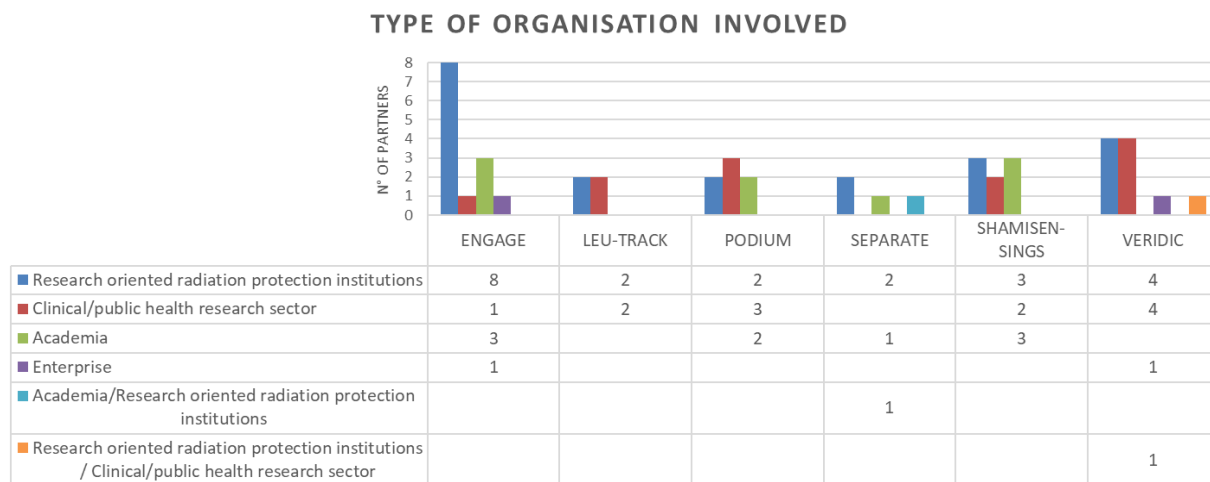


Figure 21: Analysis of the type of organisation involved in the six funded projects.

Inclusion of an Independent Observer

As decided by the Executive Board of CONCERT (extraordinary ExB meeting on February 8th 2017), an Independent Observer was invited and integrated in the second CONCERT call. The Independent Observer worked according to H2020 guidelines for Independent Observers. These rules have been adapted to the characteristics of the EJP CONCERT by WP4 in collaboration with the coordination team of CONCERT.

The Observers Report is attached as Annex III.

ANNEX I – CONCERT call 2017: Observers Report

European Joint Programme – CONCERT
Transnational Call for Proposals (2017) for
“Radiation Protection Research in Europe”

Observers Report

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1 Introduction

1.1 Overview of the Call

What is Radiation Protection Research

Radiation protection is a broad field of research. It includes building knowledge on how to minimize side-effects of radiation treatment of cancers, radio-diagnostics, and occupational radiation hazard. Radiation risks are high for workers at a nuclear power plant and those working in a radionuclide laboratory, but also at a number of other occupations, workers may be exposed to (low-dose) radiation, often with prolonged exposure, such as miners and aviation personnel. Radioecology and preparedness for radiation disasters form other lines within radiation protection research. Radioecology studies how radioactive substances interact with nature; how different mechanisms affect the substances' migration and uptake in food chains and ecosystems. Investigations in radioecology might include aspects of field sampling, designed field and laboratory experiments and the development of predictive simulation models. Radioecological studies form the basis for estimating doses and assessing the consequences of radioactive pollution for human health and the environment. Preparedness for nuclear disasters involves technical and biological research, but also socio-economics and humanities.

Aim of CONCERT

The European Joint Programme for the Integration of Radiation Protection Research (CONCERT) aims to contribute to the sustainable integration of European and national research programmes in the field of radiation protection. The European Commission's EURATOM research and training programme supports CONCERT through the European Joint Programme (EJP) instrument (2015-2020). The CONCERT consortium consists of 38 beneficiaries (34 National Programme Managers and 4 Research Platforms) from 24 countries (22 EU/EURATOM members states, Norway as third country and Switzerland as EURATOM associated country), and 30 Linked Third Parties. The co-funding scheme for CONCERT entails 70% EURATOM funding and 30% national funding. The latter can be in-kind and/or in-cash. The EURATOM share is maximally 19.8 Mill. Euro, thus the total CONCERT EJP funding is ~27.5 Mill. Euro in 5 years. Two joint calls are organised and other activities such as research and training are conducted. CONCERT develops its strategic plans based on the work of the European research platforms MELODI, EURADOS, NERIS, ALLIANCE and EURAMED in the fields of radiation effects in humans, dosimetry, nuclear emergency preparedness, radioecology and radiation protection in medicine respectively. EJP CONCERT serves as an umbrella structure for joint programming and the integration of the research agendas from the European research platforms and national research programmes. Beyond joint programming CONCERT brings together research organisations authorities and responsible ministries to develop joint activities and programmes in order to coordinate and co-fund high quality research in radiation protection across national borders in Europe.

2nd Call Time Schedule

The whole call process is done between March and November 2017. The call was pre-announced on 18th February 2017 and was launched on March 1st with a deadline for submission on May 2nd. Reviewers were selected and invited by the Joint Call Secretariat in March. The eligibility check of proposals submitted to the call was done between May 3rd and 12th, after which the proposals were sent to the reviewers who had six weeks to complete the evaluations. The Peer Review Panel meeting was on 6th and 7th of July 2017. The final funding decision is scheduled for September, and expected latest start of the funded projects is November. This is a very fast call process and a very low time-to-grant.

2nd Call Topics and Call budget

Projects must be multidisciplinary and transnational. They must fall within one of the two main topics, and may answer to one or more sub-topics within the topic. The general aims of the call are: (i) to support transnational research projects that combine innovative approaches in the field of radiation protection in line with the research priorities of CONCERT: (ii) to actively integrate education and training activities and collaboration with universities in multidisciplinary research projects; and (iii) to make optimal use of research infrastructures. The main topics and sub-topics under them are:

Topic 1. Understanding human health effects from ionising radiation and improving dosimetry.

1.1 Improvement of health risk assessment associated with low dose/dose rate radiation.

1.2 Improvement of occupational dosimetry.

1.3 Patient-tailored diagnosis and treatment: full exploitation and improvement of technology and techniques with clinical and dose structured reporting.

Topic 2. Radioecology, emergency and social sciences and humanities.

2.1 Biomarkers of exposure and effects in living organisms, as operational outcomes of a mechanistic understanding on intra- and inter-species variation of radiosensitivity under chronic low dose exposure situations.

2.2 Countermeasure strategies preparedness for emergency and recovery situations

2.3 Models, tools and rationales for stakeholder engagement and informed decision-making in radiation protection research, policy and practice for situations involving exposures to ionising radiations.

The total budget available for the second CONCERT call is 6.98 Mill Euro. CONCERT decided to allocate approximately 5.6 Mill Euro for topic 1 and 1.4 Mill Euro for topic 2. CONCERT intended to fund up to three projects in topic 1 and up to two in topic 2.

Call Steering Committee and Joint Call Secretariat

The CONCERT 2017 Call Steering Committee is composed of four organisations: Agence Nationale de la Recherche, France (ANR); Stralsakerhetsmyndigheten, Sweden (SSM); Fundação para a Ciência e a Tecnologia, Portugal (FCT); Ministerio de Economía y Competitividad, Spain (MINECO). The call for proposals is coordinated by the Joint Call Secretariat, hosted by ANR. Call Steering Committee members are not allowed to apply to the transnational call. On the basis of the set of documents provided by WP3 of CONCERT, the JCS prepared the a draft Call Text and accompanying documents that were reviewed by the Call Steering Committee.

The Call Steering Committee organised the establishment of the Joint Peer Review Panel based on a list of experts provided by the CONCERT Management Board. Based on the recommendations of the Peer Review Panel, the Call Steering Committee provides two ranking lists, one per topic, to the CONCERT Coordination and Management Board.

Results of the Call

25 proposals were submitted, 21 to topic 1 and 4 to topic 2. One proposal was found not to be eligible. The number of countries participating in proposals was 24. The number of partners was in total 166. In terms of consortium size, there were fifteen smaller eligible proposals (4-7 partners), eight medium sized consortia (8-10), and one proposal had 13 partners. The average number of partners was much lower than in the first call and there were none very large consortia. For topic 1 the panel consensus result was that 13 out of 20 proposals scored 10.0 or higher and these were recommended for funding. For topic 2, this was 2 out of 4.

1.2 Terms of Reference for the Independent Observer

As independent Observer, I acted according to the guidelines provided by the Call Secretariat. These guidelines are similar to those used for observing ERA-NET Cofund transnational call evaluation processes. Like all other involved in the evaluation process the observer is bound to work according the confidentiality principles. As I did not have any conflict of interest with any of the applications, I could be present in the meeting room throughout the meeting to observe all discussions.

Purpose of the independent observer

The main purpose of the independent observer for the second CONCERT call 2017 is to report on the evaluation process to ensure that the rules setup for the call are being adhered as described in the CONCERT Grant Agreement. In particular, this covers the way that the expert evaluators apply the evaluation criteria and the process of arriving at fair and transparent consensus and on single ranked lists or proposals for each of the topics. In carrying out this function, the independent observer must not express any opinions on the proposals or the expert's opinion but may (in their report) offer observations and suggestions on how the procedures could be improved.

Process

Whilst the main task of the Observer is to attend the central evaluation and prepare an independent report it is important that the Observer considers, and make judgement on, the *whole* evaluation procedure. The process includes the following:

Appointment of the independent Observer. It would be normal for the Observer to be appointed several months prior to the central evaluation. This is the responsibility of the consortium that is organising the joint call, including the appropriate reimbursement.

Review of the publications associated with the Call. The conclusion on compliance with EU co-funding rules and observations on the efficiency/quality of the evaluation process are the main requirement of the independent Observer. An initial judgement on these can be made by reviewing the information and documents that are provided to guide the applicants. A useful tactic for the Observer is to consider these from the perspective of a prospective applicant.

Review of the selection process for evaluators and briefing material. The competence and balance of expert evaluators is absolutely critical to the quality and fairness of the evaluation and selection of proposals. It is important, therefore, that the Observer fully understands the process and is provided with the necessary evidence to verify it. Of course, this can also be assessed further by asking evaluators for feedback during the central evaluation.

Attending the central evaluation as an Observer. The central evaluation is the main opportunity for the Observer to formulate his or her conclusions on compliance with the EU co-funding rules and scope for process improvement. Normally, the central evaluation consists of three main activities: a plenary briefing for the evaluators, consensus discussions on each application and finally a discussion to reach a single ranking list. The briefing for the evaluators is an opportunity for the Observer to form an opinion on how well they understand their role and the rules that govern the evaluation. This can be further checked and any emerging opinions tested through individual discussions. The role of the chairs in ensuring consistency of the scoring against the evaluation criteria is absolutely critical to the eventual single ranked list of proposals. The Observer needs to be satisfied that the outcome is both fair and transparent.

Preparation of the independent Observer's report. The final stage of the Observer's task is to prepare the report. It is good practice to prepare a draft and allow the Call Secretariat or another appropriate consortium representative to check for any factual errors and add some call statistics before finalising.

1.3 Approach to the task

Appointment of the independent Observer

- The CONCERT Call Secretariat contacted me in April and asked me to be the independent observer for their second call, and to attend the Peer Review Panel meeting of the proposals on 6-7 July in Paris. They provided the necessary documents to get a good insight in the whole evaluation process. Travel arrangements were made for me.

Review of publications associated with the Call

- Call text and Guidelines for Applicants were available on the CONCERT website. The Call Secretariat sent a document for governance of the call and evaluation procedure, the report on the first CONCERT call 2016, and a power point presentation about CONCERT and its calls. The Secretariat also provided the Grant Agreement so I could ensure that the rules as described therein were adhered to.

Review of the selection process for evaluators and briefing materials

- I have asked the Secretariat some questions to get more insight into parts of the process that I could not observe directly, such as the selection of the evaluators.
- The Call Secretariat explained how they had composed the evaluation panel, with putting together expertise from different fields within radiation protection research, and explained that the CSC had

chosen to work with a panel of all non-European experts to strongly reduce occurrence of conflict of interests.

- I have asked for the texts used in emails to the panel members. These had been sent timely and were very clear and informative.
- A log-in to the electronic system for entering the evaluations was provided to me to assess how easy it was for the reviewers to work in this systems. After having one mock application assigned to me, as if I was evaluator, I could download that pdf and could see the online evaluation form that the reviewers were to use.

Participation in the central evaluation as an Observer

- The CONCERT EJP second call evaluation process involved a two-day peer review panel meeting. The whole meeting was a plenary, there were no parallel sessions. A place on the table was assigned to the Observer that allowed a good observation of the meeting. The evaluators were highly competent, well prepared by having done their individual evaluation reports in a thorough manner, and committed to two days of intensive working. The Secretariat supported the process very well. The panel members who were chair and co-chair led the discussions in a highly professional and pleasant manner. Most of the second day was used for making the consensus reports and circulating those until full agreement was reached on content and phrasing. I was impressed by the overall quality of the process.

Preparation of the independent Observer's report

- This report follows the template from the guidelines for ERA-NET Cofund calls and a draft report has been sent to the CONCERT Call Secretariat before finalizing the report.

2. Observations on the Evaluation Process

2.1 Selection and briefing of evaluators

- For the evaluation, thirteen reviewers have been involved. The panel was completely non-European, with eleven reviewers from USA, one from India, and one from Australia. Four of them had also served in the panel of the first CONCERT call. The others were new to CONCERT.
- The reviewers were esteemed experts from universities, medical schools, research centres, state or national authorities, or national research agencies. Among them, they covered very well the disciplines and fields of the CONCERT call.
- A 9-page 'Document for Governance of the Call and Evaluation Procedure' was sent to the evaluators to give background about EJP CONCERT and guidance for the peer review process. The information in the Guidance/document is clearly written and informative. It provides the necessary information about the EJP with regard to funding recipients, submission of proposals, scientific peer review panel, anonymity, confidentiality, and conflict of interest rules, the evaluation procedure and the evaluation criteria and scoring system.
- All evaluators declared through signing a declaration of confidentiality that they would not disclose any detail of the evaluation process and its outcomes or of any proposal submitted for evaluation, unless and to the extent foreseen in the CONCERT GA and CONCERT CA, and that they understood they had to maintain the confidentiality of any documents or electronic files sent and to return, erase or destroy all confidential documents or files upon completing the evaluation, unless otherwise instructed by the CONCERT Joint Call Secretariat.
- The Joint Call Secretariat themselves, as well as the members of the Call Steering Committee present at the Peer Review Panel meeting, and the independent Observer also declared confidentiality by signing such declaration.

2.2 Remote evaluation

- In total 25 applications had been received, 21 for topic 1 and 4 for topic 2. One application was found not be eligible.
- Each topic 1 application was assigned to four reviewers in the remote evaluation. Each topic 2 application was assigned to three reviewers. Thus in total 92 remote evaluation reports were made.
- The reviewers had been assigned between 6 and 8 applications each. Most of them considered this to be quite a heavy work load.
- The Call Secretariat explained that they had assigned proposals taking into account the expertise of the reviewers and matching that as good as possible with the topics of the proposals, as well as taking into account workload distribution.
- Reviewers were asked to verify that they did not have a conflict of interest with any of the consortia members involved in the proposals assigned to them as evaluator, and to check that they felt comfortable with the proposal and had the required expertise to evaluate them. For this purpose proposal fact sheets were provided. These fact sheets contained the following information: project title, consortium partners, topic and subtopic(s), keywords and abstract.
- Only after verification, reviewers got access through the electronic evaluation system to the full applications assigned to them.
- The review reports were entered on-line in 'Experts PT-Outline', which is the DLR electronic system for managing (international) review processes.
- The first evaluation question in the form concerned the adequation and the relevance of the proposal. This was a yes/no question with a comments field, but without score.
- The proposals were evaluated according to the following review criteria:
Criterion 1* **Excellence of the proposal**: a) clarity and pertinence of the objectives; b) credibility of the proposed approach and methodology; c) soundness of the concept; d) innovative potential; e) competence and experience of anticipating research partners in the field(s) of the proposal (previous work in the field, specific technical expertise)
Criterion 2* **Impact of the proposal**: a) Potential of the expected results to add to the scientific evidence base to improve radiation protection and, consequently, its regulation; b) Added-value of transnational collaboration: gathering a critical mass, sharing of resources, harmonization of data,

sharing of specific know-how and/or innovative technologies, etc.; c) Added-value for competence building in the European radiation protection research community and the European radiation protection regulatory system; d) Effectiveness of the proposed measures to exploit and disseminate the project results (including management of intellectual property rights - IPR), to communicate the project, and to manage research data where relevant

Criterion 3* Quality and efficiency of the implementation: a) Coherence and effectiveness of the work plan, including appropriateness of the allocation of tasks, resources and time-frame; b) Scientific competence and complementarity of the participants within the consortium; c) Involvement of young scientists (MSc, PhD, Post-Doc, etc.), when applicable; d) Appropriateness of the management structures and procedures, including risk and innovation management; e) Concept for sustainability of infrastructures initiated by the project, when applicable; f) Budget and cost-effectiveness of the project (rational distribution of resources in relation to project's activities, partners' responsibilities and time frame).

- For each criterion evaluators were asked to enter comments (maximally 5000 characters) and a score.
- A scoring system from 0 to 5 was used to evaluate a proposal's performance with respect to the different evaluation criteria, whereas the meaning of the scores is:
 - 0 - fails or missing /incomplete information. The proposal fails to address the criterion under examination or cannot be judged due to missing or incomplete information.
 - 1 - Poor. The criterion is addressed in an inadequate manner, or there are serious inherent weaknesses.
 - 2 - Fair. While the proposal broadly addresses the criterion, there are significant weaknesses.
 - 3 - Good. The proposal addresses the criterion well, although improvements would be necessary.
 - 4 - Very good: The proposal addresses the criterion very well, although certain improvements are still possible.
 - 5 - Excellent. The proposal successfully addresses all relevant aspects of the criterion in question. Any shortcomings are minor.
- At the end of the form, reviewers were asked to summarise main strengths and weaknesses of the proposal taking into account the three criteria, and state if they recommended it for funding (yes or no).
- Because of the high confidentiality standards, the reviewers had in the remote step only access to the proposals assigned to them, and only to their own evaluation reports.

2.3 Central evaluation

2.3.1 Organisation & Logistics

- The Panel Meeting was held on 6th and 7th of July at the ANR premises in Paris. The meeting was organised by Monika Frenzel and Véronique Briquet-Laugier of the Joint Call Secretariat.
- All logistics were arranged well. The meeting room and equipment were fine. The seating around the table was very suitable for the discussions. A joint dinner was organised in the evening after the first day.
- The Call Secretariat had compiled a binder for facilitating the meeting process. It contained the agenda, key background information about CONCERT, the call topics and sub-topics description, the names and institutions of the peer review panel members and other attendants, and from each of the applications the following: topic, sub-topic(s), keywords, duration, total budget, abstract, partners (name organisation, country total costs), and the compiled reviews. Each panel member was provided with a copy, and also the other attendants at the meeting (CSC members, EU project officer and Observer) had a copy. These binders served as a very good means to streamline the meeting and facilitate the discussions.
- Copies of the applications were available in the meeting room. This provided the panel members who had not been appointed as evaluator for a specific application, to look through it while or before this application was up for discussion.

- As high confidentiality standards were used, the binders and the copies of the applications were only for use at the meeting, and had to be left behind in the room at the end of the meeting. The Call Secretariat collected them for destruction.

2.3.2 Briefing of the evaluators

- Information about CONCERT, the call and the expectations from the evaluators had been communicated in the remote process already. At the start of the panel meeting, the Joint Call Secretariat gave a presentation to recall key points on the call and the tasks and procedures for the panel members.
- The panel had a chair and a co-chair from among the reviewers. These persons had been briefed a few days before the panel meeting by the Joint Call Secretariat about the programme for the days and their chair role.

2.3.3 Consensus meeting

- The meeting was attended by the reviewers, plus one person from each of the other three beneficiaries of the Call Steering Committee, the EC project officer of EJP Concert, and the independent Observer.
- For each application, one of the reviewers to which the application was assigned was appointed as reporter. The reporter introduced the proposal and gave as first of the readers his or her assessment. This was followed by the assessments of the other readers and a discussion aimed towards reaching a consensus view.
- The reviewer appointed as reporter for a particular application was the lead author for making the consensus report. These consensus reports were written on the second day and were circulated to the other readers for corrections and additions until full agreement on content and wording was reached.
- There was only one panel member who had for one application a conflict of interest and had to leave the room when this application was discussed. Having only one CoI made the meeting go very smooth compared to other meetings that I attended where evaluators had to leave and called back in all the time.

2.3.4 Ranking of the evaluated proposals

- All applications were discussed individually, working through the set in alphabetical order. In the binder, the individual scores of the reviewers for the individual criteria were listed with the comments. The summed (overall) score from each of the three or four reviewer had been tabulated and arithmetic means calculated. In some cases, a reviewers' initial scoring differed considerably from those of other reviewers. Readers and sometimes also other panel members challenged some scores and comments by having discussions on the merits, design and expected impact of the applications.
- Through the discussions about a proposal, the panel reached a consensus score and shared opinion on the relevance, excellence, impact and quality and efficiency of the implementation.
- After discussion on all proposals and listing them in the order of the preliminary consensus score, those that were *ex aequo* or very near each other were revisited, with the benefit of having discussed the whole set. Most pairwise comparisons resulted in a differentiation, with one being considered overall to deserve a higher score than the other.

3. Overall Impressions

3.1 Compliance with the rules for EU co-funding

The procedures ensured that proposals were checked for eligibility before going to the reviewers. Proposals were evaluated by at least three independent experts, on the basis of the following award criteria: excellence, impact, and quality and efficiency of the implementation. The proposals have been ranked according to the evaluation results, in full compliance with the rules for EU co-funding.

3.2 Conformity of the evaluation process witnessed with the published evaluation procedures

The published sources from which applicants can take note of the evaluation criteria and procedures are the Call Text and the Guidelines for Applicants. I have observed that all aspects of the evaluation process were conducted as described. The timeline has been followed. The reviewers selected brought complementary expertise, so all fields /disciplines required to perform a good evaluation of the set of applications at hand was around the table.

3.3 Transparency, fairness and confidentiality of the selection process

It is my impression that the evaluation process was fair and transparent and conducted to strong confidentiality principles. The capability of the individuals and of the panel as a whole to evaluate proposals impressed me. It was clear that many had (extensive) experience in reviewing research proposals. They took their job seriously and had made good, and some very thorough, individual evaluations before the meeting and had formed underpinned opinions on merits, relevance, feasibility and study design. Through the discussions and the comparisons, and by taking into account arguments outspoken by the appointed readers, they reached consensus in a fair and decisive way.

3.4 Efficiency and speed of the call/evaluation process

The timeline of the whole process is relatively short. This was possible by pre-announcing the call. The Call Secretariat did a very good job in organising call and evaluation. By contacting experts and composing the panel before May, the review of proposals could start immediately after a fast eligibility step. The reviewers had a fair amount of time to do the remote evaluation. Still, because of the higher-than-expected number of applications, and a two-day meeting for which reviewers had a trans-Atlantic flight, the review process was intensive. It is my impression that the focus and time dedication needed for the evaluation within a relative short time window worked effective for the quality of the process.

3.5 Quality of the overall call/evaluation process

The call was organised very professional. The documents for applicants and panel members were clear. The electronic evaluation system supported the process well. The panel members had a good understanding of their task and good expertise to perform the review process. The panel members had done their remote tasks thoroughly, which facilitated the quality of the process at the panel meeting.

4. Summary of Recommendations

4.1 Issues to improve

- As a minor issue, I suggest to reconsider the strictness with regard to the limited distribution of applications and evaluation reports within the panel. Only at the meeting, the evaluators got to know the other panel members, and could read the other evaluation reports for the applications they had received to review. They felt that it would have been beneficial for their discussions if they would have been able to read the other evaluation reports before the meeting, e.g. on their way to Paris. Although I observed that the consensus discussions worked also well as it went, I agree with the panel members that it works better with having read it before the meeting. I would recommend to provide the review reports of the other reviewers prior to the meeting.
- Furthermore, some panel members remarked that it was difficult to contribute to discussions on applications that had not been assigned to them as reader. Still, by asking questions, there were contributions to the process. Some panel members suggested that all applications could have been made accessible to all, except for Col cases of course. As the evaluators are bound to confidentiality this could be done, but the added value is probably not so large. This is a minor issue, as over-all the whole process was very efficient and effective.

4.2 General Remarks

- The evaluators were highly competent, well prepared by having done their individual evaluation reports in a thorough manner, and committed to two days of intensive working.
- The evaluation process had high standards for confidentiality and was organised very professionally.
- The education and training aspects in part of the applications were well acknowledged by the reviewers. Although E&T was stated as an aim of the CONCERT call, it was not an evaluation criterion. Panel members remarked it should have been.
- With 24 applications and a budget of less than 7 Mill Euro, success rate is relatively low and transaction costs (time of evaluators and secretariat, and T&S costs) relatively heavy.

September 2017/Christine Bunthof

ANNEX II – CONCERT BENEFICIARIES AND THEIR LINKED THIRD PARTIES (status at the launch of the call 2 on March 1st 2017)

Consult also the CONCERT website (<http://www.concert-h2020.eu/en>) for the current list of CONCERT Beneficiaries and their Linked Third Parties.

CONCERT Beneficiaries:

- BUNDESAMT FUER STRAHLENSCHUTZ, BfS, Germany, the Coordinator
- SATEILYTURVAKESKUS, STUK, Finland
- STUDIECENTRUM VOOR KERNENERGIE/CENTRE D'ETUDE DE L'ENERGIE NUCLEAIRE, SCK CEN, Belgium
- AGENCE NATIONALE DE LA RECHERCHE, ANR, France
- DEPARTMENT OF HEALTH, DH-PHE, United Kingdom
- COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES, CEA, France
- UNIVERSITA DEGLI STUDI DI PAVIA, UNIPV, Italy
- ASSOCIATION MELODI, France
- ALLIANCE EUROPEENNE EN RADIOECOLOGIE, ALLIANCE, France
- NERIS PLATFORM ASSOCIATION, NERIS, France
- EUROPEAN RADIATION DOSIMETRY GROUP E.V., EURADOS, Germany
- INSTITUT DE RADIOPROTECTION ET DE SURETE NUCLEAIRE, IRSN, France
- STRALSAKERHETSMYNDIGHETEN, SSM, Sweden
- CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS, CIEMAT, Spain
- ORSZAGOS KÖZEGÉSZSÉGÜGYI KÖZPONT, OKK-OSSKI, Hungary
- MAGYAR TUDOMANYOS AKADEMIA ENERGIATUDOMANYI KUTATOKOZPONT, MTA EK, Hungary
- NATIONAL CENTRE OF RADIOBIOLOGY AND RADIATION PROTECTION, NCRP, Bulgaria
- HELMHOLTZ ZENTRUM MUENCHEN DEUTSCHES FORSCHUNGSZENTRUM FUER GESUNDHEIT UND UMWELT GMBH, HMGU, Germany
- MEDIZINISCHE UNIVERSITAET WIEN, MUW, Austria
- AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE, ENEA, Italy
- ISTITUTO SUPERIORE DI SANITA, ISS, Italy
- NORWEGIAN RADIATION PROTECTION AUTHORITY, NRPA, Norway
- RIJKSINSTITUUT VOOR VOLKSGEZONDHEIDEN MILIEU*NATIONAL INSTITUTE FOR PUBLIC HEALTH AND THE ENVIRONMENTEN, RIVM, Netherlands
- FUNDACAO PARA A CIENCIA E A TECNOLOGIA, FCT, Portugal
- INSTITUT ZAMEDICINSKA ISTRAZIVANJA I MEDICINU RADA, IMROH, Croatia
- STATNI USTAV RADIACNI OCHRANY, SURO, Czech Republic
- INSTITUTUL DE FIZICA ATOMICA, IFA, Romania
- GREEK ATOMIC ENERGY COMMISSION, EEAE, Greece
- VUJE AS, VUJE, Slovakia
- TARTU ULIKOOL, UT, Estonia
- RADIATION PROTECTION CENTRE, RPC, Lithuania
- LATVIJAS UNIVERSITATE, UL, Latvia
- ITA-SUOMEN YLIOPISTO, UEF, Finland
- GŁÓWNY INSTYTUT GÓRNICTWA, GIG, Poland
- MINISTERIO DE ECONOMÍA Y COMPETITIVIDAD, MINECO, Spain
- AGÊNCIA PORTUGUESA DO AMBIENTE IP, APA, Portugal

- INSTITUT JOZEF STEFAN, JSI, Slovenia
- Eidgenössisches Departement des Innern, FOPH, Switzerland

CONCERT Linked Third Parties:

- STOCKHOLMS UNIVERSITET (SU), affiliated or linked to MELODI
- MUTADIS CONSULTANTS SARL (MUTADIS), affiliated or linked to NERIS
- DANMARKS TEKNISKE UNIVERSITET (DTU), affiliated or linked to NERIS
- UNIVERSITA DEGLI STUDI DI MILANO (UMIL), affiliated or linked to NERIS
- RUDER BOSKOVIC INSTITUTE (RBI), affiliated or linked to EURADOS
- ISTITUTO SUPERIOR TECNICO (IST), affiliated or linked to EURADOS
- SEIBERSDORF LABOR GMBH (SL), affiliated or linked to EURADOS
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- THE HENRYK NIEWODNICZANSKI INSTITUTE OF NUCLEAR PHYSICS, POLISH ACADEMY OF SCIENCES (IFJ PAN), affiliated or linked to EURADOS
- EUROPEAN NUCLEAR SAFETY TRAINING AND TUTORING INSTITUTE (ENSTII), affiliated or linked to IRSN
- CENTRE D'ETUDE SUR L'EVALUATION DE LA PROTECTION DANS LE DOMAINE NUCLEAIRE (CEPN), affiliated or linked to IRSN
- FUNDACIO CENTRE DE RECERCA EN EPIDEMIOLOGIA AMBIENTAL - CREAL (CREAL), affiliated or linked to CIEMAT
- KARLSRUHER INSTITUT FUER TECHNOLOGIE (KIT), affiliated or linked to HMGU
- HELMHOLTZ-ZENTRUM DRESDEN-ROSSENDORF EV (HZDR), affiliated or linked to HMGU
- FORSCHUNGSZENTRUM JULICH GmbH (Juelich), affiliated or linked to HMGU
- GSI HELMHOLTZZENTRUM FUER SCHWERIONENFORSCHUNG GmbH (GSI), affiliated or linked to HMGU
- NORGE MILJØ-OG BIOVITENSKAPLIGE UNIVERSITET (NMBU-IMT), affiliated or linked to NRPA
- ÚJV REZ, a.s. (NRI), affiliated or linked to SURO
- CESKE VYSOKÉ UČENÍ TECHNICKÉ V PRAZE (CTU), affiliated or linked to SURO
- INSTITUTUL NATIONAL DE CERCETARE -DEZVOLTARE PENTRU FIZICA SI INGINERIE NUCLEARA "HORIA HULUBEI" (IFIN-HH), affiliated or linked to IFA-MG



AIR²

Access to INFRASTRUCTURES
for Radiation protection Research

Editorial

A

new kind of AIR² bulletin in the form of special issues is being launched for the CONCERT community and for all those interested in Radiation Protection Research. This first special issue is dedicated to the 3 projects selected from the 1st CONCERT Call: CONFIDENCE, LDLENSRad and TERRITORIES. These are the first projects to be welcomed to our EJP together with their POM, LTP, TP interactions and all their administrative complexity. The new consortiums are now being supported and very exciting research is in sight. Thus, despite the long process, we are very proud as CONCERT is the only EJP to date to have courageously kept the game open with an external call for proposals, open to all partners all over Europe. Congratulations to the winners and welcome aboard to all the new research teams.

Dr Laure Sabatier, CEA

The floor to...

C

CONCERT is pleased to announce the results of the first Transnational Call for proposals on “Radiation Protection Research in Europe”

CONCERT - The European Joint Programme for the Integration of Radiation Protection Research - aims to contribute to the sustainable integration of European and national research programmes in the field of radiation protection. CONCERT launched its first Call for proposals to support transnational research projects. Submitted projects must combine innovative approaches in the field of radiation protection in line with the research priorities of CONCERT, and integrate Education and Training activities with universities. These multidisciplinary research projects must as well make optimal use of research infrastructures. The available funding for this first call was 10.5 M€. The call was launched in June 2016 and opened for two months, with a closure in August 2016. Researchers based at universities, research institutions and SMEs were invited to team up with their European peers to submit proposals. Altogether 12 proposals were submitted by 147 partners from 85 different institutions in 26 countries; 8 proposals in Topic 1: in the area of Improvement of health risk assessment associated with low dose/dose rate radiation, 4 proposals in Topic 2: Reducing uncertainties in human and ecosystem radiological risk assessment and management in nuclear emergencies and existing exposure situations, including NORM. The proposals were evaluated by an independent international peer review panel (PRP) composed of 12 experts. After remote evaluation of all proposals, they met for 2 days to elaborate the final ranking lists. A total of 5 transnational projects were ranked, 2 projects in Topic 1 and 3 projects in Topic 2, respectively. Actual costs of the 3 highest ranked proposals [CONFIDENCE (Topic 2), LDLENSRad (Topic 1), TERRITORIES (Topic 2)], summed up to 10.5 M€, the amount of funds available, and were therefore subsequently selected for funding. Overall the Panel emphasized the high quality of the consortia put together within the 12 proposals. In conclusion, this first call was a good experience bringing together a large number of research partners from all over Europe and beyond. Out of 12 proposals 3 research projects will be funded.

WP1: Project coordination & management
Thomas Jung & Mandy Birschwilks

WP4 : Organization and management of open RTD Calls
Monika Frenzel & Véronique Briquet-Laugier



Special Issue

February 2017



Future events:

Expected 2nd Call

February 2017: Launch

April 2017: Deadline

WP 6 News :

AIR²D²:

- Please complete the online form(s) to register your infrastructure(s) in the database.
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Contents :

Project 1 [Confidence](#)

Project 2 [LDLENSRad](#)

Project 3 [Territories](#)

WP1 & WP4 [1st call analysis](#)



HORIZON 2020

his project has received funding from the Euratom research and training programme 2014-2018 under grant agreement No 662287

CONFIDENCE

COping with uNcertaintie For Improved modelling and DEcision making in Nuclear emergenCies

In emergency management and long-term rehabilitation the uncertainty of the information on the current situation, or its predicted evolution, is an intrinsic problem of decision making. To protect the population, conservative assumptions are often taken which may result in more overall harm than good due to secondary causalities as observed following the Chernobyl and Fukushima accidents. Therefore, the reduction of uncertainty where practicable, and approaches to deal with uncertainty, are crucial to improve decision making for the protection of the affected population and to minimise disruption of daily life.

Consideration of social, ethical and communication aspects related to uncertainties is a key aspect of the project activities. Improvements in modelling and combining simulation with monitoring will

help gaining a more comprehensive picture of the radiological situation and will clearly improve decision making under uncertainties. Decision making principles and methods will be investigated, ranging from formal decision aiding



Wolfgang Raskob



Kick-off meeting in Karlsruhe February 16 and 17

The CONFIDENCE Project, funded under the H2020 CONCERT project, will perform research focussed on uncertainties in the area of emergency management and long-term rehabilitation. It concentrates on the early and transition phases of an emergency, but considers also longer-term decisions made during these phases. The project brings together expertise from four European Radiation Protection Research Platforms (NERIS, MELODI, ALLIANCE and EURADOS) and also from Social Sciences and Humanities, such that it can address the scientific challenges associated with model uncertainties and improve radioecological predictions and emergency management (NERIS and ALLIANCE), situation awareness and monitoring strategies (EURADOS), risk estimation in the early phase (MELODI), decision making and strategy development at local and national levels (NERIS) including social and ethical aspects (NERIS and Social Sciences and Humanities).

The work-programme of CONFIDENCE is designed to understand, reduce and cope with the uncertainty of meteorological and radiological data and their further propagation in decision support systems (including atmospheric dispersion, dose estimation, foodchain modelling and countermeasure simulations models).

techniques to simulation based approaches. These will be demonstrated and tested in stakeholder workshops applying the simulation tools developed within CONFIDENCE. A comprehensive education and training programme is fully integrated with the research activities.

Scientists from the 31 partner organisations from 17 European countries have met in Karlsruhe February 16 and 17, 2017, for the kick-off meeting of the project. Details of the work plan were refined and first steps defined. Links were identified with other ongoing projects (e.g. TERRITORRIES, also funded under the CONCERT project) and the project partners are very happy to share methods and results with their colleagues. Other aspects of CONFIDENCE will be discussed in future issues of AIR2 (e.g. our use of the ALLIANCE Chernobyl Observatory).



ID Card:

Partners: 31

KIT, BFS, CEH, CEPN, CIEMAT, EPA, EEA, HMGU, IRSN, MUTA-DIS, NMBU, NRPA, University of Zurich, PHE, DTU, RIVM, SKC-CEN, STUK, UMIL, VUJE, KNMI, APA, DIALOGIK, University of Warwick, IST, REC, RIKILT, EXTREMADURA, UK Met Office, Norwegian Met. Institute

Duration: 3 years (2017-2019)

Total budget: 6.2M€

Infrastructures:

Exposure platforms: NA
Observatory site: Chernobyl
Database: NA
Sample bank: NA
Cohort: NA
Analytical platform: NA

Open Access of produced data: will be decided later

Internet Link :

<https://portal.iket.kit.edu/CONFIDENCE/>

Contact:

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Related to:

MELODI
ALLIANCE
NERIS
EURADOS
EURAMED



Special Issue
February 2017

LDLensRad

Towards a full mechanistic understanding of low dose radiation cataracts

The lens of the eye is known to be more radiosensitive than previously thought but, despite a substantial reduction in occupational dose limits based on recent epidemiological information and reanalyses, the biological mechanisms that cause low dose radiation cataract induction are still unclear. This is an important current public health issue, for instance for medical radiation workers, many of whom will need to amend their working practices despite the lack of a clear understanding of the effects of chronic, low dose, ionising radiation exposure.

statistical modelling for hypothesis development. In addition, the partners will explore the potential for a prospective molecular epidemiology programme using human lenses taken from the former Mayak PA workers.



Dr Liz Ainsbury

It is anticipated that the results of this project

will be highly relevant for CONCERT low dose radiation research and radiation protection and the work plan is particularly in line with the MELODI and EURADOS strategic research agendas with additional key implications for medical radiation protection. Concrete outcomes are anticipated to include: definitive information regarding the shape of the dose response curve and thus the risk of radiation cataract at doses < 500 mGy, advancing the debate as to the nature of radiation cataracts as either tissue reactions (formerly called deterministic effects) or stochastic effects and

thus strengthening the evidence base for informed radiation protection; the assessment of lens effects as biomarkers of global radiosensitivity to provide potential new tools for health risk assessment as well as the education and training of a number of earlier career scientists in low dose radiation research.

The project partners are very much looking forward to sharing the results with the community as they emerge.



Some of the LDLEnsRad collaborators at a proposal preparation meeting in January 2016. L to R main picture: Scott Bright (OBU), Stephen Barnard (PHE), Nobuyuki Hamada (CRIEPI), Liz Ainsbury and Michele Ellender (PHE), Munira Kadhim (OBU), Jochen Graw (HMGU) and Roy Quinlan (DU); inset: Sabine Hötter-Koch (HMGU)

This multidisciplinary project aims to bring together experts from across Europe to answer a number of key research questions on this topic, including: how does low dose radiation cause cataracts; is there a dose rate effect, and how does genetic background influence cataract development after radiation exposure. The research will also address the issue of ageing in a sensitive subset of mice and whether lens effects can be viewed as global biomarkers of radiosensitivity. The collaborators - from PHE, ENEA, HMGU with support from Oxford Brookes and Durham Universities (UK), CRIEPI (Japan), MSKCC and IU School of Medicine (USA) as well as SUBI (Russia) - will work with mouse models supported by cellular studies to investigate the mechanistic chain of events from the initial radiation insult and biological responses through to formation of lens opacities. The biological investigations will be supported by rigorous

ID Card:

Partners: 8
PHE, ENEA, HMGU with support from Oxford Brookes (OBU) and Durham Universities (DU) in the UK and CRIEPI (Japan), MSKCC and IU School of Medicine (USA), SUBI (Russia)

Duration: 3 years (2017-2019)

Total budget: 2.5M€

Infrastructures:

Exposure platforms: ⁶⁰Co irradiation facilities at the Medical Research Council, Harwell; ENEA, Rome and HMGU, Neuherberg

Observatory site: Scheimpflug imaging at PHE, Harwell; ENEA, Rome and HMGU, Neuherberg.

Database: Data on dose and dose rate effects in mice to be collated and established as a database during the course of the project

Sample bank: Primary cell cultures established from WT/ mutant mice; Human lens epithelial cells including FHL124.
Cohort: Exploration of the possibility to use lenses from the former Mayak workers

Analytical platform: CRESCO bioinformatics platform at ENEA.

Open Access of produced data: yes through STORE

Internet Link :

Under development

Contact:

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Related to:

MELODI
EURADOS
EURAMED



Special Issue
February 2017



TERRITORIES

To Enhance uncertainties Reduction and Stakeholders Involvement
Towards integrated and graded Risk management of humans and
wildlife In long-lasting radiological Exposure Situations

The TERRITORIES project has been selected for funding following 1st CONCERT Transnational Call, topic 2 (Reducing uncertainties in human and ecosystem radiological risk assessment and management in nuclear emergencies and existing exposure situations, including NORM). Eleven partners (IRSN, BfS, CEPN, CIEMAT, NMBU, NRPA, PHE, SCK.CEN, STUK, University of Tartu, Mutadis) are involved in this 3-year-project (2017-2019). All of them were represented at the kick off meeting in Paris gare de l'Est on 27th of January.

Photo: Salons du Relais, Paris



Group picture at the kick off meeting on January 27th. TERRITORIES targets an integrated and graded management of contaminated territories characterised by long-lasting environmental radioactivity, filling in the needs emerged after the recent post-Fukushima experience and the publication of International and European Basic Safety Standards. A graded approach, for assessing doses to humans and wildlife and managing long-lasting situations (where radiation protection is mainly managed as existing situations), will be achieved through reducing uncertainties to a level that can be considered fit-for-purpose. The integration will be attained by:

- Bridging dose and risk assessments and management of exposure situations involving artificial radionuclides (post-accident) and natural radionuclides (NORM),
- Bridging between environmental, humans and wildlife populations monitoring and modelling,
- Bridging between radiological protection for the members of the public and for wildlife,
- Bridging between experts, decision makers, and the public, while fostering a decision-making process involving all stakeholders.

This project interlinks research in sciences supporting radiation protection (such as radioecology, human or ecological dose and risk assessments, social sciences and humanities, etc.), providing methodological guidance, supported by relevant case studies. The overall outcome is an umbrella framework, that will constitute the



Dr M. Simon-Cornu

basis to produce novel guidance documents for dose assessment, risk management, and remediation of NORM and radioactively contaminated sites as the consequence of an accident, with due consideration of uncertainties and stakeholder involvement in the

decision making process. The results will be widely disseminated to the different stakeholders and accompanied by an education and training programme.

Thus, the eleven partners of TERRITORIES will develop a common coherent guidance with a greater understanding of multiple sources of uncertainties along with variabilities in exposure scenarios, making the best use of scientific knowledge to characterize human and wildlife exposure, integrating this knowledge and know-how to reduce uncertainties and finally taking consideration of social, ethical and economic aspects to make decisions.



ID Card:

Partners: 11

IRSN, BfS, CEPN, CIEMAT, NMBU, NRPA, PHE, SCK.CEN, STUK, University of Tartu, Mutadis

Duration: 3 years (2017-2019)

Total budget: 4.2 M€

Infrastructures:

Exposure platforms: NA

Observatory site:

Radioecological observatories (long-term study areas) as defined by STAR and/or COMET are included in the TERRITORIES Library, with other previously characterized radioactively contaminated sites

Database: TERRITORIES Library

Database (TLD) will address variability in space and time in activity concentration (or dose) in some of these territories.

Sample bank: NA

Tools: Use of assessment codes: PC-CREAM, SYMBIOSE, ERICA tool and CROM-8, among others

Cohort: NA

Analytical platform: NA

Open Access of produced data:

yes

Internet Link :

to be further developed

Contact:

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Related to:

ALLIANCE
NERIS



Special Issue
February 2017

Analysis of the first call 2016 Outlook for the second call in 2017

For the first CONCERT call, 12 proposals have been submitted. The size of the consortia varied from 4 partners within the smallest up to 32 partners in the largest project, with an average of 12 partners per proposals. Besides the 20 EU/EURATOM countries, five third countries participated; Canada, Japan, Kazakhstan, Norway and Russia; and one EURATOM associated country, Switzerland.

The full budget of the three highest ranked projects **CONFIDENCE**, **TERRITORIES** and **LDLensRad** that have been selected for funding add up to approximatively 13 M€ in total (Fig. 3 left pie). From these costs, CONCERT is committed

General statistics:

N° of pre-proposals	12
N° of countries	26
N° of partners total	147
N° of institutions	85

In average 12 partners per proposal

Smallest project: 4 partners

Largest project: 32 partners

Consortium composition and participants

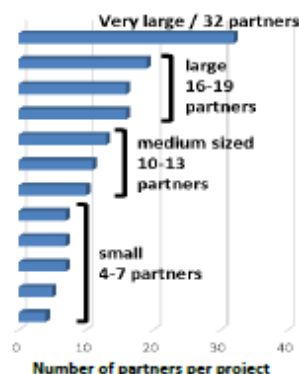
for 10.5 M€. The remaining 2.5 M€ are provided by partners/countries bringing to the project their own resources. Within this budget, 8 M€ were used to fund **TERRITORIES** and **CONFIDENCE** which are both in the Topic 2 "Reducing uncertainties in human and ecosystem radiological risk assessment and management in nuclear emergencies and existing exposure situations, including NORM." Hence, 76% of the budget was dedicated to Topic 2, and 24% for Topic 1 (Fig. 3 right pie). The project **LDLensRad** falls into Topic 1, "Improvement of health risk assessment associated with low dose/dose rate radiation" with a budget of 2.5 M€.

CONCERT will launch the second transnational call for Proposals in spring 2017. The call was pre-announced on 18th January on the CONCERT webpage:

<http://www.concert-h2020.eu/>.

This call will address two main topics, with three sub-topics each:

Topic 1: Understanding human health effects from ionising radiation and improving dosimetry.

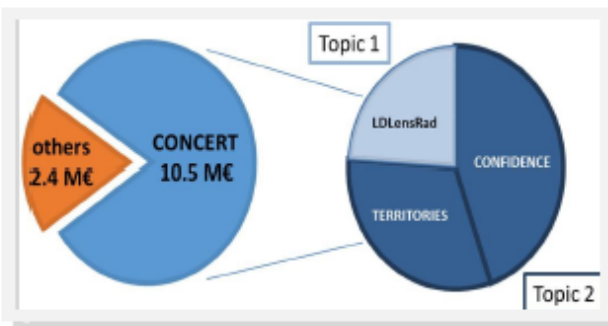


Topic 2: Radioecology, emergency and social sciences and humanities.

Project proposals must address multidisciplinary and transnational research. The project proposals must fall within one of the two topics and answer one or more sub-topics when appropriate.

The total budget available for this second CONCERT transnational call for proposals is about 7 M€. As shown in the figure 3, TOPIC 2 was well-funded in the 1st call. Hence, for the 2nd call, CONCERT Management Board decided to favor the Topic 1, and allocated 80% of the budget to this Topic, and 20% to Topic 2, respectively.

We are looking forward to receiving in this second transnational Call projects that combine innovative approaches in the field of radiation protection, and that are in line with the research priorities of the CONCERT European Joint Programme.



Allocation of budget within the first CONCERT call 2016

Special Issue
February 2017

Future events:

27 Feb-2 March 2017:

Eurados Annual Meeting
KIT, Karlsruhe, Germany

March 7-9, 2017:

Radiation effects on the immune system: an updated state of the art and future research needs,
Budapest, Hungary

25-27 April 2017:

COMET final event
Bruges, Belgium

8-11 May 2017:

ConRad 2017, Bundeswehr
Institute of Radiobiology
Munich, Germany

14-19 May 2017:

Neutron and Ion Dosimetry Symposium, NEUDOS13
Krakow, Poland

23-26 May 2017:

Opera final event
Budapest, Hungary

3-8 September 2017:

ICRER 2017, 4th International
conference on Radioecology &
Environmental Radioactivity
Berlin, Germany

10-12 October 2017:

Joint ICRP-RPW 2017
Paris, France

5-11 November 2017:

MICROS 2017
17th International Symposium
on Microdosimetry
Venezia, Italy




Special Issue
February 2017

Editorial Committee: [Jean-Michel Dolo](#), Elisabeth May, Laure Sabatier

Link to the Special Issue:

http://www.concert-h2020.eu/-/media/Files/Concert/AIR2/Infrastructures_AIR2_Bulletin_Special_issue_Feb_2017.pdf?la=en&hash=DA73DD5DAF566F455BF0F2DE090135664333DACE



Editorial

This third Special Issue of AIR² finally unveils the long-awaited results of the second CONCERT call. The entire process underpinning the tender and the six selected projects are presented in this newsletter. There is no doubt that very interesting results will be produced by the end of this EJP.

Dr Laure Sabatier, CEA

The floor to...

CONCERT successfully finished its 2nd call for proposals to support multidisciplinary and transnational research projects. Submitted proposals had to combine innovative approaches in the field of radiation protection in line with the SRAs of the European radiation protection research platforms and the research priorities of the joint programming by CONCERT, resulting in two main topics: Topic 1– *Understanding human health effects from ionising radiation and improving dosimetry* and Topic 2– *Radiocology, emergency and social sciences and humanities*. Submitted proposals were required to integrate education and training activities with universities and make optimal use of existing research infrastructures.

CONCERT is pleased to announce the results of the second Open Transnational Call for proposals on “Radiation Protection Research in Europe”


An international peer review panel (PRP), composed of 13 independent experts, evaluated the project proposals to identify the most promising and excellent projects and guarantee a fair and independent evaluation. Among the 24 eligible project proposals, 15 were recommended for consideration for funding by the PRP, including 13 for Topic 1 and two for Topic 2.

Given the total available budget and taking into consideration the preannounced budget allocated to the two topics by the CONCERT Management Board, six projects could be funded, the four highest ranked projects in Topic 1 (LEU-TRACK, PODIUM, SEPARATE, VERIDIC) and the two ranked projects in Topic 2 (ENGAGE, SHAMISEN-SINGS).

It is with pleasure that we announce that all CONCERT Grand Contracts of the 2nd CONCERT call have been concluded and the funding of all Third Parties involved in the six projects has been successfully executed (including cross-border cash-funding).


The implementation of open calls within the CONCERT European Joint Programme (the first and only EJP to date to have open calls) was a challenging, but important feature. The CONCERT partners have demonstrated with both open calls their wish to foster broad, international collaboration. This goal has been successfully achieved. We are looking forward to following the results of the nine total international research projects funded by the two CONCERT calls.

WP1: CONCERT Project coordination & management (BfS)
WP4: Organization and management of CONCERT open RTD Calls (ANR)



Special Issue 3

February 2018



Future events:

20th February 2018
 Open Information and Networking Day of the European Radiation Protection Research Platforms, Munich, Germany

21st February 2018
 - CONCERT MB Meeting
 - Extraordinary and ordinary MELODI EOGA and General Assembly, Munich, Germany

12-15 March 2018
 Workshop MELODI-CONCERT “Individual Radiosensitivity and Radiosusceptibility”
 Live video participation for talks and brainstorming
 Inscriptions: maryline.dinotoarruda@cea.fr
 Deadline: 8 March 2018

WP 6 News:

AIR²D²:
 - Please complete the online form(s) to register your infrastructure(s) in the database.
 - A new option to feature your infrastructure is now available: [add document](#).


Contents:

- Project 1 [LEU-TRACK](#)
- Project 2 [PODIUM](#)
- Project 3 [SEPARATE](#)
- Project 4 [VERIDIC](#)
- Project 5 [ENGAGE](#)
- Project 6 [SHAMISEN-SINGS](#)

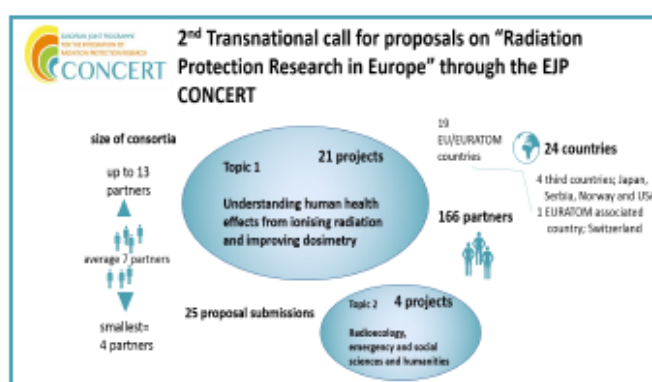
WP1 & WP4 2nd Call Analysis

Next issue

March 2018



Overview of submission statistics for the 2nd CONCERT call



The available funding for this call was 6.98 M€. The call for proposals was open from March 1, 2017 to May 2, 2017 and attracted 25 consortia. The proposals were submitted by 166 partners from 89 institutions in 24 countries. Twenty-one proposals responded to Topic 1 and four to Topic 2.

HORIZON 2020

This project has received funding from the Euratom research and training programme 2014-2018 under grant agreement No 662287

The role of extracellular vesicles in modulating the risk of low-dose radiation-induced leukaemia

Basic mechanisms responsible for low-dose radiation-induced carcinogenesis and evaluation of the health risks attributable to low-dose exposure represent key research lines identified in the MELDI Strategic Research Agenda. In line with these priorities, the LEU-TRACK project proposes to study basic mechanisms of low-dose radiation-induced leukaemia by focusing on the role of crosstalk between the bone-marrow microenvironment and stem-cell compartment in initiating the leukemic process.

duce bone marrow damage, by influencing the communication between various cellular components of the bone marrow, and thus modulate low-dose radiation-induced leukaemia.



Katalin Lumniczky



Group photo taken during the kick-off meeting in Budapest, November 2-3, 2017. Left to right: C. Badie, F. Rödel, K. Lumniczky, S. Tapio, L. Cruz García, T. Szatmári.

Direct radiation-induced damage to the haematopoietic stem-cell pool is believed to be the major driver in the development of the disease after exposure to higher doses, but radiation-induced leukaemia at low doses probably involves additional mechanisms, distinct from those at high doses. Extracellular vesicles (EVs) are major vehicles of intercellular communication due to their complex cargo. The project aims to investigate the mechanisms and pathways by which bone marrow-derived EVs may induce bone marrow damage, by influencing the communication between various cellular components, and thus modulate low-dose radiation-induced leukaemia.

The complexity of the proposed research necessitates the participation of highly experienced research teams and the use of highly specialized infrastructures. The LEU-TRACK consortium has been assembled to fulfil these requirements and consists of four partners (OKI, Hungary; PHE, UK; HMGU and GUF, Germany). The members of the consortium plan to focus their research activities on the following main objectives:

- To investigate the mechanisms and pathways by which bone marrow-derived EVs may in-

- To perform a detailed and systematic analysis of EV cargo using multiple omics techniques and complex phenotypical approaches with the aim of identifying radiation exposure biomarkers that potentially indicate an increased risk for leukaemia development.

- To correlate blood-derived EV markers identified in experimental animals with markers present in human leukaemia patients treated with prophylactic irradiation.

The consortium proposes to emphasise training and educational activities by organizing satellite meetings for students in association with annual radiation research and radiation protection meetings, as well as a one-week training course dedicated to theoretical aspects of radiation leukemogenesis and the major experimental techniques used to study it.

It is anticipated that the project will provide a better understanding of the pathways and/or mechanisms of low-dose radiation-induced carcinogenesis and contribute to the better evaluation of the risks associated with low doses. This will help to improve risk perception, disease prevention, healthcare, and in the long run, therapy development.



LEU-TRACK partners



ID Card:

Partners:

1. National Public Health Institute (OKI)
2. Public Health England (PHE)
3. Helmholtz Zentrum München, German Research Center for Environmental Health (HMGU)
4. Goethe-University, Frankfurt am Main (GUF)

Duration:

28 months
(1/10/2017-31/01/2020)

Total budget:

€ 1,335,922

Infrastructures:

Exposure platforms:
Small-Animal Radiation Research Platforms at OKI and GUF

Databases:

Data obtained on leukemia incidence in mice and protein and miRNA profiles of EVs will be stored in a common database during the project

Sample banks:

Various organs collected from irradiated and/or EV-treated mice will be collected during the project

Cohorts:

Exploration of the possibility to establish a future cohort of leukemia patients treated with radiation for identification/validation of EV-related molecular markers

Models:

CBA mice

Tools:

Proteomics mass spectrometry in cooperation with the HMGU Proteomics Core Facility

nCounter[®] Technology and pyrosequencing analysis performed at PHE for miRNA profiling in EVs and detection and quantification of somatic mutations.

Open Access of produced data:

Yes, through [STORE](#)

Internet link:

Under development

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Related to:

MELDI
ALLIANCE
EURAMED



Special Issue 3
February 2018

Personal Online Dosimetry Using computational Methods

Individual monitoring of workers exposed to external ionizing radiation is essential for the application of the ALARA principle and the follow up of legal dose limits. However, there are still large uncertainties in personal dosimetry, especially concerning neutrons and nonhomogeneous fields.

The objective of this project is to improve occupational dosimetry using an innovative approach: the development of an online dosimetry application based on computer simulations, without the use of physical dosimeters.

Because of the limited time frame, we will simultaneously use an intermediate approach with pre-calculated fluence to dose conversion coefficients for phantoms of various statures and postures. This will comprise the first step towards online dosimetry based on simulations.



Filip Vanhavere

Photo: Filip Vanhavere/SCK•CEN



Photo: Lara Bruneau/SCK•CEN

Group photo during the kick-off meeting on January 26, 2018 at SCK•CEN, Belgium

We will apply and validate the methodology for two situations for which improvements in dosimetry are urgently needed: workplaces in which neutrons are used and interventional radiology. The legal framework to introduce this or similar techniques as an official dosimetry method will also be established.

The availability of the proposed online personal

Operational quantities, protection quantities, and radiosensitive organ doses (e.g. eye lens, brain, heart, extremities) will be assessed based on the use of modern technology, such as personal tracking devices, flexible individualized phantoms, and scanning of the geometrical set-up. Combined with fast simulation codes, the aim is to perform real-time personal dosimetry.

We aim to achieve this by developing an online application in which we will individually calculate the occupational doses, instead of measuring them with one or more dosimeters. This will require that the spatio-temporal radiation field, including its energy and angular distribution, be known. We will use input from fixed dose monitors and capture real movements of exposed workers and transfer this information to the calculation application.

dosimetry application shall overcome the problems that arise from the use of current passive and active dosimeters.

Such limitations include uncertainty in assessing neutron and photon doses when part of the body is shielded, the delay in calculating the doses, and the situation in which workers incorrectly position dosimeters. In addition, it will increase worker awareness and improve application of the ALARA principle.



PODIUM partners

ID Card:

Partners:

1. Belgian Nuclear Research Centre (SCK•CEN)
2. Universitat Politècnica de Catalunya (UPC)
3. Helmholtz Zentrum München, German Research Center for Environmental Health (HMGU)
4. Lund University Sweden (LU)
5. Public Health England (PHE)
6. Greek Atomic Energy Commission (EEAE)
7. St. James's Hospital Ireland (SJH)

Duration:

24 months
(1/01/2018-31/12/2019)

Total budget:

€ 1,399,930

Infrastructures:

Exposure platforms:
Nuclear calibration labs in SCK•CEN and PHE,
Interventional radiology rooms in hospitals in Ireland, Sweden and Greece

Models:

Voxel phantoms from SCK•CEN, HMGU, and UPC

Tools:

Monte Carlo codes, such as MCNP, GEANT, PHITS, etc.

Open Access of produced data:

Yes, to be set up later

Internet link:

To be set up later

Contact:

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Related to:

EURADOS
EURAMED

Photo: PODIUM project



Special Issue 3
February 2018

Systemic Effects of Partial-body Exposure to Low Radiation Doses

Radiation effects are not confined to directly irradiated tissues. The contribution of systemic "out-of-target" effects to the risk of long-term health problems following radiation exposure is largely unknown. This level of uncertainty of the risk is problematic from the radiation protection standpoint, as workplace, environmental, and medical exposures frequently involve partial body exposures to low-dose irradiation.



Some of the "SEPARATE" collaborators. Up: Anna Saran and Mariateresa Mancuso (ENEA). Down (from left to right): Soile Tapio (HMGU), Fiona Lyng (DIT), Munira Kadhim (OBU). The kick-off meeting will take place in Rome, March 14-15.

The risks posed by such exposure for cancer and non-cancer endpoints can only be evaluated for radiation protection purposes if there is a plausible and consistent mechanism for the development of low-dose irradiation-induced health problems, a dose-response relationship that allows risk assessment, and response biomarkers available for molecular epidemiological analysis.

The SEPARATE project, funded under the H2020 CONCERT project, is divided into five complementary work packages to study each of these points. The partners are committed to disseminating the project results to the various stakeholders and complementing research activities with a suitable education and training programme. The consortium (ENEA, HMGU, OBU and DIT) will be assisted by an external Management Board composed of two members, Professor Charles Limoli (University of California, Irvine, CA) and Doctor Karl Butterworth (Queen's University Belfast, UK).

The project aims to perform *in vivo* research focused on the analysis of the effects on brain, heart, and liver following exposure of the lower third of the body, whilst the target organs are shielded.

A reverse biology approach is proposed to test five main hypotheses:

Hypothesis 1a – Partial body irradiation (PBI) evokes changes in the transcriptome and proteome of tissues outside of the radiation field. **Hypothesis 1b** – Analysis of global gene and protein expression changes in out-



Anna Saran

of-field tissues will identify the pathway(s) involved in signalling between irradiated and non-irradiated tissues. **Hypothesis 1c** – Differentially expressed non-coding RNAs (miRNAs) will point to candidate mediators of out-of-target effects *in vivo*. **Hypothesis 1d** – Validated changes in tissue coding and non-coding RNAs and proteins after PBI will indicate new radiation biomarkers. **Hypothesis 1e** – Exosomes and connexin proteins play an important role in long-range radiation signalling *in vivo*, in addition to mediating the bystander effects observed *in vitro*.

SEPARATE aims to address the relevance of out-of-target effects, from those observed after controlled radiation exposure in the laboratory to the dynamic exposure experienced by humans in typical radiation-exposure scenarios, and deliver a detailed mechanistic understanding of the processes governing the associated risks. By focusing on the mechanisms of risk posed by low-dose PBI, the research programme of SEPARATE specifically addresses several important challenges and long-term goals of the CONCERT low-dose radiation research and radiation protection programme. The work plan is particularly aligned with the MELODI and EURADOS strategic research agendas.

The complementary expertise of the team members will allow an integrated approach by targeting the key cellular and molecular mechanisms involved in out-of-target effects relevant for cancer and non-cancer diseases at low and intermediate radiation doses and in various mammalian systems, bringing progress well beyond the current state-of-the-art.



SEPARATE partners



ID Card:

Partners:

1. Agenzia Nazionale per le Nuove Tecnologie, l'Energia e lo Sviluppo Economico Sostenibile (ENEA)
2. Helmholtz Zentrum München, German Research Center for Environmental Health (HMGU)
3. Oxford Brookes University (OBU)
4. Dublin Institute of Technology (DIT)

Duration:

28 months
(1/10/2017-31/01/2020)

Total budget:

€ 1,741,655

Infrastructures:

Exposure platforms:
X-ray irradiation facilities at the ENEA, Rome

Databases:

We will use a common database for the project to facilitate data integration

Analytical platforms:

Proteomics platform at HMGU:
QExactive HF mass spectrometer (Thermo Scientific) online coupled to Ultimate 3000 nano-RSLC (Thermo Scientific)

Raman spectroscopy at the FOCAS Research Institute, DIT core facility

Open Access of produced data:

Yes, through [STORE](#)

Internet link:

Under development

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Related to:

MELODI
EURADOS
EURAMED



Special Issue 3
February 2018

Validation and Estimation of Radiation skIn Dose in Interventional Cardiology

In interventional cardiology (IC), the skin of patients may be exposed to high doses of radiation, resulting in tissue reactions (skin burns) following single or multiple procedures. As the number and complexity of IC procedures have been steadily growing, patient-specific dose calculations in IC have been identified as a top-priority topic by EURADOS, EURAMED, and ICRP Committee 3.

necessary to calculate MSD and 2D-dose distribution (tube voltage, filtration, beam orientation, table position, back-scatter factor, table attenuation, air KERMA-to-skin dose conversion coefficient, etc.).



Photo: Marja Majer/RBI

Jeremie Dabin



Photo: Marja Majer/RBI

Group photo during the VERIDIC kick-off meeting on February 4th and 5th, 2018 in Lisbon.

- The recording (format and content) of MSD values and 2D-dose distributions in the RDSR

Second, we will develop and test protocols for the acceptance testing and QC of SDC software, including:

- Comprehensive calibration of field dosimeters to be used for software benchmarking, including the estimation of associated uncertainty.

- Acceptance testing of online and offline software under simple irradiation conditions.

Online (or offline) software has been developed to tackle this issue and estimates the maximum skin dose (MSD) to the patient during (or after) IC procedures. However, the ability and accuracy of such skin dose calculation (SDC) software to estimate MSD and 2D-dose distributions markedly differ between vendors and the reporting and accuracy of the MSD estimate in the Radiation Dose Structured Report (RDSR) is neither systematic nor harmonised. In addition, there are currently no accepted testing or quality control (QC) protocols of such systems.

This project thus focuses on the harmonisation of RDSR and the validation of SDC software products in IC to optimise the radiation protection of patients.

First, we will propose standards for digital dose reporting, including:

- A complete list of parameters

- QC tests of the software in clinical settings that reproduce complex cardiac procedures, such as chronic total occlusions (CTO).

Third, we will establish interventional reference levels (RL) and the frequency of high-dose procedures, as well as dose-reduction strategies, through multi-centric data collection.

The project is supported by the European Federation of Organisations for Medical Physics (EFOMP) and we will seek collaboration with the European Society of Cardiology (ESC) to ensure optimal dissemination of results.



VERIDIC partners

ID Card:

Partners:

1. Belgian Nuclear Research Centre (SCK•CEN)
2. Paris Sud University Hospitals (APHP)
3. Centre d'Assurance de qualité des Applications Technologiques dans le domaine de la Santé (CAATS)
4. French Alternative Energies and Atomic Energy Commission (CEA)
5. University Hospital of Geneva (HUG)
6. Greek Atomic Energy Commission (GAEC)
7. Vinca Institute of Nuclear Sciences (VINCA)
8. Veneto Institute of Oncology (IOV-IRCCS)
9. University Hospital Limerick (UHL)
10. Institut Ruder Boškovic (RBI)

Duration:

24 months
(1/02/2018-1/02/2020)

Total budget:

€ 705,100

Infrastructures:

Exposure platforms:
X-ray irradiation facilities at the Laboratoire Nationale Henri Becquerel (LNE-LNHb) of CEA.

The Laboratory for Nuclear Calibrations (LNC) of SCK•CEN.

Databases:

A multicentric database of structured radiation-dose reports of high-dose cardiac therapeutic procedures to be established

Open Access of produced data:
Yes, to be set up later

Internet link:

<https://www.researchgate.net/project/VERIDIC-Validation-and-Estimation-of-Radiation-skin-Dose-in-Interventional-Cardiology>

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Related to:

EURADOS
EURAMED



Special Issue 3
February 2018

Enhancing stakeholder engagement in radiation protection

Stakeholder engagement and informed decision-making are central elements for the governance of radiological risk. However, the practical implementation of stakeholder engagement in radiation protection is confronted with multiple challenges and a continuously evolving landscape of actors that produce radiation protection knowledge, along with the communication means and tools they use.

The ENGAGE consortium brings together social sciences and humanities researchers and radiation protection experts from nuclear safety and radiation protection authorities, leading research institutes in radiation



Catrinel Turcanu

protection, public health organisations, non-governmental organisations, and academia, representing 14 organisations from 10 European countries.

Together, ENGAGE partners will identify and refine relevant aspects for stakeholder engagement in each of the three exposure situations. They will analyse European commonalities and national idiosyncrasies, share experiences and approaches, and identify knowledge gaps.

Through its research and innovation activities, the project will provide information to facilitate the engagement of stakeholders in radiation protection that relevant stakeholders find meaningful. It will contribute to improving the assessment of radiological risk and, as a result, the protection itself. Project beneficiaries include radiation protection platforms, policy makers, civil society stakeholders, and the public.

in ways that relevant stakeholders find meaningful and legitimate. It will contribute to improving the governance of radiological risk and, as a result, radiation protection itself. Project beneficiaries include radiation protection platforms, policy makers, civil society stakeholders, and the public.

The ENGAGE project addresses the subtopic “Models, tools and rationales for stakeholder engagement and informed decision-making in radiation protection research, policy and practice for situations involving exposures to ionising radiation”, under Topic 2 (Radioecology, emergency and social sciences and humanities) of the 2017, second CONCERT Call.

The recently launched CONCERT project ENGAGE focuses on “ENhancinG stAkeholder participation in the GovernancE of radiological risks for improved radiation protection and informed decision-making”. The project will identify and address key challenges and opportunities for stakeholder engagement concerning three situations of exposure to ionising radiation: the medical use of ionising radiation, post-accident exposure, and indoor exposure to radon. ENGAGE will:

- Address the questions of why, when, and how stakeholders are engaged in radiation protection issues.
- Develop novel approaches to analyse stakeholder interactions and engagement and provide guidance to meet the challenges and opportunities identified in response to (a).
- Investigate the processes for enhancing the culture of radiation protection and their role in facilitating stakeholder engagement and develop guidelines for the further development and enhancement of the radiation protection culture.
- Provide recommendations and build a joint knowledge base for stakeholder engagement in radiation protection.



photo: Sylvia Claerys/SOX•CEN

Representatives of ENGAGE partners met during a two-day kick-off meeting in Brussels, on November 27-28, 2017.



ENGAGE partners



ID Card:

Partners:

1. Belgian Nuclear Research Centre (SCK•CEN)
 2. Centre d'étude sur l'Evaluation de la Protection dans le domaine Nucléaire (CEPN)
 3. Institut Jozef Stefan (JSI)
 4. Barcelona Institute for Global Health (ISGlobal)
 5. Institute for Radiological Protection and Nuclear Safety (IRSN)
 6. Université Franche-Comté (UFC)
 7. Greek Atomic Energy Commission (EEAE)
 8. University of Milan (UMIL)
 9. Federal Office of Public Health (FOPH)
 10. VUJE, Inc.
 11. Bundesamt für Strahlenschutz (BfS)
 12. Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering (IFIN-HH)
 13. Université de Liège (ULG)
- Subcontracted: Milan Vidmar
Electric Power Research Institute (EPRI)

Duration:
24 months
(20/11/2017-19/11/2019)

Total budget:
€ 777,442

Open Access of produced data:
Yes (project website with open-access publications)

Internet link:
<http://www.engage-h2020.eu/>

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ENGAGE secretariat
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Related to:
MELODI
ALLIANCE
NERIS
EURADOS
EURAMED
Social Sciences and Humanities

Special Issue 3
February 2018

Involving citizens in dosimetric and health surveillance

SHAMISEN-SINGS, built upon the recommendations of the EC-OPERRA funded SHAMISEN project, aims to enhance Citizen Participation in preparedness for, and recovery from, a radiation accident through novel tools and APPs that support communication and data collection on radiation measurements, health and well-being indicators.

The specific objectives are to:

1. Interact with stakeholders to assess their needs and their interest in contributing to dose and health assessment, and evaluate how new technologies could best fulfill their needs. In particular, consider lessons from current issues in Fukushima related to lifting evacuation orders and medical care for vulnerable population;
2. Review existing APPs for citizen-based dose measurements, and establish minimum standards of quality;
3. Review existing APPs/systems to monitor health and wellbeing and provide feedback to users, and develop a core protocol for a citizen-based study on health, social and psychological consequences of a radiation accident;
4. Build upon existing tools to develop the concept/guidelines for one or more APPs that could be used to:
 - monitor radiation: to allow citizens to measure dose, empowering them by providing information about their own doses in different settings, as well as contribute to radiation assessment after an accident, including visualisation of radiation conditions;
 - log behavioural and health information to be used, with appropriate ethics and informed consent, for citizen science studies.
 - provide a channel for practical information, professional support

and dialogue about health, wellbeing and radiation protection.



Elisabeth Cardis Liudmila Liutsko

5. Assess the ethical challenges and implications of both the APPs and citizen science activities through a consensus workshop.

SHAMISEN-SINGS brings together an experienced multi-disciplinary and multi-national consortium to answer important objectives of the CONCERT call: to improve countermeasures for nuclear emergency preparedness and provide important knowledge on stakeholder engagement in radiation protection, including a critical assessment of benefits and challenges of citizen science. By taking a practical ethics approach, fostering co-reflection between natural and social scientists, it will strengthen integration of social science in radiation protection. It will also provide an independent channel for collection and management of data for use by authorities for decision making, assessment of doses, evaluation of health/social condition and health surveillance in general, and support the implementation of BSS.

Collage: Liudmila Liutsko /ISGlobal



SHAMISEN SINGS participants (partners and experts)



ID Card:

Partners:

1. Barcelona Institute for Global Health (ISGlobal)
2. Instituto Superiore di Sanità (ISS)
3. Fukushima Medical University (FMU)
4. Institute for Radiological Protection and Nuclear Safety (IRSIN)
5. Belgian Scientific Institute of Public Health (WIV-ISP)
6. Centre d'étude sur l'Evaluation de la Protection dans le domaine Nucléaire (CEPN)
7. Norwegian University of Life Sciences (NMBU)
8. Universitat Autònoma de Barcelona (UAB)

4 external experts:

- Philippe Pirard (Santé Publique France, FRANCE)
- Vadim Chumak (National Research Center for Radiation Medicine, National Academy of Medical Sciences, UKRAINE)
- Oleg Bondarenko (National Aviation University, UKRAINE)
- Natalia Novikava (ISEI-BSU, BELARUS)

Duration:

27 months
(1/10/2017-1/01/2020)

Total budget:

€ 757,498

Infrastructures:

Observatory sites:
Chernobyl, Fukushima and other countries

Open Access of produced data:
Yes, to be set up later

Internet link:

<http://radiation.isglobal.org/index.php/en/shamisen-sings-home>

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Related to:

MELODI
NERIS
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EURAMED
Social Sciences and Humanities



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Analysis of the 2nd CONCERT Call 2017

Project proposals within the second CONCERT call had to address two main topics (each with three sub-topics). The project proposals had to fall within one of the topics and answer one or more sub-topics within one of the topics, when appropriate (see also: [http://www.concert-h2020.eu/en/Calls/Transnational Call 2017](http://www.concert-h2020.eu/en/Calls/Transnational%20Call%202017)). CONCERT decided to allocate the funds available for the second call (6.98 M€) as follows: 80% to Topic 1 and 20% to Topic 2.

With respect to the concept of open calls, consortia submitting proposals to this call had to integrate at least one external entity (non-CONCERT beneficiary or LTP) as a partner in their project consortium.

For the second CONCERT call, 25 proposals were submitted. One proposal was found to be ineligible. The size of the consortia varied from four partners for the smallest to 13 for the largest, with an average of seven partners per proposed consortium. In addition to 19 EU/EURATOM countries, four third countries participated; Japan, Serbia, Norway, and USA; and one EURATOM-associated country; Switzerland.

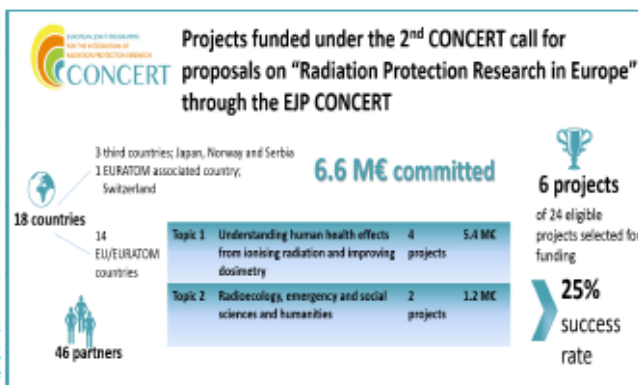
The total budget of the six highest ranked projects (ENGAGE, LEU-TRACK, SEPARATE, SHAMISEN-SINGS, PODIUM and VERIDIC) that were selected and recommended for funding by the PRP, add up to approximately 6.7 M€. CONCERT is committed to approximately 6.6 M€. The remaining 2% are provided by partners/countries bringing their own resources to the projects. From this budget, 5.2 M€ is going to Topic 1 and 1.4 M€ to Topic 2. Hence, 79% of the second CONCERT-call budget is used for funding

transnational research projects in Topic 1, and 21% in Topic 2.

Based on the initial applications, the 46 partners of the six funded projects come from 14 EU/EURATOM countries, three third countries; Japan, Norway and Serbia, and one EURATOM-associated country; Switzerland. The projects respond together to all six subtopics of the two scientific areas.

As decided by the CONCERT Executive Board, an Independent Observer was invited and integrated in the second CONCERT call evaluation processes and participated according to H2020 guidelines for Independent Observers. In the observers report, the high quality of the PRP and evaluation procedure itself were emphasised. Additionally, the large effort required for the implementation of open calls (cost-benefit ratio) was noted.

The PRP itself was overall impressed with the outstanding character of the submitted proposals, especially in terms of transnational collaboration, underlining the increasing importance of transnational networks.



General overview of CONCERT's 2nd call results and projects funded

WP1: CONCERT Project coordination & management (BfS)
WP4: Organization and management of CONCERT open RTD Calls (ANR)



Editorial Committee: [Maria Panagiotopoulou](#), [Jean-Michel Dolo](#), [William Hempel](#), [Laure Sabatier](#)

CONCERT Short Courses

19-23 February 2018

Radiation Protection:
Basics and Applications
Forschungszentrum Jülich, Germany
Contact:
Ralf Kriehuber
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5-16 March 2018

Assessment of long-term radiological risks from environmental releases: modelling and measurements, Technical University of Denmark
Contact:
Kasper Andersson
kjan@dtu.dk

12-16 March 2018

EURADOS Training course on Application of Monte Carlo Methods for Dosimetry of Ionizing Radiation, KIT, Germany
Contact:
Bastian Breustedt
Bastian.breustedt@kit.edu

12-23 March 2018

Two-week training course on radiation-induced effects with particular emphasis on genetics, development, teratology, cognition, cancer as well as space-related health issues, SCK•CEN, Belgium
Contact:
Sarah Baartout
sbaartout@sckcen.be

Other Events

27-28 February 2018

ISBER European Biospecimen Research Symposium
International Society for Biological and Environmental Repositories, Luxembourg

11-15 June 2018

EPRBioDose 2018, Munich, Germany

22-25 August 2018

ERR 2018, Pecz, Hungary

1-5 October 2018

3rd ERPW, Rovinj Rovigno, Croatia

See also on CONCERT website



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Link to the Special Issue:

http://www.concert-h2020.eu/-/media/Files/Concert/AIR2/Infrastructures_AIR2_Bulletin_Special_issue_Feb_2018.pdf?la=en&hash=29E3F6162021F6B1911C89587AB79F135D56ECCA