PIANOFORTE Partnership

European Partnership for Radiation Protection Research

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D 3.6 – First version of the Stakeholder Engagement Plan

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Abstract

PIANOFORTE aims to involve all relevant stakeholders at the different stages of the implementation of the project and to assure efficient engagement throughout the length of the project. Effective stakeholder engagement will help to ensure that Research & Innovation activities supported by PIANOFORTE have maximal impact on improving the robustness of the system of radiation protection. In addition, it will promote that such activities will be better aligned with the values, the needs and expectations of society so that scientific research can inform decision-making more effectively and be responsive to, and acceptable by, societal and stakeholders' needs. This will help build confidence that the system of radiation protection adequately protects human health and the environment, in the eyes of professionals and the public.

As a first step to do so a *Stakeholder Engagement Plan* (SEP) has been developed to assure an optimal involvement of stakeholders throughout PIANOFORTE. The first version of the SEP is presented in this Deliverable (D3.6), structured in the following sections: Stakeholder analysis; Engagement strategy and plan; Implementation of the SEP and Evaluation of the SEP.

As the SEP will evolve throughout PIANOFORTE, it will be updated after consultation with stakeholders in the spirit of inclusiveness, openness, accountability, and responsibility. An updated version of the SEP will be published in September 2025 (D3.11).

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1   Introduction

The general objective of PIANOFORTE is to improve radiological protection of members of the public, workers and environment in all exposure scenarios and provide solutions and recommendations for optimised protection in accordance with the Directive 2013/59/EURATOM. This objective will be achieved through mainly multidisciplinary research organised in open calls, but also by citizen and society involvement in a collaborative approach of scientists, regulators and stakeholders.

PIANOFORTE aims to involve all relevant stakeholders at the different stages of the project implementation and to assure efficient engagement throughout the length of the project. PIANOFORTE will provide a forum to discuss stakeholder's concerns, interests, needs and priorities, as well as the strategic and technical aspects to ensure the progress of radiation protection research.

Effective stakeholder engagement will ensure that PIANOFORTE supported Research & Innovation (R&I) activities have maximal impact on improving the robustness of the system of radiation protection. In addition, it will promote that such activities will be better aligned with the values, the needs and expectations of society, so that scientific research can inform decision-making more effectively and is responsive to, and acceptable by, societal and stakeholders' needs. This will help build confidence that the system of radiation protection adequately protects human health and the environment, both in the eyes of professionals and the public.

PIANOFORTE Work Package 3, *Stakeholder Engagement*, is specifically dedicated to the involvement of the broad stakeholder community in the project and will ensure that PIANOFORTE reacts to new research and development needs and seeks innovative solutions to improve radiation protection of the public and the environment. To do this efficiently, WP3 builds further on the work done and lessons learned in PIANOFORTE's predecessor H2020 CONCERT European Joint Programme (EJP) and other European initiatives. The results obtained in the CONCERT EJP have been used to ensure that all radiation protection stakeholders are properly involved in setting the research priorities, and that all will benefit from the results of PIANOFORTE.

Within WP3, a Stakeholder Engagement Plan (SEP) has been developed, which takes into account the specific needs of different stakeholder categories and enables for meaningful participation and for transparent and effective communication with all relevant stakeholders. The SEP describes the formal strategy to communicate with external and internal stakeholders, to engage them in the project activities and outcomes. It outlines the methodology and approaches (strategies and actions) of how the PIANOFORTE team will interact and communicate with stakeholders to promote their productive involvement in the project execution. The SEP also specifies the type of communications (methods, tools), media, and communication events that will take place during PIANOFORTE, as well as their frequency (timeline). The SEP is of relevance to all PIANOFORTE WPs.

This deliverable D3.6 describes the first version of the PIANOFORTE SEP, structured in the following sections: Stakeholder analysis; Engagement strategy and plan; Implementation of the SEP and Evaluation of the SEP.

Since the SEP will evolve throughout PIANOFORTE, it will be updated after consultation with stakeholders in the spirit of inclusiveness, openness, accountability, and responsibility. An updated version of the SEP will be published in September 2025 (D3.11).

2   Stakeholder analysis

The stakeholder analysis is the process of identifying the relevant stakeholders and analysing them according to their interest, expertise and influence in PIANOFORTE activities and outputs. The analysis will help to determine the engagement, communication or consideration each stakeholder group needs.

During the EJP CONCERT, an extensive stakeholder analysis exercise was carried out to identify radiological protection stakeholders and understand their opinions and concerns (EJP-CONCERT D5.1, 2015). This work has been reviewed and adapted, where needed, as part of Subtask 3.3.2 of PIANOFORTE.

Whereas EURATOM is the core funding programme for nuclear and radiological related research, radiation protection research activities have a broader societal perspective, and many topics are related to scientific domains within (nuclear safety, waste and disposal, decommissioning) but also outside the EURATOM programme. PIANOFORTE aims to bridge with other Partnerships formed within the Horizon Europe programme, e.g., in the Health, Environment or Safety domains, to get their input on the PIANOFORTE R&I activities, for clear collaboration, networking and interaction. Links and collaborative actions are also needed with international radiation protection research organizations, such as ICRP, UNSCEAR, OECD/NEA, WHO and IAEA.

PIANOFORTE will work to engage both external and internal stakeholders. *External stakeholders* are individuals or organizations outside PIANOFORTE, but who can influence or be influenced by the project. Arguably, external stakeholders wield the greatest influence on the long-term success of the project, because they will often be the end users. Using as a starting point the Target Groups defined in the PIANOFORTE proposal, the external stakeholders relevant for PIANOFORTE were identified, in tasks 3.3 and 3.4 and included:

- The Stakeholder and Advisory Board (SAB) of PIANOFORTE.
- European organizations - European policy makers (EC, Article 31 Group of Experts, HERCA, WENRA and others).
- International organisations (IOs) and associations - Experts in radiation protection and other related disciplines (IAEA, ICRP, UNSCEAR, IRPA, ENA, ERA and others).

- National policy makers and regulatory authorities – ministries, regulatory bodies, including those at regional and local levels - from different EU countries.

- Implementers/Users - national representatives of nuclear industries, non-nuclear industries, trade organizations, medical professional association in hospitals, national associations for radiation protection, waste management organizations, radiation protection experts, radiation protection officers, technical and scientific equipment manufacturers).

- Research and Education & Training Community - research centres, universities, institutes, research platforms on other topics than radiation protection/use of ionising radiation.

- Civil society and affected communities - national, regional, local public organizations gathering impacted public groups or other thematic groups, such as but not limited to, medical patients' organisations, including individual patients; citizens (e.g., citizens science networks; representatives of communities living in areas near legacy sites and of municipalities with nuclear facilities), trade unions.

- NGOs - focused on different topics, among others those related with radiation protection.

- Media - journalists, professionals working in communication.

- Metrology - manufacturers of ionising radiation measuring devices; national metrological institutes (NMIs); EURAMET; calibration, certification and quality management (ILAC) organisations.

Internal Stakeholders are the beneficiaries of PIANOFORTE, including POMs, Platforms, Affiliated Entities, Third Parties (participants in PIANOFORTE's open calls winning projects). The relevant internal stakeholders include:

- European Platforms in radiation protection research members of the MEENAS Consortium (MELODI, EURADOS, EURAMED, NERIS, ALLIANCE and SHARE).

- National Programme Owners and/or Managers (POMs).

- Affiliated Entities.

- Several/Other PIANOFORTE WPs.

- PIANOFORTE projects (beneficiaries of the projects funded in the PIANOFORTE open calls).

Knowing the interests, expertise and influence of stakeholders is essential in formulating the SEP, as it contributes to better understand how to collaborate with stakeholders and how to avoid conflicts. Therefore, once the external and internal stakeholders were identified, an analysis in terms of interest/expertise and influence was undertaken:

- Interest and experience. Stakeholders have very different interests in radiation protection issues and determining their willingness to be involved in different project activities and products is essential. In addition, different levels of experience in the

field will lead to different motivations and expectations of stakeholders in PIANOFORTE.

- Influence. The different stakeholders will have a varying influence, either directly or via other stakeholders, on the activities (including research) and outcomes of the project.

An interest/expertise - influence matrix, including external and internal stakeholders, was developed (Figure 1). To do so, the information reported in table 2 on the different stakeholders (internal and/or external) involved in each PIANOFORTE Task/Subtask and their type of participation was used as starting point. Taking this information into account and using expert judgement, a brainstorming took place in to determine both the relative grade of influence/expertise of each stakeholder group and their potential influence in PIANOFORTE. By crossing both parameters along the influence/expertise and influence axis, the relative position of each stakeholder group within the matrix was obtained.
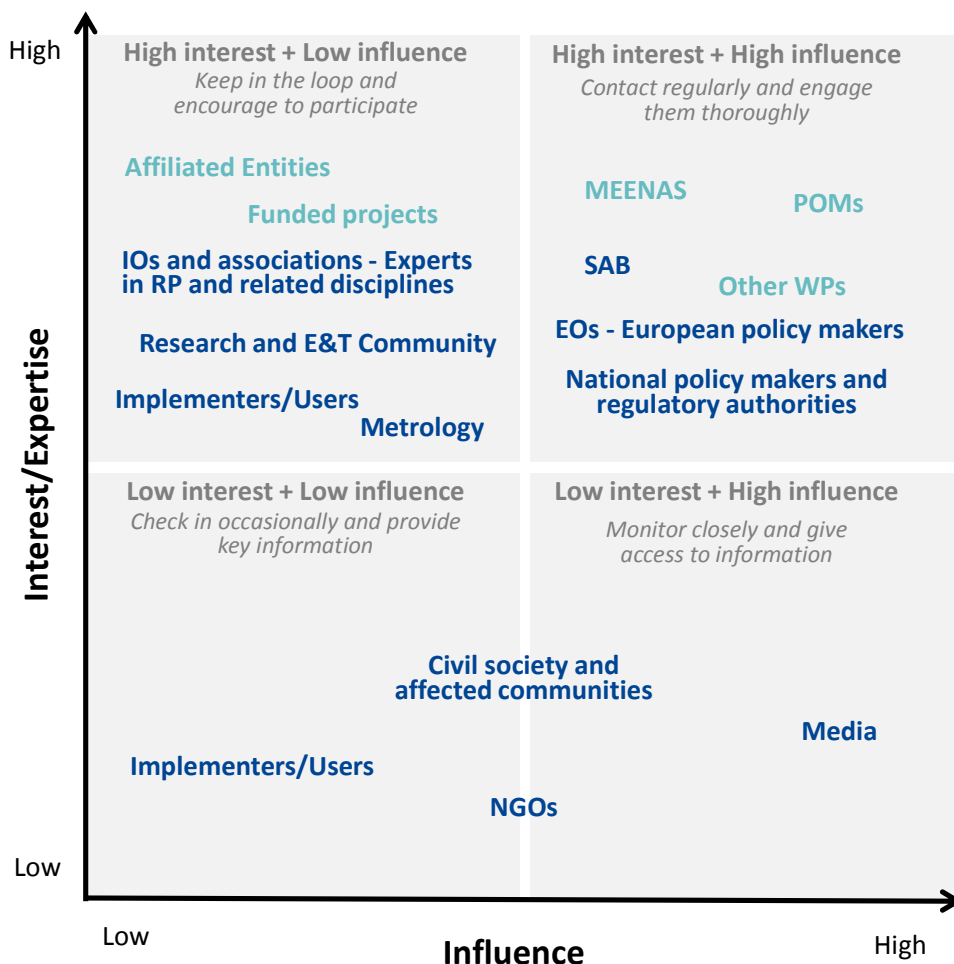

Figure 1. PIANOFORTE stakeholder interest/expertise - influence matrix. Dark blue = External stakeholders; Light blue = Internal stakeholders.

3 Engagement strategy and plan

In this section the objectives, tools, methods and schedule of the SEP are described.

Stakeholder engagement is a means of describing a broader, more inclusive, and continuous process between PIANOFORTE project and stakeholders, encompassing a range of activities and approaches to promote or facilitate their participation, and spanning the long-term rather than the short-term.

Based on the previous steps, stakeholder identification, analysis of their importance and influence and stakeholders' interests, a stakeholder engagement strategy can be developed.

The stakeholder strategy and plan can guide how to interact, communicate and involve with each identified stakeholder group during the different phases of the project. It provides approaches for building and maintaining positive relationships with stakeholders and also helps to define who should participate, how and at what stage of the project stakeholders should be involved.

A participatory process is the interaction of experts with stakeholders with the objective of taking into account or including their perspectives and views in the activities of PIANOFORTE.

From a methodological perspective, a participatory process includes a series of interrelated participatory methods to support participatory management. Typically, participatory methods are defined as methods for structuring group processes in which non-experts play an active role and articulate their knowledge, values and preferences for different goals (van Asselt, 2001).

Possible approaches and techniques for the engagement are discussed thoroughly following.

3.1 Engagement approach. Levels and objectives of participation.

A useful way to guide the engagement approach is to take into account the type of participation desirable or required for the stakeholder categories defined in stakeholder mapping (Chapter 2).

From a methodological perspective, a stakeholder participatory process (SPP) may achieve different levels of participation. A range of typologies have been developed to understand the basis of stakeholder participation and can be used to select and tailor methods to the decision-making context, considering the objectives, type of participants and appropriate level of engagement (Reed, 2008).

The methodological background for the levels of participation, as introduced in this SEP, is derived from classifications where public as well as stakeholder participation can reach various consecutive levels of interaction. Since Arnstein (1969) proposed a ladder of citizen participation almost 50 years ago, which focussed on the distribution of power between

authorities and the public as an indicator for low (manipulation) or high (citizen control) levels of participation, successive attempts have been directed to promote positive and responsive approach in which interaction between experts and lay people can truly develop. The Spectrum of Public Participation is one of the attempts most suited to the needs of a European partnership so far. It differs from Arnstein's ladder in recognising that "different levels of participation are legitimate and depend on the goals, time frames, resources, and levels of concern in the decision to be made" (IAP2, 2018).

The Spectrum of Public Participation was developed by the International Association of Public Participation (IAP2, 2018). It identifies five levels of stakeholder participation or engagement: inform, consult, involve, collaborate and empower. For each level it articulates the stakeholder participation goal and the promise to the stakeholders. The Table 1 is an adaptation to the purposes of PIANOFORTE project.

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
STAKEHOLDERS PARTICIPATION GOAL	Provide the stakeholders with balanced and objective information to assist them in understanding the problem, objectives, activities and results of the project	To obtain stakeholders feedback on specific activities, documents or issues related with the project	To work directly with the stakeholders throughout the engagement activity, ensuring that their inputs are understood and considered	To partner with the stakeholders in each aspect of the engagement activity (preparation, implementation and evaluation)	To place final decision on engagement activities in the hands of the stakeholders
PROMISE TO THE STAKEHOLDERS	PIANOFORTE will keep you informed	PIANOFORTE will consider your inputs and provide feedback on how such inputs are taken into account	PIANOFORTE will work with you to ensure that your contributions are directly reflected in the engagement activity and provide feedback on how your inputs have been considered	PIANOFORTE will ask you for advice in formulating the activities and will incorporate your advice and recommendations in the design and implementation of the activity	PIANOFORTE will implement what you decide

Adapted from IAP2 International Federation 2018

Table 1. Spectrum of stakeholder participation, which identifies the levels of stakeholder participation or engagement and defines for each level the stakeholder participation goal and the promise to the stakeholders (Adapted from IAP2, 2018).

In the PIANOFORTE project, each level of participation of the IAP 2 classification responds to a specific goal of the participatory process and to a specific interest of the stakeholders. The description of each of these levels is detailed below (Graeme, 2017).

Inform

Stakeholder participation goal: To provide the stakeholders with balanced and objective information to assist them in understanding the problem, objectives, activities and results of the project.

Promise to the Stakeholders: PIANOFORTE will keep you informed.

Information provision is a mere one-way communication process. Stakeholder engagement is a two-way process, which means that "Inform" because it involves only a one-way flow of information, is not really a stakeholder engagement. However, it is an essential part of the participatory process and directly contributes to the transparency of the process.

- **Consult**

Stakeholder participation goal: To obtain stakeholders feedback on specific activities, documents or issues related with the project.

Promise to the Stakeholders: PIANOFORTE will consider your inputs and provide feedback on how such inputs are considered.

Consult is a fairly low level of stakeholder engagement being "the basic minimum opportunity for stakeholders input to an assessment or decision process". Essentially it is about obtaining feedback on plans, ideas, options or issues, but with little interaction. The promise is to "listen and acknowledge" issues raised, but not necessarily to act on them.

Consult is a two-way process where a response from stakeholders is expected to the questions introduced by the project on the issue(s) to be addressed, and which should be processed with the help of appropriate participatory methods.

- **Involve**

Stakeholder participation goal: To work directly with the stakeholders throughout the engagement activity, ensuring that their inputs are understood and considered.

Promise to the Stakeholders: PIANOFORTE will work with you to ensure that your contributions are directly reflected in the engagement activity and provide feedback on how your inputs have been considered.

At the Involve level, the stakeholders are invited into the process to a greater extent than with Consult. The goal is to work with the stakeholders throughout the process: it is not a one-off. Although the promise implies that issues raised should be taken into account, decisions at this level are generally made by the project rather than the stakeholders.

Active involvement of stakeholders could involve an active and voluntary cooperation in data collection, monitoring, system identification, plan design, implementation and maintenance. Hence it is to be expected, stakeholders consciously and voluntarily choose an active role in the design or implementation of project goals.

- **Collaborate**

Stakeholder participation goal: To partner with the stakeholders in each aspect of the engagement activity (preparation, implementation and evaluation).

Promise to the Stakeholders: PIANOFORTE will ask for advice in formulating the activities and will incorporate the advice and recommendations in the design and implementation of the activity.

The Collaborate level is about partnership and power sharing. The promise sets high expectations as it promises to incorporate advice and recommendations "to the maximum extent possible." It implies an interactive process with an emphasis on two-way processes.

This implies initiating or participating in two-way dialogue focused on mutual learning and solutions. It can include co-creation of new ideas and approaches. It involves consultation with relevant and selected stakeholders to determine the most mutually beneficial options. It means that we will design and run the activity together. This level could be assimilated also to the social learning concept (Hare and Krywkow, 2008). The result of this collective process should dominate the decision.

- **Empower**

Stakeholder participation goal: To place final decision on engagement activities in the hands of the stakeholders.

Promise to the Stakeholders: PIANOFORTE will implement what stakeholders decide.

The Empower level places the final decision-making in the hands of the stakeholders. It does not necessarily mean it is the highest level of community engagement. Whereas "Collaborate" requires a high level of community engagement, "Empower" does not necessarily require the same degree of community engagement. At this level, a decision could be made by the community through a process that requires little interaction or engagement (e.g., a referendum).

In PIANOFORTE, beneficiaries hold the responsibility for decisions. For this reason, "Empower" is deliberately not considered as level of participation of stakeholders.

3.2 Matching classes of participatory methods with the targeted goals

Taking into account the achievements of goals as the driving force for the design of a participatory process, different forms for the choice of the methods have been approached.

Hare and Krywkow, 2008 define classes of participatory methods as groups of methods that have similar functions, methodology and requirements for expertise and skills. This approach can be useful to summarise methods that may be applied for the achievement of the same goals of a participatory process. Therefore, classes can help to link methods with objectives of a participatory process.

For the purposes of the PIANOFORTE partnership the general grouping considered was:

1. Stakeholder Information Provision: allows the planner to communicate information about an activity of the project to a broad group of stakeholders. Methods: websites, list services and e-mail, press releases, technical reports, other printed information material as flyer, posters, newsletters.

2. Education and training: allow the planner to teach or train involved stakeholders on different outcomes of the project. Methods: course work, lectures, seminars, training exercises.

3. Surveys: allow the planner to elicit opinions and data from a large group of people. Methods: questionnaires, online surveys, comment forms, Delphi method.

4. Events: allow the planner to set up one-off group events that can draw in a wide range of stakeholders to share information about the project in an entertaining or educational manner. Methods: conferences, symposia, and other project events.

5. Forums: allow planners and managers to set up an area for open discussion where groups of stakeholders, over a long period of time, have the opportunity to voice their opinions about project issues and respond to other viewpoints. Methods: online forums, project blog or social media.

6. Meetings: allow the planner to set up and run moderated large group meetings to gather a range of feedback, from a large number of stakeholders in a relatively short period of time. Methods: Briefings and presentations, web-based meetings, project meetings.

7. Workshops: allow the planner to set up and run a moderated workshop with a small or large number of participants which will provide project-specific information or even be actively involved. Methods: collaboration or project dedicated workshops

Figure 2 summarises the relationship among levels of participation and classes of methods. It shows that methods can serve to engage stakeholders at different levels of participation.
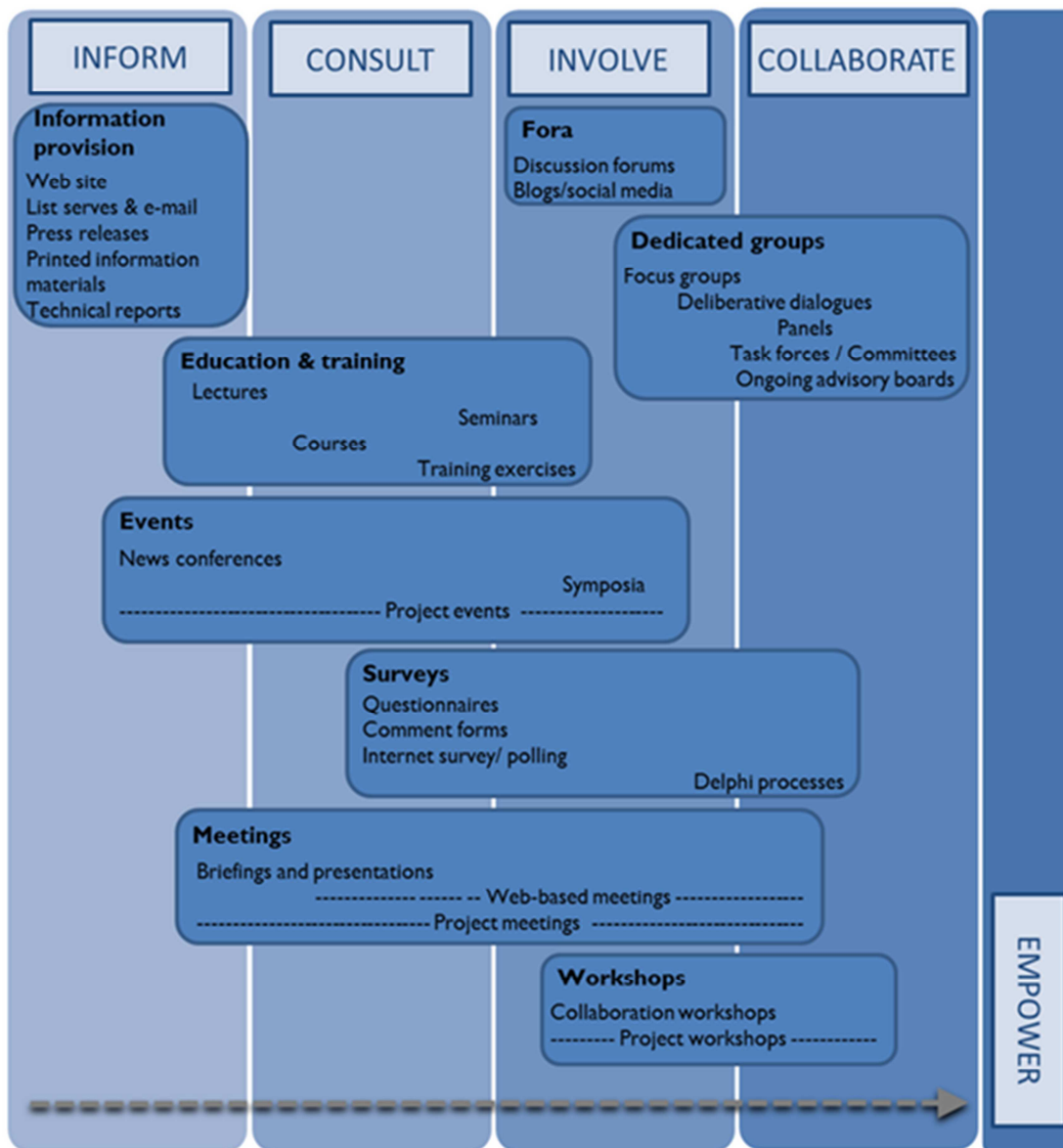
Figure 2. Levels and classes of participation and potential activities in PIANOFORTE (Adapted from Hare and Krywkow, 2008).

3.3 Methods according to the participation level

A list of the different methods, enumerated before, associated mainly, although not exclusively, to the different levels of participation defined in the SEP, is described below.

3.3.1 To inform

Informing is related to the communication with internal and external stakeholders. The PIANOFORTE Internal and External Communication Plans address these issues in detail (PIANOFORTE D6.2, and D6.3).

Several aspects have to be considered:

- The communication flows at the internal level, among Executive Boards, partners and internal stakeholders (downwards, upwards, or lateral) and the external communication to external stakeholders and public.

- The communication channels can be internal or external, formal or informal:

	INTERNAL	EXTERNAL
FORMAL	**Planned communication following the governance structure of PIANOFORTE among all the beneficiaries** – *e-mail, memos, conference calls, reports, presentations, executive blogs*	**Planned communication with EC and external stakeholders** – *letters, instant messages, reports, speeches, news releases, advertising, Web sites, executive blogs*
INFORMAL	**Casual communication among participants in PIANOFORTE that are not part of the governance structure of the project** – *e-mail, instant messages, phone calls, face-to-face conversations, team blogs*	**Casual communication with external stakeholders** – *e-mail, instant messages, phone calls, face-to-face conversations, customer-support blogs*

- The communication types include:

  - Face to Face Communication. Includes conversations that takes place in person. A face-to-face communication is considered the richest source of communication because facial expressions help determine an agreement or disagreement based on the conversation made.

  - Video Conferencing. Is a type of communication channel used by the project to save time and communicate with partners, mainly, through technology.

  - Audio Conferencing or audio calls. Are used to communicate when there's a sense of emergency. A phone call is less time-consuming and effective.

  - Written. Includes E-mails, Chats and messages, Blogs, Formal written letter, etc.

Tools that can be used to accomplish written communication could be:

- Press releases.

- Web pages.

- Newsletters.

- Briefings and presentations. Ideally these presentations should be short, sharp and allow attendants time to ask questions.

- Public Displays.

- Written materials such as brochures.

3.3.2 To consult

There are different ways to make a consultation:

- Questionnaires. A questionnaire is a means of eliciting the opinions, beliefs and attitudes of some sample of stakeholders. As a data collection tool, it is structured or unstructured. A questionnaire is usually concise with a pre-planned set of questions designed to yield specific information to meet a particular information need.

- Internet survey/polls. Web-based response polls.

3.3.3 To involve

For the involvement of the stakeholders in PIANOFORTE, the following methods can be used:

- Digital platforms. Including internet and other digital channels such as social media platforms. Fora and digital media (social media) are particularly interactive and allow for two-way communication, such as by allowing questions to be raised and answered through a variety of online mechanisms. Links to digital materials allow easy access to information.

- Focus groups. A planned discussion in a small group of stakeholders (4 to 12 members) facilitated by a skilled moderator. It is designed to obtain information about preferences and opinions in a relaxed, non-threatening environment. The topic is introduced, and in the ensuing discussion, group members influence each other by responding to ideas and comments. The moderator may use some predetermined questions as prompts to encourage discussion or to return the conversation to the intended focus of the discussion. It could also be used as message testing forum with randomly selected members of target audience and to obtain input on planning decisions.

- Workshops. An informal public meeting that may include presentations and exhibits but ends with interactive working groups.

- Training exercises.

- Conferences or seminars. Meetings to discuss a particular topic involving multiple speakers.

- Delphi technique. It uses a series of consecutive questionnaires to determine the perceptions of a group of stakeholders. The Delphi method allows respondents to communicate their opinions anonymously. Each questionnaire is considered a round. The method is often used to prioritize research/topics (Grime and Wright, 2016).

- Deliberative dialogues. A systematic dialogic process that brings stakeholders together as a group to make choices about difficult, complex issues where there is

much uncertainty about solutions and a high likelihood of stakeholders polarizing on the issue. The goal of deliberation is to find where there is common ground for action.

- Meetings. To be organised by the different PIANOFORTE work packages, tasks or subtasks, with the participation of the stakeholders.

3.3.4 To collaborate

The methods that can be used to collaborate with stakeholders include:

- Collaboration workshops.

- Panels. A group assembled to debate or provide input on specific issues.

- Task forces or Committees. A group of experts or representative stakeholders formed to develop a specific task or subtask.

- Ongoing advisory boards. A group of representative stakeholders assembled to provide input to the planning process. Project members and experts may also be present.

4   Implementation of the SEP

Once the stakeholder analysis has been performed (Section 2) and the engagement strategy and plan described (Section 3), the various ways to implement the stakeholder engagement activities have to be established. This section describes how to perform the elements of the SEP, based on the objectives and activities of the PIANOFORTE WPs, Tasks and Subtasks. It explains how to establish a protocol to effectively manage the engagement activity.

The leader(s) of each Task/Subtask in which stakeholder engagement is required will be responsible for implementing the engagement activities necessary to best achieve the established objectives of the corresponding Task/Subtask, assessing the resources (financial and personnel) needed. To implement the engagement activities a protocol/schedule is proposed that aims to answer the following questions:

- **WHY?** Describe the aim of the engagement activity. For instance, feedback from external stakeholders is needed to evaluate the outcome achieved in a specific subtask of PIANOFORTE.

- **WHO?** Select the stakeholder(s) to be involved in the engagement activity. The stakeholder interest/expertise-influence matrix (Figure 1) which describes internal and external stakeholder characteristics, based on their interests/expertise and influence can be useful.

- **WHAT?** Output expected in the engagement activity (Deliverable, e-survey, etc.).

- **HOW?** Based on the type of stakeholder participation (Inform, Comment, Involve and Collaborate), select the appropriate tool(s) and method(s) (see Section 3) to be used

according to the circumstances and audience, to best meet the established objectives. If the type of participation of stakeholders is not a priori clear, figure 3 can be used to select the most appropriate.

- **WHEN?** Timeline of the engagement activity, according to the general schedule provided.

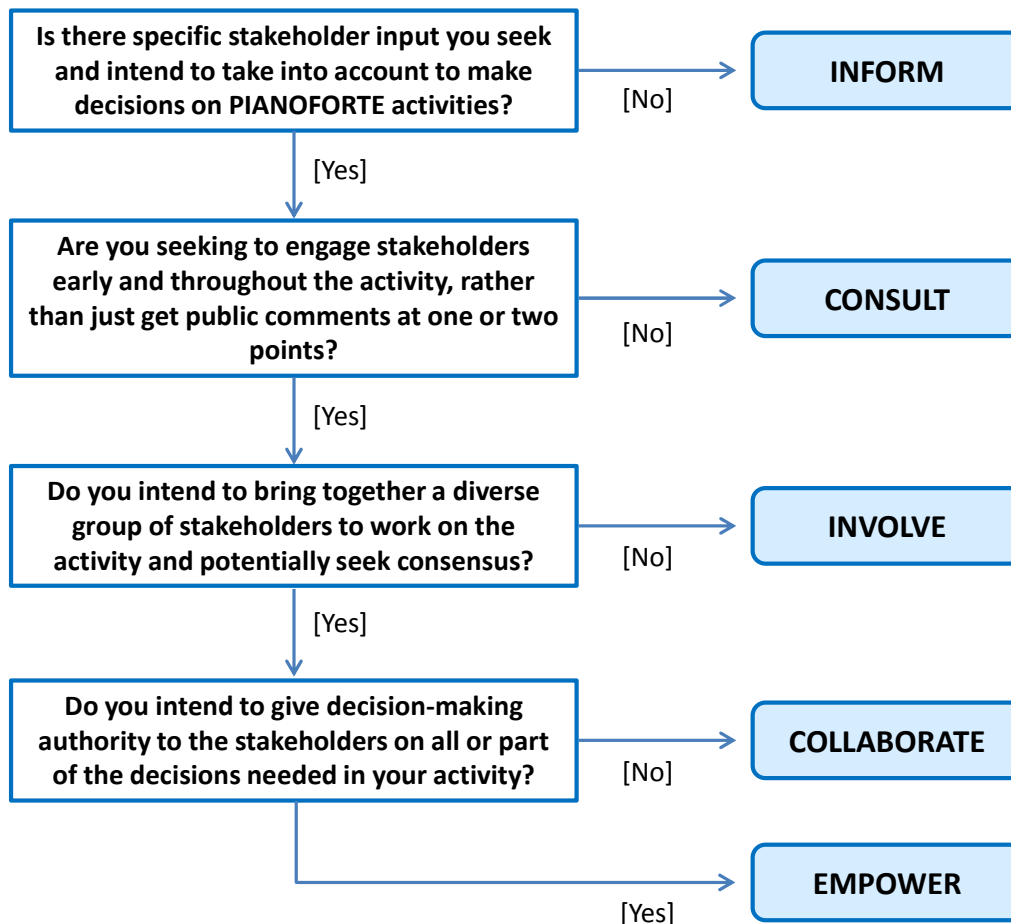Figure 3. Selection of the type of participation of stakeholders, according to the objectives of each PIANOFORTE activity.

Table 2 summarises the needs of stakeholder involvement and their type of participation, as well as the expected output and the timeline for PIANOFORTE Tasks/Subtasks that require a stakeholder engagement based on the tasks and subtasks of Pianoforte. This table represents the current state of the SEP.

Table 2. Summary of stakeholder involvement needs, type of participation, expected outcomes and timeline for PIANOFORTE Tasks/Subtasks that require a stakeholder engagement.

Task or Subtask	Internal stakeholders involved *WHO?*	Type of involvement *HOW?*	External stakeholders involved *WHO?*	Type of involvement *HOW?*	Tools *HOW?*	Expected outcome *WHAT?*	Timeline *WHEN?*
Sub-task 2.1.1. Set up of research priorities (Lead NNK)	Platforms POMs Other WPs	Consult Involve	ALL*	Consult	Fill templates provided	D2.1.1 D2.1.2 D2.1.3	M10 M23 M35
Sub-task 2.1.2. Evaluation of the prioritization process (Lead: CIEMAT)	Platforms Other WPs	Consult	SAB	Consult		D2.1.4	M54 M12-13 M25-26 M37-38
Sub-task 2.2.1. Analysis of stakeholder feedback on the 1st edition of the Joint Roadmap (Lead: JSI)	Platforms Other WPs	Inform	SAB	Inform		MS2.2.1	M4
Subtask 2.2.2. Identification of changes affecting the Joint Roadmap including the update of platform SRAs (Lead: ENEA)	Platforms Other WPs PF projects	Consult				MS2.2.2	M32
Subtask 2.2.4. Review of the draft JRM and publication through stakeholder consultation through a questionnaire and live/online events (Lead: EK)	Platforms Other WPs PF projects	Consult	ALL*	Consult	Questionnaire	MS2.2.4	M48
Sub-task 2.3.1. Web based tool (Lead: NCRPP)	PF projects Other WPs	Inform Consult	SAB	Inform	Web-based tool	MS2.3.1	M6
Subtask 2.3.2. Topical workshops (Lead: CEA)	PF projects Platforms Other WPs	Involve	SAB Research and E&T Others	Involve	Workshop	D2.3.2	M54
Sub-task 2.3.3. Monitoring of scientific progress (Lead: STUK)	Platforms (SHARE)	Involve				D2.3.1	M6
Sub-task 2.3.4. Applications and recommendation forming (Lead: ISS)			ALL*	Inform			

Sub-task 2.4.2: Interaction with scientific communities specializing in AI (Lead: IRSN)			Other (technology platforms, experts on AI & big data)	Involve	Technical Meeting	MS2.4.1 D2.4.2	M54
Sub-task 2.4.3: Promoting the uptake of AI in R&I calls (Lead: OVGU)	Other WPs PF projects	Involve	Other (technology platforms, experts on AI/big data)	Involve	Interactive sessions with Tasks 5.3, 5.5, 6.1	MS2.4.2	M42
Subtask 2.4.4: Ethical challenges of AI (Lead: UExet)		_	Other (experts on AI approaches in RP)	Involve	Workshop	M2.4.3	M36
Subtask 3.1.1. Link to international RP research initiatives/networks			IOs and associations Research and E&T Implementers/Users	Inform			Whole project
Subtask 3.1.2 Priority setting for R&I calls (Lead: BfS)			ALL*	Consult		D3.1/2/3	M8 M18 M32
Subtask 3.1.3 Coordination of stakeholder engagement within PIANOFORTE			Civil society and affected communities	Consult			
Subtask 3.2.1 Learning from CONCERT EJP projects to create stakeholder engagement criteria for R&I calls			SAB IOs and associations	Consult		D3.4	M3
Subtask 3.2.2 Oversee running projects and link to overall stakeholder activity	PF projects	Involve					
Subtask 3.3.1. SAB (SAB) establishment (Lead CIEMAT)			SAB	Consult Involve Collaborate	Documents SAB Meetings	D3.5 MS3.2 MS3.4 MS3.5 D3.13	M3 M13-15 M24-26 M36-38 M60
Subtask 3.3.2 Stakeholder Engagement Plan (Lead CIEMAT)	Other WPs PF projects	Inform Consult Involve Collaborate	ALL*	Inform Consult		D3.11	M40

Subtask 3.4.1. Stakeholder mapping and establishing stakeholder networks for direct engagement	POMs Platforms PF projects	Inform Consult	ALL*	Inform Consult	Stakeholders database Webpage		
Subtask 3.4.2. Direct stakeholder engagement – e-survey	POMs Platforms	Consult	ALL*	Consult		MS3.6 D3.8	M4 M9
Subtask 3.4.3. Direct stakeholder engagement - topical online consultations and meetings	Other WPs POMs Platforms PF projects	Inform Consult	ALL*	Inform Consult	Topical online meetings	MS3.7 MS3.8 MS3.9 D3.10 MS3.10-3.12	M 6-9 M15-20 M25-20 M36 M50/M56
Subtask 3.5.1. Critical review on protontherapy (PT)	Platforms (EURAMED)	Consult Involve	SAB Other (experts in PT)	Consult			
Subtask 3.5.2. Two hybrid workshops to discuss further open questions of the target groups (the users of PT), (lead SCK CEN)	Platforms (EURAMED)	Involve	SAB Other (Experts in PT)	Involve	Workshops	MS3.1 D3.9	M10-12
Task 4.1: Support of targeted courses to promote knowledge, skills and competences of MSc/PhD students, early career researchers and professionals	POMs AE Platforms PF projects	Consult	SAB Research and E&T	Consult	Web meeting	Minutes D4.3	M12, M24, M36, M48, M60
Task 4.2: Support of mobility for MSc/PhD students and early career researchers (travel grants)	POMs AE Platforms PF projects	Consult	SAB Research and E&T	Consult	Web meeting	Minutes D4.3	M12, M24, M36, M48, M60
Task 4.3: Support of a continuous professional development programme for radiation protection professionals	POMs AE Platforms PF projects	Consult	SAB Research and E&T	Consult	Web meeting	Minutes D4.3	M12, M24, M36, M48, M60
Subtask 4.4.2. Bring the vast amount of RP E&T and networking initiatives together with the aim to give them a sustainable character (Lead: SCK CEN).	POMs AE Platforms PF projects	Inform	ALL*	Inform		D4.4	M36

Task 5.1 - Establish an infrastructure oversight committee (Lead: DH-PHE)	Platforms Other WPs	Inform Consult	Infrastructures Oversight Committee (IOC)			D5.1	M6
Subtask 5.2.1. Promoting the use of key existing RPR infrastructures (Lead: INFN)	PF projects	Consult			Database (AIR^{2}D^2)		M19-60
Subtask 5.2.2. Developing a fair and transparent system to allow researchers to access key infrastructures through open calls (Lead: EK)	Platforms POMs AE Other WPs PF projects	Inform	Research and E&T	Inform		MS5.2.1	M1-12
Subtask 5.2.3. Developing and promoting training in the use of key RPR infrastructures (Lead: CEA)	Platforms POMs AE Other WPs PF projects	Inform	Implementers/Users Research and E&T	Inform		D5.5	M60
Subtask 5.3.1. Development of a system for funding inter-comparisons to promote standardization (identify tools and funding framework) (Lead: EURADOS	Platforms POMs	Inform Consult			Documents	MS5.3.1.	M30
Subtask 5.4.2. Guidelines of best practices for sustainable, harmonized RPR infrastructures. (Lead: EK)	Platforms Other WPs	Consult	Implementers/Users Research and E&T	Consult	RPR infra--structure panel, with tasks 3.3; 3.4; IOC	MS5.4.2	M30
Subtask 5.4.3. Strategic plan for radiation protection research (RPR) infrastructures (Lead: UTartu)	Platforms POMs AE Other WPs PF projects	Inform Consult	EOs-European policy makers National policy makers Implementers/Users Research and E&T	Inform Consult	RPR infra-structure panel, with Tasks 3.3 and 3.4.; IOC	MS5.4.1 D5.6	M18 M60
Subtask 5.5.1. Drafting a plan and vision for data management (Lead: BfS)	Platforms Other WPs PF projects	Consult	SAB IOs and associations Implementers/Users Research and E&T	Consult	IOC	D5.2	M6

Subtask 5.5.2. Promoting and training on available data storage platform (STOREDB) (Lead: UCAMB)	Platforms Other WPs PF projects	Inform	Research and E&T	Inform		D5.5.1	M60
Subtask 5.5.3. Promoting the application of novel approaches to exploitation of archived data (Lead: BfS)	Platforms POMs PF projects	Involve	Other (software developers)	Involve	Events in a Hackathon format	MS5.5.3	M60
Subtask 6.1.1 White paper on knowledge management (Lead RIVM)	Platforms POMs AE Other WPs PF projects	Inform	SAB Implementers/Users Research and E&T	Inform	Knowledge management tools		M1-M60
Subtask 6.1.2. Internal Communication Plan (Lead: CIEMAT)	Platforms POMs AE PF projects	Inform Involve			Documents	D6.2	M4
Subtask 6.2.1 Communication. (Lead VIAA)	Platforms POMs AE PF projects	Inform Involve	ALL*	Inform		D6.3	M4
Subtask 6.2.2 Exploitation and dissemination of results (Lead VIAA)	Platforms POMs AE PF projects	Inform Involve	ALL*	Inform Involve			
Subtask 6.4.1 Measuring impact (Lead: SU)	Other WPs	Involve					M8-M14
Subtask 6.4.2. Impact creation via stakeholders (Lead: BfS).	Platforms POMs AE PF projects	Inform Involve	SAB	Inform		D6.8	M60
Subtask 6.4.3. Impact creation via national representatives to EURATOM and the EC Scientific and Technical Committee (STC) (Lead IRSN)	Platforms POMs AE PF projects	Inform Involve	Other (EC STC and EURATOM national representatives)	Inform Consult Involve	To be decided	D6.8	M60

Subtask 6.4.4 Impact creation via international RP organisations (Lead: CEPN)	Platforms POMs AE PF projects	Inform Involve	IOs and associations	Inform Consult Involve	To be decided	D6.8	M60
Subtask 6.4.5 Impact creation via national RP offices and organisations. (Lead: EK)	Platforms POMs AE PF projects	Inform Involve	Other (European national RP offices)	Inform Consult Involve	To be decided	D6.8	M60
Subtask 6.4.6 : Impact creation via projects.(Lead: NNK)	Platforms POMs AE PF projects	Inform Involve	Other (EU researcher group)	Inform Consult Involve	To be decided	D6.8	M60

External stakeholders:
- SAB: The Stakeholder and Advisory Board (SAB) of PIANOFORTE.
- EOs-European policy makers: European organisations - European policy makers (EC, Article 31 Group of Experts, HERCA, WENRA and others).
- IOs and associations: International organisations (IOs) and associations - Experts in radiation protection and other related disciplines (IAEA, ICRP, UNSCEAR, IRPA, ENA, ERA and others).
- National policy makers: National policy makers and regulatory authorities – ministries, regulatory bodies, including those at regional and municipality levels - from different EU countries.
- Implementers/Users - national representatives from nuclear industries, non-nuclear industries, trade organizations, medical professional association in hospitals, national associations for radiation protection, waste management organizations, radiation protection experts, radiation protection officers, technical and scientific equipment manufacturers).
- Research and E&T: Research and Education & Training Community - research centres, universities, institutes, research platforms on other topics than radiation protection/use of ionising radiation.
- Civil society and affected communities - national, regional, local public organizations gathering impacted public groups or other thematic groups, such as but not limited to, medical patients' organisations, including individual patients; citizens (e.g., citizens science networks; representatives of communities living in areas near legacy sites and of municipalities with nuclear facilities), trade unions.
- NGOs - focused on different topics, among others, those related with radiation protection.
- Media - journalists, professionals working in communication.
- Metrology - manufacturers of ionising radiation measuring devices; national metrological institutes (NMIs); EURAMET; calibration, certification and quality management (ILAC) organisations.

Internal Stakeholders:
- Platforms: European Platforms in radiation protection research members of the MEENAS Consortium (MELODI, EURADOS, EURAMED, NERIS, ALLIANCE and SHARE).
- POMs: National Programme Owners and/or Managers
- AE: Affiliated Entities.
- Other WPs: Several PIANOFORTE WPs.
- PF projects: PIANOFORTE projects (beneficiaries of the projects funded in the PIANOFORTE open calls).

5   Evaluation of the SEP

This section defines how the SEP will be evaluated (track activities done and monitor their results) and how the information collected will be used. The evaluation will be done based on the objectives defined in section 3 and on the results expected from the implementation of the SEP (Section 4). Based on the statements of the IAEA report on stakeholders' engagement (2021), PIANOFORTE SEP is committed to evaluating the effectiveness of the strategy, based on its objectives, because it can help maintain strong and positive relationships with the various stakeholders.

It is important to periodically review the SEP and amend it as necessary, based on changing circumstances and stakeholder feedback. The evaluation of the SEP is necessary to ensure that the chosen approach is successful, and it will help to tweak and improve the activities carried out within PIANOFORTE and demonstrate its impact. It is very important to ensure the quality of the output of any engagement exercise. Thus, annual evaluations are planned after implementation of some elements of the plan, to provide insights into the plan's effectiveness and where adjustments need to be made.

A combination of objective and subjective measurements will be used for SEP evaluation. In general terms, the evaluation will consider the following indicators, including both quantitative and qualitative:

- **Quantitative indicators:** number of activities carried out with the different stakeholder groups, by type of participation (inform, consult, etc.) and by topic; how regularly each stakeholder group was engaged; quantitative evaluation of specific activities carried out with stakeholders (e.g., workshops, panels); number of attendees/responders at each event/consultation held; and how many assigned tasks were completed by stakeholders.

- **Qualitative indicators:** Collect the "issues" raised by stakeholders, in what forum, and how PIANOFORTE has addressed them; detailed analysis of all issues raised by stakeholder groups as well as by individuals; any kind of feedback given by the stakeholders.

The indicators should follow the SMART criteria, being:
> **S**pecific: target a specific objective of PIANOFORTE tasks/subtasks;
> **M**easurable: quantify or at least suggest an indicator of progress;
> **A**chievable: according to the budget and resources available;
> **R**elevant: to the success of the project, and
> **T**ime phased: associated with a phase/date of the project.

More specifically, an evaluation of each engagement activity carried out is proposed, based on the criteria established by Rowe and Frewer (2020). These authors consider two types of criteria: *acceptance criteria* which concern features of a method that make it acceptable to a

wider audience, and *process criteria*, which concern features of the process that are liable to ensure that it is carried out effectively.

All participation/engagement activities planned in PIANOFORTE will have to be evaluated by the Task/Subtask leader, in charge of organizing the activity. At the end of each activity, they would carry out an evaluation and send the result(s) to Subtask 3.3.2 leader (CIEMAT). CIEMAT will follow up the activities finalised and annually (starting end of 2023), will analyse the results of all the evaluations received in order to identify in which aspects the PIANOFORTE SEP can be improved, and give recommendations to implement such improvements.

To facilitate the reporting by organizers, the following list of indicators is provided taking into account the specific objective of the planned activity:

Objective	Outcomes
Inform	Reached audience (for instance, number of visits in the PIANOFORTE webpage) A measurement of the level of knowledge achieved in a specific educational activity
Consult	Number of participants Output of the consultation
Involve	Number of participants and attendance list Level of satisfaction of the involved stakeholders (not satisfied, somewhat satisfied, satisfied, very satisfied) Evaluation form in terms of acceptance criteria and process criteria (see below) Minutes (containing decisions and actions)
Collaborate	Number of participants and attendance list Shared knowledge: describe the mutual learning and solutions from the collaboration (as an output of the collaboration) Evaluation form in terms of acceptance criteria and process criteria (see below) Minutes (containing decisions and actions)

Below is an example of a questionnaire that could be used for the evaluation by the stakeholders participating in certain engagement activities (e.g., consultation) (Rowe and Frewer, 2020). It could be implemented face-to-face just after the event or could be sent by

email to participants after the engagement activity. Other types of evaluation can be used depending on the engagement activity performed. CIEMAT (Subtask 3.3.2 leader) will compile and analyse the results of all the evaluations carried out in the different engagement activities with stakeholders.

Engagement evaluation questionnaire, based on the criteria by Rowe and Frewer (2020)

1. [Representativeness] I think the people who participated in the workshop are an accurate representation of the people who have something to say about these issues.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

2. [Neutrality / independence] People who moderated the discussion promoted a neutral view towards the issues addressed.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

3. [Freedom to express opinions] The organization of the event allowed me to express my opinion freely

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

4. [Definition of the task] I was clear about what was expected of me throughout the event.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

5. [Enough time] The organization of the event allowed enough time to all those who wanted to contribute their opinion.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

6. [Interest] I found the discussion that took place during the event interesting.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

7. [Satisfaction] I am satisfied with my attendance at the event.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

8. [Meet expectations] The event met my expectations.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

9. [New insights] The event has offered me some new ideas on the topic covered.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

10. [Learning] The event has given me useful ideas for my daily work.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

11. What did you like most about the event?

_____

12. What did you like least about the event?

_____

13. What aspects of the event would you change? Points of improvement:

_____

Another useful tool could be the minutes of each engagement activity which should include the points of the debate or discussion, together with the description of any decisions or actions taken. In addition, any report of the communication or engagement activities done within PIANOFORTE will help to assess the progress of the SEP. For ongoing, repeated interactions, the action plan from one engagement activity should directly inform the planning and execution of the next activity.

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