



# EU-PREDIS PROJECT OVERVIEW

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EU-SHARE WP3 PROJECT WORKSHOP

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## PROJECT SHORT OVERVIEW

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- Title: “PREDIS: Pre-disposal Management of Radioactive Waste”
- Participants: Consortium of 47 partners from 17 countries
- Duration: 4 years, planned September 2020 through August 2024. Proposal was submitted 25.9.2019. Positive decision February 2020, agreements signed June.
- Budget: 23.7 M€ total, of which EC contribution of 14 M€
- Reply to: Euratom call NFRP-10, Research and Innovation Action ( RI)
- Support/endorsement from Nugenia, IGD-TP, IAEA, NEA, EURAD project – all are listed for cooperation during the project duration (establishing i.e. MoU for information sharing)
- Project web page: <https://predis-h2020.eu/>

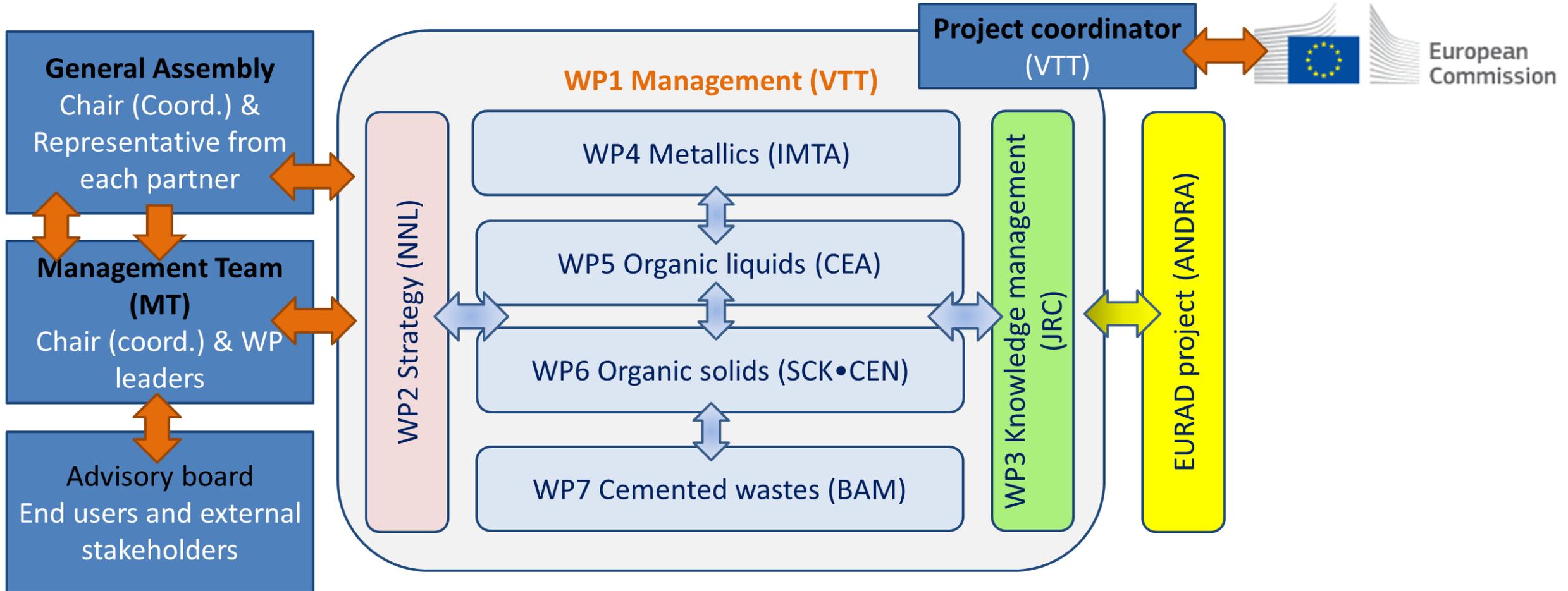
**PREDIS high-level, overall objectives are to:**

- **Develop solutions (*methods, processes, technologies and demonstrators*) for future treatment and conditioning of waste across a number of MSs for which no industrially mature or inadequate solutions are currently available, improving safety during next waste management steps;**
- **or improve existing solutions with safer, cheaper or more effective alternative processes where they bring measurable benefits to several MSs (Member States).**
- **Analyse criteria, parameters and specifications for materials and packages with associated Waste Acceptance Criteria (WAC) for pre-disposal and disposal activities, supporting homogenisation of waste management processes across Europe.**

These high-level objectives will be met by PREDIS having specific objectives:

- 1) Applying multi-disciplinary and multi-scale scientific approaches to demonstrate technical, economic and environmental feasibility of the new solutions;
- 2) Addressing project drivers from the end users' points-of-view;
- 3) Fostering deeper cooperation between experts from many EU Member-states and across generations;
- 4) Training new experts in the field of pre-disposal waste management technologies;
- 5) Updating and revising pre-disposal guiding documents (vision, SRA, roadmap, governance and deployment mechanisms), together with the EURAD EJP executive bodies.

# PROJECT STRUCTURE



## WP2 Strategic Studies - TASKS

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- Task 2.1 Establish a pre-disposal stakeholder community (SCK•CEN)
  - Mapping who has interest in this topical area, who gives feedback on project issues
- T2.2 Development of a pre-disposal strategic research agenda (NNL)
  - Priorities for future R&D, Deliverable draft due August 2021, revised 2023-24.
- Task 2.3 Waste acceptance systems (CVRez)
  - Including assessments from WP4-7 cases
  - Close interaction with EURAD (WP9 Routes)
- Task 2.4 Governance (VTT)
  - How to integrate waste producers to future joint program decision making body?
- Task 2.5 Cross work package strategic assessment (CEA)
  - Including Life Cycle Assessment (LCA) and Life Cycle Costing (LCC) from WP4-7 case studies
- **Task 2.6 Gap Analysis pre-disposal needs (VTT)**
  - Justification for how this project was chosen. Deliverable draft due May 2021.

# Linkage with other PREDIS Related Activities

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## **Gap Analysis**

- Determine the need NOW for investment (0 – 4 years, TRL jump, cost-benefit ratio)
- Industry importance and readiness to implement (co-funding)
- Justify what we have selected (transparent documentation)

\*\*\*\* AND \*\*\*\*

## **Strategic Research Agenda (SRA) / Roadmap**

- Bigger picture, world-wide, all domains/areas (classic style)
- Target is future actions of where R&D should go (10 years)
- Impact to whole society (regulatory, economic, social)

# Task 2.6 Proposal Preparation (earlier Gap Analysis)

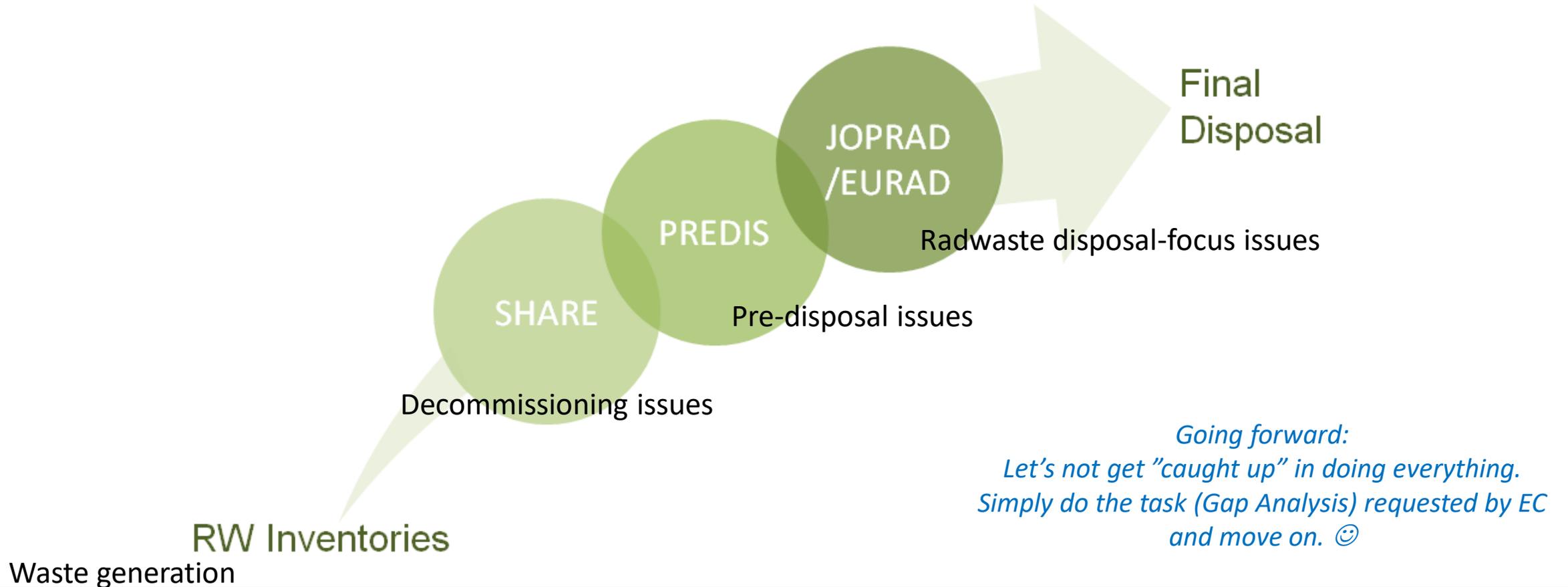
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EC required (proposal evaluation) adding this task & deliverable

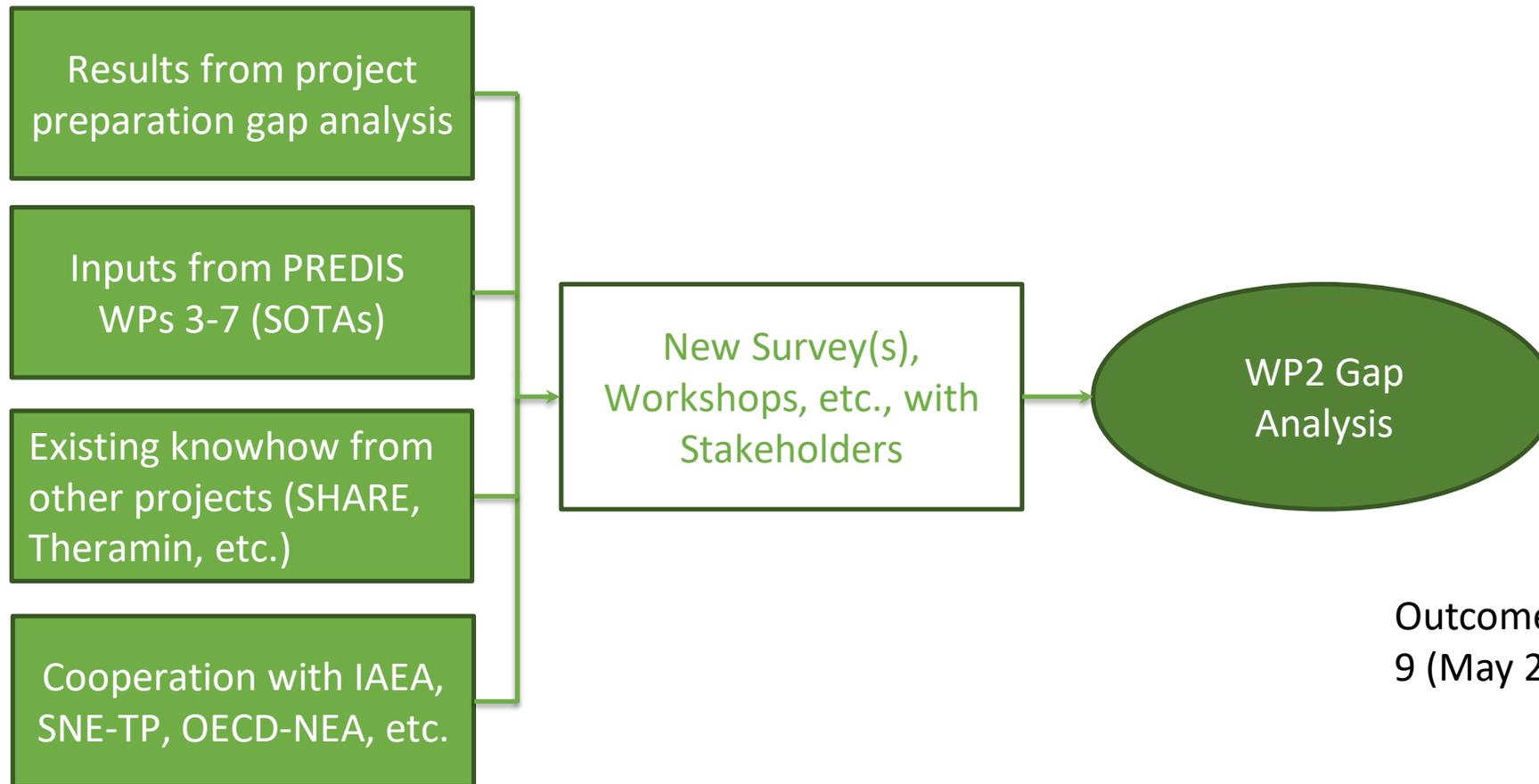
A "Gap Analysis" was actually done during proposal preparation

- Reviewed existing SRAs (Nugenia, SNE-TP, EURAD+JOPRAD, IAEA)
- Discussed with associations of end users (SNE-TP, IGD-TP)
- Nugenia TA5 Workshop (March 2019)
  - Collected abstracts of ideas + slides
  - Held (bottom-up) pitching of 20+ ideas from various parties
- Provided survey to End Users about scope/need (top-down)
  - Survey #1 April 2019, 19 company replies (including IGD-TP group) on prioritization needs
  - Survey #2 June 2019, feedback to continue, with support

# Task 2.6 Gap Analysis - How to get there?

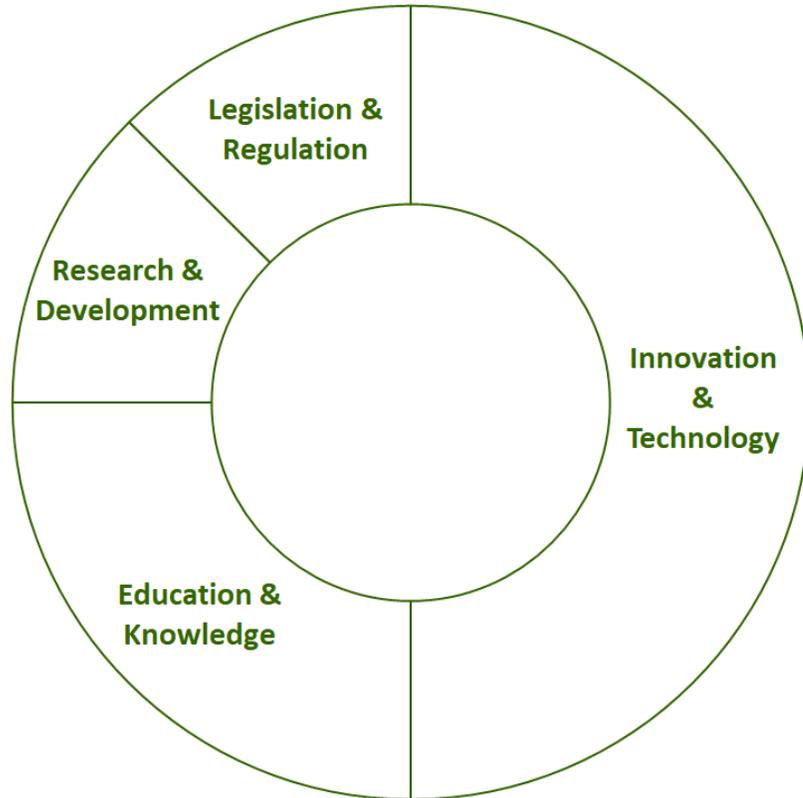


# Task 2.6 Gap Analysis - Interactions



Outcome of Deliverable in Month 9 (May 2021)

# Task 2.6 Gap Analysis - Domains



- *Innovation & Technology* and *Education & Knowledge* domains will be the primary focus of the Gap Analysis
  - Innovation - Where TRL is high ( $> 6$ )
  - Needs from WP3
- *Research & Development* and *Legislation & Regulation* domains will be covered to lesser extent
  - R&D - Where TRL is lower ( $< 6$ )
  - How items identified have potential changes legislation to allow implementation

# Task 2.6 Gap Analysis - Methods

## How to conduct Gap Analysis?

- Variety of Tools!
  - Review past surveys (so as not to repeat previous efforts)
  - Review existing SRAs, position papers, current developments (so as to include present understanding)
  - Technical SOTA reviews
  - basic quantitative survey (questionnaire, numeric, online)
  - Delphi-like open-answer survey (qualitative)
  - Workshops
  - Webinars (with integrated polls)
  - SWOT analysis
  - Roadmapping
  - ...



**SHARE**  
Support to Research and Innovation in Decommissioning

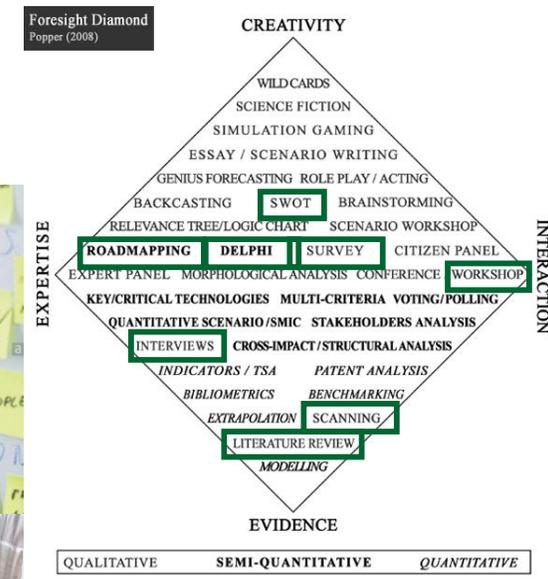
**QUESTIONNAIRE**

**General overview**

Decommissioning related fields for which innovation may be enhanced

1. Could you please weigh the need for innovation in decommissioning in the fields of:

- Safety and radiological protection  
 IMPORTANCE:  1  2  3  4  5  6  7  8  
 URGENCY:  1  2  3  4  5  6  7  8
- Technology  
 IMPORTANCE:  1  2  3  4  5  6  7  8  
 URGENCY:  1  2  3  4  5  6  7  8



- Key sources of knowledge**
- **Creativity** – Exploratory methods
  - **Interaction** – Participatory methods
  - **Evidence** – Explanatory methods
  - **Expertise** – Advisory methods

# Gap Analysis and SRA Synergy - Possible Approach

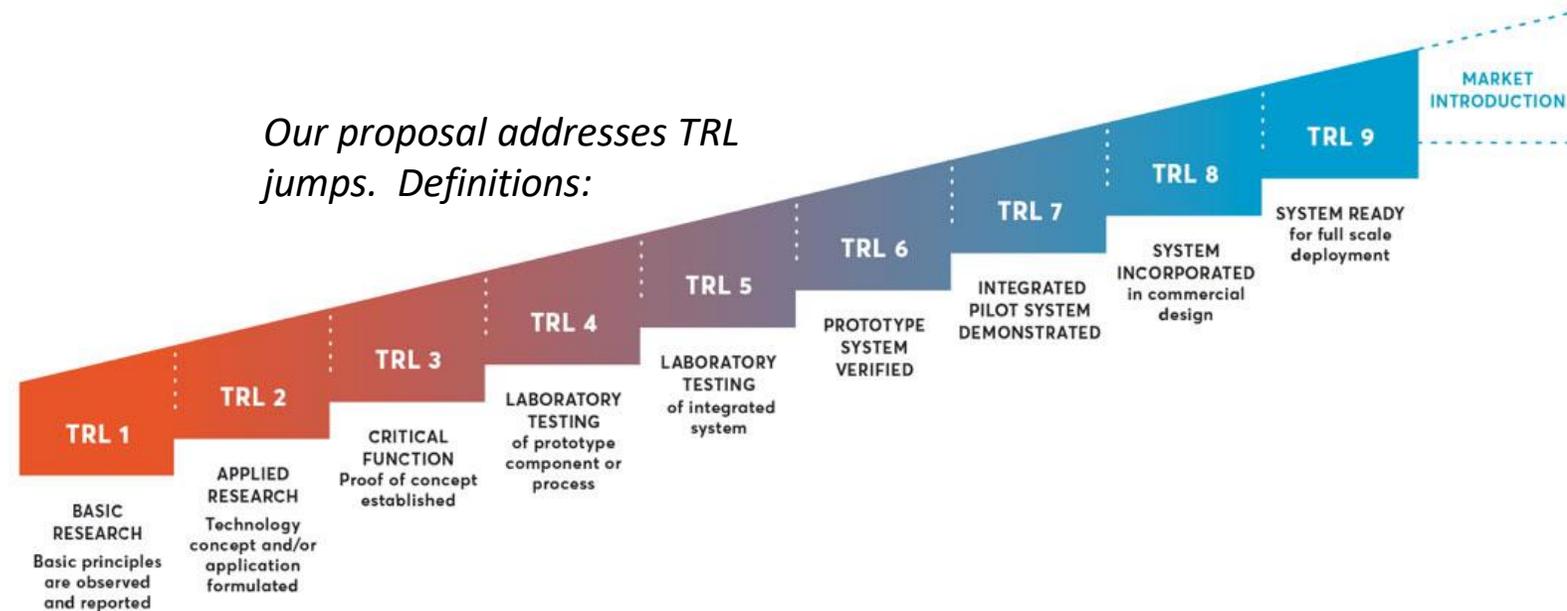
TEEPSES approach	Tec Technological	Eco Economic	Env Environmental	Pol Political	Soc Social	Eth Ethical	Spa Spatial
Drivers							
Barriers	Depending on the level of uncertainty about these shapers' importance, interpretation and impact						
Opportunities	we may need to enter into <u>wild cards</u> and <u>weak signals</u> analysis						
Threats							

Here we can divide the 7 categories into 2 or 3 groups. For example:

- Priority 1
  - Tec
  - Eco
  - Env
- Priority 2
  - Pol
  - Soc
- (Optional 3<sup>rd</sup> group but could be merged with group above) Nice to have but not necessary.
  - Eth
  - Spa

# Task 2.6 Gap Analysis - Areas of Impact

- **actor-specific impacts** (business, staff skills, companies, regulators)
  - new products, services
  - improved performance
  - improved skills/competences
- **scientific impacts**
  - quality of science & technology
  - innovation
  - organisation performance
- **financial impacts**
  - revenue/turnover
  - new solutions, offers
  - adequate funding sources available
- **societal impacts** (public/people/country)
  - protection of environment
  - protection of citizens
  - economic renewal/growth



*Tip: IMPACT areas & TRLs are issues that WP4-7 should watch for when doing SOTA reviews!*

# Task 2.6 Gap Analysis (Issues Mapping)

Issue ID	Issue name	Classification	Source	Priority/Urgency	Technology Readiness Level (TRL)				Issue Category				Added by	Notes
					Current Level	Potential level	Timeline	Investment	Inno-Tech	Edu-Kno	Res-Dev	Reg-Leg		

## Instructions

Issue Name:	e.g., bituminized/polymerized waste
Classification:	general waste stream classification - indicate as Liquid Organic Waste, Solid Organic Waste, Metallic Waste or Cemented Waste
Source:	citation with information such as author(s), date of publication, title and page numbers, and possibly other unique identifiers
Priority/Urgency:	indicate as High (H), Medium (M) and Low (L) showing priority/urgency with respect to implementation need (H = 0 to 5 y, M = 5 to 10 y, L = 10 to 20 y)
TRL:	Current and Potential TRLs - indicate with numerical designation (1-9); Timeline over which TRL jump (current to potential) can be realized - indicate as Short (S), Medium (M) and Long (L) times (S = 0 to 5 y, M = 5 to 20 y, and L = 20+ y); Investment needed to achieve TRL jump within specified timeline - indicate as Small (S), Medium (M) and Large (L) investment (S < 20 M€, M = 20 to 200 M€ and L > 200 M€)
Issue Category:	corresponding gap analysis domain of specified issue (i.e., Innovation&Technology, Education&Knowledge, Research&Development or Regulation&Legislation) - indicate with x in appropriate column
Added By:	indicate with name + adding organization or institution (i.e. Schatz/VTT)
Notes:	use to convey any additional information

# Task 2.6 Gap Analysis - Timeline

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- **September 2020:**
  - WP1 – VTT gathering EUG members, discussions with other linked groups (EURAD, IAEA, NEA)
- **October:**
  - WP2 Task 2.1 (Stakeholder mapping), Task 2.2 (SRA reviews) started, Task 2.6 methods documentation
  - Guidance at Workshop and to Leaders of WP3-WP7 about gap analysis methods, tools, plans, next steps, etc.
- **November-December:**
  - Internal Template to WP3-7 for adding questions for survey & workshop needs
- **January-February 2021:**
  - Distribute survey to Stakeholders & End Users (Deliverable D2.1)
  - Webinar of stakeholders, to include in-meeting quickly poll, key questions
  - SNE-TP Forum (Italy, February), consider engagement with Stakeholders
- **March-April**
  - EURAD annual forum - consider engagement with Stakeholders
  - Analyse survey, write draft report (review with EURAD/JOPRAD gap analysis expert, + SNE-TP leadership)
- **April-May**
  - Draft GA report ready (due Month 9 – May, Deliverable D2.2)
  - Presentation at 2<sup>nd</sup> workshop of our outcomes
- **June-August**
  - Year 1 project review, Gap analysis outcome Review with EC officer (summer, Month 12)
  - Baseline initial SRA (links to Task 2.2)

# Task 2.6 Gap Analysis - next steps, requests, actions

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- On-going and through 2020:
  - Mapping Stakeholders (Task 2.1)
  - Mapping existing SRAs, guideline documents, surveys (Task 2.2)
  - Interacting with other projects, finding existing information (WP1-WP2) + SHARE!
  - Reviewing technical information, drafting SOTA reports (WP4-7)
- Early 2021:
  - Survey to stakeholders (questionnaire, online)
  - On-line webinars on technical topics, including discussion groups
  - Workshop discussions with End User Group members (focused needs/priorities mapping)
- Spring 2021:
  - Draft report for reviews
  - Next Workshop (May 2021) to present findings. Cooperation with SHARE here also?



# Thanks! Questions?

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WE ARE LOOKING FORWARD TO  
COOPERATION WITH SHARE PROJECT!



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