

Supplement of Saf. Nucl. Waste Disposal, 1, 243–244, 2021
<https://doi.org/10.5194/sand-1-243-2021-supplement>
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Supplement of

Knowledge Management in EURAD: the Roadmap

Tara Beattie et al.

Correspondence to: Piet Zuidema (piet.zuidema@zuidema-consult.ch)

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BASE Interdisciplinary Research Symposium, Session 4B, 10th November 2021

Knowledge Management in EURAD: Introduction and information on Roadmap

Piet Zuidema, Chief Scientific Officer



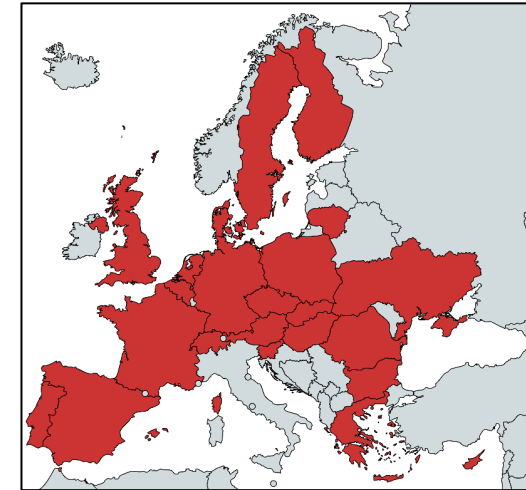
This project has received funding from the European Union's Horizon 2020 research and innovation programme 2014-2018 under grant agreement N°847593

EURAD – European Joint Programme on Radioactive Waste Management

Ministries from **23 European countries** (20 Member-States, 3 Associated Countries), recognising their role of directing RD&D at the national level, provided mandates to **51 organisations** acting as **Beneficiary** within EURAD:

- Waste Management Organisations (**WMO**)
- Technical Support Organisations (**TSO**)
- Research Entities (**RE**)

... with **61 linked third parties** & **3 international partners** also participating



19 Waste Management Organisations *Whose mission covers the management and disposal of radioactive waste*



13 regulatory Technical Support Organisations *Providing S/T basis for supporting regulators' decisions*



19 nationally funded Research Entities *Working on the RWM challenges under the responsibility of MS*

The EURAD Vision – addressed in all EURAD activities

Provide added value to member states in their timely implementation of radioactive waste management activities

*A **step change** in **European collaboration** towards **safe radioactive waste management**, including disposal, through the **development** of a **robust and sustained science, technology and knowledge management programme** that supports **timely implementation of RWM activities** and serves to **foster mutual understanding and trust** between Joint Programme participants.*

The EURAD Vision – addressed in all EURAD activities

Provide added value to member states in their timely

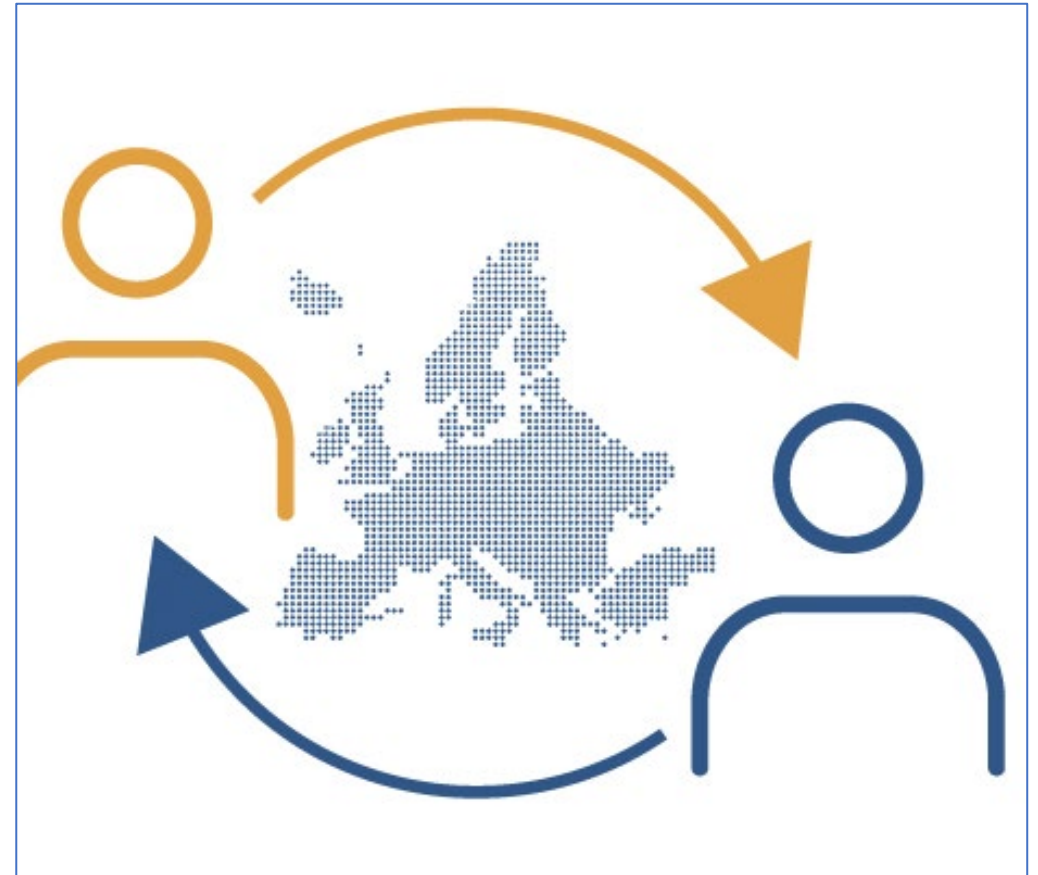
- **EURAD** contributes to the **member states programme** to **timely implement disposal solutions** that are ...
 - safe
 - based on sound science
 - societally acceptable
- .. **with the EURAD-platform** that ...
 - deepens **research cooperation** to deliver **cutting-edge science**
 - increases **mutual understanding and trust** between the participants
 - provides a knowledge management programme that **makes existing knowledge easily available, gives guidance and provides training ...**
 - to allow early stage programmes to take full advantage of existing knowledge
 - to help advanced programmes to maintain the knowledge needed

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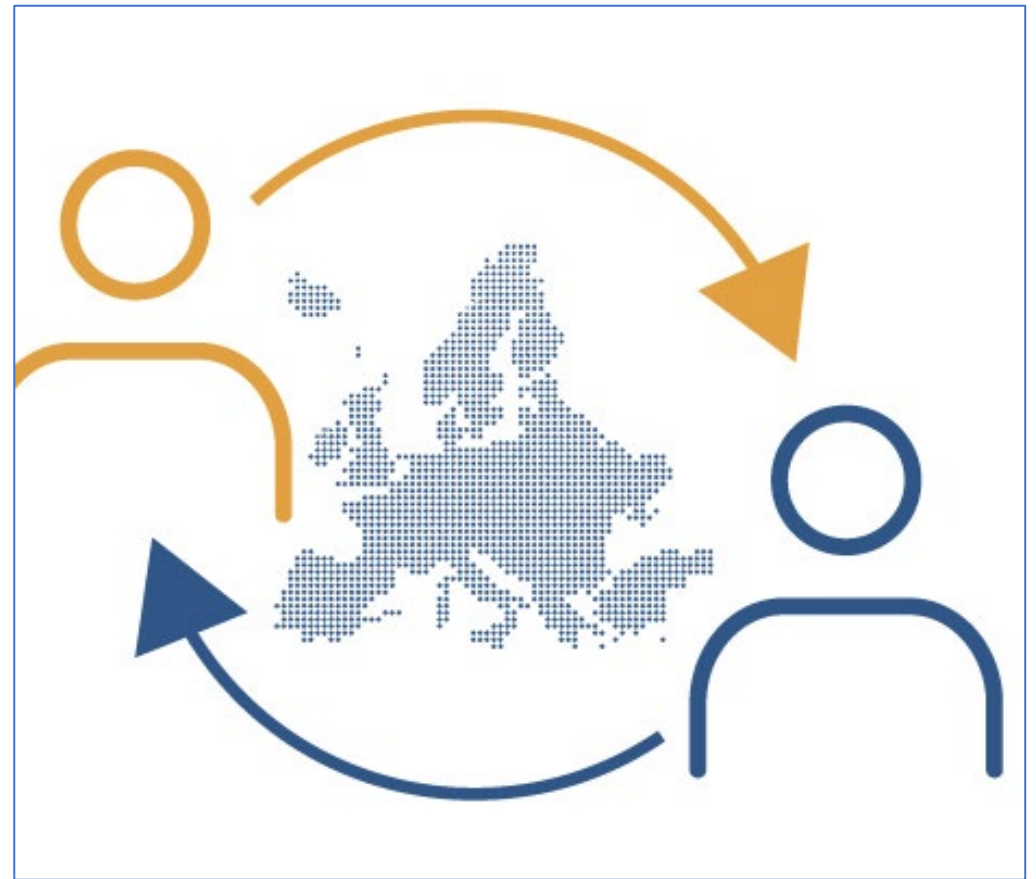
EURAD Objectives

- Implement a robust and sustained state-of-the-art **Science and Technology Programme**
- Identify and elaborate upon complex issues by bringing together interested actors to jointly conduct **Strategic Studies**
- Consolidate efforts across Member-States, organisations and generations on **Knowledge Management**
- Foster **Mutual Understanding** and **Trust** between participants (incl. from Civil Society) and other stakeholders



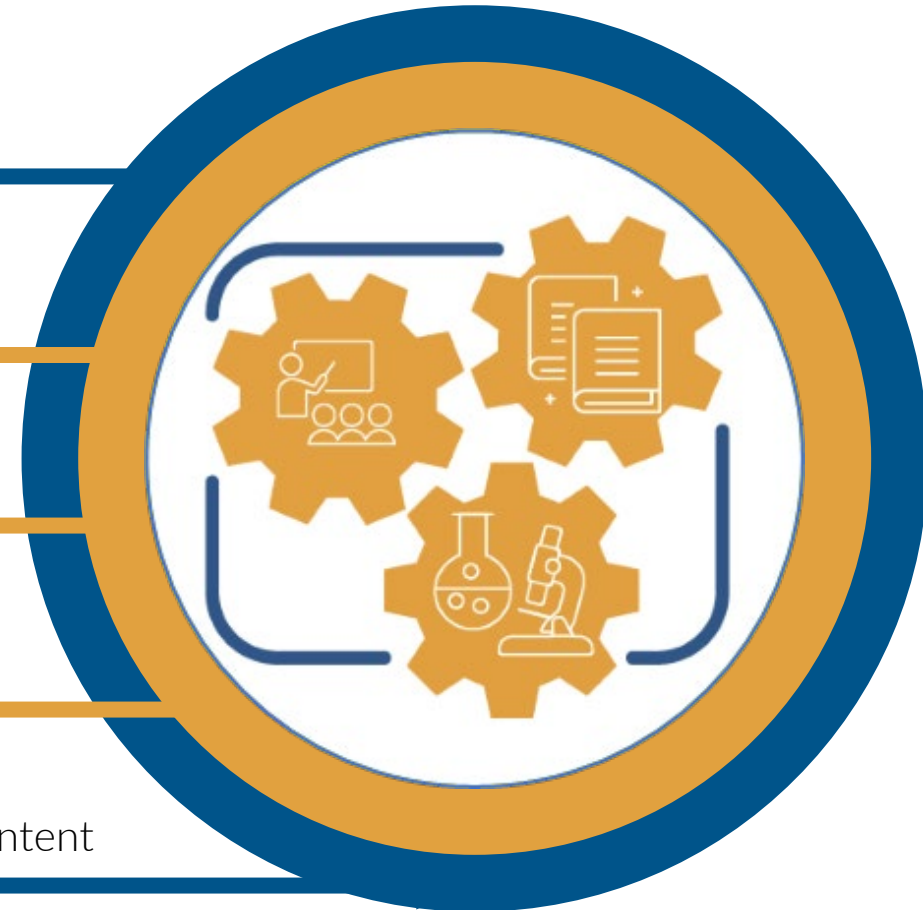
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EURAD Knowledge Management & Networking Programme

- 1 Roadmap**
A common framework to structure knowledge
- 2 State of Knowledge**
What we know and why it is important
- 3 Guidance**
Best practice and lessons learned
- 4 Mobility & Training**
Transfer of experience and know-how
- 5 Networking & Tools**
Connecting people to people, and people to content



EURAD Knowledge Management & Networking Programme

1 ... with presentations on these activities in this session by

- 2 • Piet Zuidema (me) on the **Roadmap providing 'Structure & Context' for Knowledge Management** (... and other activities, e.g. planning)
- 3 • Astrid Göbel on developing the **State-of-Knowledge** and **Guidance** as essential parts of the Knowledge Management Programme
- 4 • Niels Belmans on the **EURAD School of Radioactive Waste Management** to support the community in knowledge transfer and networking
- 5 • Julien Dewoghelaere on the **Interactions of RD+D / Strategic Study Projects with Civil Society** to learn about fruitful interactions

connecting people to people, and people to content

EURAD Roadmap – geological disposal as example

A generic representation of goals, activities, and knowledge needed, from waste generation to disposal



Diagram: Based on RWM Programme Phases (IAEA DGR Roadmap, 2020)

Scope of EURAD Roadmap (for geological disposal)

Thematic goals breakdown structure (GBS) covering all RWM activities needed for implementation

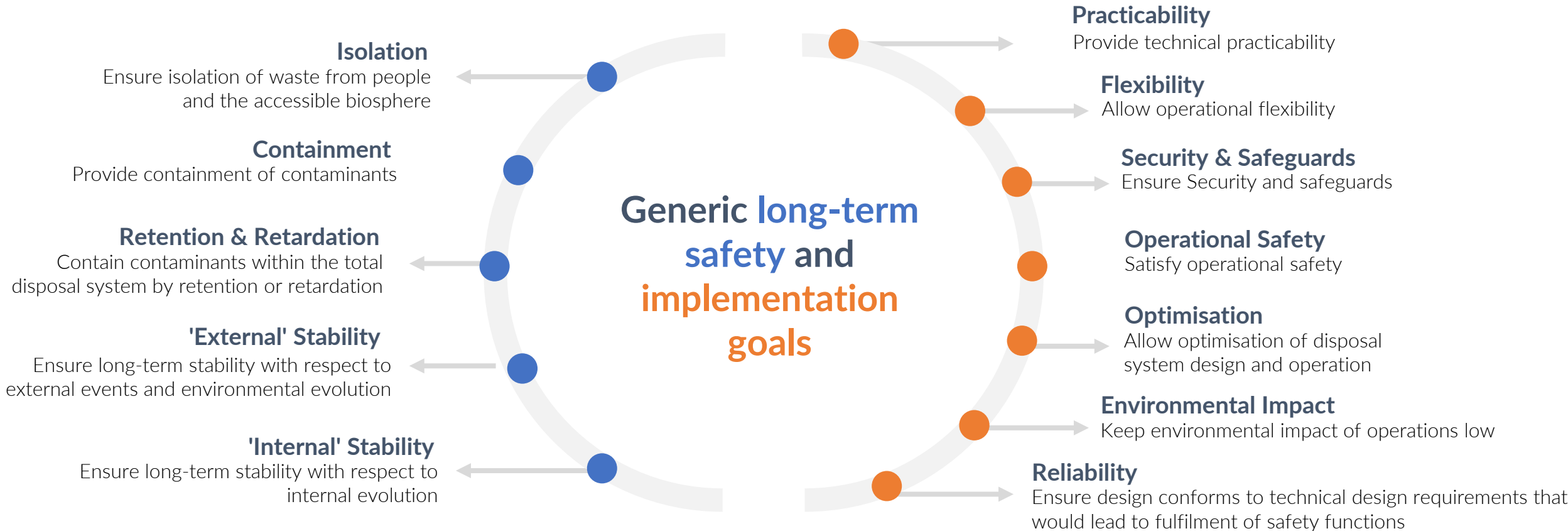
1. Programme Management
2. Pre-Disposal
3. Engineered Barrier Systems
4. Geoscience
5. Design & Optimisation
6. Siting & Licensing
7. Safety Case

Hierarchical breakdown: 7 Themes > 20 Sub-themes > ~ 70 Domains

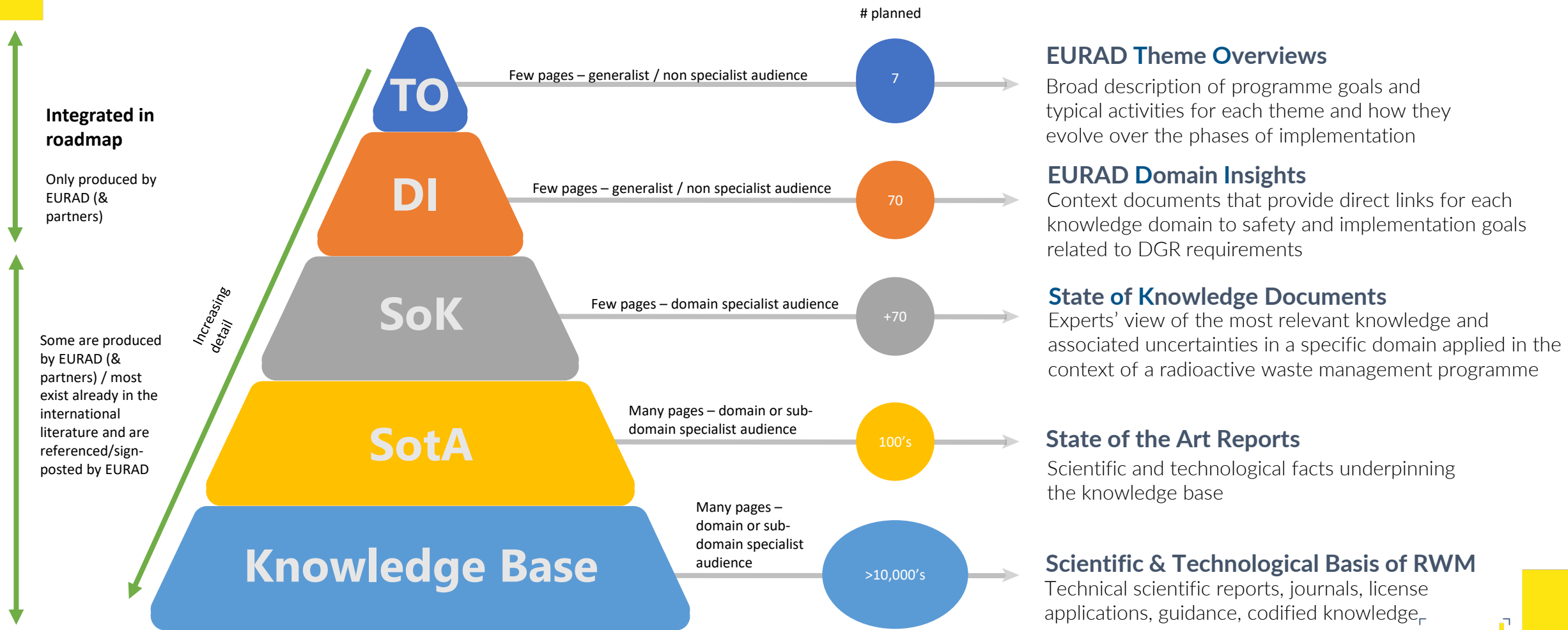
A framework based on **goal-oriented breakdown** ...

- to **transfer** existing information & knowledge
- to **assess** existing information & knowledge
- to **identify** needs for **additional RD&D** (→ SRA)
- to **identify** issues to be **collectively explored**
- to **help** achieving clarity on **scope definition**

EURAD Knowledge Management: Example for structures used



Knowledge Management: Document hierarchy



Example: At the highest level – Theme overviews



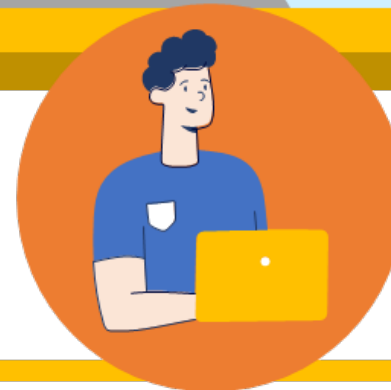
Typical Activities

Describes generically how activities evolve in each Theme.



Capability Needs

Knowledge, skills, laboratories, equipment, tools, technology, industrial manufacturing + more.



Roadmap End Users

Supporting knowledge capture and transfer between generations and programmes

Next Generations

- **New entrants** to the field / entering a specific RWM domain

Advanced Programmes

- Advanced programmes where **generation changes** might imply that tacit knowledge may be lost

EURAD & International Scientific Community

- **EURAD** to **prioritise its work**
- **Scientific community**, wanting to identify **future research needs**
- **Anyone** working in RWM to provide a window into the **state of progress of implementing RWM**

Users

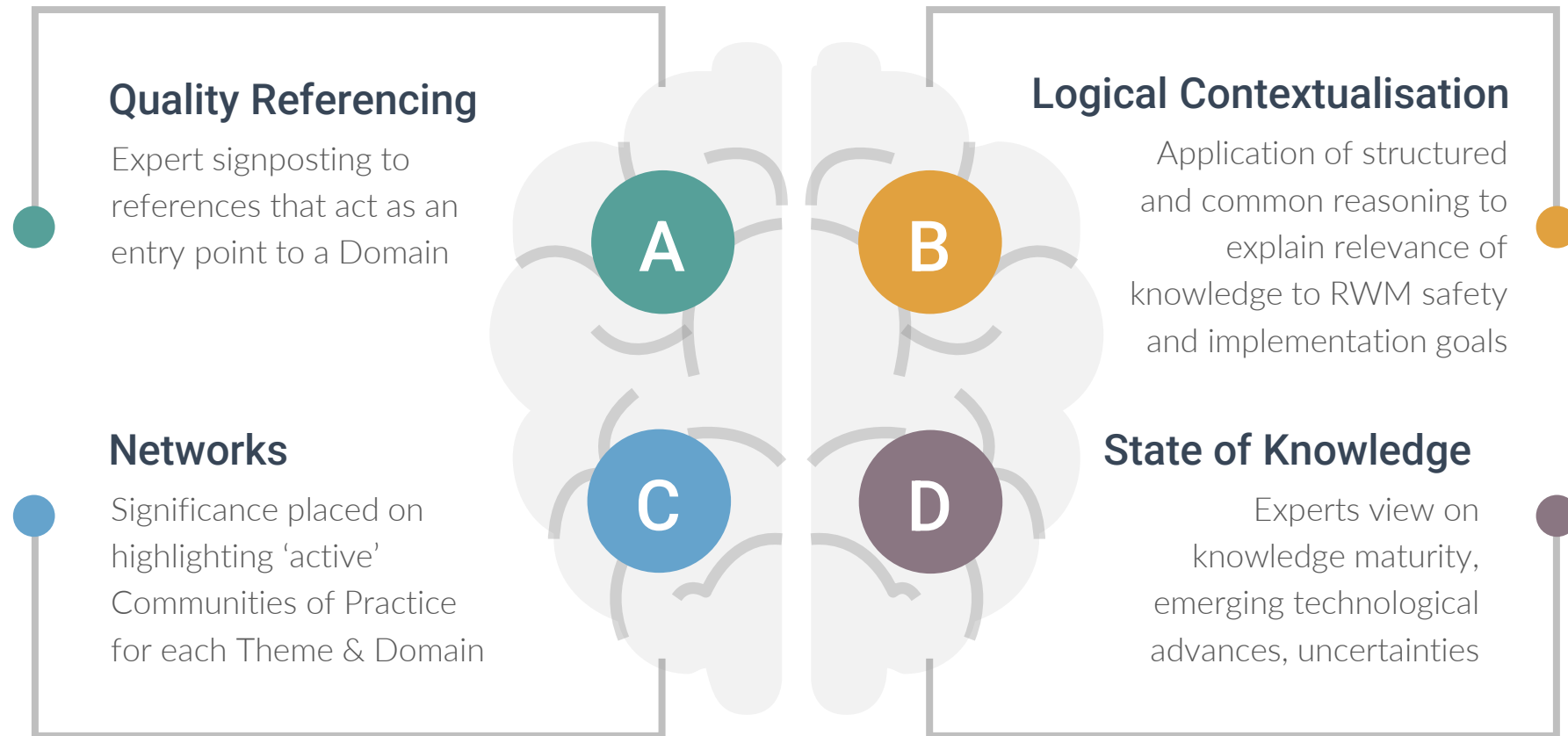


Early-Stage Programmes

- Early-stage programmes wishing to **roadmap their own programme** using insight from advanced programmes

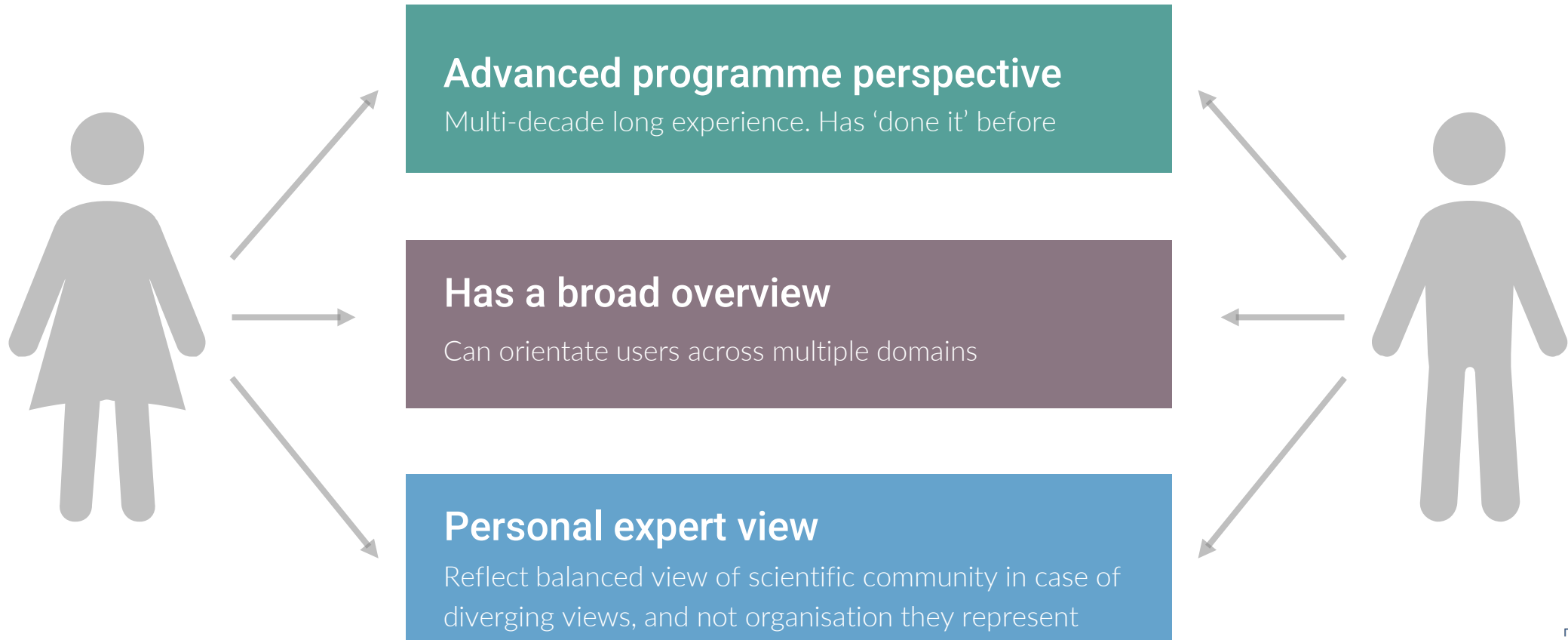
Signposting of expert knowledge

Roadmap content will be dated, with an expert perspective at a point in time



Role of experts – structuring & codifying the EURAD 'hive mind'

Roadmap content will be authored & reviewed by recognised Domain Experts



Concluding remarks

- EURAD provides a **novel framework** in Europe to **cooperate and interaction on science & technology** for radioactive waste management
- Besides RD+D work packages and strategic studies, **knowledge management (including networking) is a key activity** of EURAD
- We strongly encourage you to **look at the EURAD homepage** (<https://www.ejp-eurad.eu>) to **get informed** in detail **about EURAD**
- For **Knowledge Management**, we look forward to **interact with you** as ...
 - **End-user**: have a look and provide feed-back!
 - **Knowledge owner & provider**: support the population of the roadmap with additional information (contact EURAD) and participate in networking
 - **Reviewer**: review some of the knowledge management documents

Thank you for your attention !

<https://www.ejp-eurad.eu>



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Questions? Comments?