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Supplement of

State-of-Knowledge and Guidance in EURAD Knowledge Management (Work Packages 11 State-of-Knowledge & 12 Guidance)

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STATE-OF-KNOWLEDGE & GUIDANCE IN EURAD KNOWLEDGE MANAGEMENT

(Work Packages 11 State-of-Knowledge & 12 Guidance)

10/11/2021• **Astrid Göbel**, Tobias Knuuti, Jiří Faltejsek, WP11 & 12 Team

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EURAD KNOWLEDGE MANAGEMENT & NETWORKING PROGRAMME

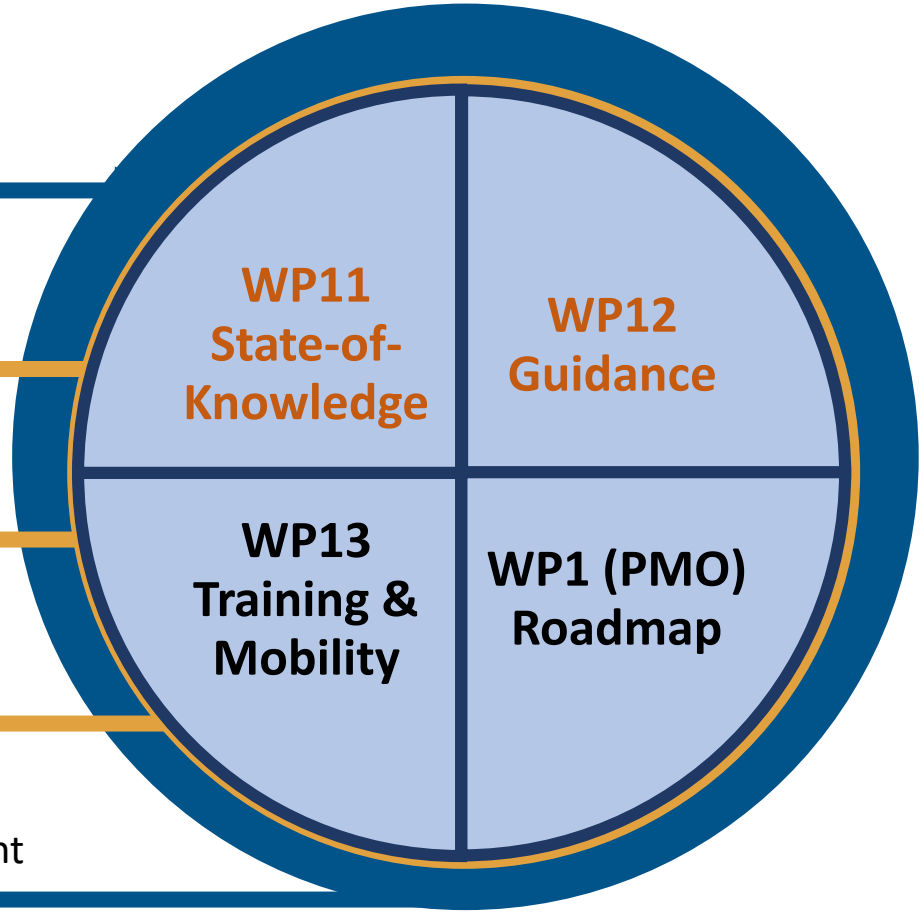
1 **Roadmap**
A common framework to structure knowledge

2 **State of Knowledge**
What we know and why it is important

3 **Guidance**
Best practice and lessons learned

4 **Mobility & Training**
Nuclear experience and know-how

5 **Networking & Tools**
Connecting people to people, and people to content



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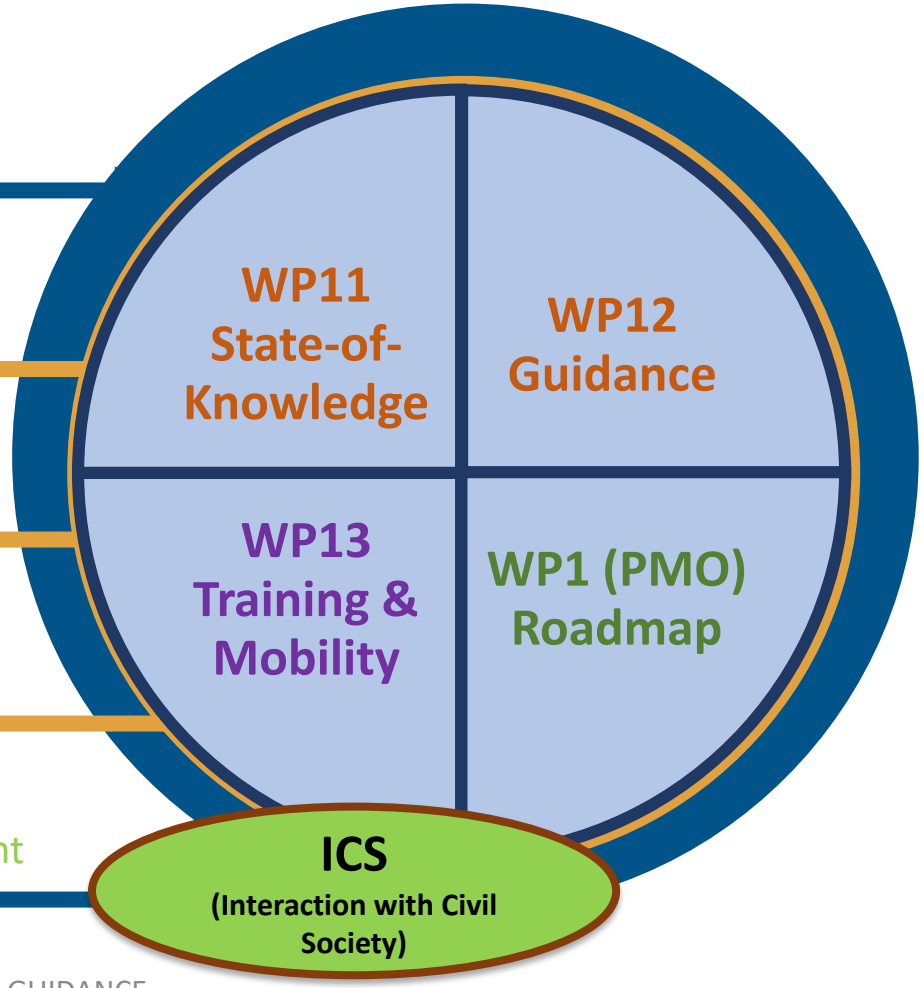
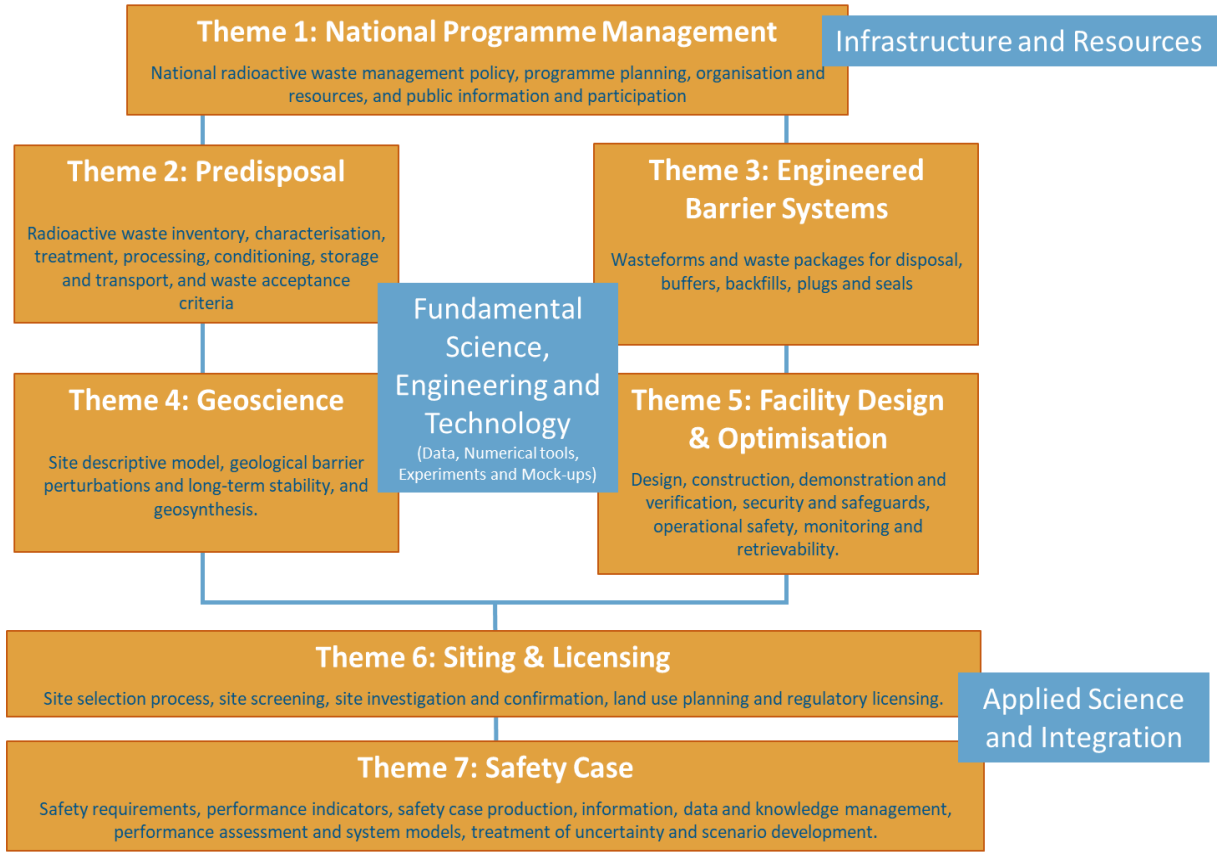


WP11 STATE-OF-KNOWLEDGE + WP12 GUIDANCE - GOALS

- **Capture relevant Knowledge and Expertise to <u>support implementation of RWM</u>**
  - Generation of documents (KM Documents)
    - Well structured and thoroughly managed, but agile and needs oriented
    - Concise documents to give an overview / entry point to the topics
    - Documents authored by experts
  - Systematic approach to Dissemination
    - Procedures, clearly defined quality plans
    - IT-Tools
    - Learning from experienced KM actors (for instance: study in WP11)
    - Remaining flexible to adapt to needs and improvements
  - User friendly, adequate to fulfil long-term vision
  - No redundancies (e.g. IAEA, OECD/NEA)

SCOPE OF DOCUMENTS BASED ON EURAD ROADMAP



7 Themes

Level 1

27 Sub-themes

Level 2

79 Domains

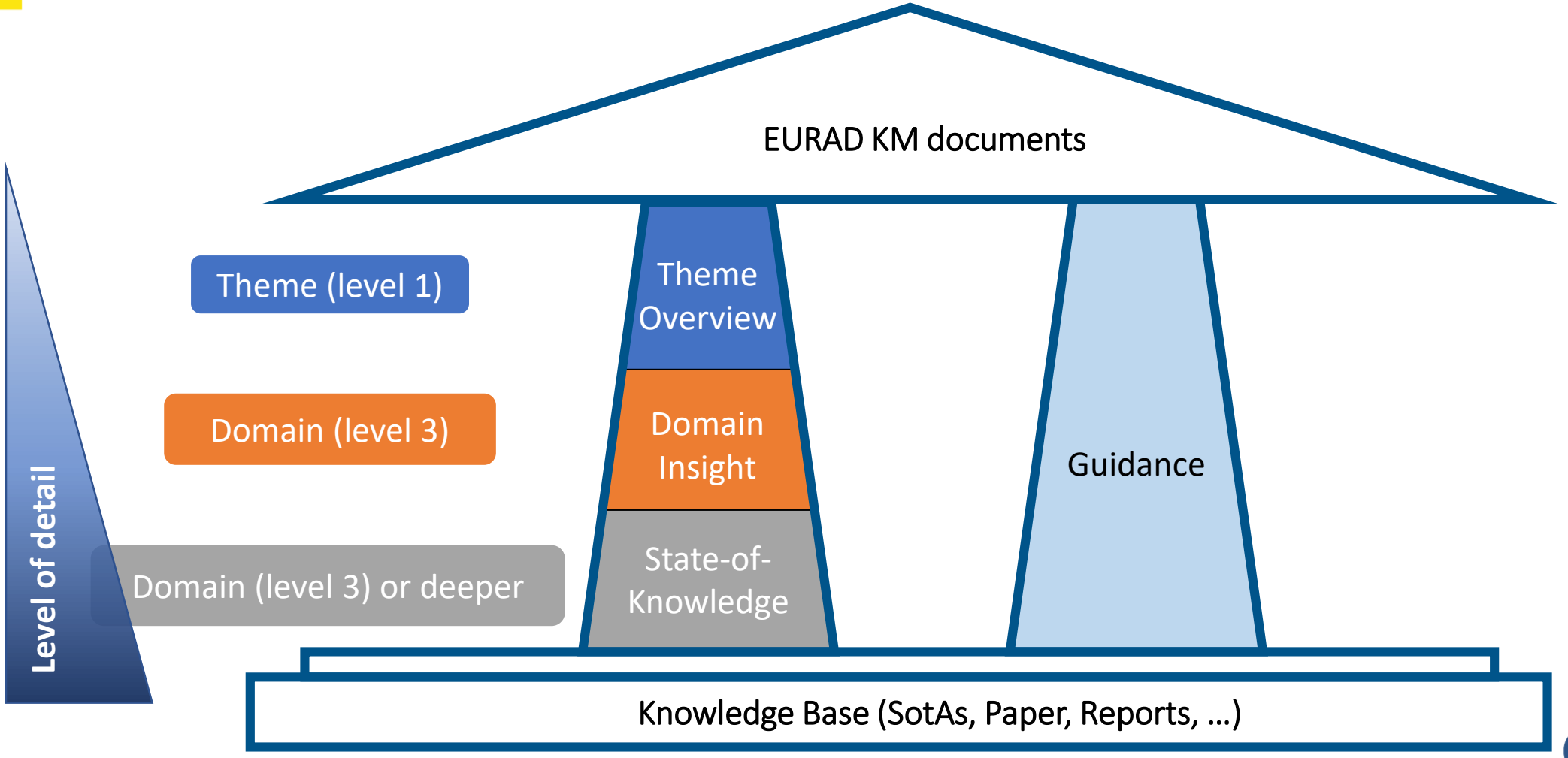
Level 3

This provides a framework within which to look inside and see whether sufficient information and knowledge exists (knowledge management), or whether additional RD&D is needed

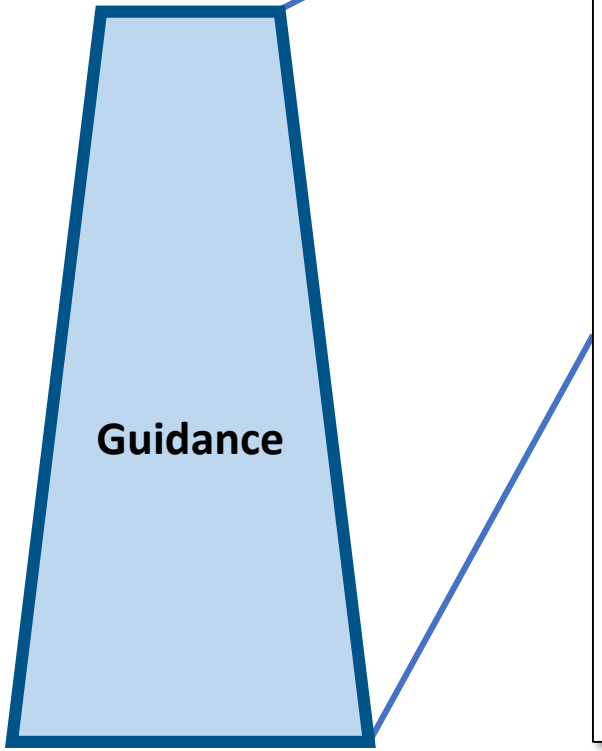
EXAMPLE OF ROADMAP STRUCTURE

Theme 3 Goals Breakdown Structure: Engineered Barrier Systems (Level 1)	
3. Develop an engineered barrier system, tailored to the characteristics of the waste and compatible with the natural (geological) barrier, that performs its desired functions for the long-term disposal of radioactive waste (EBS)	
Sub-themes (Level 2)	**Domains (Level 3)**
3.1 Confirm wasteform compositions, properties and behaviour under storage and disposal conditions, including radionuclide immobilisation and impact on the disposal environment (Wasteforms)	3.1.1 Spent nuclear fuel (SNF)
	3.1.2 Vitrified HLW (HLW)
	3.1.3 Cemented LL-ILW (Cemented LL-ILW)
	3.1.4 Bituminized waste, ceramics, polymers (Other wasteforms)
3.2 Identify container materials and designs for each wasteform under storage and disposal conditions and confirm properties, behaviour and evolution under storage and disposal conditions (Waste packages, for disposal)	3.2.1 HLW and SF containers (HLW and SF Containers)
	3.2.2 LL-ILW containers (LL-ILW Containers)
	3.2.3 Containers using advanced materials (Novel Containers)
3.3 Identify appropriate buffer, backfill and seal/plug materials and designs, and confirm their properties, behaviour and evolution for the selected repository concept (Buffers, backfills, plugs and seals)	3.3.1 Buffer components under storage and disposal conditions (Buffers)
	3.3.2 Backfill components under storage and disposal conditions (Backfills)
	3.3.3 Plug and sealing components under storage and disposal conditions (Plugs and seals)
3.4 Confirm integrated EBS system understanding and identify compatible EBS designs and materials for facilities containing multiple wasteforms (EBS system integration)	3.4.1 Confirm complete and integrated EBS system understanding, including the design of an optimized interface EBS/repository and the understanding of the interaction with the repository nearfield environment (EBS system)
	3.4.2 Confirm that interactions between different EBS materials in disposal areas for different waste types do not compromise the performance of the disposal system (Co-disposal)

KM DOCUMENT STRUCTURE



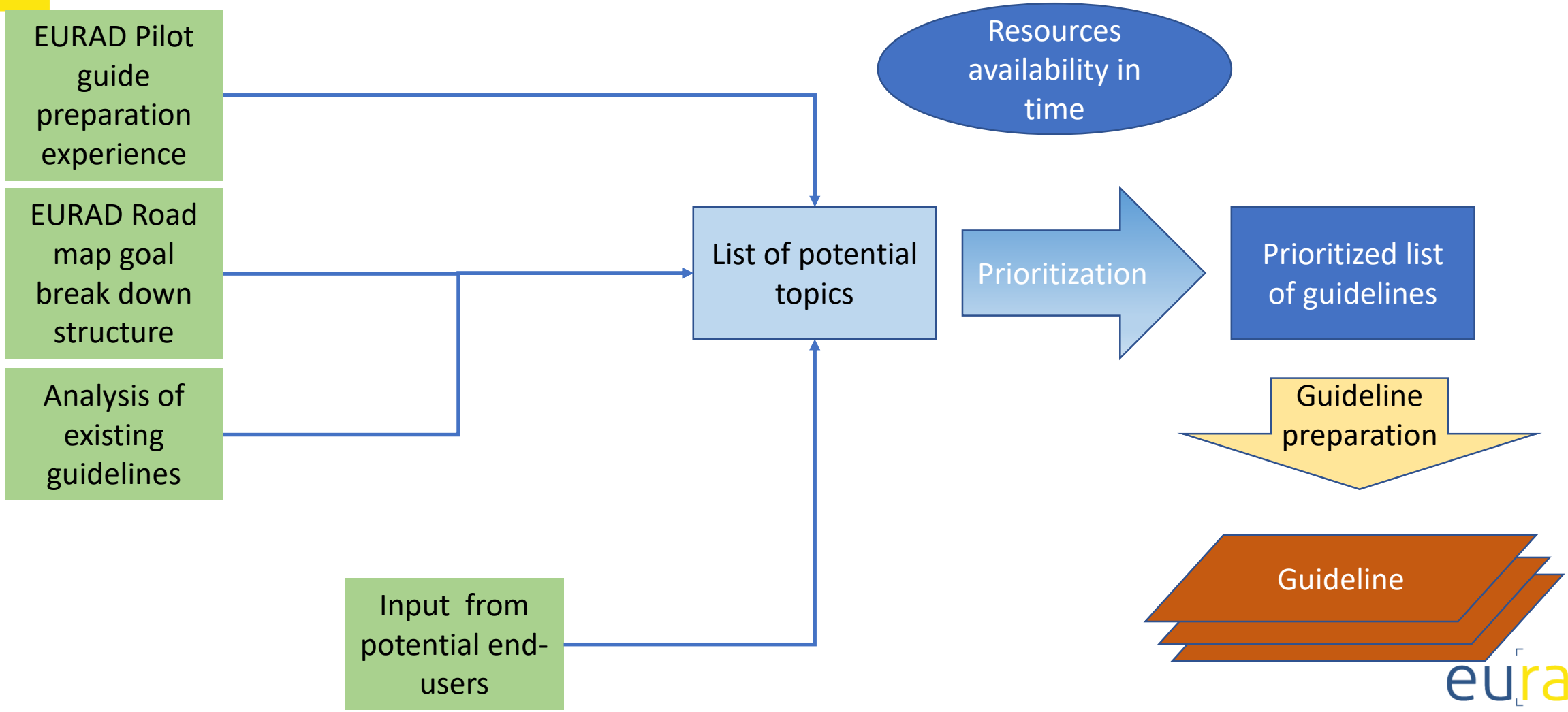
GUIDANCE DOCUMENTS



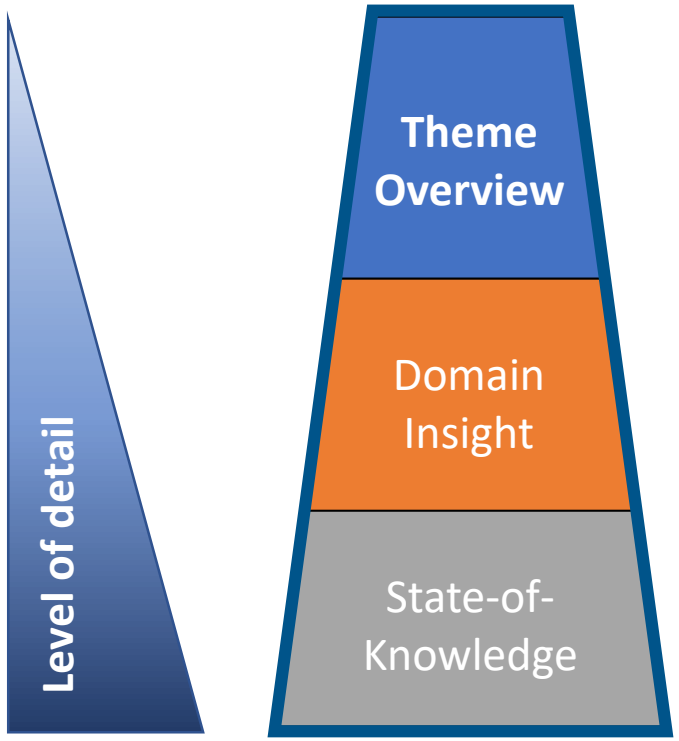
Guidance documents

- To share existing experience and lessons learned
- To facilitate orientation in
  - the field itself;
  - existing knowledge resources;
  - existing international cooperation and networking
  - mainly for
  - expert in early-stage programs,
  - Young experts and beginners in all programs,
  - key decision makers and stakeholders
- To facilitate international cooperation in the field of radioactive waste management.
- To facilitate understanding different solutions in different cases and countries

GUIDELINE SELECTION PROCESS IN EURAD



THE DOCUMENTS – WHAT'S IN?



Theme Overview
Broad description of programme goals and typical activities for each theme and how they evolve over the phases of implementation

Domain Insight
Context documents that provide direct links for each knowledge domain to safety and implementation goals related to DGR requirements

State-of-Knowledge
Experts' view of the most relevant knowledge and associated uncertainties in a specific domain applied in the context of a radioactive waste management programme

THE DOCUMENTS – EXEMPLARY INSIGHT

eurad
European Joint Programme
on Radioactive Waste Management

4. GEOSCIENCE; THEME OVERVIEW
Host rock and geological environment for a DGR

Geoscience is of key importance for geological disposal of long-lived, higher activity radioactive waste. It is linked with all (EURAD) safety functions, i.e., isolation of waste from people and accessible biosphere, containment, retention and retardation of contaminants, minimized water flow and long-term geological stability. A broad stakeholder community ranging from interested laymen to highly specialized geoscientists will follow the role of, and the work done in geoscience, with great interest through all the phases of a deep geological disposal project described in the EURAD Road Map. Permanent, clear and transparent communication is therefore a prerequisite for gaining broad acceptance of a deep geological disposal project.

KEYWORDS: Geological environment, Geological setting, Groundwater.

KEY ACRONYMS: Host Rock (HR), Site Descriptive Model (SDM).

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Version: 1.0 ; 04 May 2021

MAKING KNOWLEDGE AVAILABLE

1. **EURAD homepage**
   - Final and approved PDF documents are available here: https://www.ejp-eurad.eu/roadmap
2. **EURAD-Wiki**
   - EURAD internal
   - More functionalities than the homepage:
     - Commenting and Discussion functions
3. **Development of EURAD KM-portal / IT-tool**
   1. Basis laid with study “Screening and review of existing/available knowledge management approaches and/or tools” (in review) – learning from well experienced experts, considering lessons learnt
   2. Exploration of needs and available options

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Main Page

Welcome to the EURAD Roadmap Wiki!

This Wiki is still under Construction! All Feedback and comments highly appreciated!

To get an idea of the overall concept, check out the best developed hierarchy line Theme 3: Engineered Barrier System - Sub-Theme 3.1 Wasteform - ear Fuel. It includes the Theme Overiew, Domains Insight, and State-of-Knowledge document.

For a external visitor of this wiki
Hello, we are still working on this Main Page, so this wiki remains private until it is ready. So please check this page again later!

Thematic Goals Breakdown Structure (GBS) [edit]

A generic roadmap for implementing radioactive waste management, leading to geological disposal

The roadmap describes typical programme goals, activities and capabilities needed against 7 themes, which are each further broken down into sub-themes and domains in what we call the "Goals Breakdown Structure (GBS)". This matrix of phases vs. thematic goals provides a tiered and common framework allowing users to 'click in' and access existing knowledge. It is goals oriented to knowledge and competencies most critical for implementation, aligned to the EURAD Vision.

- Theme 1: National Programme Management
- Theme 2: Pre-disposal
- Theme 3: Engineered Barrier System (Draft version)
- Theme 4: Geoscience
- Theme 5: Design and Optimisation
- Theme 6: Siting and Licensing (Draft version)
- Theme 7: Safety Case

Show a list of all Domains (Quick access)

What is new?

If you want to learn more about the EURAD Roadmap: The **Roadmap User Guide (Issue 2)** can be found on the **EURAD homepage Roadmap section**. All finalised and published EURAD KM documents will also be available to all (also external viewers) on the **EURAD homepage Roadmap section**.(These links will by default open in this tab. Open in new tab or window to keep the Wiki open)

If you want to dicuss and comment in documents or the Roadmap, we invite you to use the discussion function in this Wiki (see button at the top) or got to the external EURADSCHOOL discussion board for the Roadmap and EURAD activities (this link brings you to the EURAD Forum and will by default open in this tab. Open in new tab or window to keep the Wiki open). You will need to register an account in the EURADSCHOOL discussion board to enjoy full functionality.

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sharing and discussing themes and documents before publication

REFLECTING OUR WORK AND APPROACH

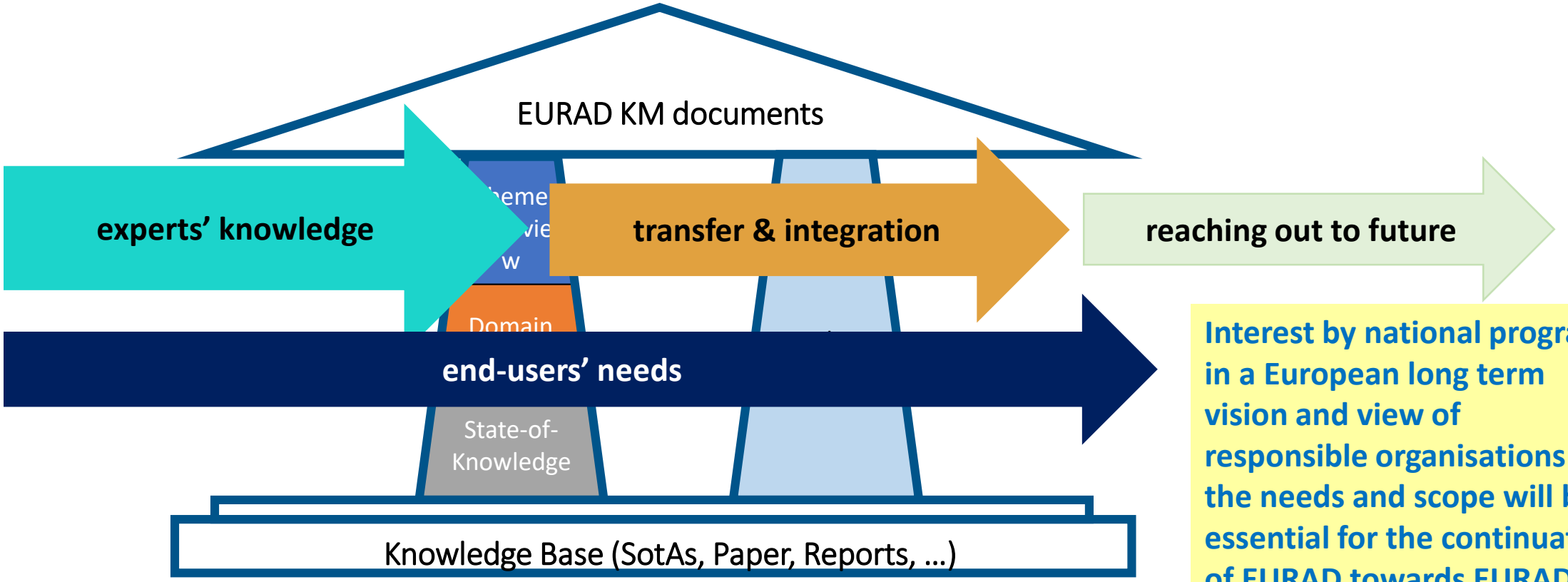
One key objective is to provide real content (asap), not (only) procedures but

- **a systematic and structured manner is important to ensure effectiveness and quality**
  - Parallelisation of WP activities, keeping it agile
  - Starting with pilots and demonstration cases, learning procedure
- **Resources are not infinitely available**
  - Facilitate involvement of experts
  - Make more use of existing KM documents
  - Stepwise supplementation of KM SoK documents with additional knowledge (e.g. on safety function or natural analogues)
- **An adequate review process might take its time**
  - Share final drafts on an EURAD Wiki for information and discussion

We have to consider the long term vision

- Implement update processes and a sustainable system

WP11 STATE-OF-KNOWLEDGE + WP12 GUIDANCE – LONG TERM VISION



Interest by national programs in a European long term vision and view of responsible organisations on the needs and scope will be essential for the continuation of EURAD towards EURAD2

KNOWLEDGE IS MORE THAN DOCUMENTS

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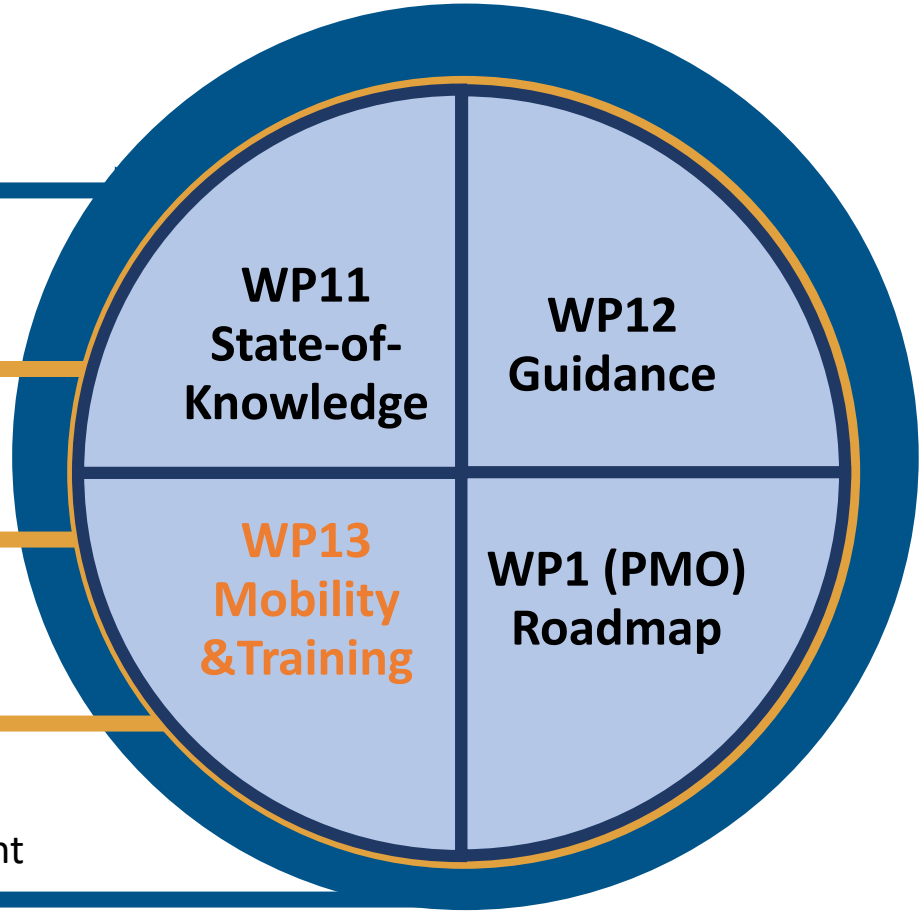

THANK YOU FOR YOUR ATTENTION!
QUESTIONS?

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