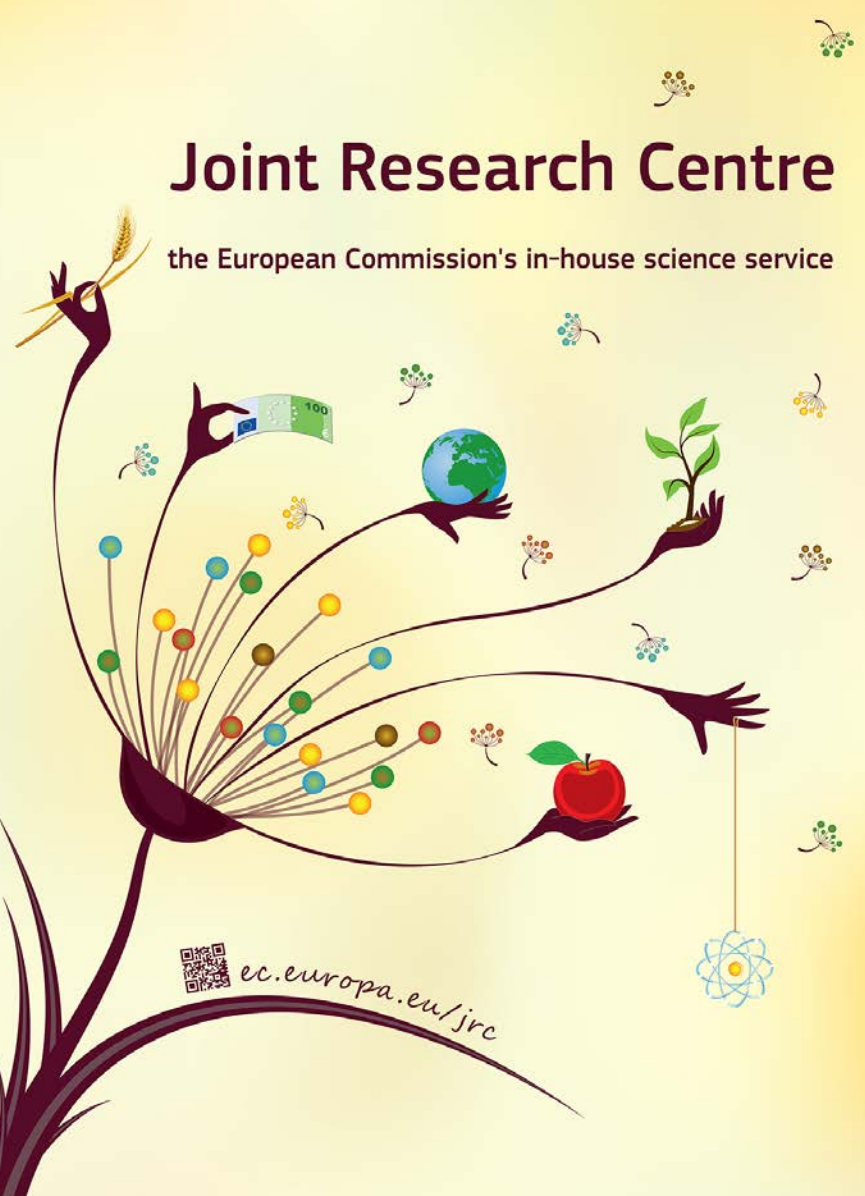




Joint Research Centre

the European Commission's in-house science service



 ec.europa.eu/jrc

Integrated Knowledge Management in Radioactive Waste Management Joint Programming

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Prague 7-8 September 2016



Knowledge

Competence

The capability to use data, information and knowledge in order to get something done.

Knowledge

Understanding information, allowing for judgement on conclusions, past and present flaws, ..

Information

Data put in context allowing for drawing conclusions

Data

Objective descriptors of a process or system



Contents

- **Context**
- **IKMS Structure**
- **Workprogramme and Costs**
- **Governance and Timeline**



There are **long lead-times** until Radioactive Waste Management with its disposal End-Points is implemented across the EU

Knowledge has been **generated** over **several decades**

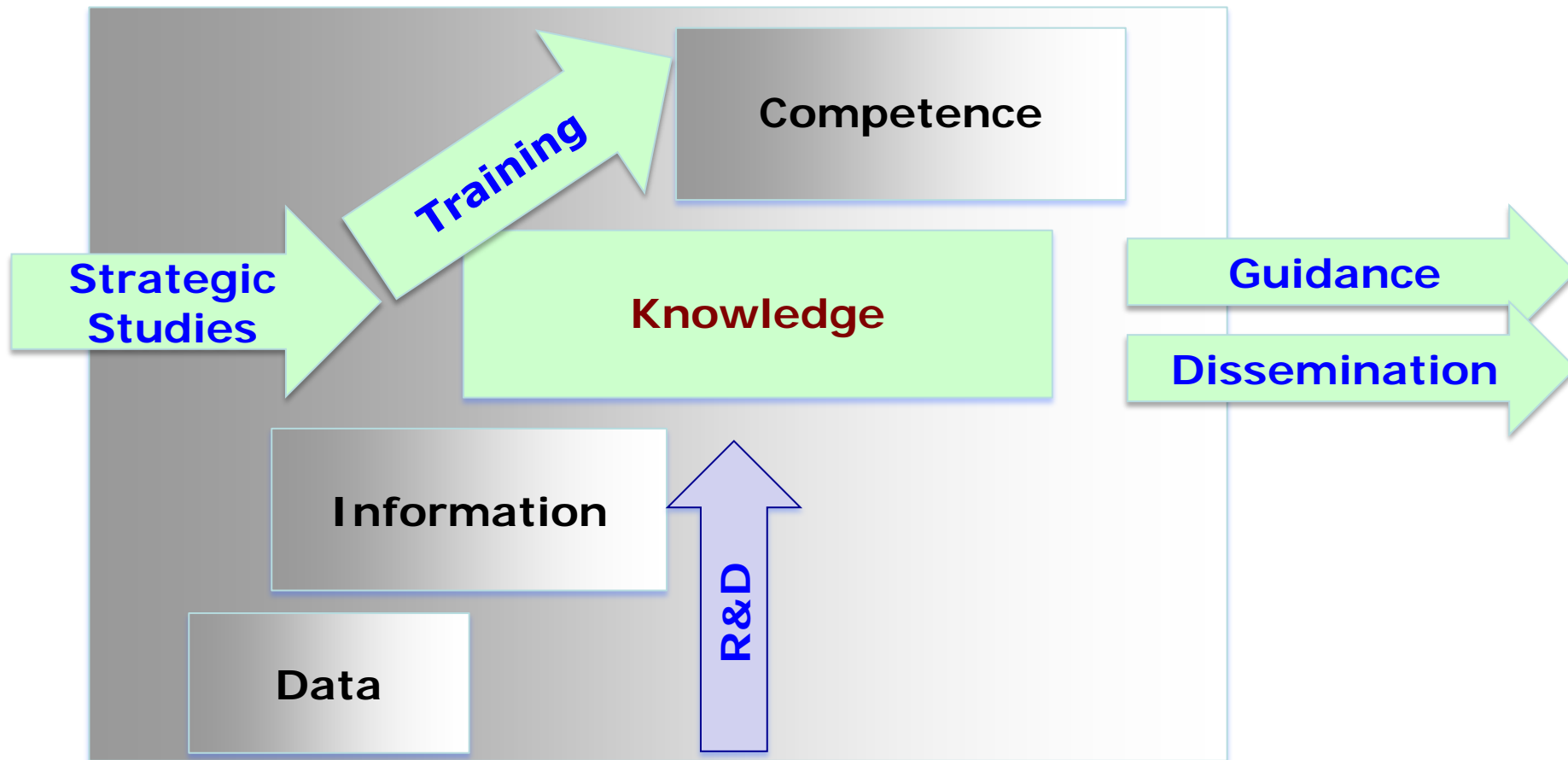
Knowledge will need to be **maintained and up-dated** in order to **meet evolving expectations**

The **Objectives** are to establish an enduring system for:

- (i) Establishing and keeping up-to-date the **State-of-Knowledge**,
- (ii) Applying it for establishing and up-dating **Guidance**
- (iii) Analysing where there are needs for developing new Knowledge (**Strategic Studies**)
- (iv) Using the Knowledge for generating Competence (**Training**), and
- (v) **Disseminating** the outcome to interested parties



Integrated Knowledge Management System (IKMS)





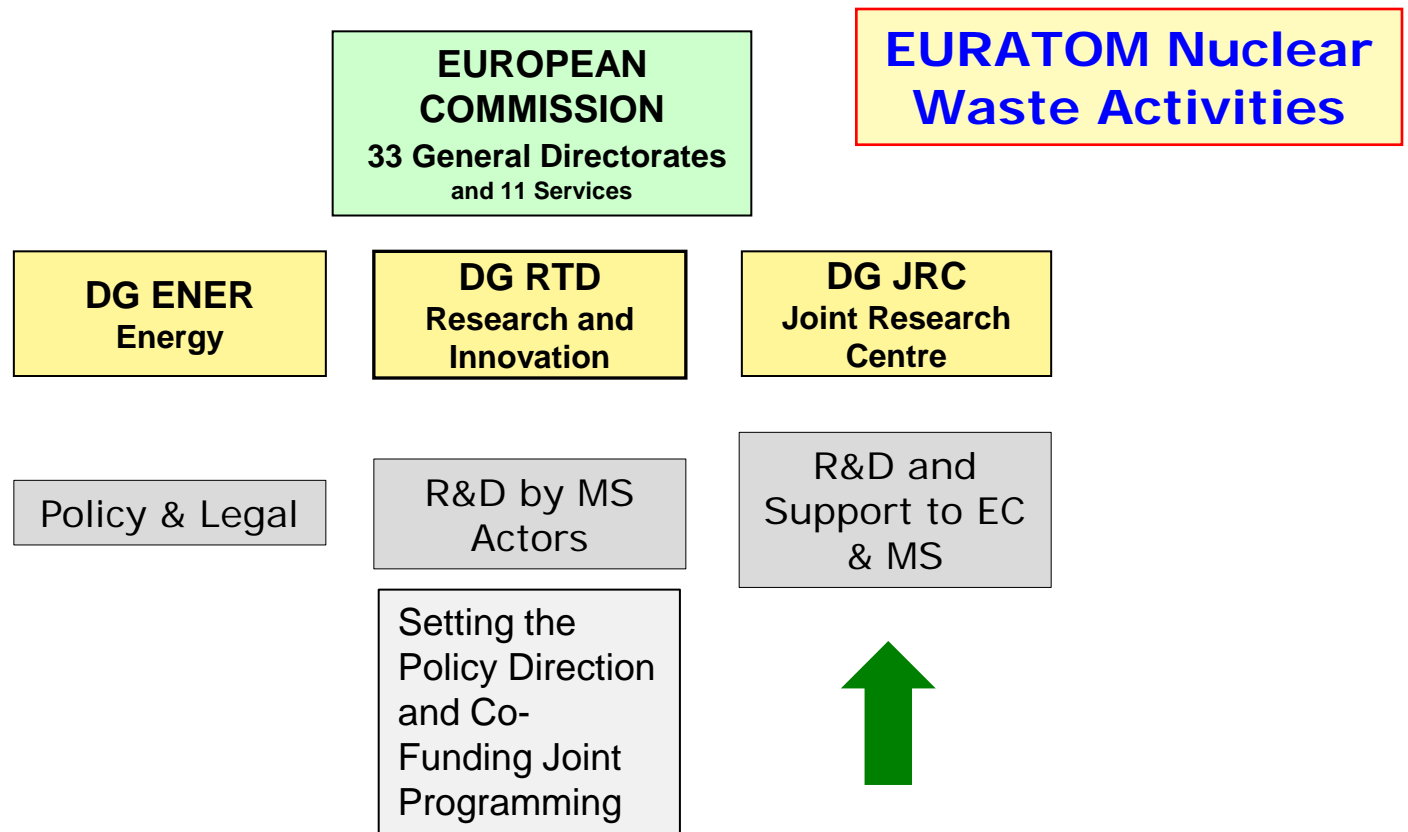
Approach

For its application within the Radioactive Waste Management Joint Programming,

Implement a system on JRC Public Access WEB Space **integrating**:

- Abstracting and documenting **Knowledge**
- Using the Knowledge by establishing **Guidance**,
- Using the Knowledge by providing **Training**, and
- Identifying further needs by **Strategic Studies**
- **Dissemination**

Thereby, coupling with R&D projects as a source of “filling the structure”





New JRC Structure (as of 1 July 2016)

DG JRC
Joint Research
Centre

Directorate D
(Sustainable
Resources)

Directorate E
(Space, Security
and Migration)

Directorate F
(Health,
Consumer and
Reference)

Directorate G
(Nuclear Safety &
Security)

With its Knowledge Management Programme,
Enduring structure,
Neutrality amongst Actors,

The JRC is setting up a WEB based portal at the “JRC
Science Hub” for hosting the IKMS activities and is allocating
resources for its implementation.

R&D, Policy Support

New Unit



JOINT RESEARCH CENTRE

The European Commission's science and knowledge service

European Commission > EU Science Hub > Page > GD RD&D Programme Planning

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Home

About this IKMS

GD RD&D Programme Planning

- I. Programme prerequisites
 - i. Inventory**
 - ii. Data management and preservation of records
 - iii. Implementation strategy/planning
 - iv. Competence Development
 - v. Socio-economic aspects
 - vi. R&D Infrastructure Development
- II. RD&D Needs
- III. Roadmap

General Themes

Safety Assessment Basis

Integrated Knowledge Management System (IKMS)

Radioactive Waste Management

GD RD&D Programme Planning: i. Inventory

content content content content content content



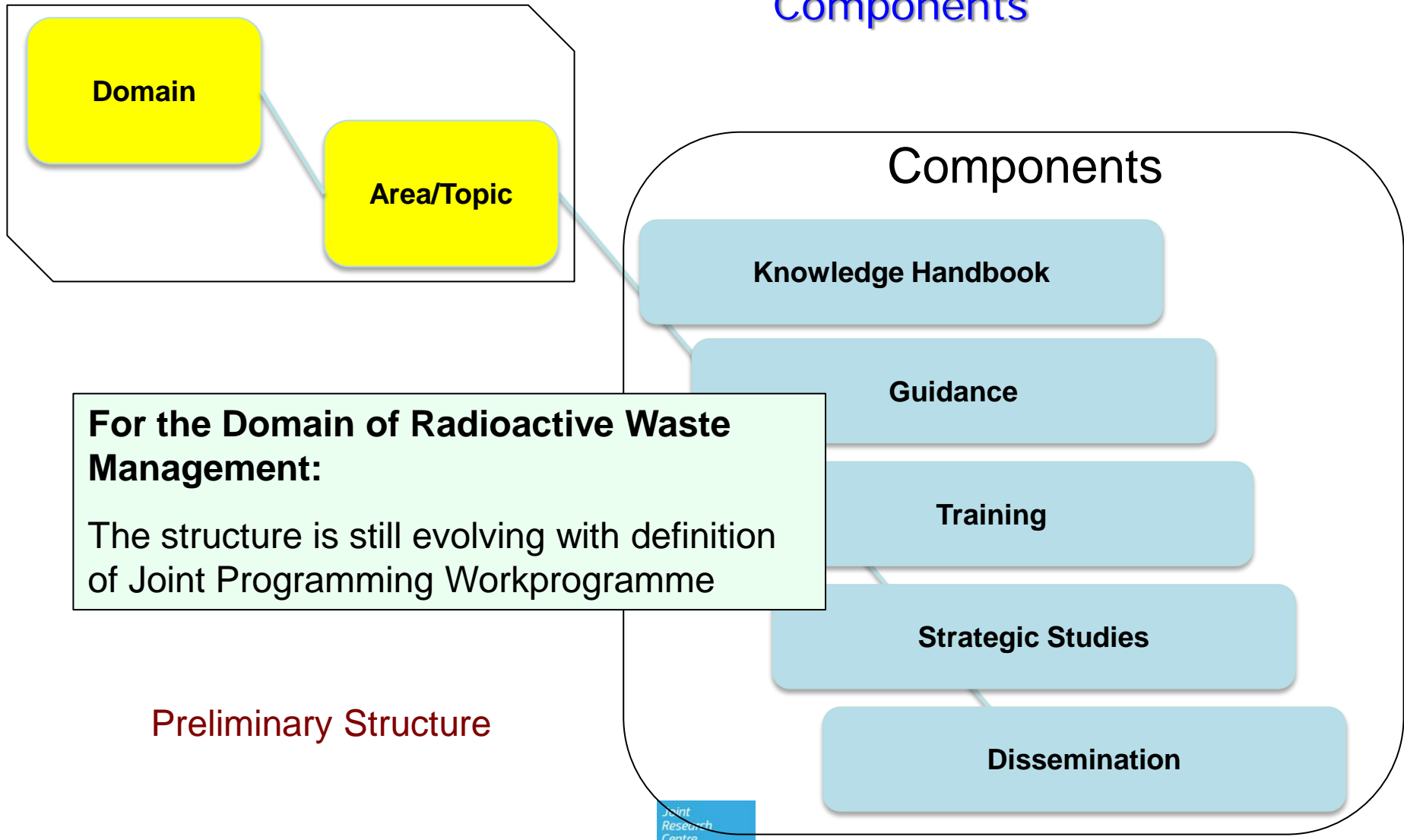


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- Context
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IKMS: Domains/Areas/Topics and Components





Domains
(Geological
Disposal (GD))

GD R&D
Programme
Planning

General GD
Development

GD Safety
Assessment
Basis

Domains	Area/Topics	
GD RD&D Programme Planning	I. Programme prerequisites	i. Inventory
		ii. Data management and preservation of records
		iii. Implementation strategy/planning
		iv. Competence development
		v. Socio-economic aspects
		vi. R&D infrastructure development
	II. R&D needs	R&D needs at different geological disposal programme implementation stages
	III. Roadmap	Roadmap for implementing an R&D programme towards geological disposal

Planned to be tackled within “TraCK” Project Proposal (Pilot Phase)

General GD Development

1. Site Characterization
2. Pre-disposal activities, Waste Treatment
3. Storage
4. Safety Case Development and Scientific Integration
5. Safety Assessment Tools and Techniques
6. Integrated Themes / Design Optimization
7. Environmental impacts and socio-economic effects
8. Operational safety and practicability
9. Governance / Stakeholder involvement / Social sciences



Safety Assessment Basis	10. Source term / Waste form / Package
	11. Near-Field
	12. Geosphere
	13. Biosphere
	14. Radionuclide Aquatic Pathways
	15. Radionuclide Gas Pathways
16. Coupled Processes	



Knowledge Handbook: Delineation

COMMISSION

Area

Sub-Area

Topic

State-of-Knowledge

Radionuclide
Aquatic
Pathways

Thermodynamics

Transport and
retardation

Other influences
on radionuclide
behaviour

Microbial activity

Natural Organic
Matter

Thermal gradient

Colloids

Redox

ILW Ligand front

Occurrence
Origin / Sources
Durability
Stability in aq. Phase
Mass (distribution)
Size (distribution)
Composition
Functionalities
Physico-chemical properties
(redox, charge, ..)
RN complexation
RN interaction kinetics
Modelling approaches for
RN migration
Relevance for the SA
Application to the SA
Open scientific issues
Open SA issues
Summary

Area	Sub-Area	State-of-Knowledge	Strategic Study	Guidance
Source term / Waste form / Package	Waste Acceptance Criteria	?		Uncertainties about databases and methodologies used for defining waste inventories, including historical waste
		?		Good practices in inventory collation and forecasting
		?		Dose thresholds and legal constraints



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Initial IKMS schedule (Working Draft):

Number of activities for establishing the State-of-Knowledge, conducting Strategic Studies and generating Guides

State-of-Knowledge	Strategic Study	Guidance
73	≈ 8	13

Training is coupled with Mature State-of-Knowledge / Guidance & R&D projects

Not a short-term endeavour

First phase of Joint Programming can only cover part of the overall IKMS



Costs (Estimates)

1 x State-of-Knowledge

Actors:

- Chair (*Work, Travel*)
- Drafting Group (*Five Experts, Work, Travel*)
- Expert Group (*30 Experts, Travel*)

Total Costs: ≈ 175 k€

1	Establishing the initial ToR and Table of Contents
2	Initial draft by Chair
3	Second draft by drafting group (5 persons)
4	Second draft to first Expert Group Meeting (30 persons)
5	Third draft by Chair
6	Fourths draft by drafting group
7	Update to 5th Draft by Chair
8	Open workshop and Second expert group meeting
9	Update to 6th Draft by Chair
10	Final revision by drafting group
11	Finalization of material by Chair
	Secretarial support (JRC, 2 PM)



Costs (Estimates)

1 x Guide

Actors:

- Chair (*Work, Travel*)
- Expert Group (*10 Experts, Financed by the MSs*)

Total Costs: ≈ 100 k€

1	Initial draft by Chair
2	Initial draft to drafting group meeting (10 experts)
3	Second draft by Chair
4	Third draft by drafting group meeting
5	Third draft by Chair
6	Sending out the third draft for external comments
7	Fourths draft by Chair
8	Open workshop for presentation and review
9	Fifth's draft by Chair
10	Final round for drafting group
11	Finalization of Guide by Chair
	Secretarial support (JRC, 1 PM)



Costs Programme (Five Years)

Activity	k€	No.	Sum (k€)
State-of-Knowledge	175	10	1,750
Guide	100	10	1,000
Strategic Studies	100	10	1,000
Training	60	20	1,200
			4,950

≈ 5 Mio€ for Five Years Programme

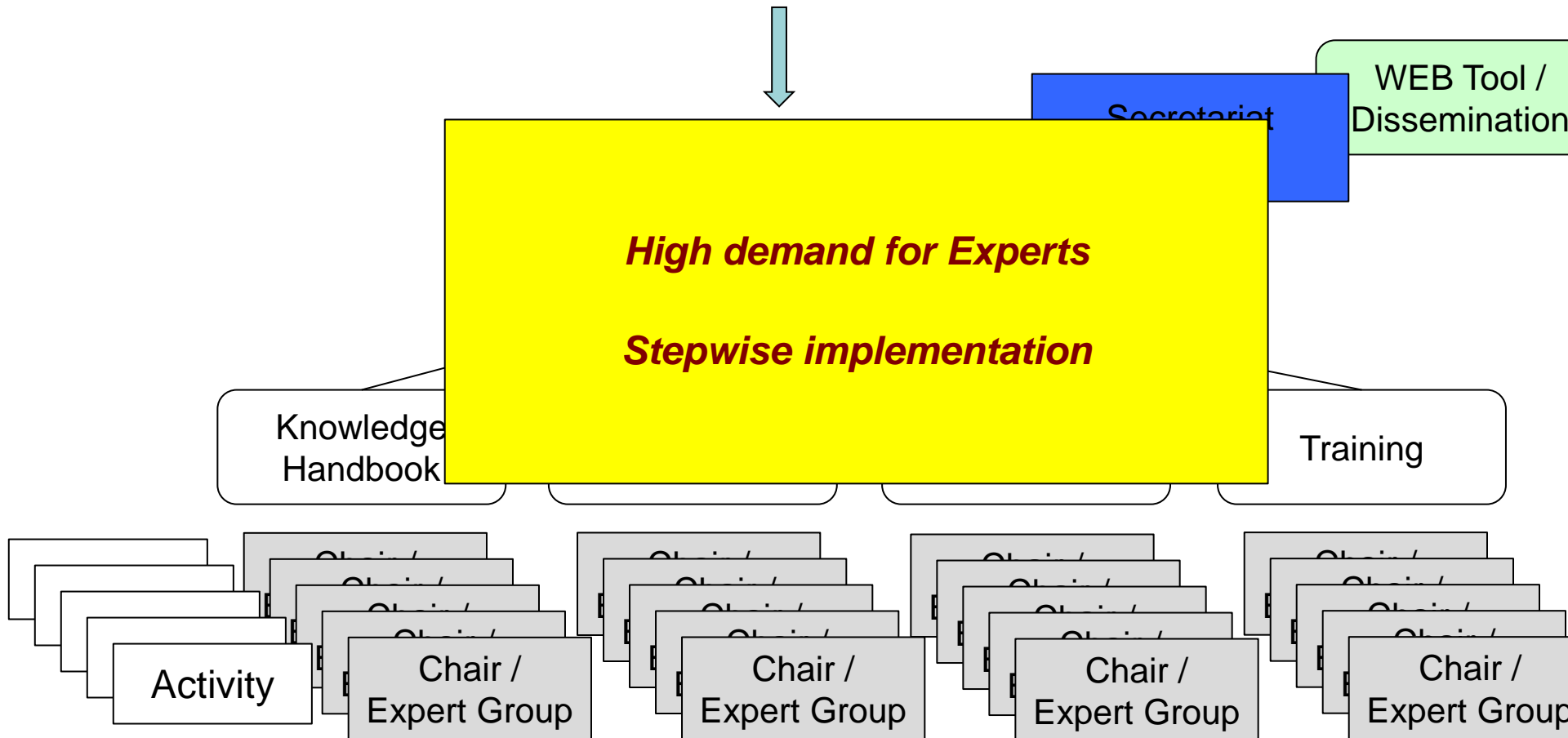


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IKMS Governance: Horizontal Activities Development Board



Timeline

2016

2017

2018

2019 -



ard

committee

proposal

Phase

Implementing Activities along v





Summary

- Radioactive Waste Management Joint Programming is the trigger and implementation base for IKMS
- It is being built with a long-term perspective
- JRC is providing secretariat and implementation tool
- The content and implementation needs to be driven by the Actors (-> Governance)
- The structure needs to be filled (-> Implementation)



Thanks