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Supplement of

Comparing two concepts of the OECD-NEA RK&M Initiative (2011–2019): The Set of Essential Records and the Key Information File

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Federal Office
for the Safety of
Nuclear Waste Management

Comparing two concepts of the OECD-NEA RK&M Initiative: The Set of Essential Records (SER) and the Key Information File (KIF)

SafeND 2021, Session 4B “From decades of international RD&D to a sustainable knowledge and information management”, 10 November 2021

Stephan Hotzel, Federal Office for the Safety of Nuclear Waste Management (BASE)

Profile of the RK&M Initiative

“Preservation of Records, Knowledge and Memory (RK&M) Across Generations”

- Guiding question: “How can we continue to remember and understand across generations where, why and how radioactive waste is disposed?”
- An international initiative of the OECD-NEA
- 21 participating organisations from 14 countries
- 2011–2019
- Main deliverable: “Final report of the RK&M Initiative”, OECD-NEA, 2019
- All publications on: <https://www.oecd-nea.org/rwm/rkm>



Lessons co-shaping the RK&M Initiative

- Focus RK&M preservation efforts on informing, not on scaring future generations
- Close the gap: Address the intermediate timescale and link the “short term” with the “long term”
- Combine: Theoretical reflections – actual mechanisms, practical implementation

Fundamental rationales for RK&M preservation

Protection of humans and the environment

- Objective: Preventing inadvertent intrusion by future generations

Preservation of conditions for informed decision making

- Objective: Enabling future generations to make informed decisions about the repository

Fundamental rationales for RK&M preservation

Protection of humans and the environment

- Objective: Preventing inadvertent intrusion by future generations
- Connected task: Preserving awareness of the repository

Preservation of conditions for informed decision making

- Objective: Enabling future generations to make informed decisions about the repository
- Connected task: Preserving detailed knowledge of the repository
(or the possibility to regain it)

Some “results” / insights

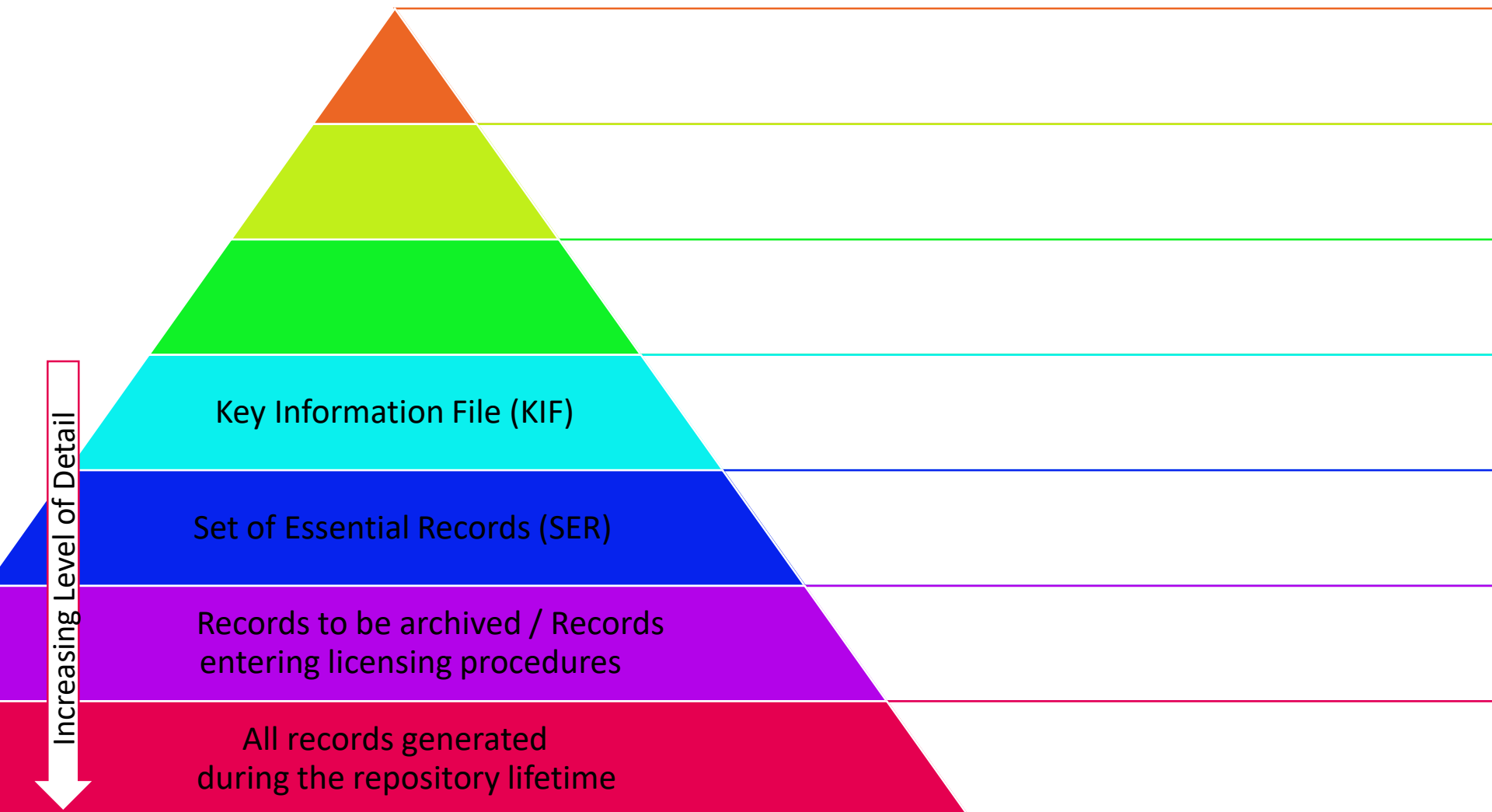
- There is no single approach or mechanism that, on its own, would achieve the preservation of RK&M over the necessary timescales.
- Use a variety of RK&M transmission mechanisms with different key characteristics.

The toolbox of RK&M preservation

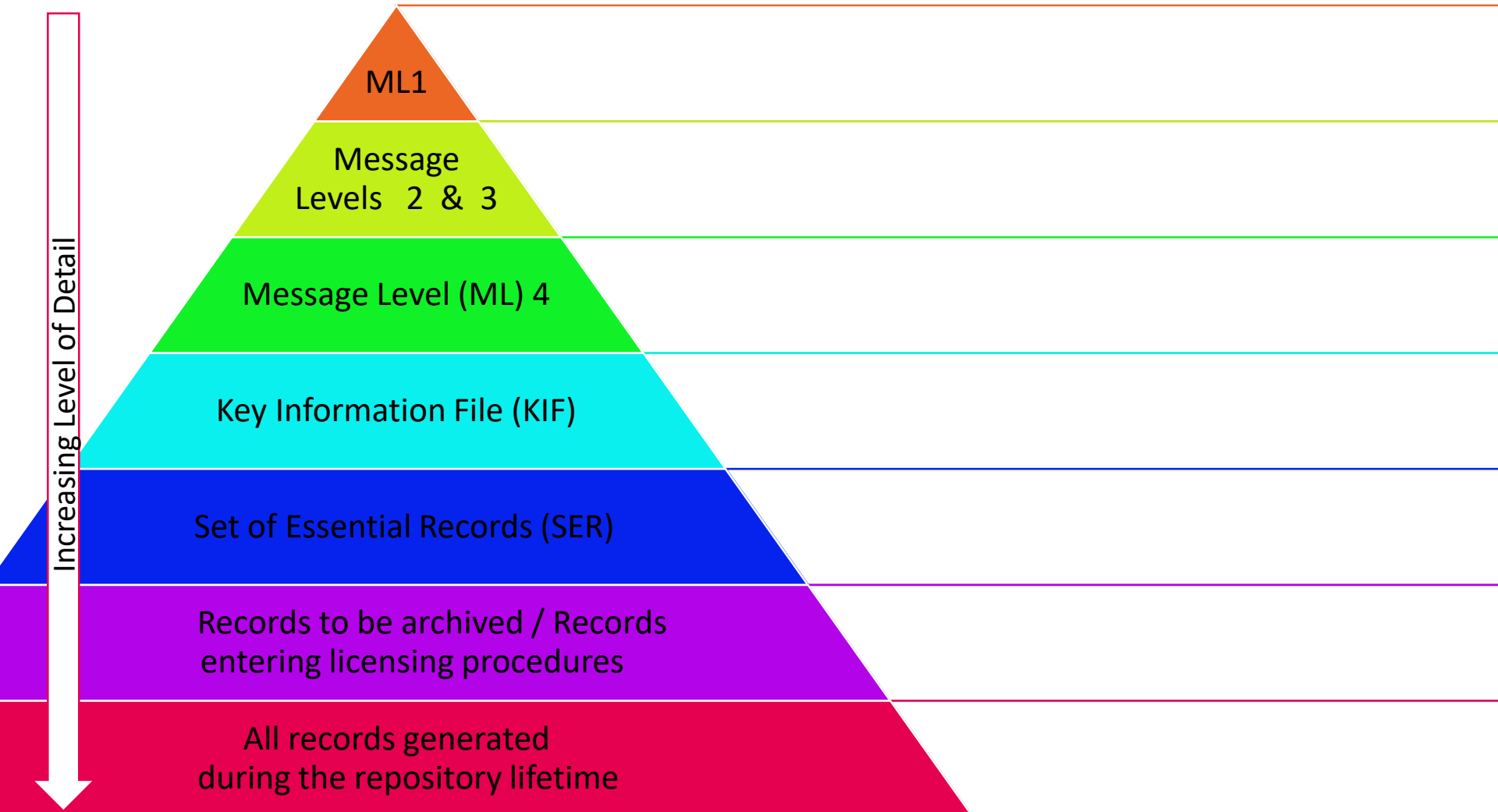
9 “approaches”: Each divided into two or more mechanisms/tools of RK&M preservation

- Dedicated record sets and summary files (“Key Information File”, “Set of Essential Records”)
- Memory institutions (archives, museums, libraries)
- Markers (land surface markers, sub-surface markers, deep geological markers, ...)
- Time capsules (large visible time capsules, non-visible time capsules, small time capsules)
- Culture, education and art (industrial heritage, alternative site re-use, education & research, art, ...)
- Knowledge management (knowledge retention tools, knowledge risk analysis, ...)
- Oversight provisions (monitoring, land-use control, ...)
- International mechanisms (int. agreements, int. guidelines, int. inventories/catalogues, ...)
- Regulatory framework (national regulatory framework, safeguards)

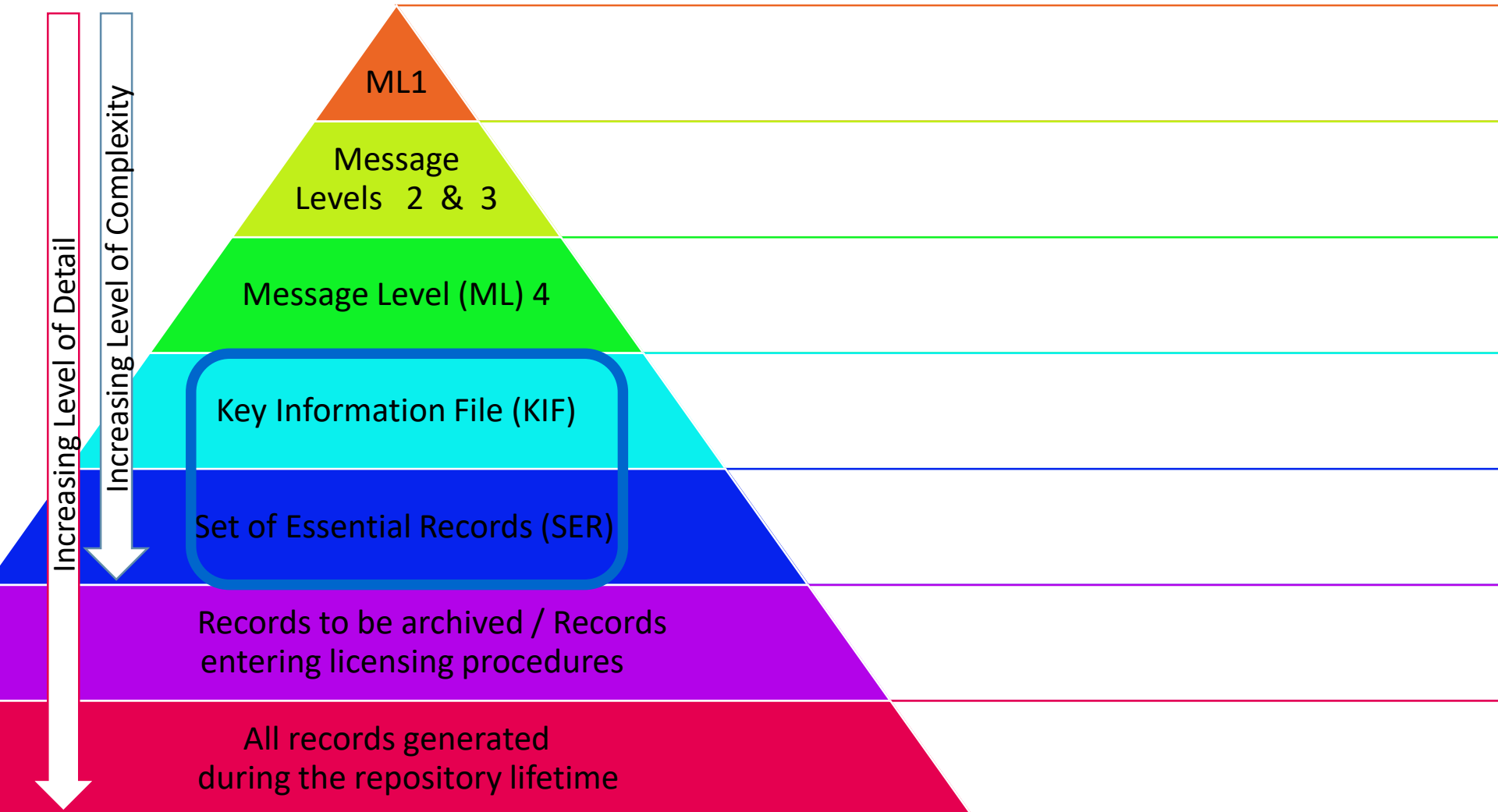
Pyramid of repository records & messages



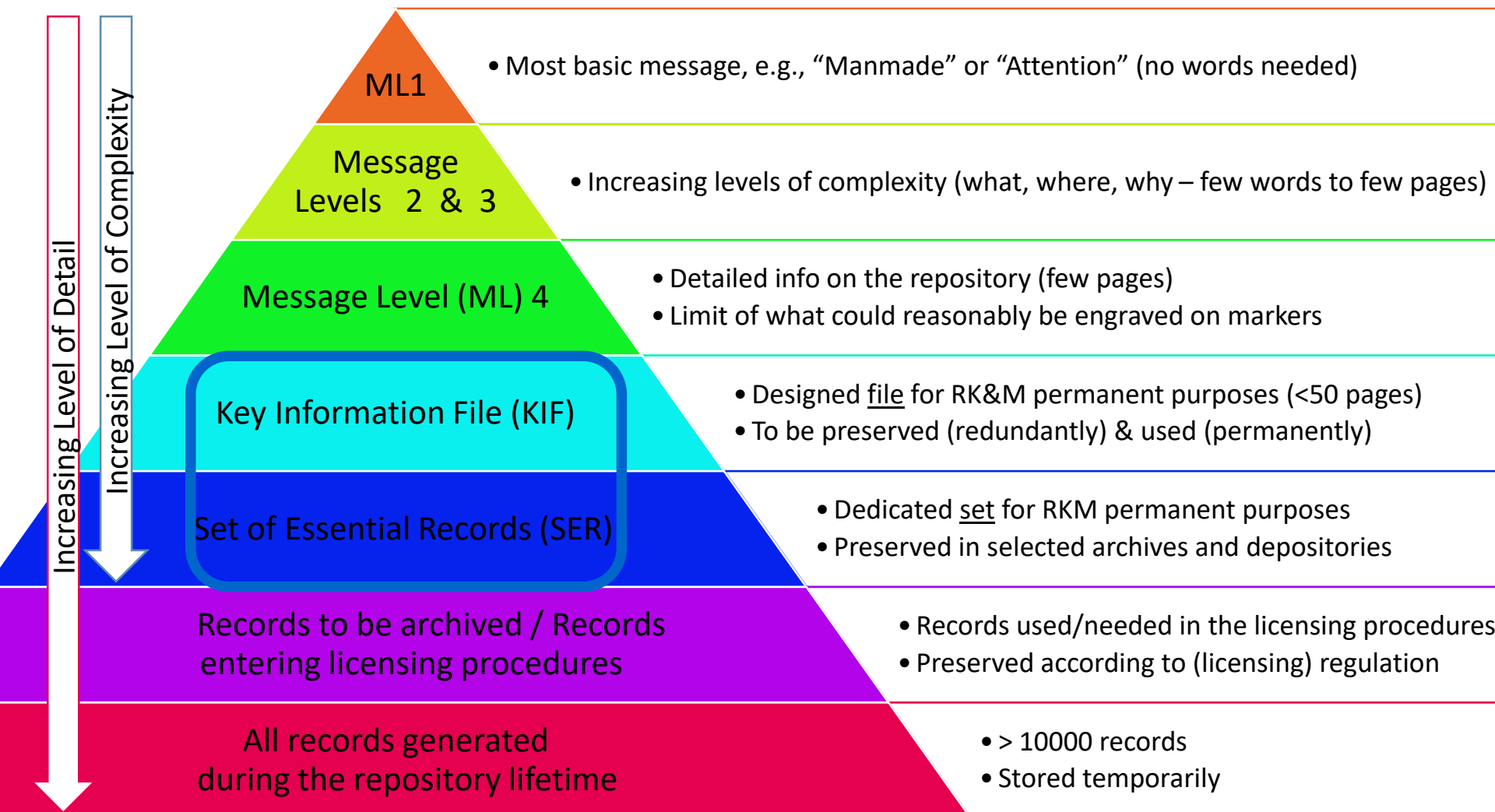
Pyramid of repository records & messages



Pyramid of repository records & messages



Pyramid of repository records & messages



KIF and SER: Purpose

- Starter question: What should be archived? What are the “most important records”?
- Rationales for RK&M preservation → It takes two: KIF and SER
- KIF: A single document, aimed to
 - allow society to understand the intent of the repository
 - reduce the likelihood of unnecessary human intrusion
- SER: Set of records, that provides sufficient information to
 - ensure an adequate understanding of the repository system and its performance
 - By enabling technical experts to review and verify the repository performance and the safety case and to make informed decisions

Non specialists,
general public, ...

Specialists,
decision makers, ...

KIF: Content

- Tell the story of the waste facility in a widely understandable manner
- Provide a summary of the existence, location and content of the repository
- Identify the hazard presented by the waste
- Explain why the repository is thought to be safe if not unduly disturbed
- Point to more detailed information (SER)

Proposed Table of Contents:
(to be tested)

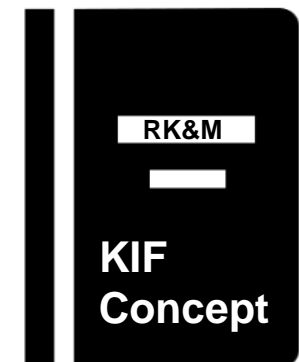
1. Purpose and contents of this document
2. Disposal Context
3. Facility Location
4. Container and Facility Design
5. Disposal Inventory
6. Safety Case
7. Disposal Records
8. List of similar repositories in the world

KIF: Key principles

- Written in a non-technical manner
- Standardised format, available in multiple languages
- Preserved as a publicly available document

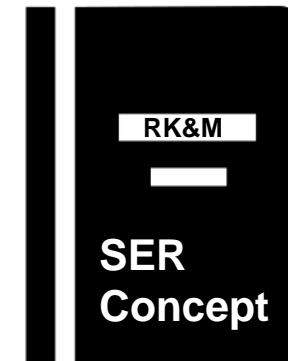
- It needs a creation/writing process
- The KIF is to be used by society, therefore...
- Society needs to be engaged in the writing of the KIF
- Further on, file needs management. Updates/further writing in parallel

- Proposed KIF structure (Table of Contents) and proposed process laid down in KIF concept report (find on RK&M website)



SER: Key principles

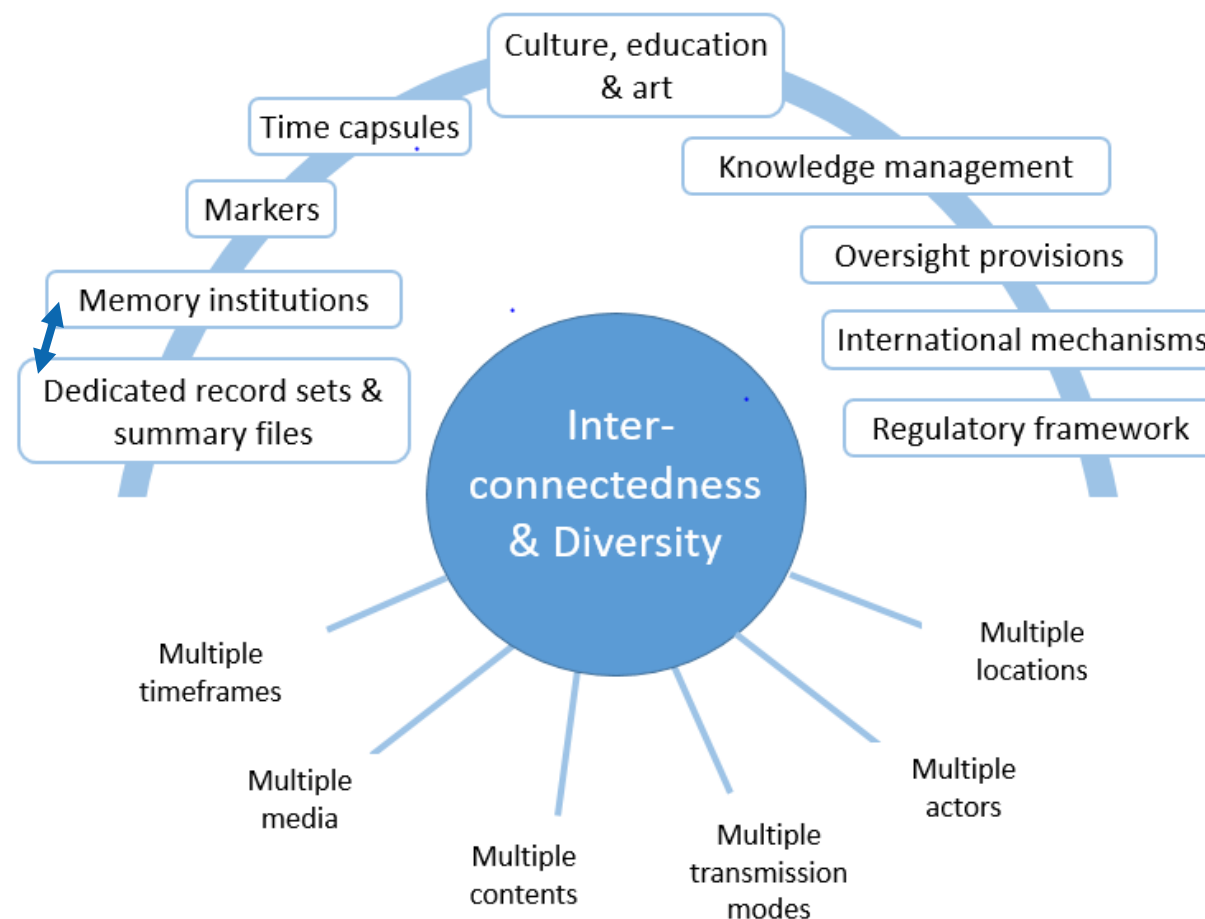
- It needs a file selection process
- No writing needed. Records are as they are
- Metadata to be reviewed/created
- Arrangements with archives
- SER to be used by experts. Experts should be involved in the selection process.
- Further on, set needs management. Updates/further selection process in parallel
- Proposed SER structure and selection process laid down in SER concept report (find on RK&M website)



KIF and SER in the wider context of a systemic strategy

Strategy of using a variety of tools,
taking advantage of

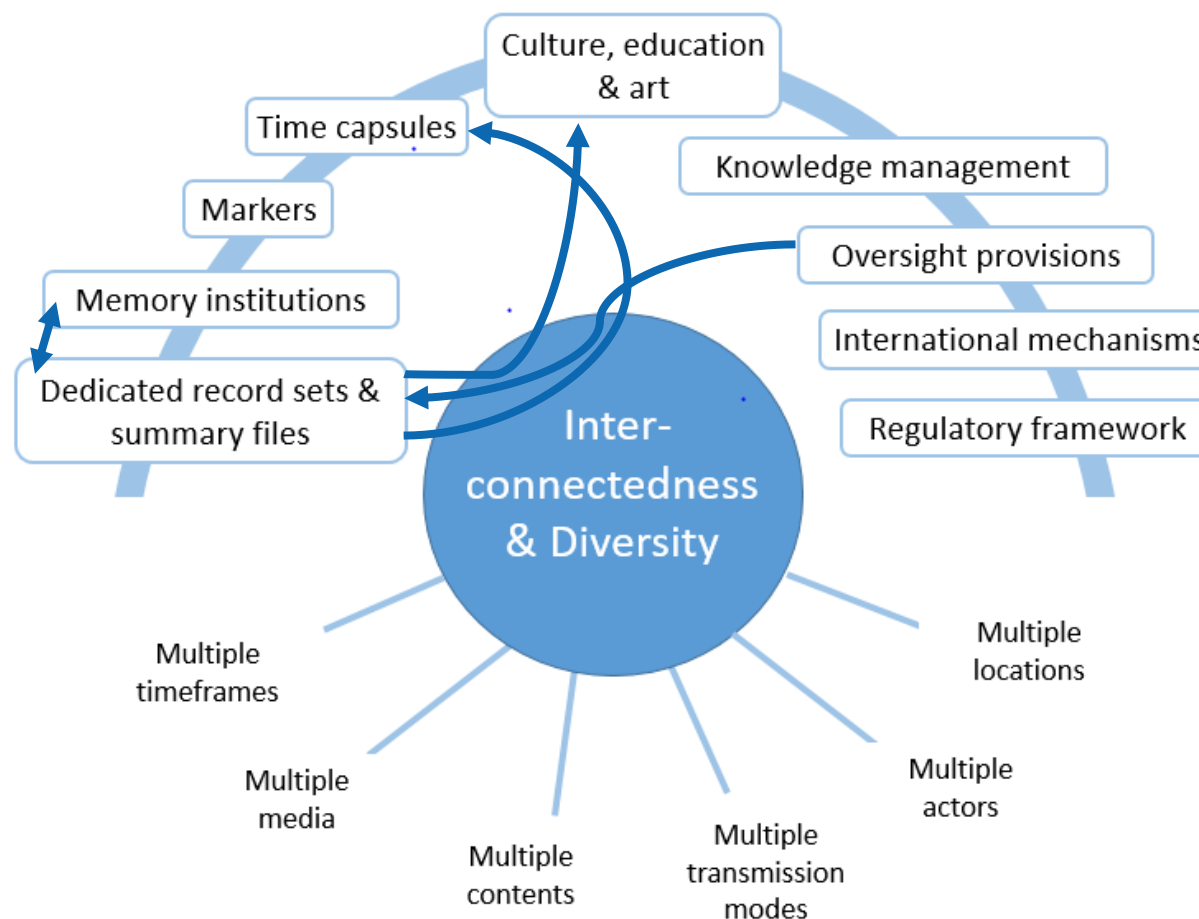
- interconnectedness of RK&M preservation approaches,
- diversity of their key characteristics



KIF and SER in the wider context of a systemic strategy

Strategy of using a variety of tools, taking advantage of

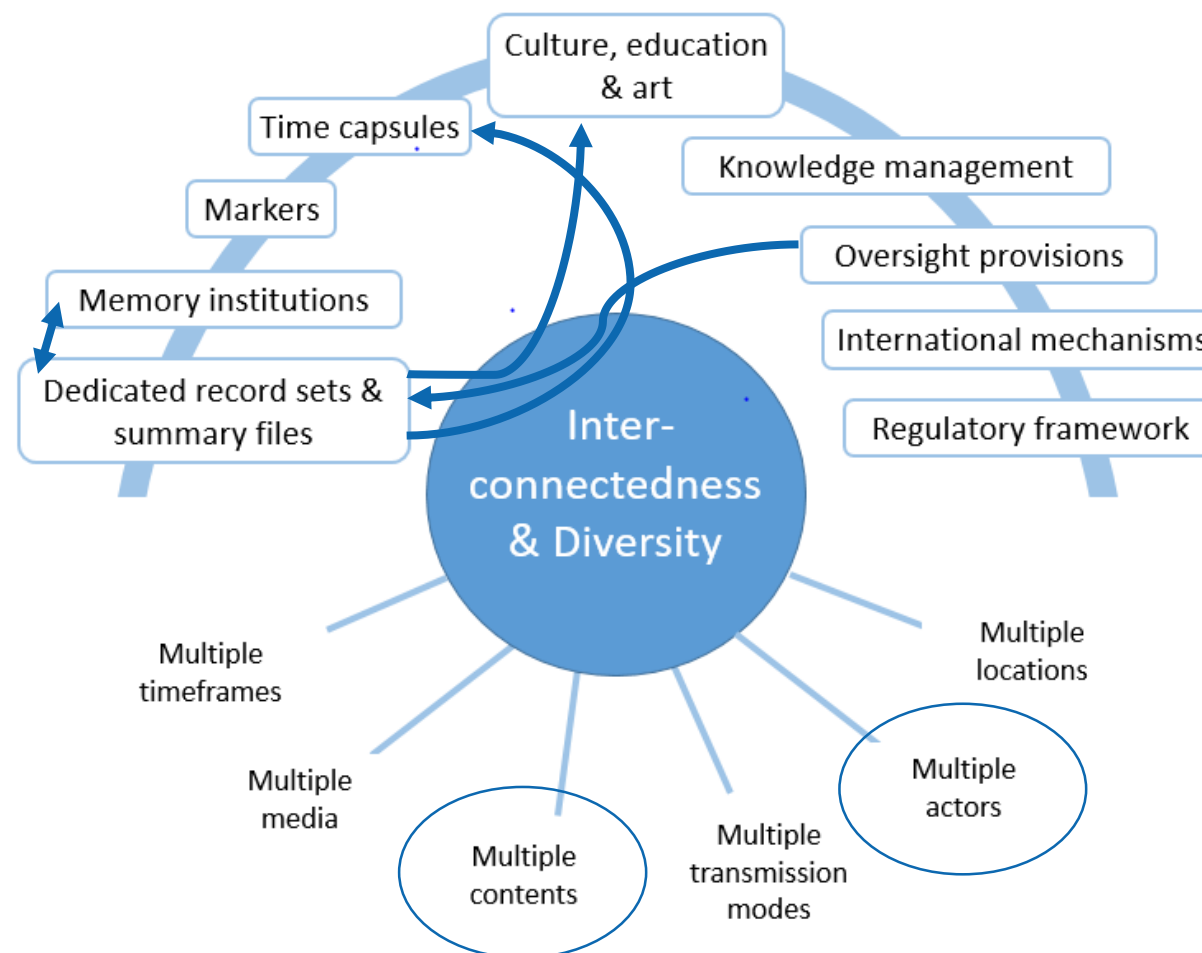
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KIF and SER in the wider context of a systemic strategy

Strategy of using a variety of tools, taking advantage of

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KIF and SER: Differences

KIF and SER

- are independent tools, should be independently developed, managed and maintained
 - have different target focusses / target audiences / different levels of detail
 - faced with different challenges, developed in different manners
 - managed and preserved under different responsibilities
 - “used” differently
 - may ultimately be long-term “stored” in different environments.
- KIF is not a boiled down SER; no selection process from the SER to the KIF

KIF and SER: Commonalities

KIF and SER are

- items of the same records-archiving approach
- designed to provide essential information about the repository to future generations
- ultimately meant for long term retention

Outlook: Usefulness is key

- Usefulness for future generations can best be tested and achieved through usefulness for present generation.
- Usefulness (future & present) should be a main objective in the design/selection process and in any further concept developments.
- KIF and SER must be useable and should be used.
- It is on our generation to take first action.

Thank you for your attention