

Robust Record Preservation System on Geological Repository

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**Radioactive Waste Management
Funding and Research Center (RWMC)**

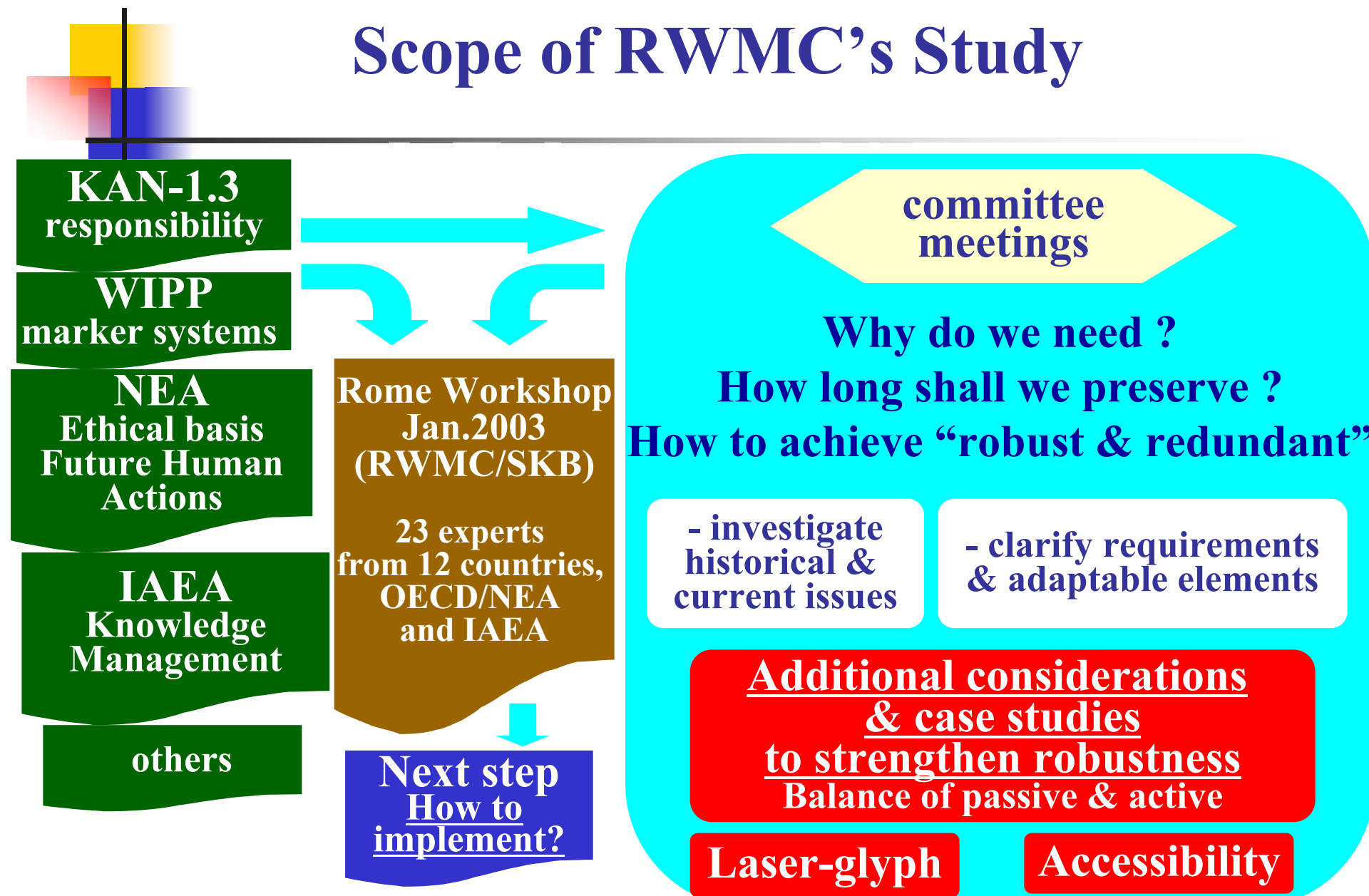
*Work performed under the contract with the Ministry of Economy, Trade
and Industry (METI), Japan*

Background

- 1) **Geological disposal**
based on the **passive safe concept** to isolate waste.
need not **human control** to keep the long-term safety.
implemented by the **step-wise decisions process.**
- 2) **Safety case is a key input** to support these decisions.
- 3) **Various options are considered** to be
necessary to **complement the safety case.**
- 4) **Record preservation is an option**
 - to prevent future generations' **unintentional access**
 - for their own **decision-making**
- 5) **Robustness should be attained**

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Scope of RWMC's Study



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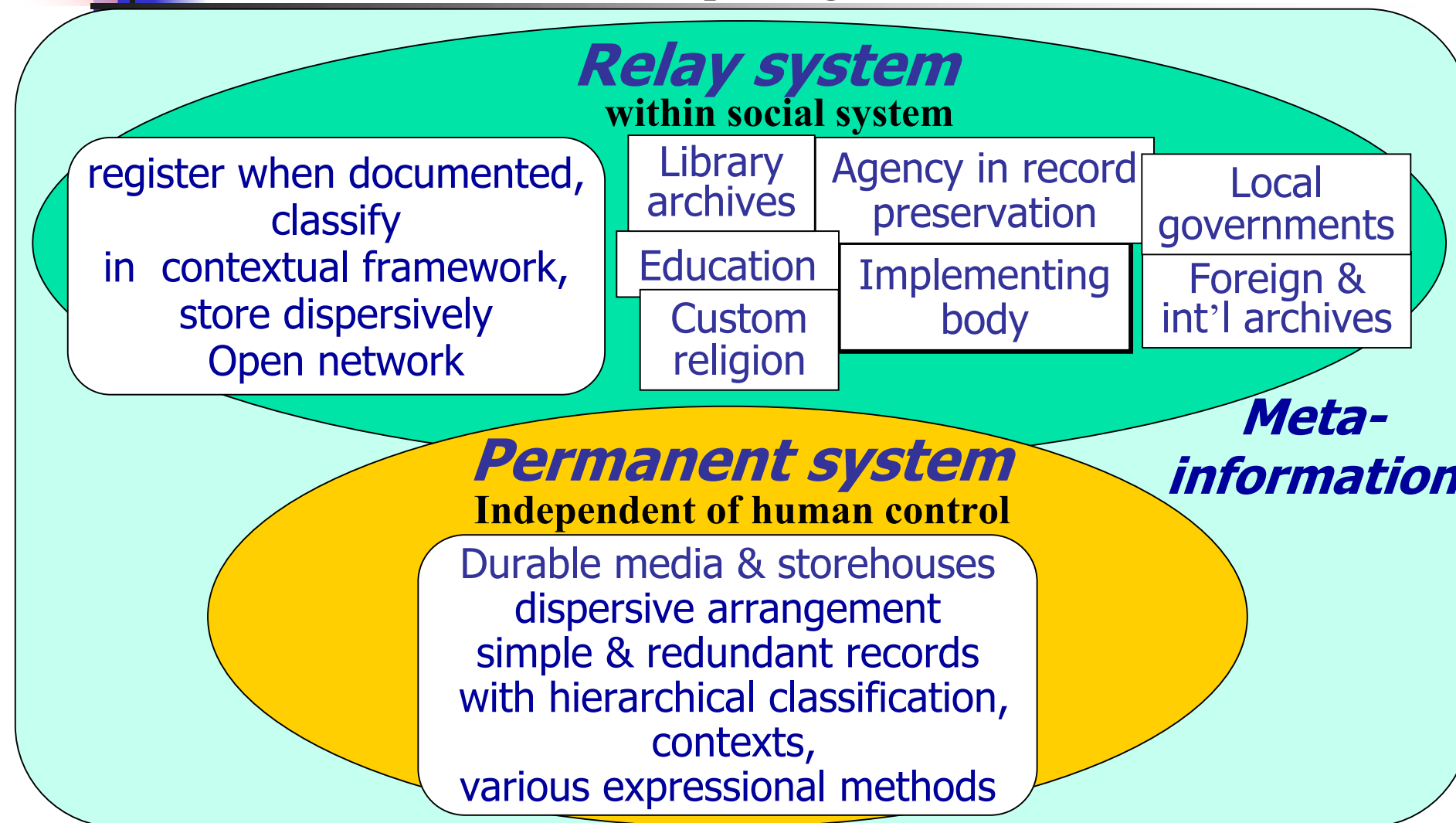


Main points discussed at Rome WS

- 1) Knowledge Management is important.**
regulations have not yet fully developed.
identification of important knowledge...under way
durable media...continue
- 2) Responsibility & system design are main agenda.**
- 3) We need international archives.**
repositories of LLW/ILW...implemented
HLW... under way
- 4) We need early actions.**
next meeting be hosted by an int'l organization
to clarify the remaining issues
by involving other stakeholders
& views of other industrial fields

Balance of Relay & permanent system

Records should be kept, migrated & communicated.



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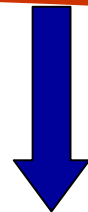
Meta-signals

Communication consists of transferring both explicit & implicit message. The latter is the mode-identifying signal. (G.Bateson 1972)

Explicit messages from implementers of disposal

**This is the information on the safety of the repository
We have implemented the best system to transfer the information.
We have done our best to implement the HLW disposal.**

Meta-signal



to current generation:



to future generations:

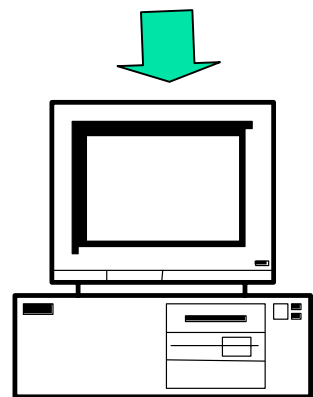
The information is true

**The implementers seem
to have chosen the best and most safe repository.
to do their best for the future generations.
Let us also do our best for future generations**

Case study-1: Laser-glyph



A4 sized report with 500 pages

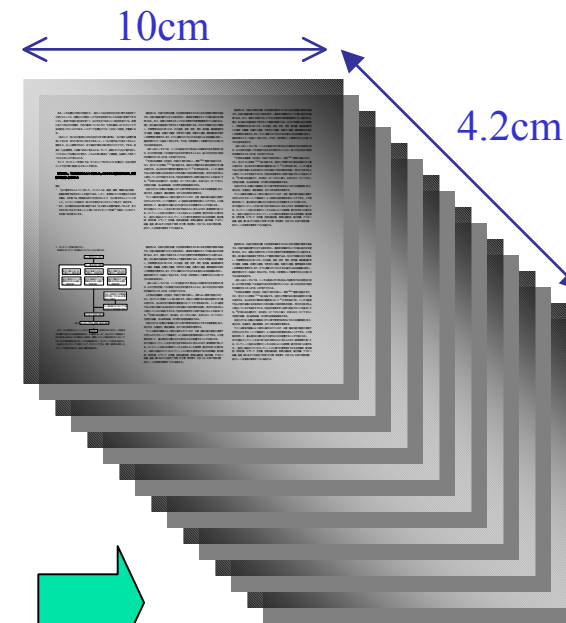


Preparation of import data



Laser-engraving onto SiC plate

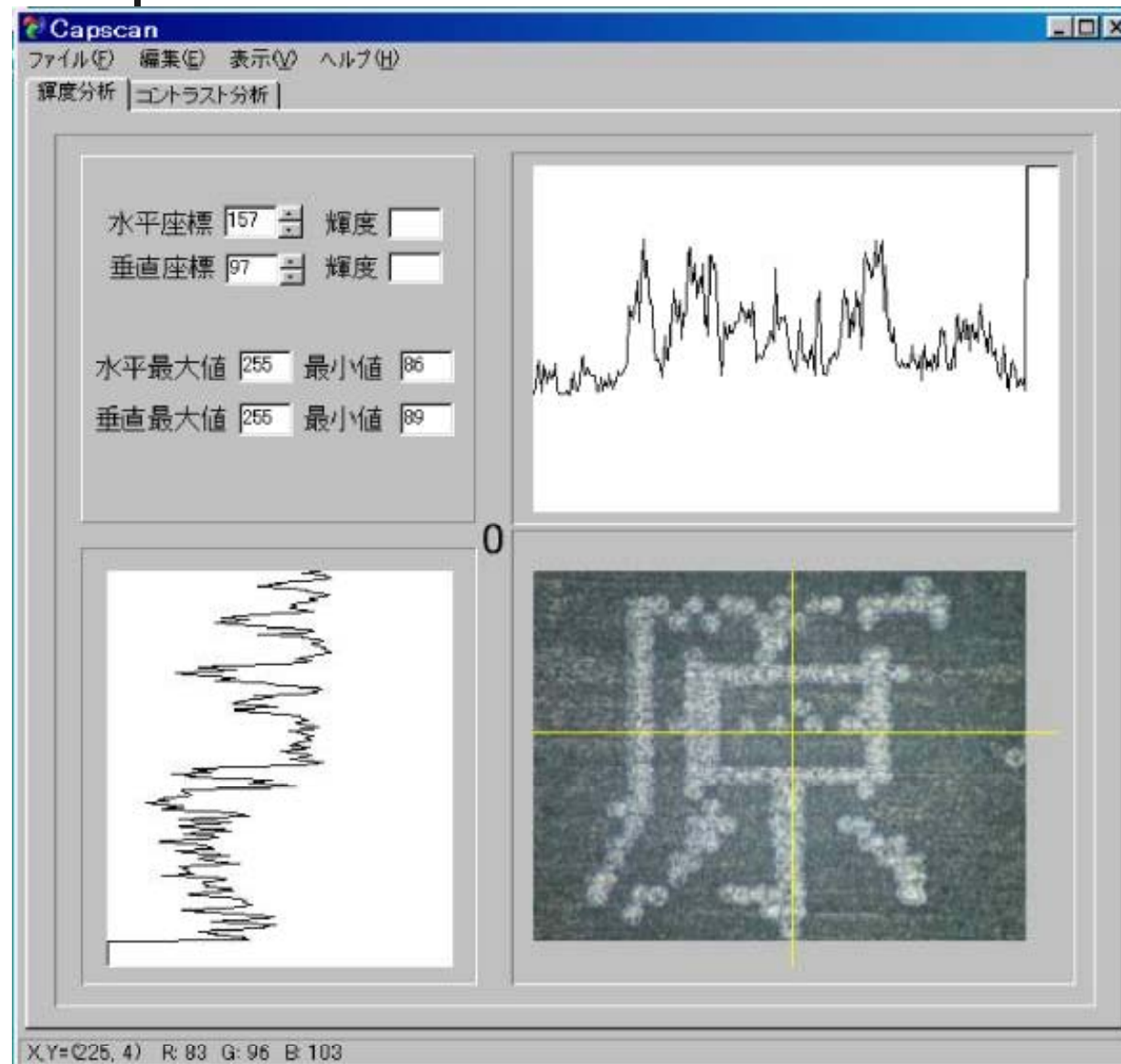
6 pages on each side
fonts: point-2



42 SiC plates

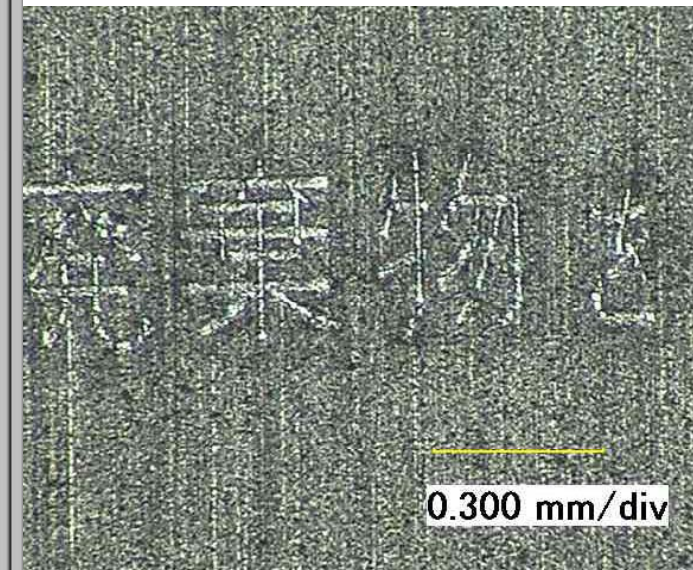
Material 20k\
+ engraving 40k\
=60k\ ... 42pieces
=ca.2.5M\ ~ 22kUSD

Case study-1: Laser-glyph Possible digital media



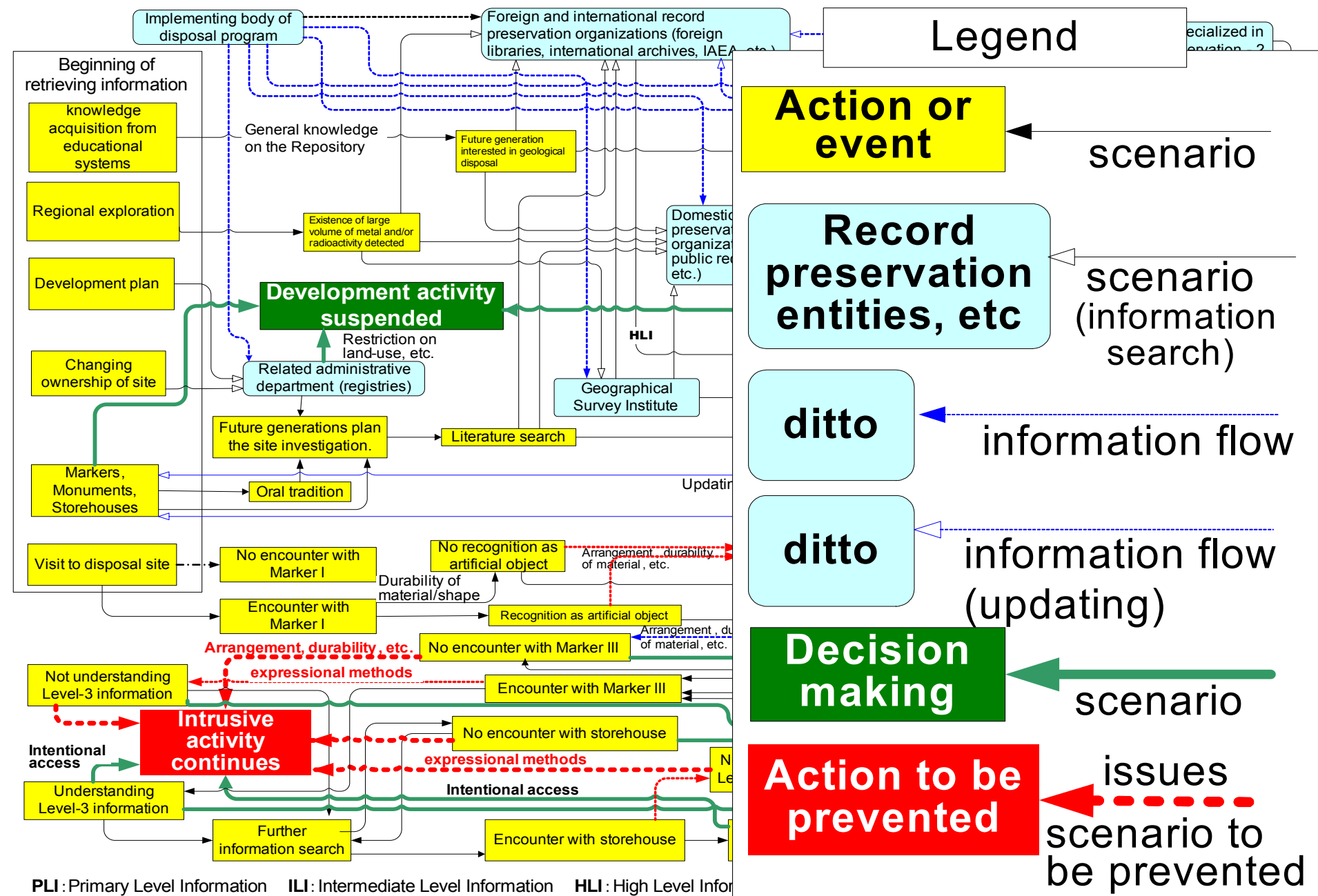
Microfiche

105 x 148mm
98~470pages
1/24~1/56

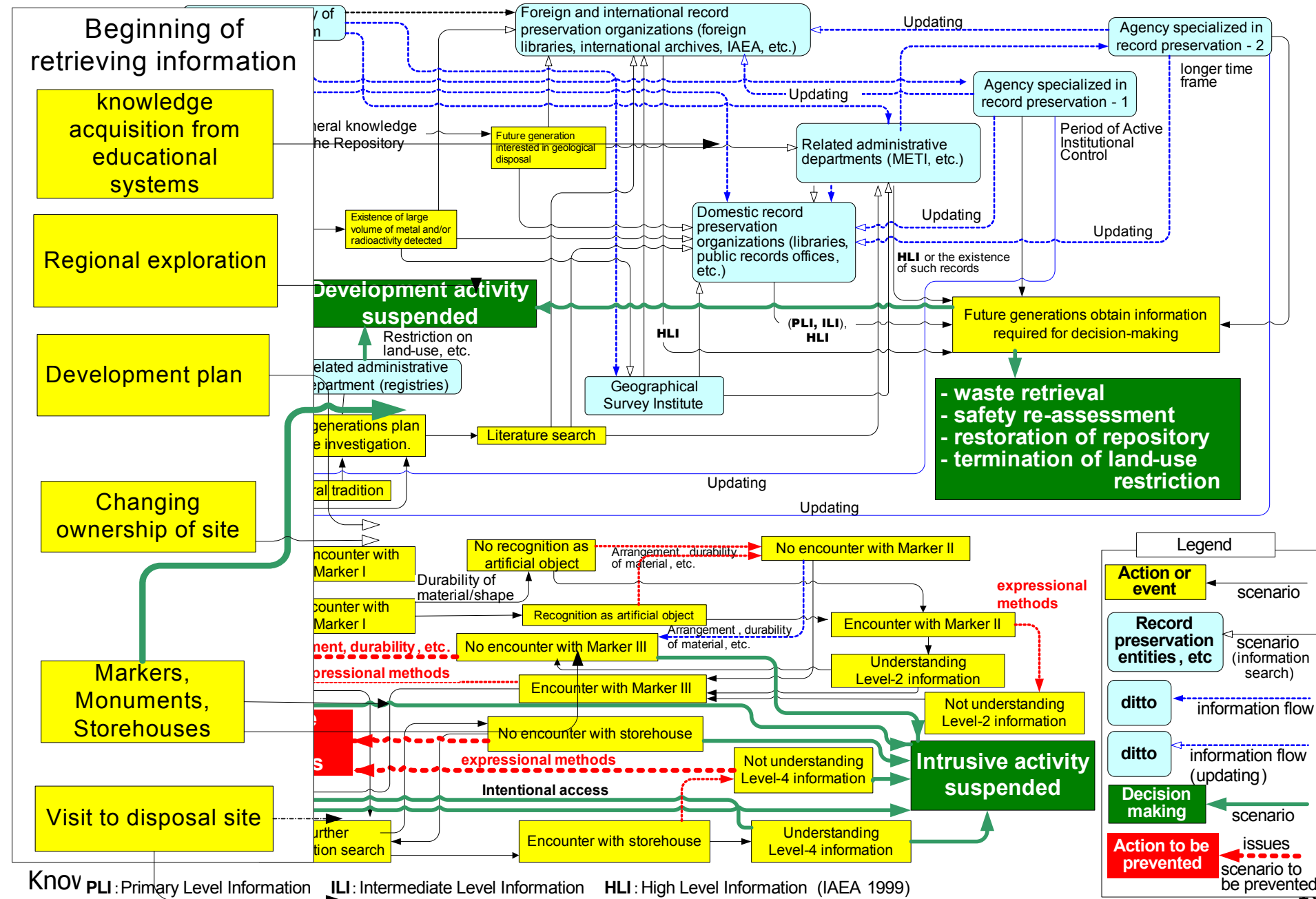


0.5 point

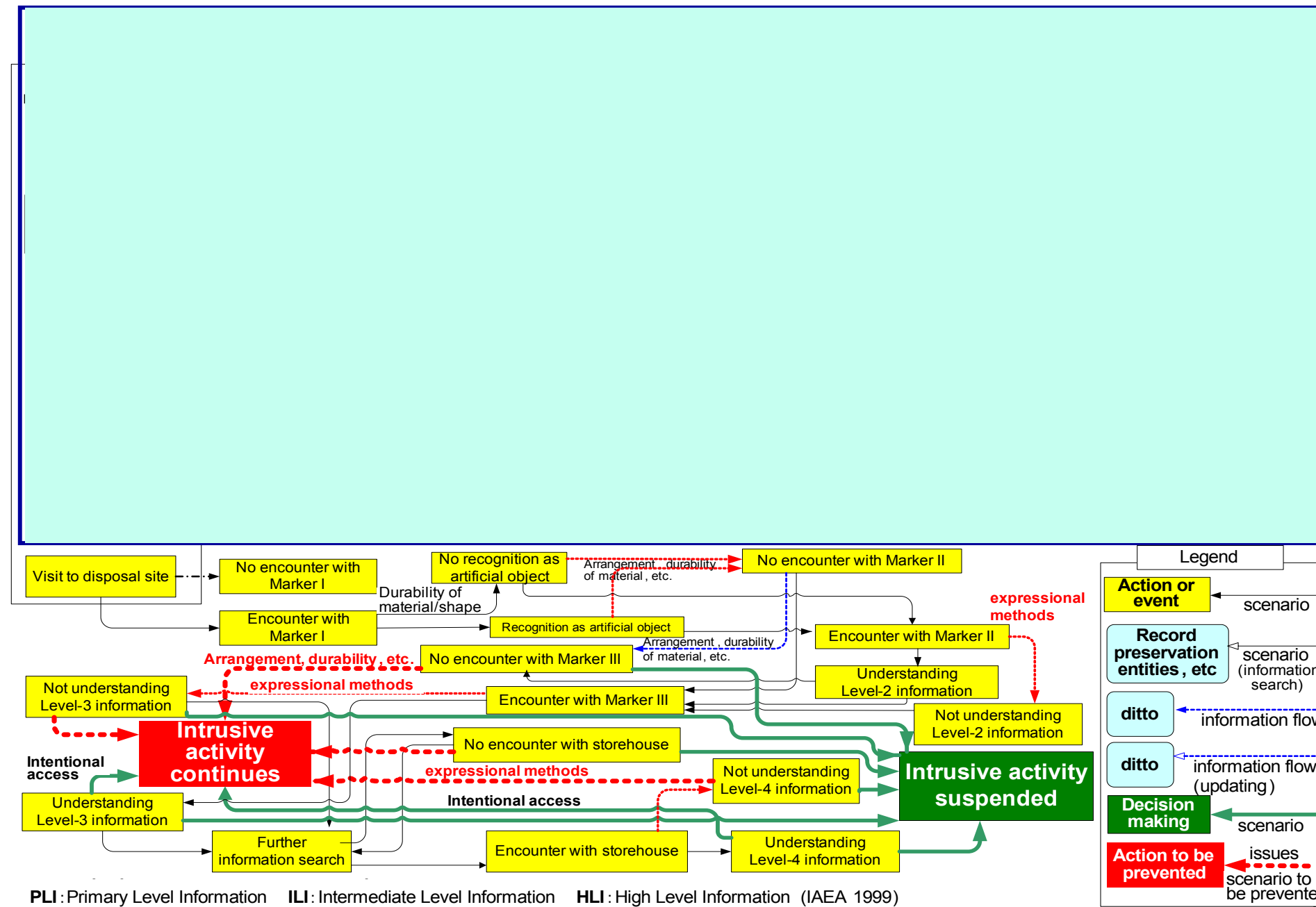
Case study-2: Future generation's Accessibility

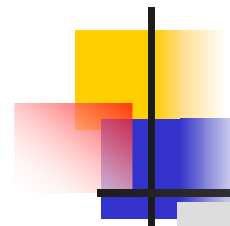


Case study-2: Future generation's Accessibility

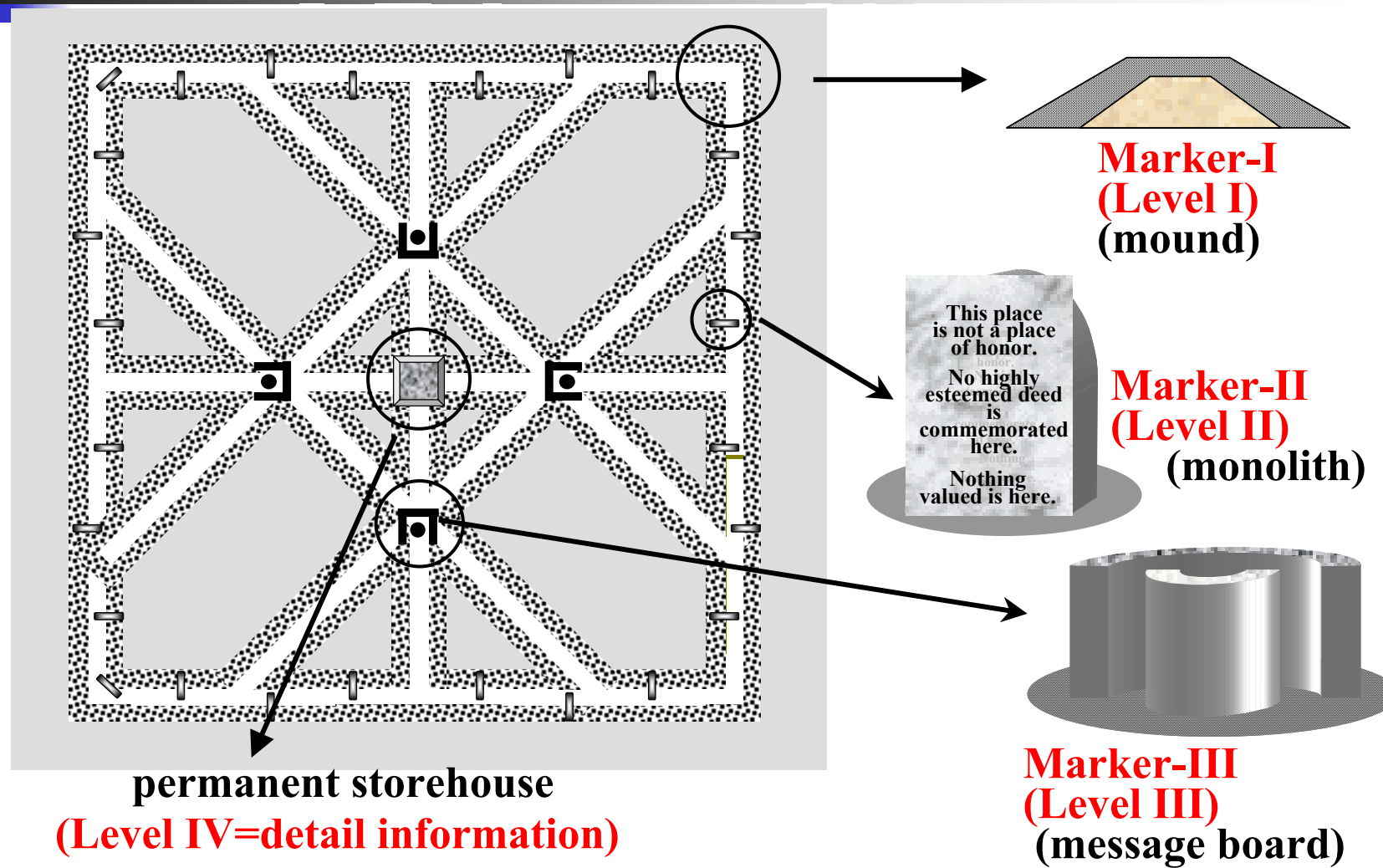


Case study-2: Future generation's Accessibility

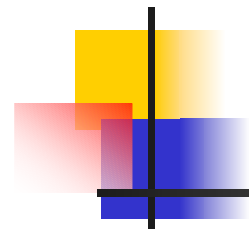




Case study-3: Arrangement of permanent system



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Conclusions

-Rome workshop

**importance of knowledge management
future agenda**

-To strengthen robustness?

**Balance of active & passive system in each country
(relay & permanent system)**

Laser-glyph

Future generations' accessibility

- Meta-signal