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Record Management and Long Term Preservation and Retrieval of Information

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Record Management and the Long Term Preservation and Retrieval of Information

Session 4

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Nuclear Decommissioning Authority

Presentation Scope

- Why manage records?
- Key terminology:
  - record
  - preservation
  - retrieval
  - information
  - information management
  - long term
- Hard copy and electronic recording media
- Requirements for information access
- UK project overview

The Record – a Model

A typical record will comprise:

1. Media
   - *'hard' or 'electronic'*
2. Technical content (data)
   - *the reason for creating the record*
3. Metadata element (when, who)
   - *e.g. creation date, owner, version …*
4. Contextual element (what, where, why, how)
   - *keywords, authors, projects, themes, …*

Hard Copy Media

- Characteristics are well known
- Comprehensive guidance on storage arrangements
- International standards available
- Performance monitoring relatively straightforward
- Relative low capital cost
- Low reliance on ‘technology’
- Its use results in high volumes
- Searching and finding difficult and time consuming

Digital Copy Media

- Very low volume
- Searching can be rapid and accurate
- Easy access
- Relatively low cost
- Records can be ‘linked’, improving ability to find
- High dependency on technology
- Limited experience of long term suitability
- Regular migration necessary
- Loss can be instant and ‘catastrophic’

Record Management

- To inform
  - industry, society, future custodians
- To demonstrate
  - safety, understanding, quality, skills
- To justify
  - decisions, funding, development, risk

Record Management

- A regulatory and business requirement
- Policy, strategy and methodology
- Clear processes, roles and responsibilities
- Monitoring and review arrangements
- May need to segregate ‘long term records’
- Good quality record metadata
- Media characteristics must be understood

Record Management

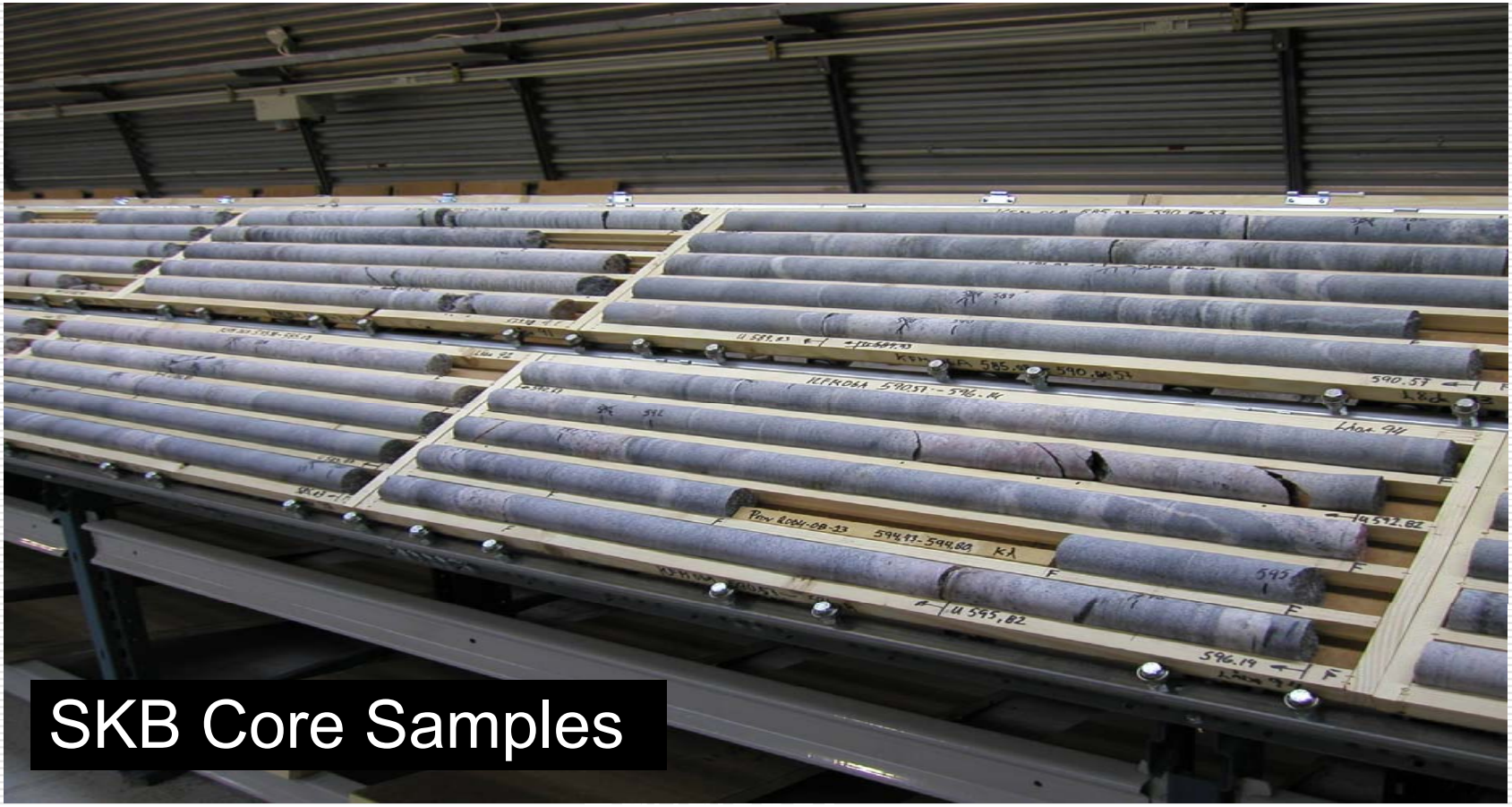
- Target audience
- Anticipated level of understanding
- Subject complexity
- Anticipated period of relevance
- ....

All these factors will influence the precise content of the record and, importantly, the way it is managed

Preservation

- An historical artefact may be preserved to:
  - retain its originality or uniqueness
  - restrict physical access, and
  - limit degradation or ‘wear and tear’
- Is this consistent with our aspirations for knowledge management?
- Why do we create a record in the first place?

Record Preservation



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Retrieval

- The record is created because there is a perceived need to transfer information
- The technical content (information) is often of greater value than the media
- If the technical content cannot be recovered, what is the value of the record?

... we will come back to the challenges relating to the retrieval of technical content ...

Information

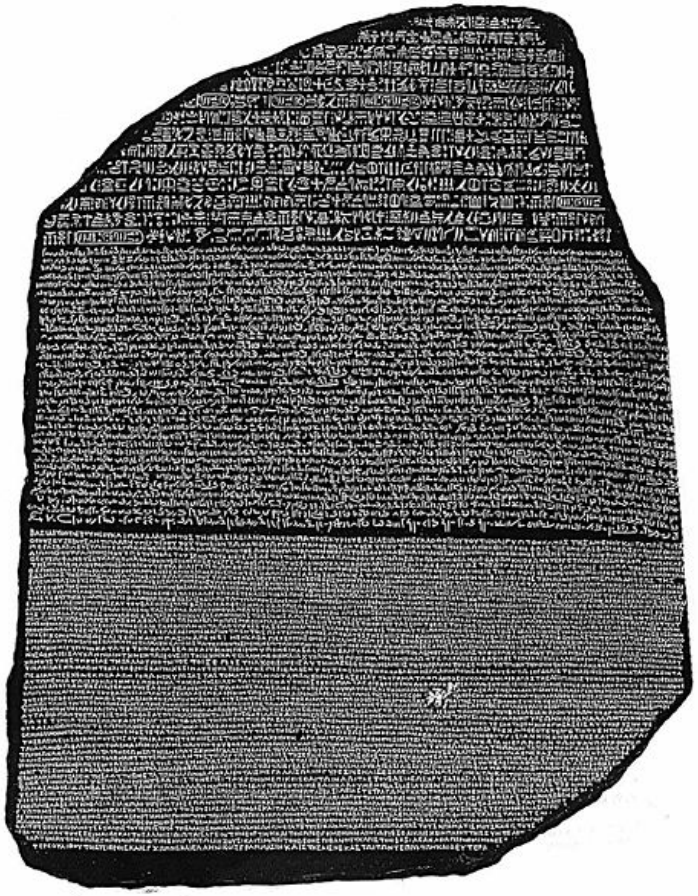
Information may be:

1. Documented (explicit)
   - *reports, objects, images, artefacts*
2. Personal (tacit and implicit)
   - *common sense, individual experiences, processes, paradigms, beliefs, perceptions*
3. Social
   - *group experiences, culture*

Information Management

- The objective is to accurately communicate *information*
- The focus must be on the *information transfer* and not on *media preservation*
- The information is of value only if its *meaning*, *significance* and *relevance* is also transferred
- Information management is an *active* process whilst record preservation is largely *passive*
- Regular use of information promotes its transfer

Information Management



Hieroglyphic

Lord of the diadems, great in glory, the stabilizer of Egypt, and also pious in matters relating to the gods, superior to his adversaries, rectifier of the life of men, Lord of the thirty-year periods like Hephaestus the Great, King like the Sun, the Great King of the Upper and Lower Lands, offspring of the Parent-loving gods, whom Hephaestus has approved, to whom the Sun has given victory, living image of Zeus, Son of the Sun, Ptolemy the ever-living, beloved by Ptah;

Demotic

In the ninth year, when Aëtus, son of Aëtus, was priest of Alexander and of the Savior gods and the Brother gods and the Benefactor gods and the Parent-loving gods and the god Manifest and Gracious; Pyrrha, the daughter of Philinius, being *athlophorus* for Bernice Euergetis; Areia, the daughter of Diogenes, being canephors for Arsinoë Philadelphus; Irene, the daughter of Ptolemy, being priestess of Arsinoë Philopator: on the fourth of the month Xanicus, or according to the Egyptians the eighteenth of Mecheir.
……

Greek

The Rosetta Stone

Remember the Objective!

Record Management

Information Management

Information Transfer

Information Access (Retrieval)

Access to the content of a record comprises:

- *Readability* – the ability to recover the data
- *Intelligibility* – the ability to convert data into recognisable symbols
- *Usability* – the ability to interpret data

Readability

The ability to recover the data:

- Imprint
  - ink, colour, photographs, video
- Extraction
  - reading symbols and text
- Decryption
  - keys, algorithms
- Format
  - open source, hyperlinks, symbols

Intelligibility

The ability to convert data into something meaningful:

- Language
  - glossary, abbreviations, specialist terms
- Conversion
  - contemporary language, metadata

Usability

The ability to interpret data:

- Comparison
  - meaning, basis, value
- Provenance
  - source, trustworthiness, applicability
- Context
  - relationships, relevance, aids to interpretation

What is ‘Long Term’?

- Quantitative metrics:
  - radioisotope half-life
  - recording media lifetime
  - a human generation
  - national guidelines on ‘vital records’
  - a facility’s operational lifetime
- Qualitative metrics:
  - indefinitely
  - relevancy of information
  - social expectations
  - a period over which we have influence

Routine Information Use

- We rarely rely on a single source (or entity)
- We often cross-reference multiple entities
- Explicit entities are detected using our own implicit knowledge (i.e. we know how to find the information)
- Indirect relationships are always formed but sometimes not explicitly recorded
- We place varying values on information sources
- Information value varies over time and does not necessarily increase or decrease at a uniform rate

UK Desk-based Study

- Recognised that some records on radioactive waste would have to be retained for many years
- Project started in 2000 by considering the optimum recording media
- Issues examined:
  - record longevity
  - storage environment
  - record handling
  - information access (not just ‘physical’)
  - standards, regulations, guides, best practise

UK Desk-based Study

- Optimum media
  - inconclusive outcome
  - wide range that is ‘appropriate’
  - impact of advances in technology
  - preferences
- Long term issues
  - ownership and responsibility
  - role of national archives
  - disparate sources and management processes
- Management system
  - critical to success
  - whole-life planning
  - roles and responsibilities
- Terminology

UK Pilot Project

- Waste packaging proposal records
- 30 linear metres
- Mainly paper-based ('office quality' media)
- Procurement of specialist media, copying equipment and storage containers
- Migrated to acid free paper
- Adoption of 'clean room' processes
- Transfer to off-site managed facility
- Cost ≈€23,000 + €160 per year
- Adopted by UK decommissioning projects

Questions