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***Strategies for and Key  
Activities in Radiological  
Characterisation***

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# Radiological Characterisation - a task covering the entire lifetime of a nuclear facility

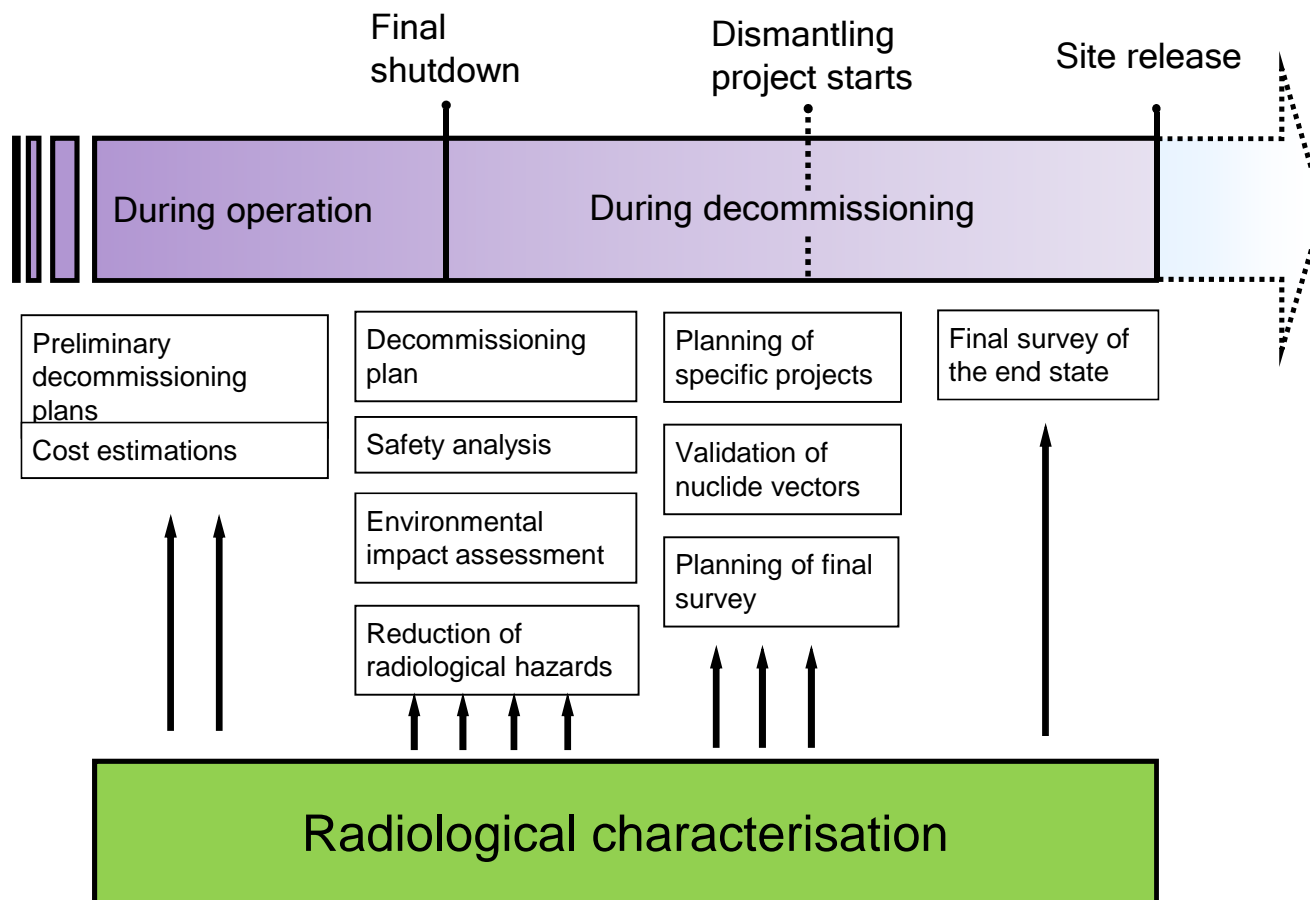


Illustration by Henrik Efraimsson, SSM

# Clear objectives

- Crucial to optimize characterisation efforts and costs
- Data - good enough to serve the purpose
- Structured judgement of data quality and quantity

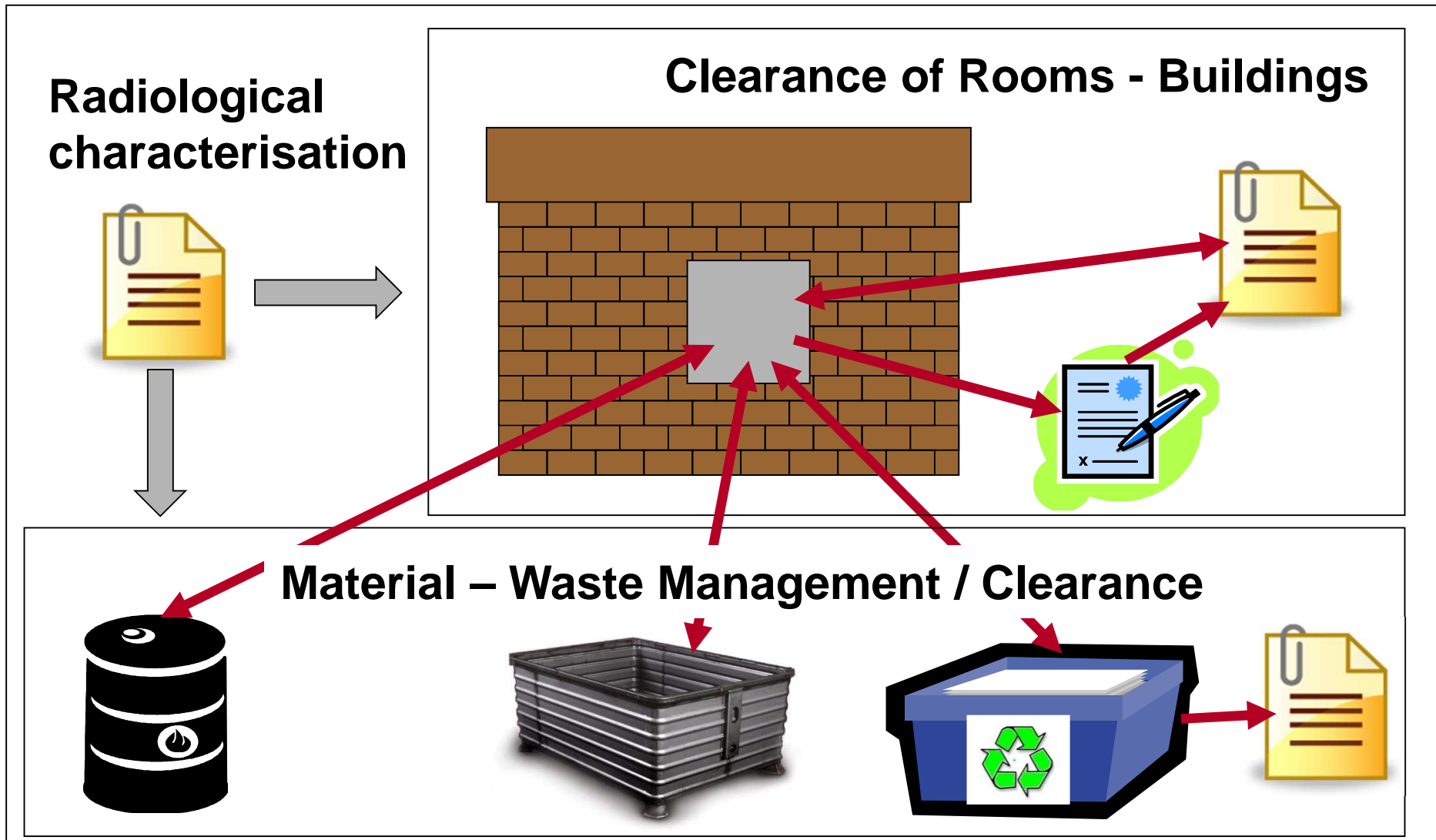


Follow a structured sequence, for example:

State the problem => Identify the decision =>

Identify inputs to the decision => Define the boundaries => Develop decision rules => Specify limits on decision errors => Optimize the characterisation

# Build an information management structure

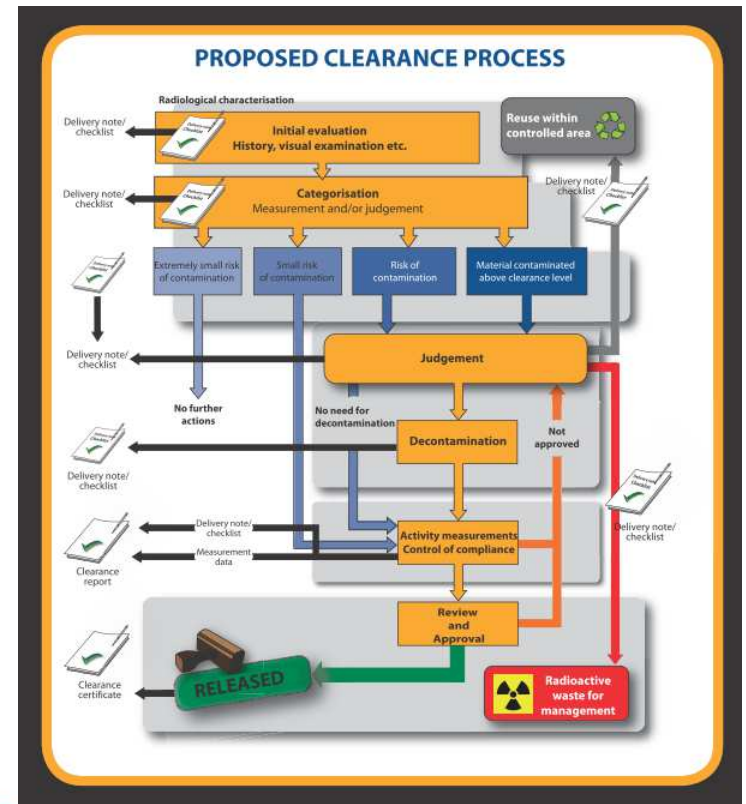
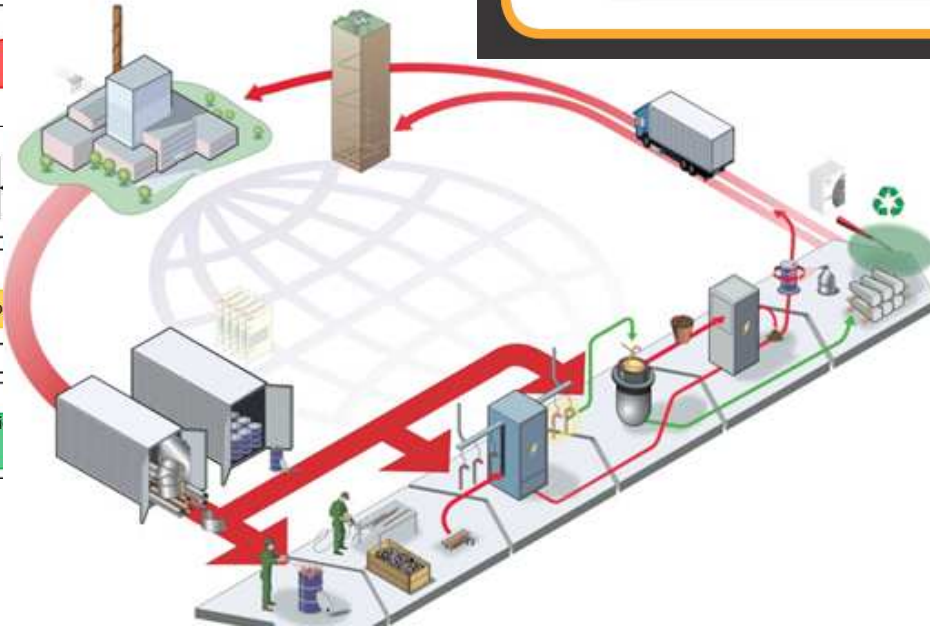
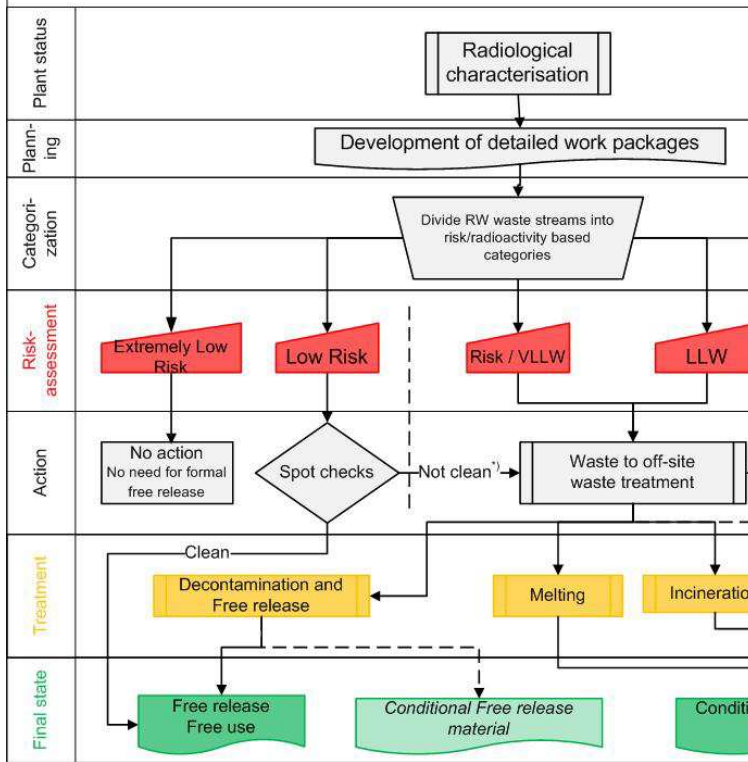




# Develop robust and reliable processes

Waste management concept – NPP decommissioning

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# Knowledge management

- Introduce knowledge management for D&D as early as possible
- Generate a historical data document by usage of existing knowledge
- Gather, structure and evaluate essential information. Update frequently
- Anecdotal information will assist in solving the characterisation puzzle



# KEY ACTIVITIES IN RADIOLOGICAL CHARACTERISATION

# The steps of characterisation

- Generic steps exist
  - relevant for all characterisation projects
  - independent of size
  - independent of the nuclear facility lifecycle phase

- Applicable for both materials and objects to be characterised.

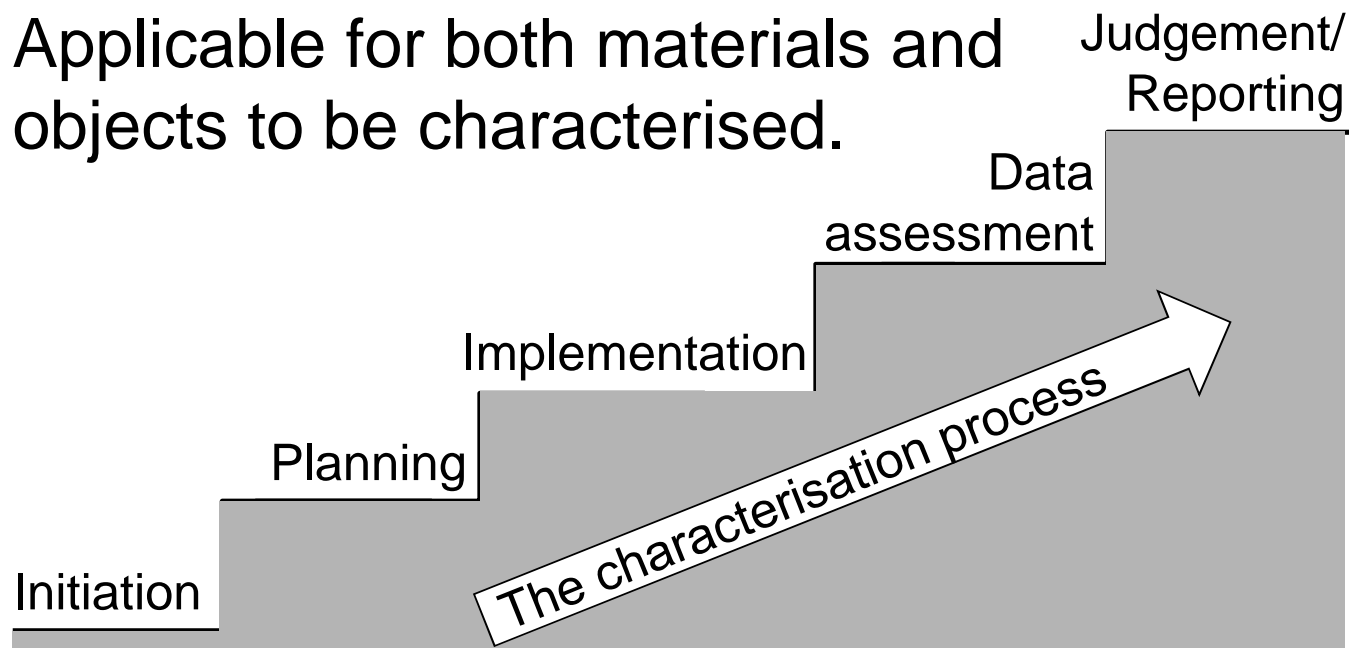


Photo: F Ekenborg, AB SVAFO



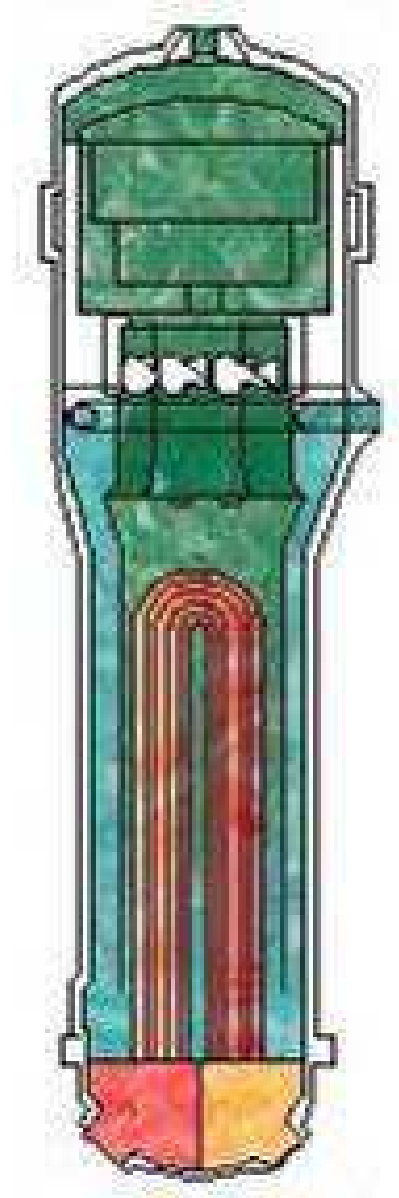
# Initiating phase

- Define objectives and boundary conditions



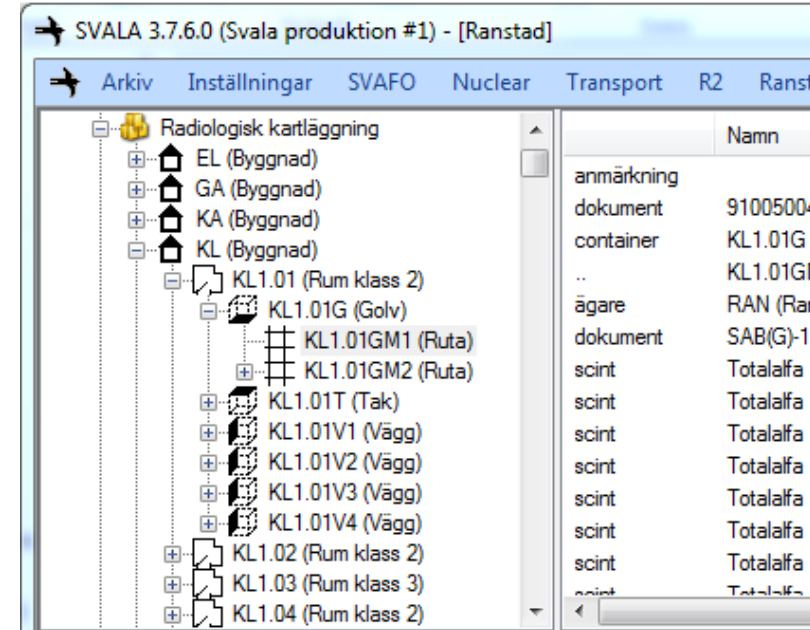
# Planning

- Collection and evaluation of historical information
- Initial categorisation of the objects
- Characterisation methodology/ sampling strategy
- Equipment selection
  - instruments for measurements
  - sampling tools
  - database system for collection and management of results
- Preparation of
  - measurement and sampling plan
  - analysis and evaluation plan
- Validation of nuclide vectors



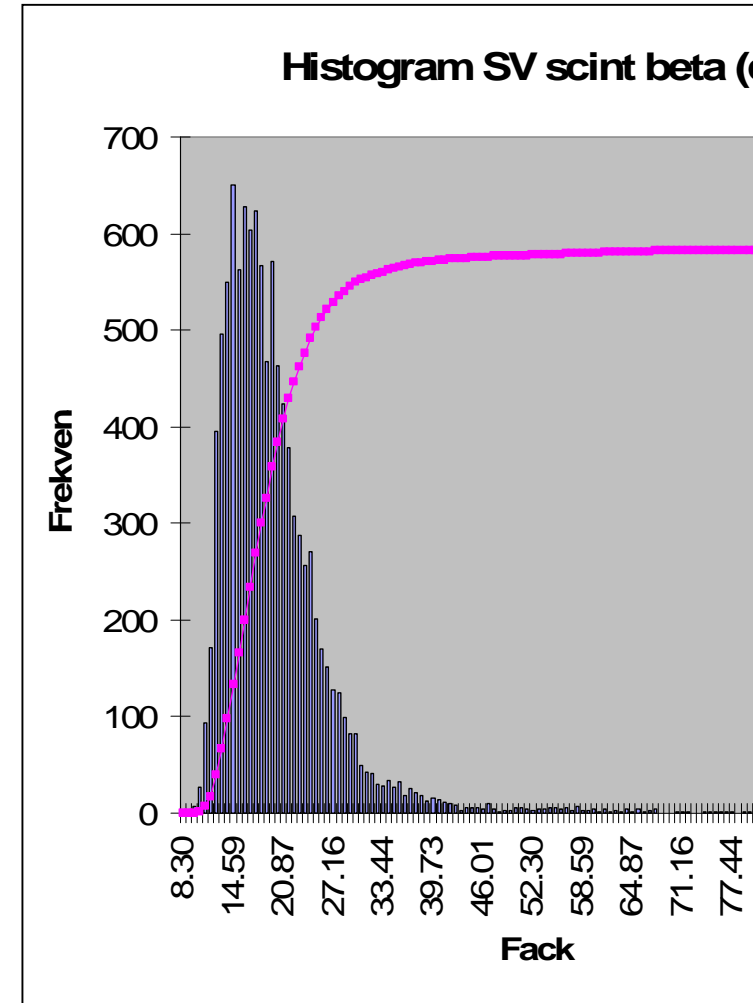
# Implementation

- Information and training
- Test campaign including evaluation
- In situ measurements
- Sampling and laboratory analyses
- Preliminary assessment of results versus initial categorisation
- If needed perform additional measurements



# Data assessment and evaluation

- Review and evaluation of the data obtained
- Evaluation of calculated results versus measured data
- Comparison of the measurement results with the historical information and initial categorisation
- Re-categorisation of objects
- Define if additional measurements or other activities are needed





# Judgement / Reporting phase

- Judgement and translation of the data assessment into meaningful language
- Assess the data against the characterisation goals / initial problem statement
- Completion and QA of final report
- Post-project review / audit of project record



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