Maturity Model For Assessing Data Infrastructures – CESSDA as an Example

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Background: Objectives

• CESSDA SaW: Strengthening and widening the European infrastructure for social science data archives
  • “State of play evaluation of social science data archives and services in EEA countries, identifying gaps and bottlenecks in existing services, and produce national development plans.“
  • “...a development model for describing the status of the data infrastructure in the social sciences at the national level.“
### Background: Starting Points

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Background: Capability Maturity Modelling

- Evaluation of processes & activities that an organisation undertakes (to provide a product/service)
  - To what degree are these implemented and optimised

- Stepwise progression through levels of maturity towards optimisation
  - Depending upon goals, not every process needs to be fully optimised
**REQUIREMENT AREA**

- Organisational Infrastructure
- Digital Object Management
- Technical Infrastructure / Risk

**PROCESS AREA**

- Acquisition and Ingest
- Preservation: storage, curation and planning
- Access / Provisioning

**REQUIRED OR EXPECTED ACTIVITIES**

- Access interfaces
- Searchable and indexed content
- Downloadable data holdings
- Data formats
- Metadata formats
- Metadata harvesting
- Access control and handling of anomalies
- Discoverability and accessibility

**Capability Completeness**

- 1: Initial
- 2: Partial
- 3: Complete

**Level of Maturity**

- 0: Not defined
- 1: Initial
- 2: Repeated/partial
- 3: Defined
- 4: Managed
- 5: Optimised
**Digital Object Management**

**Objective**: to enable users to discover, access and download data and metadata.

**Purpose**: to provide access to research data in an effective and secure way, ensuring that data can be understood, used and re-used in the long-term perspective.

**PROCESS AREA**

- **Acquisition and Ingest**
- **Preservation: storage, curation and planning**
- **Access / Provisioning**

**ACTIVITIES**

- **Objective**: Access control and handling of anomalies.
- **Objective**: to enable users to discover, access and download data and metadata.

**Metadata harvesting**

- **0**: No metadata harvesting enabled
- **1: Initial**: metadata is unstructured - limited accessibility
- **2: Repeated /partial**: most metadata can be harvested, but protocols are not implemented (or are only partly implemented).
- **3: Defined**: all metadata are harvestable; OAI-PMH / Dublin Core implemented.
- **4: Managed**: metadata harvesting is measured and monitored; regular reviews of metadata protocols
- **5: Optimised**: outputs of monitoring are formally reported; reporting are aligned to technology watch and communication with users.

*“The repository enables the harvesting of all their resource discovery metadata and relevant preservation metadata”*
Next Steps: Conclusions

- First version of the Capability Development Model - still a work in progress
- Concentration on the (data) service providers & data repositories
- Balancing needs for assessment in SaW and an in-depth development model
- Minimum & ideal capability completeness levels and maturity levels.
- A question for CESSDA
- A model to be used for long-term service improvement self-assessment?
Next Steps: Immediate Next Steps

• Availability: cessda.net/CESSDA-Services/Projects/CESSDA-SaW/Work-Packages/WP3/CESSDA-CDM (*but not yet*)

• Integrate research community into model
• Integrate comments & feedback from SaW assessments
Next Steps: Long-term Next Steps

• Broadening: scope to cover national context (research, funding (& national policy), and data creation)
• Deepening: number of capabilities and activities
• Expanding: with examples
And Finally...

• Not the only maturity modelling in CESSDA
• CESSDA Technical Framework
  • Software Maturity Model
  • Aligned with CESSDA-CDM
• John Shepherdson (session 3F - *The CESSDA Technical Framework* - *What is it and Why is it Needed?*)
Thank you for your attention