Is this metadata management tool any use?

Extending CESSDA’s software maturity matrix to the DDI domain

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Structure

CESSDA
• Overview, vision, objectives
• Common interoperability characteristics

Ensuring software quality
• Technical framework
• Quality control and acceptance criteria
• Software Maturity Levels (SML) scoring

Extending SML to DDI Tools
CESSDA

- Permanent legal entity owned and financed by the individual member states’ ministry of research or a delegated institution
- Each member is represented by a national institution, a Service Provider
- Norway is hosting CESSDA, main office in Bergen
- Recognised as an ESFRI Landmark in the ESFRI 2016 Roadmap in the field of social and cultural innovation
CESSDA’s vision

The vision of CESSDA, as stated in its statutes, is to provide a full scale sustainable research infrastructure that enables the research community to conduct high-quality research which in turn leads to effective solutions to the major challenges facing society today.
CESSDA’s objectives

- To support national and international research and cooperation in areas expected to be of great importance in the future
- To facilitate access to social science (and related areas) data resources for researchers regardless of the location of researcher or data
- To provide large scale, integrated and sustainable data services to the social sciences and facilitate and support research, teaching and learning
CESSDA’s 5 common interoperability characteristics

1. **Loosely coupled but coordinated** - enable Service Providers to retain independence, yet fully interact in an integrated service

1. **Sustainable** - enable medium and long term investment and business change decisions to be made
CESSDA’s 5 common interoperability characteristics

3. **Extensible** - enable additional services to be built on or around it, including adapting to changing functional requirements over time

3. **Maintainable** - enable components to be updated when IT specifications change

3. **Standards based** - enable the coordinated and planned change to all the coupled, but coordinated, services
CESSDA’s Technical Framework

A guide for the development of the various (software) products and services that form part of the CESSDA Research Infrastructure

• promote good practice for software development
• protect software assets
• meet common interoperability characteristics

Technical infrastructure for Development, Staging and Production

• harmonise software development tool chain for SPs
Protection of Software Assets

Ensure CESSDA has access to
• source code
• configuration files
• technical documentation

For Research Infrastructure components
Quality Control

Software Maturity Levels

• ensure quality of the research infrastructure is maintained
• guidance on minimum, expected and excellent standards
• originally based on NASA’s RRLs
• revised in light of ‘Capability Development Model’ from CESSDA SaW project
Maturity Modelling - More Info

See EDDI16 presentation:

A Capability Development Model for Assessing and Improving Distributed Infrastructures and their Services

Mike Priddy, Trond Kvamme, Marion Wittenberg
11 Product Acceptance Criteria

- Documentation
  - Development, Operational, End User
- Intellectual property issues
- Extensibility
- Modularity
- Packaging
11 Product Acceptance Criteria

- Portability
- Standards compliance
- Support
- Verification and testing
- Security
- Internationalisation and Localisation
Software Maturity Levels - SML

0 - Not applicable
1 - Initial usability; software use is not recommended
2 - Use is feasible; the software can be used by skilled personnel but with considerable effort, cost and risk
3 - Use is possible by most users; with some effort, cost, and risk. A risk assessment should be made before use
4 - Software is usable; with little effort, cost, and risk
5 - Demonstrable usability; there is clear evidence that the software is widely used by many users
Intellectual Property

1. Software developers have been identified and their responsibilities have been determined.

2. Developer organisation(s) (or developers) have an agreement with CESSDA that addresses any potential conflicts in the proposed intellectual property rights and responsibilities for development.

3. Agreements on development responsibilities, the list of developers, a recommended citation, and intellectual property rights statements, offering limited rights for use, are available, perhaps upon request, for review.
4. There is evidence that all developer organisation(s) (or developers) have confirmed that the list of developers, recommended citation, and intellectual property rights statements, including limited rights for use, in the software source code, documentation, and in the expression of the software upon execution, conform to CESSDA’s policies and agreements.

5. There is evidence that all developer organisation(s) (or developers) have confirmed that the list of developers, recommended citation, and intellectual property rights statements, including limited rights for use, in the software source code, documentation, and in the expression of the software upon execution, conform to CESSDA’s policies and agreements.
Intellectual Property

Developer sign up – get write access to CESSDA’s code repos

Complete online contributor’s agreement - re code ownership and IP
### Software Maturity Levels Matrix

<table>
<thead>
<tr>
<th>Colour</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Minimum standard</td>
</tr>
<tr>
<td>Orange</td>
<td>Expected standard</td>
</tr>
<tr>
<td>Yellow</td>
<td>Excellent standard</td>
</tr>
</tbody>
</table>

**Notes:**
- The matrix categorizes software development maturity levels based on various criteria such as development process, testing, and documentation.
- Each cell in the matrix represents a maturity level, with colors indicating different standards from minimum to excellent.
- The matrix is designed to help organizations assess their current maturity level and identify areas for improvement.
Online Form

CESSDA Software Maturity Levels

Form v02.00, 23 September 2016

*Required

Using this form

You can use this form to assess a product (typically a 3rd party product you are thinking of adopting, or a component that is being considered for use as part of the CESSDA Research Infrastructure).

The information you enter will be stored in CESSDA's Software Maturity Levels (SML) scorecard. When you reach the end of the form, you can choose to have the scores you entered emailed to you, along with the overall product assessment.

There are eleven criteria for you to score against. Each can be scored from Level 1 (low) to 5 (high), or 0 (not applicable).

Each of the criteria has a minimum standard associated with it, which should be met or exceeded by any component intended for use as part of the CESSDA Research Infrastructure.

Product name *

Your answer

https://goo.gl/forms/uwuye0nTUkti7AiH2
Confirmation Email

Thanks for using the CESSDA Software Maturity Levels (SML) form.

The overall score for Open Source Metadata Harvester (OSMH) is Level 3.

Which means “Software is usable; the software can be used by most users although there may be some cost and risk” (i.e. expected standard for CESSDA RI use).

You entered the following values:

- CA1.1: End user Documentation: 0
- CA1.2: Operational documentation: 2
- CA1.3: Development Documentation: 2
- CA2: Intellectual Property: 3
- CA3: Extensibility: 4
- CA4: Modularity: 3
- CA5: Packaging: 2
- CA6: Portability: 4
- CA7: Standards Compliance: 2
- CA8: Support: 2
- CA9: Verification and Testing: 3
- CA10: Security: 3
- CA11: Internationalisation and Localisation: 3

and provided the following feedback:

“It would sometimes be good to be able to comment on a score, because there are nuances and trade-offs here. Also, an N/A-category could be useful. Used 0 for the CA1.1 since the OSMH don’t have "end users" as such.”

Regards,

The CESSDA Technical Work Group

Not applicable
Extending SML for DDI Tools

Some suggested criteria:
• Imports/exports multiple versions of DDI
• Multiple representation formats supported (formal syntax)
• Has declared semantics (uses CVs, thesauri, ontologies ...)
• Maintains Provenance
• Supports Curation
• Data cleansing, consistency checking
• etc.
Extending SML for DDI Tools

Straw poll

Is this approach any use?

Please raise an arm if you think so
Extending SML for DDI Tools

Why useful?

Could reduce barriers to acceptance and reuse
  • DDI tools
  • DDI metadata

More discussion at panel session ‘Re-Use of Software and Administered Metadata’ on Wednesday at 15:30
Conclusion

Software reuse is by design, not by accident.

Adding ‘reusability’ at the end is time consuming and expensive
Thanks for listening

Any question?
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