



A Design Science Research project: A method for the development of Dublin Core Application Profiles

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Introduction

- > A Semantic Web Related PhD project
- > The Semantic Web is about common formats for integration and combination of data from different sources [W3C, 2012]
- > The Semantic Web architecture has several layers, one of them is the "Data interchange: RDF". This layer has to do with metadata
- > Metadata is data that describes resources with information [Press, 2004]
- > A Dublin Core Application Profile (DCAP) is a construct defined in the Dublin Core Abstract Model (DCAM). The DCAM is a model defined by the Dublin Core Metadata Initiative (<http://www.dublincore.org>) for DCMI syntax specifications
- > A DCAP is "a generic construct for designing metadata records" [Baker and Coyle, 2009]
- > The Singapore Framework for Dublin Core Application Profiles recommendation - c.f. Baker et al. (2008) - defines the rules to build a DCAP

Research Problem

- > A DCAP is a very important construct to implement interoperability
- > To develop a DCAP is a complex task, therefore it is essential to have a method
- > For the time being the only guidelines available to develop a DCAP are stated in the Singapore Framework - c.f. Baker et al. (2008) - and in the DCMI Guidelines - c.f. Baker and Coyle (2009); but they are not a method
- > To the best of our knowledge there is no method for the development of a DCAP [Curado Malta and Baptista, 2012]
- > Our project has the aim of contributing to the development of such a method (a first version of a method for the development of Dublin Core Application Profiles (Me4DCAP) V0.1 has been published - c.f. Curado Malta and Baptista (2013))

Research Methodology

- > Our work is based on a Design Science Research (DSR) methodology
- > DSR aims at the development of innovative artifacts that solve real-world problems [March and Smith, 1995, p. 82]
- > On DSR "Artifacts must be improved upon existing solutions to a problem or perhaps provide a first solution to an important problem" [Hevner and Chatterjee, 2010, p.6]
- > Our work is an improvement
- > Our work follows Hevner's (2007) framework
- > According to Hevner (2007) a DSR project has 3 cycles:
 - the "Relevance Cycle" that works in the "Environment"
 - the "Design Cycle" that works in the core activities of building the artifact
 - the "Rigor Cycle" that works in the "Knowledge Base" of scientific theories

DSR Approach

- > The artifact developed in this DSR project is a method
- Relevance Cycle:**
 - The "Environment": the metadata community, which supplies the application context and the requirements for the development of the method
 - See FIG 1 to see how the requisites were obtained
 - Evaluation:
 - 2 Focus Groups (c.f. Tremblay et al. (2010)) to evaluate our artifact: one with a panel of metadata specialists, another with a panel of software development process specialists
- Design Cycle:**
 - Construction moments: the Rational Unified Process (c.f. Kruchten (2004)) as starting point as well the Singapore Framework and the DCMI Guidelines. We then integrated other elements from the study Curado Malta and Baptista (2012) and also information that came out of 3 interviews to DCAP developers
 - Evaluation moments: experimental situation with a World community of Social and Solidarity Economy. We feed back the construction moments of this cycle with the outputs of this experiment
- Rigor Cycle:**
 - New knowledge is incorporated in the artifact that is produced and in the process of design. This new knowledge has to be identified
 - The DS Researcher theorises to elaborate new theories and justifies the theories produced
 - A DSR project is a long process [Gregor and Hevner, 2013] and a PhD project can not do all the process due to time constraints. The theorise and justify activities will be done in future work

Results

- > A first approach of a method for the development of Dublin Core Application Profiles: Me4DCAP V0.3
- > A DCAP-SSE V 0.1 to be used by the World Community of Social and Solidarity Economy Web Based Information Systems

Next Steps

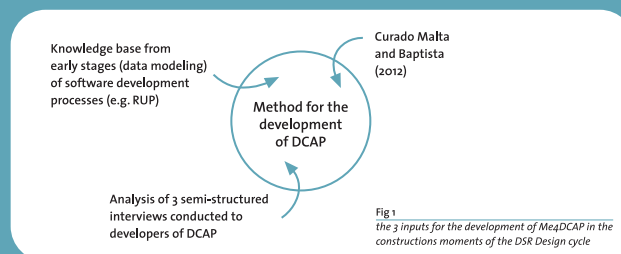
- > On the Design Cycle Me4DCAP V0.2 is being developed with the inputs of a non-structured micro-evaluation performed in a Special Session of the Conference EIPub2013 and in the Doctoral Consortium of DESRIST2013, in June 2013
- > In the Relevance Cycle the 2 Focus Groups for Me4DCAP V0.2 evaluation are being planned and structured
- > Development of Me4DCAP V 0.3 with the output of the Focus Groups process

Future Work

- > Development of metrics for Me4DCAP V0.3 evaluation process
- > Me4DCAP V0.3 evaluation through field testing
- > Development of Me4DCAP V0.4 with the outputs of Me4DCAP V0.3 field testing evaluation
- > Continue the DSR process, working on the Rigor Cycle

Conclusions

- > This poster describes the research methodological approach of a work in progress project. It is a Semantic Web related PhD project
- > A Dublin Core Application Profile is a very important construct to implement interoperability
- > To the best of our knowledge there is no method for the development of a DCAP
- > We are developing a first approach to such a method (Me4DCAP)
- > This development is framed in a Design Science Research (DSR) methodological approach
- > This poster describes this approach



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