Rethinking Preservation Validation with the Preserved Object and Repository Risks Ontology (PORRO)

Andrew McHugh
Humanities Advanced Technology and
Information Institute
University of Glasgow, Glasgow, UK
amh@arts.gla.ac.uk

Mounia Lalmas
Department of Computing Science
University of Glasgow, Glasgow, UK
mounia@acm.org

ABSTRACT

For securing digital longevity, the processes of preservation planning and evaluation are fundamentally implicit and share similar complexity. Means are required for the identification, documentation and association of those properties of data, representation and management mechanisms that in combination lend value, facilitate interaction and influence the preservation process. These properties may be almost limitless in terms of diversity, but are integral to the establishment of classes of risk exposure, and the planning and deployment of appropriate preservation strategies. We present PORRO, an ontology based approach for documenting objects, repositories and risk information, intended to support preservation decision making and evaluation.

Categories and Subject Descriptors

H.3.7 [**Information Storage and Retrieval**]: Digital Libraries

General Terms

Management

1. INTRODUCTION

Our understanding of information vulnerabilities, and of causal links between environmental or object-specific properties and information loss remain rudimentary. The preservation community is large and varied, and a common knowledge base is profoundly absent. Even within single environments there is complexity in terms of organisation, technology and priorities. A more holistic and warranted understanding of the relationships that exist both within and between preservation environments permits greater overall understanding of risk and of the implications of particular preservation interactions.

Preservation planning and validation each have significant knowledge demands, requiring consciousness of information value, awareness of the implications of particular interventions and understanding of priorities and tolerances for achieving success. However, to date neither activity has been supported by sufficiently robust tools to permit the expression of sophisticated information interrelationships,

despite the capacity and appetite for knowledge management approaches exhibited by the preservation community in other applications.

2. PORRO

The *Preserved Object and Repository Risks Ontology* succeeds in offering means for recording diverse information facets to support fully warranted preservation management decisions and conclusions. It makes accessible properties and considerations that while relevant may otherwise be overlooked if relying on more linear means. Likewise, it presents a holistic view of risk and risk implications, limiting the likelihood of risk impact silos and making explicit organisational and informational relationships, deemphasising boundaries. This is true both internally within organisations, and in a more global sense, whereby common characteristics can be established across preservation environments, in order to establish shared knowledge pools that may be broadly exploited.

PORRO has been conceived by reference to the list of 78 risks presented within the *Digital Repository Audit Method Based on Risk Assessment* [1], and, by association with other repository characteristics is capable of expressing an almost comprehensive range of risk exposure and risk consequences. There is no assumed priority in terms of causal and consequential factors; with *PORRO* one can express not only overtly risk-related factors, but also descriptive, technical and administrative information that may be subsequently relatable to risk. *PORRO* therefore supports not only the repository evaluation or risk assessment exercise, but also documentation in a more general sense. The ontology approach also offers extensibility to enable the adoption of existing domain specific descriptions where necessary.

3. ACKNOWLEDGMENTS

4. REFERENCES

[1] A. McHugh, R. Ruusalepp, S. Ross, and H. Hofman. *The Digital Repository Audit Method Based on Risk Assessment.* DigitalPreservationEurope and Digital Curation Centre, 2007.