

PERICLES EU Integrated Project: Research Strategy and First Results

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1 The PERICLES Project

PERICLES (Promoting and Enhancing Reuse of Information throughout the Content Lifecycle taking account of Evolving Semantics) is a 4-year IP (2013-17), supported by the EC Seventh Framework Programme (ICT Call 9) under Grant Agreement Number FP7-601138. The project addresses objective ICT-2011.4.3 Digital Preservation and aims to ensure that digital content remains accessible in an environment subject to continual change. This can encompass not only technological change and obsolescence, but also changes in context and semantics, academic or professional practice, or society itself. These changes can affect the attitudes and interests of stakeholders that interact with the content: curators, artists, scientists, or a broader public, such as exhibition visitors. Such a changing environment dictates a parallel evolution of preservation strategies and approaches, if stakeholders are to be able to continue to use and interpret content appropriately. PERICLES takes a '*preservation by design*' approach involving modelling, capturing and maintaining detailed information about digital content, its environment, and the processes and policies to which it is subject.

PERICLES addresses these preservation challenges in two domains: (a) digital artworks (e.g. interactive software-based installations, and other digital media) from Tate Gallery's collections and archives; (b) experimental scientific and associated operations data from the European Space Agency and the International Space Station. The project will deliver two preservation prototypes, respectively, as well as a portfolio of models, services, tools and best practices for the support of preservation ecosystems and lifecycle management. Broader take-up of the project's results will be encouraged through Communities of Practice and engagement with industry.

At the core of the project lies the *Linked Resource Model (LRM)*, an RDF-based model that provides an abstract foundation to represent digital resources in preservation environments and dependencies among them. The LRM will serve both as an upper ontology for the RDF- and Topic Maps-based domain representation semantic models developed within PERICLES and as a template for producing concrete instances of LRM models as examples.

1.1 Demonstration

The *PERICLES Extraction Tool (PET)* is one of the project's first year outputs and is designed to collect a broad set of information from the environment where the data is used. By continuously monitoring the system where Digital Objects (DOs) are used, it can gather dependencies about their use, and other environment information that would be difficult to collect at later points of the information lifecycle. Such information will help support the future interpretation and reuse of the DOs.

The tool is generic with no single user community or use case in mind. It can be configured with extraction profiles and domain specific modules to fit specific use cases, and is being tested on the diverse domains of the project. We will demonstrate how PET can monitor changes in the user's environment, and keep trace of events that can help derive dependencies of use between DOs, relevant for the DO usability in the long term. Future work will be dedicated to the analysis of the collected information in order to assess its significance and derive higher level features.

1.2 Networking with other Projects

Towards promoting the project findings, seeking input from external groups and extending collaborations to new communities, PERICLES will build Communities of Practice around the addressed topics. Networking with other projects will assist in this activity, aiming at two key objectives: (a) to evaluate our approaches, processes and tools against requirements and user communities in different application domains – this can be achieved by evaluating the adopted approaches against requirements of the user communities targeted by the project, and by assessing the potential for deploying project outputs in operational environments; (b) to facilitate sustainability and exploitation of project outputs by disseminating the knowledge created, i.e. via exploitation activities, contributions to relevant standards and engagement with organizations (both in the public sector and in industry) to facilitate the take-up of project outputs. A vital aim is to establish collaboration with other organizations and/or projects working on relevant semantic technologies, e.g. sharing, re-using or extending ontologies or other semantic models, applications to other domains etc.

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