

CROSSCULT: Empowering reuse of digital cultural heritage in context-aware crosscuts of European history

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Project Description

CROSSCULT (www.crosscult.eu) is a three-year H2020 research project, which started in March 2016. It consists of 11 European institutions and 14 associated partners, from Computer Science, History and Cultural Heritage. The goal of CROSSCULT is to spur a change in the way European citizens appraise History, fostering the re-interpretation of what they may have learnt in the light of cross-border interconnections among pieces of cultural heritage, other citizens viewpoints and physical venues. Its aim is to enable a *unified, IT-facilitated history approach*, which goes beyond the conventional siloed presentation of historical data, and focuses on aspects that are cross-cultural, cross-border, cross-gender and cross-ethnic, in order to trigger substantial reflection on history as we know it, as well as on grant societal challenges, such as population movements, access to health services, women's place in society, power structures, etc.

To this aim, the project integrates innovations from different areas of Computer Science with Humanities research in order to:

- Develop pilot experiences that investigate the potential of situational curiosity and serendipity to increase the retention of historical facts linked by cross-border connections or crosscutting topics, gaining insight into the question of how the same facts may be interpreted differently from different social realities and by individuals with different cognitive/emotional profiles (*meta-history*).
- Create a semantic knowledge base that interrelates an unrestricted set of (existing and future) digital cultural heritage resources and venues across different repositories, on the grounds of common properties or crosscutting, transversal concepts.
- Assess the impact of state-of-the-art technologies of geolocalization, micro-augmentations of reality, social networking, content adaptation and personalization in mobile edutainment apps for smart cities and smart venues.
- Automate the generation of narratives and the composition of digital cultural heritage resources in order to deliver meaningful interactive experiences to individuals and groups, taking into account their cognitive/emotional profiles, as well as temporal, spatial and miscellaneous features of context.

- Design business models and plans for the exploitation of the project results, assessing the viability and sustainability of the proposed knowledge base, technological platform and interactive experiences in collaboration with a new network of researchers, scholars, ICT professionals and specialists of digital heritage.

To demonstrate its findings and potential impact, CROSSCULT uses four flagship pilots, each of which takes place in different venues of historical interest, triggers different elements of history reflection and uses different (but often overlapping) sets of technologies. Each pilot is developed as standalone within the project, but their underlying principles, evaluation framework and supporting technologies are developed in a modular way: they are connected through a common platform front-end interface and back-end technologies. To support the pilots, but also to achieve its more general goals, the project develops technologies at three different layers: (a) *Applications*: market-ready mobile device applications, developed for the project pilots and targeted towards the visitors as end-users; (b) *Front-end*: user-friendly tools for experience designers, museum curators and external stakeholders; and (c) *Back-end*: technologies for the storage, management and semantic integration of digital information, and for the support of the functionalities of the front-end and the mobile apps.

Participation in the EU Project Networking Track

Our participation in the EU Project Networking Track has three aims. The first aim is to present the project, its main aims, our general approach for achieving its aims, and the related R&D objectives and activities to the audience of ESWC'16. We will give more emphasis to the activities of one of its work packages, which is responsible for the data modelling, management and integration tasks. Our approach for this task is based on the use of ontologies and Linked Data vocabularies for cultural heritage and other relevant domains. The employment of the CIDOC Conceptual Reference Model will enable integration of disparate datasets and metadata under a common semantic layer driving cross-search and inferencing capabilities. The Getty Art & Architecture Thesaurus as a common terminology framework will address the issue of varying choice of terms by different datasets. The W3C Recommendation SKOS will be used as the representation format for terminology resources. RDF will be used as the underlying data model to facilitate data interoperability, integration and query.

The second aim is to get feedback from other participants and discuss their ideas and practices for handling challenges that are relevant to the project, ranging from conceptual ones, e.g. how to develop a data model that captures many different types of information and at various levels of granularity; to more technical ones, e.g. which s/w tools are best for distributed data management.

The third aim is to establish connections and seek opportunities for collaboration with other projects that are relevant to ours. The form of this collaboration may range from exchange of ideas and information between the projects to future collaborative research proposals in common areas of interest.