



Trinity College Dublin (TCD), Ireland



IBM (IBM ISRAEL), Israel



Sofia University (SU), Bulgaria



Commetric EOOD (COMMETRIC), Bulgaria



University of Padua (UNIPD), Italy



Pintail Ltd (PT), Ireland



Graz University of Technology (TUG), Austria

The CULTURA consortium has a strong emphasis on meeting real end-user needs, maximising societal impact and laying a foundation for successful commercialisation. Thus, the project has a strong scientific foundation, informed by two significant digital cultural resources and associated communities, and supported by experienced and effective project management.

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Project Overview

A key challenge facing curators and providers of digital cultural heritage across Europe and Worldwide is to instigate, increase and enhance engagement with digital humanities collections. To achieve this, a fundamental change in the way cultural artefacts are experienced and contributed to by communities is required.

CULTURA is pioneering the development of next generation adaptive systems which provide new forms of multi-dimensional adaptivity:

- Personalised information retrieval and presentation which respond to **models of user and contextual intent**;
- Community-aware adaptivity which responds to **wider community activity, interest, contribution and experience**;
- Content-aware adaptivity which responds to the **entities and relationships automatically identified within the artefacts** and across collections;
- Personalised **dynamic storylines** which are generated across individual as well as entire collections of artefacts.

CULTURA advances and integrates the following key technologies:

- Cutting edge natural language processing, which normalises ambiguities in noisy historical texts;
- Entity and relationship extraction, which highlights the key individuals, events, dates and other entities and relationships within unstructured text;
- Social network analysis of the entities and relationships within the content, and also of the individuals and broader community of users engaging with the content;
- Multi-model adaptivity to support dynamic reconciliation of multiple dimensions of personalisation.

What CULTURA Does

CULTURA operates on three planes — the user, the community and the content.

CULTURA tracks the actions of the **individual user** and builds models of that user's expertise, interests and requirements. Based on this model, CULTURA provides an adaptive personalised research environment which assists the user to navigate large and complex cultural collections of digital data and artefacts, offering and highlighting elements and information which match the actions and choices of the user.

CULTURA builds an understanding of the **research community** which is active in a given humanities environment. It identifies the key researchers, the influential thought leaders and the most insightful. CULTURA characterises groups of users with similar expertise and/or interest, and uses the activities of the group to inform its adaptive responses to the individual.

CULTURA models the digital humanities **content artefact**, identifying the items which are most popular, most important and which attract the most annotation. It applies social network analysis to the content, identifying entities, relationships, linkages and influence in a model of what is important and impactful within the corpus itself. This knowledge of the content is applied in making informed and intelligent presentations for users from a variety of communities.

Key CULTURA Innovations



CULTURA uses leading **natural language processing** technology to convert “noisy” historic text (with inconsistent spelling, abbreviations, punctuation, etc.) into consistent language which can be analysed automatically.



CULTURA applies patented **influence analysis** to identify the entities and relationships which are most important, within complex data artefacts and also within the communities of researchers studying these artefacts.



CULTURA builds new types of personalised, adaptive environments which support the user as he participates in distributed communities of researchers, focusing on large collections of “noisy” digital humanities material.