

Encouraging IST research on European digital cultural content

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Muriel Foulonneau
EMII-DCF expert
Minerva network
member
Relais Culture
Europe
France

Rosa Botteril
EMII-DCF
coordinator
MDA
United Kingdom

Antonella Fresa
Minerva technical
coordinator
Promoter
Italy

Louise Smith
Director of MDA
United Kingdom

David Dawson
EMII-DCF expert
MINERVA
coordinator of
interoperability
working group
Resource
United Kingdom

The **European Museums' Information Institute Distributed Content Framework (EMII-DCF)**¹ project had a specific focus on IT researchers requirements as regards to digital cultural content and defined a framework which includes a series of reference documents. Those draw specific conditions on availability of material, including contracts, technical guidelines and organisation of responsibilities between actors of the heritage and IT research sectors to set up joint projects. The "European technical landscapes" reported by EMII-DCF and the benchmarking exercises of the interoperability and benchmarking groups of the **Ministerial Network for Valorising Activities in Digitisation (MINERVA)**² project have provided a clear overview of existing practices in digitisation of heritage resources by European memory organisations (museums, libraries, archives, audiovisual archives, archaeology, galleries, monuments ...). From this work, the European actors must face a challenge to improve the quality of digital cultural content created for researchers, the industry and any digital service provider for the overall **benefit of European citizens**.

1 Ensuring technology transfer to memory organisations

On the one hand, the EMII framework aims at allowing to include the memory organisations in the research field and to encourage them to make their datasets available and suitable to improve the research activities. On the other hand, the Minerva project aims at setting a common framework for production processes on digitisation of heritage resources.

The collaboration between both projects has led to a common document on technical standards to follow in order to provide high quality content suitable for both research activities and public or commercial exploitation and intelligent heritage services. Intellectual property rights and usage issues on cultural content have been deeply considered at European level by the EMII-DCF project in order to anticipate the establishment of joint European cultural services and research projects. This work provides tools for memory organisations to safely leave their resources available for research activities. The Minerva project, on that basis, explores advanced technologies to materialize the processes and protections entailed by the production of digital heritage asset. This complementarity is a real **added value of European cooperation** since it can draw a general framework for cross-domain content which is not yet fully considered at national levels. Collaboration with the research

¹ <http://www.emii-dcf.org/>

² <http://www.minervaeurope.org/>

sector should bring long-term benefit for memory organisations to enrich their experience of mass production and implementation of management and display application and ensure **technology transfer**.

The **Lund principles** defined in 2001 have been agreed by all European governments. They state that “In order for Member States to identify and implement strategies and agreements on content production, quality, discovery and use, a number of current and emerging technical issues need to be addressed through short and longer term RTD initiatives. The Commission should: [...] counter the risks of creating a 'digital dark ages' by developing advanced research agendas into: digital technologies and preservation of content; improved applications of advanced technologies for digitisation of cultural and scientific content (eg multi spectral imaging), adding value to the significance of the content over time. This work should be carried out in close collaboration with industry.”

This effort shall also be oriented towards **medium and small size memory organisations** particularly concerned by the missing technology transfer. A key challenge of the European Commission such as defined in the Digicult Executive Summary 2001³ is to “enable small and under-resourced cultural heritage institutions to participate in future Research & Development (R&D) programmes by narrowing the existing technology gap”⁴.

2 A necessary cooperation

Cooperation between memory organisations and research bodies is necessary in such fields as digital preservation where major initiatives are launched as joint projects between private or public research and large heritage institutions, such as in Sweden and in the UK. Academic research has also appeared very important for digital libraries applications⁵. Indeed, they are major actors in **open source** applications development, which is a guarantee of long term sustainability for heritage resources.

To ensure a clear technology transfer to memory organisations, the **structure of funding programmes**, both at national and European level should be coordinated. On the one hand programmes which aim at creating digital cultural content, on the other hand programme which fund IT research on digital cultural content should be connected. This ensures the quality and technical criteria for digital cultural content used by researchers and that research activities are oriented towards a better service to the end users. This coordination of funding sources is absolutely necessary to improve technology take-up and benefit for end-users, since it is the only condition to create incentive for orienting researches towards cultural and social priorities and to ensure better inclusion of all citizens in the society.

The end-users of digital cultural content are more and more studied and appreciated by representatives of the heritage sector, through such projects as the Cultural Content Forum study on audience of digital heritage⁶. This important work carried out by the heritage sector is a major contribution to ensure the technology take up and usefulness of services being developed by both academic and industrial researchers. Memory organisations have a clear role to provide complementary aspects of **user requirements and studies** to the researches led in universities and companies.

3 European digital cultural content

In order to represent culture usefully for European citizens, digital cultural content should be produced in high quality and suitable for intelligent innovative and intuitive interfaces. It is important to deal with cross-domain resources, thus remove boundaries between specific heritage sectors, libraries, archives, museums, archaeology but also between artistic creation of born digital cultural content and heritage resources.

The work of the EMII-DCF project has clearly demonstrated the challenge for research to work on digitised content but also **born digital content**, including new media and works composed of many distinct elements. This issue is extremely important to deal with but it is still unsafe both legally and technically to work on the use and preservation of such new types of heritage. The research projects

³ Technological Landscapes for Tomorrow's Cultural Economy

⁴ <http://digicult.salzburgresearch.at/results/english/chapter3.htm>

⁵ as demonstrated by the major role of academic researchers in the DELOS network of excellence on digital libraries

⁶ http://www.culturalcontentforum.org/publications/audience/initial_audience.pdf

in this area are highly needed, although major projects are not led at European level and it appears interesting to raise awareness of Research and Technology Development project leaders in this area, poorly explored under the 5th framework of the European Commission for them to better take into account specific researches on new media and born digital cultural content. A shift is to be engaged towards the integration and coordination of policies not only on digitisation but on digital cultural content creation as a whole, including processing of born digital content to raise its heritage value.

The “Technical Guidelines for Digital Cultural Content Creation Programmes” is a joint document of the EMII-DCF and the MINERVA projects which draws the basis of European framework on digital cultural content. It considers both digitised and born digital content and aims at including all types of digital cultural content to facilitate the creation of innovative services.

4 A European framework for digital cultural content creation

Thanks to the National Representatives Group on Digitisation of Cultural and Scientific Heritage (NRG)⁷ in Europe, important **national funding bodies** are solicited to both coordinate their policy and national programmes with public IT research programmes and take into account IST research projects. The establishment of networks of excellence shall reinforce this trend. However, the direct technology take-up from European IT research in content creation should be sought through a reinforcement of the European leadership in digital content creation in Europe, able to coordinate the action of proper research projects and content creation.

Many countries, when elaborating a strategy for digital cultural content creation, include all aspects of production (digitisation and born-digital content capture), economic (e-business strategy or economic model) and research, such as proven in Austria and the Netherlands for example. The “Digital Production Line” programme in the Netherlands for example associates heritage institutions, businesses and computer science research departments at major universities to develop technologies for heritage resources. In France and in Italy, the digitisation policy is defined by the same bodies as research projects in the cultural field. This allows a clear coordination of cultural content creation and research activities.

The digitisation programmes are or should be supported by **competence centres**. Those are designated to help project managers to successfully lead their project. A collection of lessons learnt has been extrapolated out of the good practices collected in the scope of the NRG. They have been gathered in a handbook to support the activity of European competence centres⁸. The Minerva activity on good practices has demonstrated that many competence centres, whether officially designated or widely recognised are often research laboratories or specific innovation departments of large memory organisations. Those competence centres are a major channel to transfer technologies but experimentations and innovative projects should be encouraged and associate both types of actors in order to improve the quality of the content created. Moreover, medium and small size heritage institutions should be more involved in such research projects and the guides set by EMII-DCF and MINERVA are made with that purpose. The learning initiative of the Minerva project should help disseminating those tools, standards and good practices towards small and medium size memory organisations.

5 Important follow-up initiatives

The European **IST programme** is a major source of interesting projects which involve memory organisations to develop IT applications to heritage resources. However, as the European Commission has not set up proper programmes to directly fund digital content creation, the technology take up can only be ensured through national programmes and national research programmes. In this context, no joint and fully coordinated activity is really possible without intermediary agents. The National Representatives Group has a clear role to ensure a political coordination on content creation but it should enlarge to or be completed by a mechanism for ensuring the coordination between content creation and research funding framework, through European competence centres, through the promotion, in the IST programme of the European digital cultural content creation framework, through a European body (observatory) on digital cultural content creation.

The European Commission has no programme to create content, but European stakeholders could usefully benefit from additional EC instruments such as eTen and eContent programmes, to create

⁷ <http://www.cordis.lu/ist/ka3/digicult/eeurope-overview.htm>

⁸ http://www.minervaeurope.org/structure/workinggroups/goodpract/document/bestpracticehandbookv1_2.pdf

innovative service network of common interest, at a trans-european dimension. This involvement would prove a tangible way to **demonstrate the exploitability of digitised cultural content** within concrete implementation of services, such as trans-European portals.

Major **research orientations** in the field of digitisation of heritage resources for the next years must help improving the quality of digital documents and decrease the cost of digitisation so that productivity can be improved and more digital content can be created. They shall mainly match challenges of archival documents, including content recognition, digitisation of large formats, bulk production of 3D content, distributed architectures for heritage digital services, preservation of digital content, multilingual and multi-cultural content management, improvement of information retrieval for heritage resources, facilitation of resources standardisation, finally new interfaces for intelligent heritage display. The research communities around all these sectors often work in distinct networks. Researchers on heritage resources can be usefully connected at both national and European level and benefit from the structural evolutions entailed by the implementation of the **European Research Area**.

The organisation of **conferences and events** including curators, librarians, archivists and IT researchers can foster the cooperation between memory organisations and the research field. The European Conference on Digital Libraries is a very good example of this incentive and fruitful cooperation. It is a major forum to allow librarians to get involved in research activities and provide orientations to researchers. Enlarging such a forum or creating a new forum for all heritage fields to meet IT researchers on heritage resources and applications would allow both to foster the cross-domain dimension of the applications for digital heritage and raise awareness of the necessary material and quality of digital content to be used by researchers.

The Minerva and EMII-DCF projects have stressed the necessity of initiatives to coordinate IT research programmes and content creation programmes. Innovation is needed in numerous fields of heritage and memory organisations have proven very dynamic to develop major services for European digital cultural asset. The framework being elaborated at European level for digital cultural contents on the basis of the collaboration of both projects shall be supported in the future by priorities and efforts to disseminate guidelines, good practices and standards. Evaluation of content creation policies and programmes should include elements on the strategy to ensure technology and overall innovation take up in memory organisations.