

ICT Workprogramme 2009-2010

Objective 4.1: Digital Libraries and Digital Preservation

Call 6

Cultural Heritage and Technology Enhanced
Learning Unit
DG INFSO / E3

Objective 4.1 Call 6



European Commission
Information Society and Media

Challenge 4

- Research on the **creation, distribution and exploitation of knowledge and digital content**
- Three objectives make this challenge:
 - **Digital libraries and digital preservation** (unit E3 call 6)
 - Enhancing the meaning and experiences we get from cultural and scientific content;
 - Preserving digital objects created today for the future;
 - Technology-enhanced learning (unit E3 **call 5**)
 - Improving learning and teaching through ICTs;
 - Intelligent Information Management (unit E2 call 6)
 - Assisting humans in the creation of intelligent digital objects (modular and self-describing)

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Work programme 2009-2010: Digital Libraries and Digital Preservation

Digital preservation research topics

- a) Scalable systems and services for preserving digital content (IP)
- b) Advanced scenarios / challenging problems
 - 1) preserving complex objects (new) (STREP)
 - 2) intelligent digital curation and preservation (IP)

Digital libraries research topics

- c) Innovative solutions for assembling multimedia digital libraries (IP)
- d) Adaptive cultural experiences (new) (STREP)
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Work programme 2009-2010: Digital Libraries and Digital Preservation

- e) **Research capacity** building:
 - Interdisciplinary research networks
- f) **Uptake** of research results:
 - Promoting uptake to encourage deployment; roadmapping; showcase, validation and demonstration centres (**new**)



Digital libraries – background and rationale defining the research

- Inputs
 - from consultation meetings with stakeholders
 - roadmaps from NoEs
- Context
 - i2010 digital libraries initiative identifies research priorities re DLs, digitisation and digital preservation
 - previous research into accessing cultural & scientific resources held in digital libraries (managed collections)
 - incremental development – architectures, improved interoperability across DLs, retrieval of heterogeneous content, content-based and multilingual retrieval
 - research into using ICTs to improve access to cultural artefacts, virtual visits, integrating virtual representations into physical site visits

Digital Libraries - rationale

- Encourage emergence of large scale digital libraries – scaling up of existing efforts and DL infrastructures
- Support communities of use in engaging with digital libraries – better understanding of these communities and how they interact with DLs
- Exploit cultural heritage contents – across all formats and including 3D
- Move towards more personalised and adaptive use – new user-centred scenarios that improve understanding and experiences of CH

Digital Preservation - rationale

- Solutions in place are largely determined by the needs of traditional institutional stakeholders
 - Libraries and archives => specific solutions
- Today, information and knowledge resources rely almost exclusively on digital instances
 - dedicated settings => pervasive organisational problem
- Tools for management of digital content => more complex and sophisticated
 - Distributed; dynamic; embedding content and meaning; volumes



a) Scalable systems and services for preserving digital content

- a) **Scalable systems and services** for preserving digital content handling the **whole workflow** for **different** types of **digital resources**, guaranteeing their **long-term integrity and authenticity**. Research should demonstrate the feasibility of systems and services proposed and assess their use by organisations in **large scale testbeds** (e.g. science, business and financial records, public records, multimedia/audiovisual and performing arts).

Objective 4.1 Call 6 Funding scheme: **IP**



a) Scalable systems and services for preserving digital content

- **scalable systems and services**
 - technological and organisational scalability
- **whole workflow**
 - integrated approach planning, ingestion/characterisation, preservation actions, disposal
- **different types of digital resources**
 - Reflecting the heterogeneous nature of typical collections and records (text, data, audio, video, etc.)
- **long term integrity and authenticity**
 - time scales of several decades (beyond short term archival)
 - distinguishing the authentic instance from the replicas
- **large scale testbeds**
 - demonstrating the feasibility of the solution
 - assessing the transferability of results



b1) Advanced preservation scenarios ... preserving complex objects

Advanced preservation scenarios: methods, models and tools for **managing digital memory**, focusing on **challenging preservation problems** which cannot be adequately handled by **current models**. These should result in:

b1) Methods and tools for **preserving complex objects**, addressing the **life-cycle of composite digital information instances** (e.g. multiple embedded structures, actionable objects, distributed and interlinked resources and ontologies, transient information and ephemeral data).

Funding scheme: STREP

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b2) Advanced preservation scenarios ... intelligent digital curation and preservation

Advanced preservation scenarios, contd.:

- b2) Intelligent digital curation and preservation systems** able to **learn, reason and act autonomously**, integrating tools and methods to support the **complex decision making processes** for appraisal, selection and management of diverse collections of digital resources. The system should ensure the representation of the **objects** and their **embedded semantic** knowledge in order to support their **future re-use**. Appropriate **verification scenarios** should be integral component of the work.

Funding scheme: IP

Objective 4.1 Call 6



b2) Advanced preservation scenarios ... intelligent digital curation and preservation

- **complex decision making processes**
 - preservation processes largely dependent on human capacity to assess information and decide what to do
- **systems ... learn, reason and act autonomously**
 - capture the essence of human reasoning translating it into machine-based routines
 - overcome the limitations of purely deterministic (hard-coded) approaches
- **objects and their embedded semantic knowledge ... future re-use**
 - capture implicit semantics and contextual information
 - enrich it with the information necessary for future re-use (inc. rendering processes)
- **verification scenarios**
 - demonstrate the meaningfulness of the proposed case studies



Digital Preservation: Impact

- **reinforced capacity** for organisations **to preserve digital content**
- in a **more effective and cost-efficient** manner,
- safeguarding the **authenticity and integrity** of these records
- Significant **reduction in the loss of irreplaceable information** and
- **new opportunities for its re-use**, including new knowledge production

c) Assembly of multimedia digital libraries

- c) **Innovative solutions for assembling multimedia digital libraries** for collaborative use in specific contexts and communities, enhancing scholarly understanding and experiences of digital cultural heritage. This includes work on the dynamic aggregation of cross-media resources across existing institutional digital libraries and repositories. Research should address scalability, interoperability and distributed architectures, aggregation and semantic search tools. Validation should address researchers and cultural heritage professionals but be open to wider audiences.

Instrument: IP

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c) Assembly of multimedia digital libraries

- **collaborative use** in specific contexts **and communities**
 - rationale for and identity of the communities
 - why such assembly of digital content is needed
 - which are the envisaged use scenarios
- **institutional digital libraries and repositories**
 - not simply generic mash-ups of web content
 - bear in mind the perspective of institutional information providers

c) Assembly of multimedia digital libraries

- **scalability, interoperability and distributed architectures**
 - integrated technological platform having the features required to support a wider deployment
- **aggregation and semantic search tools**
 - coherent set of user-oriented functions
- **validation**
 - articulated case study demonstrating the feasibility of the technological features as well as their meaningfulness for the targeted users

d) Adaptive cultural experiences

- d) **Adaptive cultural experiences** exploring the potential of ICT for creating **personalised views** of various forms of cultural expression, reflecting **individual narrative tendencies** (i.e. adapt to the background and cognitive context of the user) and **offering meaningful guidance about the interpretation of cultural works.**

Funding scheme: STREP

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d) Adaptive cultural experiences

- **individual narrative tendencies**
 - reflects preferences of users in terms of their background, cognitive approach, context of the visit
 - allows the creation of a personalised overview of a visit (or relate to past visits)
- **meaningful guidance about the interpretation of cultural works**
 - what is the meaning of a specific aspects of a given cultural work
 - how does it relate with other works having some common features

Funding scheme: **small-medium targeted research projects (STREPs)**

- demonstrate the feasibility of the concept
- **assess also how this** concrete illustration can be

Objective 4.1 Call 6
generalised



Digital libraries / adaptive cultural experiences: Impact

- Significant advances in the ability to offer easily customisable access services to
 - scientific and
 - cultural digital resources,
- improving their
 - use,
 - experiencing and
 - understandings.

e) Interdisciplinary research networks

e) Interdisciplinary research networks bridging technological domains (e.g. computing models, knowledge representation, visualisation and graphics), information and archival sciences, and social and cognitive sciences to advance the state-of-the-art in well identified and focused application areas (eg digital preservation).

- ✓ **digital preservation** is one of the areas where such an approach appears to be specially promising

Funding scheme: NoE

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e) Interdisciplinary research networks

- **bridging** technological domains, information and archival sciences, and social and cognitive sciences
 - Promote cross-fertilisation of ideas coming up from people with different backgrounds
 - Favour mutual understanding of their knowledge spaces and effective collaboration in joint research work
- **advance the state-of-the-art**
 - overcome the epistemic limits of established approaches
 - bring in new ideas and conduct exploratory research around them

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e) Interdisciplinary research networks: Impact

- **Restructure and strengthen European research landscape** in digital libraries and digital preservation
 - Engagement of new research stakeholders
- **Wide** - beyond the limits of the consortium
- **Durable** – beyond the time horizon of the funded project



f) Promoting the uptake of EC-funded research

- f) **Promoting the uptake** of EC-funded research enabling the **deployment of new ICT-based cultural and memory preservation services**, leveraging the impact of associated national initiatives; **roadmapping** and identification of **future 'Grand Challenges'**; establishment of a **pan-European network of living 'memory centres'** for validations, demonstrations and showcases.

Funding scheme: CSA

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f) Promoting the uptake of EC-funded research

- **deployment of new ICT-based cultural and memory preservation services**
 - Reinforce the purposefulness and longer term impact of research results
 - Bridge the gap between research and market-oriented deployment
- **pan-European network of living 'memory centres'**
 - Build on the experience and expertise of existing memory organisations
 - Showcasing results of research projects
- **Roadmapping ... future 'Grand Challenges'**
 - Undertake a collective reflection on what will be and how to address future challenges

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Digital Libraries and Digital Preservation: Budget & call

IPs: min 28 MEUR - max 39 MEUR

- a) **Scalable systems and services** for preserving digital content
- b) **Advanced scenarios / challenging problems**
 - 2) **Intelligent digital curation and preservation**
- c) Innovative solutions for **assembling multimedia digital libraries** ... enhancing scholarly understanding and experiences of cultural heritage

STREPs: min 17 MEUR - max 28 MEUR

- b) **Advanced scenarios / challenging problems**
 - 1) **preserving complex objects** and,
- d) **Adaptive cultural experiences**

IPs/STREPs: 56 MEUR

(min 50% for IPs, 30% STREPs)

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Digital Libraries and Digital Preservation: Budget & call

NoE and CSA: max 13 MEUR

- e) **Interdisciplinary research networks**
- f) **Promoting uptake of research**

Overall budget 69 MEUR!



Further information:

- **DigiCult web site**

Work programme, on-going and previous research

http://cordis.europa.eu/fp7/ict/telearn-digicult/digicult-projects_en.html

- **Background document** will be published shortly!

- **Contact**

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