

Challenge 4

Digital Libraries and Content

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Challenge 4

Digital Libraries and Content

“Digital Libraries and Content”

Make content and knowledge abundant, accessible, interactive and usable over time by humans and machines alike.

- Content must be made available through digital libraries and its long term usability, accessibility and preservation must be ensured
- Effective technologies need to be developed for intelligent content creation and management, and for supporting the capture of knowledge and its sharing and reuse
- Individuals, organisations and communities must find new ways to acquire and exploit knowledge, and thereby learn

Political framework: « i2010 - Digital Libraries »

Challenge 4:

Digital Libraries and Content

- Harnessing the synergies made possible by linking content, knowledge and learning
- Key topics:
 - **Digital Libraries**
 - **Technology-enhanced Learning**
 - **Intelligent Content and Semantics**

Objective ICT2007.4.1: Digital Libraries and Technology-enhanced Learning

– Digital Libraries

- Medium term:
 - a) **Large-scale European-wide digital libraries**
- Long term:
 - b) **Radically new approaches to digital preservation**

– Technology-enhanced Learning

- Medium term
 - c) **Responsive environments for technology-enhanced learning**
- Long term
 - d) **Adaptive and intuitive learning systems**

Digital Libraries: the research baseline

- Three main contributing strands building on work from FP5 onwards
 - **Access to cultural & scientific resources** ('digital libraries' research)
 - **Intelligent heritage** – visualising and experiencing the content of museums and archaeological sites
 - **Digital preservation**
- Catalogue of projects
<http://cordis.europa.eu/ist/digicult/projects.htm>

FP7 workprogramme for digital libraries

- Summary of the underpinning factors:
 - **Continuity** - long and varied record of a large body of past research
 - **New policy context** - i2010: digital libraries – identifies research priorities re DLs, digitisation and digital preservation
 - Remembering also – **eContentplus** programme is about accessibility & availability of quality cultural content across national boundaries

Contribute to **focusing** of the research objectives in the workprogramme 2007-8

Digital Libraries: research objectives

In the medium term, carry out the research needed to deliver

a) Large-scale European-wide digital libraries of cultural and scientific multi-format and multi-source digital objects

- robust and scalable environments
- cost-effective digitisation,
- semantic-based search facilities and
- digital preservation features

assisting communities of practice in the creative use of content in multilingual and multidisciplinary contexts

Digital Libraries: research objectives

In the long term, carry out the research needed to deliver

b) Radically new approaches to digital preservation

- high volume
- dynamic and volatile digital content (notably web)
- keep track of evolving meaning and usage context of digital content
- safeguarding integrity, authenticity and accessibility over time
- models enabling automatic and self-organising approaches to preservation

Technology-enhanced Learning: research objectives

In the medium term, carry out the research needed to deliver

c) **Responsive environments for technology-enhanced learning**

- accommodate personalisation to respond to specific learning needs and contexts (mass-individualisation)
- are capable of transforming learning outcomes into permanent knowledge assets
- enhance competence, skills and performance
- are pedagogically sound

Technology-enhanced Learning: research objectives

In the longer term, carry out the research needed to deliver

d) **Adaptive and intuitive learning systems**

- identify learner's requirements, intelligently monitoring progress,
- exploit learning and cognitive abilities letting people learn better,
- give purposeful and meaningful advice to both learners and teachers

learning on your own or collaboratively

Approach and Impact

Approach:

- **Cross-disciplinary** (cognitive, organisational, pedagogical, technological aspects)
- Provide a **body of evidence** as to which approaches are effective and under which circumstances

Impact:

- Faster and more effective learning, acquisition of knowledge, competences and skills
- Unlocking people's and organisations' ability to master knowledge and apply it
- Increased knowledge worker productivity,
- More efficient organisational learning processes

Budget and Funding Schemes -instruments

- Total budget for the SO: 102 MEUR

Call 1: 52 MEUR

OPEN, closing on **8 May 2007**

Call 3: 50 MEUR

Amount to be confirmed after the Commission decision on 2008 budget

- Funding Schemes:

Cooperative Projects (IPs and STREPs)

Networks of Excellence

Coordination Actions/Support Actions

Some important considerations before you start....

- The workprogramme presents WHAT is envisaged happening in the medium and long period
- ... the HOW TO DO IT is left to proposers who must convince that the HOW will deliver the WHAT
 - For example, in technology-enhanced learning, the approach is subject neutral, and therefore the proposal should justify the choice (for instance “language learning”)
- Medium/Longer term outcomes are not necessarily two elements to be addressed in each proposal – the workprogramme allows for both evolutionary and more revolutionary approaches
- Avoid false marriages between digital libraries and technology-enhanced learning – remember the consultations identified quite specific objectives for each
- Don’t contort the arguments artificially to fit the workprogramme – be prepared to accept that your idea does not fit, this time
- The workprogramme is focused on where we can deliver impact

FP7-call 1

New proposals – suggestions and hints

- Look at portfolio of current projects (notably the EC-funded)
 - To which extent is the problem you intend to address being already tackled?
 - Is the proposal offering different and innovative insights into an existing problem or addressing a new problem?
 - Which communities are likely to benefit from the project / how are they being brought into the discussion?
 - What are the substantive benefits and impact of the project?
 - What are the potential risks and how are they tackled?

Contacts and further information

- **Cultural Heritage and Technology Enhanced Learning**

<http://cordis.europa.eu/ist/telearn-digicult/index.html>

- **Digital Libraries**

- <http://www.cordis.lu/ist/digicult/index.html>

info-digicult@ec.europa.eu

- **Technology-enhanced Learning**

<http://cordis.europa.eu/ist/telearn/index.html>

info-telearn@ec.europa.eu

Objective ICT2007.4.2: Intelligent Content & Semantics

Content: a changing landscape

**file sharing, many-to-many, social media,
Web 2.0, long tail, non-market economy ...**

- explosion in the availability of multimedia content
- produced & remixed by non-professionals
- accessed & consumed on a broad range of devices
- emergence & deployment of distributed (eg peer to peer) and socially enhanced content management applications
- growing cognitive load & diversity of content sources & types
- more and more data produced by devices as opposed to humans

Content sector contributes around 5% to Europe's GDP

Directions & priorities

- **extensive consultations:**
 - c 250 field experts
 - face-to-face meetings & written submissions
 - conferences & working visits
 - over a period of 6 months
- **other sources:**
 - ISTAG (high-level IST advisory group)
 - NEM (media) technology platform
 - NESSI (software) technology platform

A lasting research agenda, beyond 2008

URL: <http://cordis.europa.eu/ist/kct/fp7.htm>

Outcome of consultations

In a nutshell:

- boost creativity
- master content
- dig out « hidden » information

Intelligent Content & Semantics

Make digital resources that embody **creativity and semantics** (*"intelligence"*) easier and more cost effective to produce, organize, search, personalise, distribute and use across the value chain.

- **CREATORS**: Design more communicative and participative forms of content (media professionals, enterprise designers, talented amateurs)
- **PUBLISHERS**: Increase productivity in creative industries, enterprises and professional sectors (eg health, law)
- **SCIENTISTS**: Automate link between data analysis, theory and experimental validation
- **ORGANISATIONS & COMMUNITIES**: Automate collection and distribution of digital content and machine-tractable knowledge, and their sharing in collaborative environments

(intertwined) Themes

- **Content authoring:** better ICT support for creativity & experience; novel forms of interactive & expressive content
- **Content workflow:** automated, metadata based content flows encompassing novel & legacy content assets
- **Personalisation, contextualisation and device adaptation;** technologies for personalised distribution & immersive consumption of adaptive content
- **Knowledge management** systems for information bound organisations & communities exploiting semantic clues embedded in multimedia resources, data streams and ICT-based processes
- **Semantic foundations:** moving beyond current formalisms, catering for probabilistic & temporal modelling and approximate reasoning; web integration of heterogeneous data sources

Some details ...

(a) Advanced Authoring

create / capture content

- "*creativity*": explore new media paradigms & novel forms of content; support creative process & experimentation
 - generate metadata as new content is created/captured
 - annotate & categorize legacy content to ease reuse
 - find reference & inspirational material
- enable user "*experience*" & control; interactivity; highly visual, non-linear content; building on gaming, 3D, simulation, animation ...
- "*democratisation*": low-cost, scalable-functionality personal tools - editing/sharing/remixing; usability

Some details ...

(b) Collaborative Workflow

- from analogue through digital files to objects:
 - integrated, metadata & object based postproduction flows
 - management & reuse of content assets; versioning, packaging & repurposing
 - where relevant, adaptation to different target markets & groups including cultural/linguistic elements
- multimedia segmentation, summarisation, aggregation, (scalable) (trans)coding according to distribution channels ...

(c) Personalised Presentation & Consumption

- (re)active, self-aware, adaptive ... content
- dynamic user, context & device adaptation
- immersive rendering, visualisation, multimodal interaction
- privacy preserving logging / feedback datamining

Some details ...

(e) Semantic Foundations

objective driven research

- beyond current knowledge models & formalisms
 - approximate reasoning & induction
 - temporal, probabilistic & modal modelling ...
- reference implementations esp. web integration of heterogeneous data sources
 - multimedia resources
 - (real-time) data streams

showing the practical value & power of semantics

Approach & key features

- research for a purpose, problem & objective driven
- scope encompasses (actual mix depends on project types & objectives):
 - **formal** + **social** (Web 2.0) + **ambient** (Internet of things) approaches
 - **foundational** + **component** + **system** level research
- **centred around real users, data & flows**
 - **a compelling “use case” is as important as the underlying research**
- integrated demonstrator(s), field validation & assessment
- usability, scalability, replicability; legacy data/systems
- active promotion & dissemination of results beyond scientific circles

beyond SoA, innovative areas, multi-sector potential

What we don't do

In 2007-08 we do not intend to support research into:

- **basic research** with no identifiable by-products within 10 years
- **domain specific applications** - not portable/replicable in other socio-economic sectors
- developments addressing **immediate commercial imperatives** eg content protection & monetisation
- issues covered by **other Challenges and Objectives** eg media networking, peer to peer, topics well covered by **ongoing FP6 projects & networks** (see our website)

Summing up...

Evolution, no disruption:

- hard research problems remain the same
- FP6 keywords (automation, networked information, multimedia ...) stay as well
- efficiency & cost effectiveness are key drivers
 - clear application potential & exploitation channels
- broader scope, no longer purely « document » centric
 - user & task centric (« context »)
 - more attention paid to human & organisational factors
 - so as to encourage new programme entrants
- « systems » approach: reference architectures; reusable tools; interworking with legacy systems
- pro-active promotion & dissemination
 - so as to leave behind resources others can build on

Exp. outcome of 2007 calls

- more focused IPs & NoEs wrt. FP6
- more ambitious STR-R's
- STR-D's to encourage integration, customisation & field validation
- c 100 Meuro available (2 x 50 Meuro):
 - 8-9 IPs
 - 1-2 NoEs
 - 14-15 STRPs
 - 2 CSAs
- ~26 proposals likely to be retained for funding ... highly selective process!

Guidance & feedback

- inquiries & pre-proposals
 - mail to info-e2@ec.europa.eu
 - 'FP7-ICT Call' in the Subject field
- FP6 projects
 - cordis.europa.eu/ist/kct/fp6_projects.htm
- pre-proposal checking
 - available until end March
 - along with Call-1 background notes
 - cordis.europa.eu/ist/kct/fp7.htm

Pre-proposals

3 pages max, emailed to info-e2@ec.europa.eu

- **rationale & problem area**
 - task & user profile
 - actual/prospective application(s)
 - data sets: source(s), typology, volume
- **contribution to WP objectives**
 - key S&T innovation(s)
 - main concrete results
 - public outputs
 - impact (scientific, technical, socio-economic)
- **consortium**
 - names or profiles, skills mix
 - intended instrument (if known)
- **scale of ambition**
 - est. effort, duration, EU funding

- ICT under FP7
cordis.europa.eu/fp7/ict/
- Call information
cordis.europa.eu/fp7/dc/index.cfm
- Unit E2 – Content & Knowledge
URL: cordis.europa.eu/ist/kct/fp7.htm
mailto: info-e2@ec.europa.eu
c/o Dr Stefano Bertolo

Challenge 4

Digital Libraries and Content

Thank you!

QUESTIONS?