

# **Digital libraries, digital preservation & cultural heritage research in FP7**

**11 ICT projects**



**May 2010**



European Commission  
Information Society and Media

## **DigiCult**

The European Union is funding research that explores leading-edge information and communication technologies for accessing, experiencing and preserving cultural and scientific resources.

This programme (DigiCult, for short) is managed by the European Commission's unit 'Cultural heritage and technology enhanced learning'. The unit also supports research on how the use of ICTs can help make learning more efficient (technology-enhanced learning programme).

'Cultural heritage and technology enhanced learning' is part of the Directorate-General 'Information Society and Media', and one of the units of the Directorate 'Digital Content & Cognitive Systems' (Luxembourg).

For more information:

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# The Work Programme

The first ICT Work Programme under FP7 defined the ICT research priorities for 2007-2008. Digital libraries research was part of Challenge 4, 'Digital Libraries and Content'.

## Research objectives

The objectives for funding research on ICTs for the "digital libraries" part of the challenge have been twofold.

At medium term, projects should generate the conditions for the creation of **large-scale European-wide digital libraries** of cultural and scientific multi-format and multi-source digital objects, assisting communities of practice in the creative use of content in multilingual and multidisciplinary contexts, and based on:

- robust and scalable environments
- cost-effective digitisation processes
- semantic-based search facilities
- tools for preservation of digital content

At longer term, research should also explore **new approaches to digital preservation**, where advanced ICTs will have capacities such as:

- acting on high volumes of dynamic and volatile digital content (notably web content)
- safeguarding integrity, authenticity and accessibility over time
- keeping track of contexts (evolving meaning and usage)
- enabling automatic and self-organising preservation

## Expected impact

- Unlock organisations' and people's ability to access digital content and to preserve it over time
- EU-wide massive digitisation and long term preservation of digital resources

# The Projects

The eleven projects presented in this brochure result from the first two calls for proposals under the ICT programme in FP7: ICT Call 1 (December 2006 - May 2007) and ICT Call 3 (December 2007 - April 2008).

The funding is distributed on five small or medium-scale focused research projects, three large-scale integrating projects and two coordination actions, all of which involve 118 participating organisations.

The total amount of EU-support is € 51 145 000. The projects started between November 2007 and March 2008 or between December 2008 and February 2009.

## Research Areas Addressed

### Digital preservation

The rapid pace of change of electronic devices and formats for recording, storage and use represents a threat to the long-term accessibility of digital objects. Digital preservation research targets methods and systems for ensuring availability of digital resources over time, through novel concepts, techniques and tools, such as software agents, emulators or virtual environments. Some projects include empirical research and are developing test-beds and systems capable of supporting long-term access to multi-sourced, multi-formatted and highly distributed resources.

**FP7 projects: KEEP, PrestoPRIME, PROTAGE, SHAMAN**

### Web archiving

Web content plays an increasingly important role in the knowledge-based society, and the preservation and long-term accessibility of Web history has high value for scholarly studies, market analyses, intellectual property disputes, etc. The typical characteristics of Web content - variety of formats, high dynamics, volatility, interactivity and context-dependency - make adequate Web archiving a challenge.

**FP7 project: LiWA**

### Digital libraries

Digital libraries research has been creating scalable and interoperable platforms supporting digitisation and retrieval of heterogeneous content, in multimedia formats, from distributed collections and across languages. The research work is now being supported by coordination actions aimed at improving interoperability and cross-language search and retrieval.

**FP7 project: DL.org, Treble-CLEF**

### Digitisation technologies

Considerable efforts and resources are being invested in digitisation across Europe, but these activities are highly fragmented and many technical and organisational obstacles jeopardise their success and economic sustainability. Research explores how ICTs can facilitate large-scale digitisation and make digitisation more cost-effective. Projects are concerned both with new technology solutions and with best practice guidance, and are establishing centres of excellence for digitisation. Tools and methodologies being developed range from recognition and enhancement of

printed text and audiovisual material to ICTs for capturing and rendering non-textual cultural artifacts.

**FP7 projects: 3D-COFORM, IMPACT**

### **Digital culture**

Research in this field explores the use of leading edge technologies (e.g. knowledge management systems, semantic tools, graphics, interfaces) in empowering applications that improve the visualisation of complex objects and enrich the experience users get from cultural resources.

**FP7 projects: 3D-COFORM, V-City**

# IMPACT

## IMProving ACcess to Text

The IMPACT project aims to significantly improve access to historical text and to take away the barriers that stand in the way of the mass digitisation of the European cultural heritage.

Text that is not digital is virtually invisible. Today's readers search the Internet for electronically accessible texts rather than visit the reading room of a library. Born-digital and digitised contemporary materials contain the richness that allows tools such as text mining and the semantic web to offer superior accessibility but the story is very different for historic documents. A vital part of the European heritage, encompassing more than four centuries of historic books and bound periodicals is becoming less and less visible to the public at large.

With the i2010 vision of a European Digital Library, the EU has launched an ambitious plan for large scale digitisation projects transforming Europe's printed heritage into digitally available resources. However, lack of institutional knowledge and expertise slows down the pace on which this vision can be realised. The state of the art in OCR performance and machine understanding of the original document is inadequate, especially for historically important material with archaic fonts and spellings, newspapers with complex layouts, bound volumes, microfilm or typescript.

The IMPACT project will remove many of these barriers. It brings together fifteen national and regional libraries, research institutions and commercial suppliers - all centres of competence with experience of large-scale text digitisation processes and technologies. Within the project, they will share their know-how and best practices, develop innovative tools to enhance the capabilities of OCR engines and the accessibility of digitised text and lay down the foundations for mass-digitisation programmes. IMPACT will facilitate a more collaborative approach to mass-digitisation. It will build capacity and lower the barriers to entry for organisations in the early stages of their own digitisation activity.

IMPACT's main goals are:

- Significantly **improve access** to historical text
- **Innovate OCR technology**
  - by exploring the challenges using different approaches, rather than from just one side
  - by developing cutting edge approaches such as collaborative correction
- Provide **innovative language technologies** to remove the historical language barrier
- Remove constraints to mass digitisation by providing **best practice guidance about the operational context for digitisation**

To ensure the inter-operability of the research results, IMPACT will define an overall technical architecture and monitor technical integration across all parts of the project. The project team will also deliver a coherent programme of dissemination, training and demonstration aimed at capacity-building in and beyond participating institutions. Particular attention will be made to addressing the needs of end-users and holders of collections of material in languages other than English. In 2010, the consortium will be extended to include more countries and languages, totalling 25 beneficiaries all over Europe.

### **Project facts:**

Project type: Large-scale Integrating Project

Start date: 01/01/2008

Duration: 48 months

EU funding: € 11 500 000

Number of partners: 15

Project coordinator: National Library of the Netherlands, KB

Website: <http://www.impact-project.eu/>

## LiWA Living Web Archives

LiWA will develop and demonstrate web archiving tools able to capture content from a wide variety of sources, to improve archive fidelity and authenticity and to ensure long term interpretability.

The typical characteristics of Web content - variety of formats, high dynamics, volatility, interactivity and context-dependency - make adequate Web archiving a challenge. Research carried out under the LiWA project will look beyond the simple 'freezing' of pages, and develop tools to create 'Living Web Archives'. 'Living' here refers to: **long term interpretability** as the archive evolves and adapts over time; improved **archive fidelity** and authenticity by filtering out irrelevant information; content captured from a **wide variety of sources**.

To enhance **archive fidelity and authenticity**, LiWA plans to develop and test new methods based on content interpretation and intelligent pattern detection of traps and Web spam. The objective is to reduce the amount of fake content and help prioritise crawls by automatically detecting content of value. To improve the **integrity and temporal, structural and semantic coherence** of Web archives, some work is dedicated to temporal Web archive construction. This serves the objective to significantly improve content positioning in time and (topic) space and will lay the foundations for fast and effective access to evolving Web content. To facilitate **archive interpretability**, LiWA intends to apply methods for semantic and terminology extraction, able to detect and handle evolving semantics, interpretations of domain concepts and terminology. This shall contribute to the objective of preserving the usefulness, quality, and accessibility of Web archives over time.

For validating the LiWA approach, two demonstrator applications will be built on top of the LiWA services. These applications will focus on the social Web and on the special challenge of archiving audio-visual content. The **potential benefit** of this research is twofold: Archiving institutions will be able to automatically archive higher volumes of dynamic and volatile digital content, resulting in a significant increase of preserved digital content. Archive users will benefit from the higher quality of archive content and improved search services.

Key **achievements** of the LiWA project so far include:

- the implementation of an enhanced prototype that supports link extraction and the capture of hidden and dynamic content using crawler helper applications;
- the development and assessment of spam classification and filtering tools;
- the creation of an innovative visualisation tool to support the identification of coherence problems in collections of Web archives, and the realisation of a new crawl scheduling algorithm to improve temporal coherence;
- research into the detection and representation of terminological change in Web content, and the definition of a complex workflow for the automatic detection of terminology evolution.

The developments were driven by investigations on user requirements and the evaluation of application mock-ups created in the first year of the project.

### **Project facts:**

Project type:	Small or medium-scale focused research project
Start date:	1 February 2008
Duration:	36 months
EU funding:	€ 2 682 400
Number of partners:	8
Project coordinator:	Leibniz University Hannover, L3S Research Center (Germany)
Website:	<a href="http://www.liwa-project.eu">http://www.liwa-project.eu</a>

# PAPYRUS

## Cultural and Historical Digital Libraries dynamically mined from News Archives

PAPYRUS aims at creating a cross-discipline digital library engine that allows for drawing content from one domain and making it available and understandable to the users of another.

At the centre of PAPYRUS is the concept of a cross-discipline digital library engine, a system that understands user queries in the context of a specific discipline, looks for content in a domain alien to that discipline and return the results presented in a way useful and comprehensive from the perspective of the first discipline. The use case chosen for this project is the recovery of historical content from digital news content.

The scientific and technological objectives of the project are:

- to advance the state of the art in **semantic multimedia analysis**, by introducing knowledge assisted methods which will take advantage of existing metadata and content structure models for the understanding of the source content;
- to propose context sensitive **query processing** methods, for the understanding of the user demands;
- to implement tools for automating the process of **knowledge mapping**, for corresponding concepts between the source content and the user queries;
- to develop **presentation techniques** for delivering search results in a form comprehensive to the targeted users.

To realise these objectives, PAPYRUS brings together expertise from research organisations with a focus on knowledge management, artificial intelligence and semantic multimedia analysis; experts in the history of science; two large European news producers; and an IT solutions provider.

### Intermediate results:

- One of the first tasks of PAPYRUS was an in-depth investigation of the state of the art, examining tools and solutions relevant for the project in the targeted scientific and technological domains.
- Initial approaches for History and News ontologies and the mapping between them have been introduced, and a specific tool for building and evolving ontologies was developed.
- Querying and presentation techniques to be integrated in the PAPYRUS platform have been designed and a prototype version for the query analysis and execution layer and the result presentation layer was delivered.
- Techniques for the structuring and indexing of video content were defined and an initial version of video segmentation based on audio and video analysis has been demonstrated.
- A draft version of the PAPYRUS digital library engine, integrating all the individual modules, was created.
- The user requirements for the system were captured and specified, followed by the description of usage scenarios and evaluation metrics. A first set of trials with end users has been organised.

### Project facts:

Project type:	Small or medium-scale focused research project
Start date:	1 March 2008
Duration:	36 months
EU funding:	€ 2 200 000
Number of partners:	9
Project coordinator:	Athens Technology Center (Greece)
Website:	<a href="http://www.ict-papyrus.eu/">http://www.ict-papyrus.eu/</a>

# PROTAGE

## Preservation Organizations Using Tools in Agent Environments

This project will build and validate software agents for long-term digital preservation and access that can be integrated in existing and new preservation systems.

PROTAGE aims at addressing the problems created by the increasing volume and the heterogeneity of digital resources that have to be preserved, by developing tools allowing for more effective automation and self-reliance of preservation processes.

The PROTAGE solution is to link digital objects to long-term digital preservation processes by using software agent technology. Based on the latest research on digital preservation strategies and on autonomous systems, the project will build and validate **flexible and extensible software agents for long-term digital preservation and access** that can cooperate with and be integrated in existing and new preservation systems. Intended application areas for prototypes produced by the PROTAGE project cover submission of digital material as well as monitoring of preservation systems and transfer between repositories.

Tools developed by the PROTAGE project will:

- enable content producers to create and publish in a preservation-compatible manner,
- provide digital repositories with means of further automating the preservation processes,
- facilitate seamless interoperation between content providers, libraries and archives, and end-users throughout Europe.

Targeted end users are curators and digital content creators, including individuals managing their own digital collections. PROTAGE will use archive and library materials from the project partners for system and user tests and external stakeholders in further validation. The Swedish Centre of Competence for Long-term Preservation will ensure availability of results to a wider community of memory institutions. The industrial partners will use the results to develop commercial solutions.

### **Project facts:**

Project type:	Small or medium-scale focused research project
Start date:	1 November 2007
Duration:	36 months
EU funding:	€ 2 021 900
Number of partners:	7
Project coordinator:	Riksarkivet (National Archives), Sweden
Website:	<a href="http://www.protage.eu/">http://www.protage.eu/</a>

# SHAMAN

## Sustaining Heritage Access through Multivalent Archiving

This project will develop and test a next generation digital preservation framework including tools for analysing, ingesting, managing, accessing and reusing information objects and data across libraries and archives.

The aim of SHAMAN is to develop the framework for the next generation of long term (more than one century) digital preservation systems and tools. It includes the definition of a SHAMAN theory of preservation that integrates the analysis, ingestion, management, access to and reuse of information objects across distributed repositories. The data preservation capabilities offered will secure the authenticity and integrity of data objects through time.

The development work will be structured around four core components. Their objectives can be described as follows:

- to establish an open distributed **resource management infrastructure framework** enabling grid-based resource integration, reflecting, refining and extending the OAIS model and taking advantage of the latest state of the art in virtualisation and distribution technologies from the fields of GRID computing, Federated Digital Libraries, and Persistent Archives;
- to develop and integrate technologies to support **contextual and multivalent archival and preservation processes** which are adapted and significantly extended from the fields of content and document Management and Information Systems;
- to develop and integrate technologies to support **semantic constraint-based collection management** to target one of the key challenges in automating one class of digital preservation core functions;
- to support the managing of future requirements by **securing interoperability with future environments** and maintaining essential properties of the preserved content.

Three prototypical applications will support trialling and validation in the following domains: i) scientific publishing in libraries and documents in governmental (parliamentary) archives, ii) digital objects used (eg CAD) in industrial design and engineering and iii) data resources used in e-Science applications.

SHAMAN's dissemination and exploitation plans aiming at actively foster outreach and take-up of results will be tailored according to the specific needs of the scientific / academic world and of industry users. SHAMAN's work will be naturally coordinated with other digital preservation European projects (CASPAR, PLANETS, DPE) as well as initiatives at national (DGrid, Germany) and international level (NDIIPP/NSF, US).

### **Project facts:**

Project type:	Large-scale Integrating Project
Start date:	1 December 2007
Duration:	48 months
EU funding:	€ 8 398 300
Number of partners:	18
Project coordinator:	INMARK Estudios y Estrategias, S.A., Spain
Website:	<a href="http://www.shaman-ip.eu/">http://www.shaman-ip.eu/</a>

## Treble-CLEF

### Evaluation, Best Practice and Collaboration for Multilingual Information Access

This Coordination Action has supported the development and consolidation of expertise in the multidisciplinary research area of multilingual information access and has disseminated this knowhow to application communities.

The popularity of Internet and the consequent global availability of networked information sources and digital libraries have led to a strong demand for multilingual access and communication technologies. These technologies should support the timely and cost-effective provision of knowledge-intensive services for all members of linguistically and culturally diverse communities. This is particularly true in the multilingual setting of Europe. Despite recent research advances, there are still very few operational systems available, and these are limited to the most widely used languages. The Treble-CLEF project was launched to tackle the challenge how to best transfer the research results to a wider market place.

The core activity in the project has been to promote research, development, implementation and industrial take-up of multilingual and multimodal information access functionality. This has been achieved in the following ways:

- by continuing to support the annual system evaluation campaigns of the **Cross Language Evaluation Forum (CLEF)** with tracks and tasks designed to stimulate R&D that meets the requirements of the user and application communities;
- by constituting a scientific forum for the **multilingual information access (MLIA)** community of researchers, enabling them to meet and discuss results, emerging trends, and new directions;
- by acting as a virtual centre of competence providing a **central reference point** for anyone interested in studying or implementing MLIA functionality and encouraging the dissemination of information.

#### Final results:

The support of the Cross language Evaluation Forum (CLEF) has been a primary objective of the project and has involved the organisation of the CLEF 2008 and 2009 evaluation campaigns, in-depth analysis of their results, and the creation of a number of valuable reusable test collections for benchmarking purposes.

TrebleCLEF has released three **Best Practices white papers** with the aim of providing practical information for systems designers and developers: (a) Best Practices for Language Resources for MLIA; (b) Best Practices for System-oriented and User-oriented MLIA; (c) Best Practices for Test Collection Creation, Evaluation Methodologies and Language Processing Technologies.

#### Project facts:

Project type:	Coordination Action
Start date:	1 January 2008
Duration:	24 months
EU funding:	€ 842 500
Number of partners:	7
Project coordinator:	Istituto di Scienza e Tecnologie dell'Informazione, Consiglio Nazionale delle Ricerche, Italy
Website:	<a href="http://www.trebleclef.eu/">http://www.trebleclef.eu/</a>

## **3D-COFORM**

### **Tools and Expertise for 3D Collection Formation**

3D-COFORM will focus on digitisation of cultural heritage artefacts and deliver new tools in the areas of 3D-capture, 3D-processing, the semantics of shape, material properties etc., resulting in richer and more realistic representations, better documentation and increased cost effectiveness of the digitisation process.

The project addresses all aspects of 3D-capture, 3D-processing, the semantics of shape, material properties, metadata and provenance, integration with other sources (textual and other media); search, research and dissemination to the public and professional alike. A strong technical research program is complemented by research into practical business aspects: business models for exploitation of 3D assets, workflow planning and execution for mass digitisation, socio-economic impact assessment; and above all the creation of a **Virtual Centre of Competence in 3D digitisation**.

The establishment of the Virtual Competence Centre aims at bringing together the expertise and the technological resources necessary to support:

- mass digitisation of tangible cultural heritage objects, through benchmarking and validating technologies, defining workflows and procedural standards as well as plans for quality recognition of 3D digital artefacts and collections;
- professional development through designing and developing education and training programs that provide cultural institutions with a deeper understanding of the potential of 3D technologies in cultural heritage.

The 3D-COFORM consortium brings together 19 partners with sound expertise in 3D-digitisation complemented by a representative group of Cultural Heritage organisations, with the Victoria and Albert Museum as a full partner and collaborations from the Louvre, the Florentine Museums authority, the Museum of the Imperial Forums in Rome, World Heritage Sites in Cyprus and the Staatliche Museen zu Berlin. The consortium also contains organisations tasked at a national level with helping museums move in these directions: CNRS-LC2RMF, the research arm of the French National Museums and CultNat the digitization body for cultural and natural heritage funded by the Egyptian Government.

The combination in 3D-COFORM of research and take-up activities will contribute to reinforce 3D-digitisation capability through advancing the state of the art in 3D-digitisation. The project will also contribute to reinforce the competence building in this domain by supporting continuous professional development through a Master program in 3D cultural technologies for cultural heritage.

3D-COFORM achievements and the results of the collaboration with the European Digital Library "Europeana" will provide an important contribution to the European initiative on digital libraries.

#### **Project facts:**

Project type:	Large-scale Integrating Project
Start date:	01 December 2008
Duration:	48 months
EU funding:	€ 8 450 000
Number of partners:	19
Project coordinator:	University of Brighton (UK)
Website:	<a href="http://www.3d-coform.eu/">http://www.3d-coform.eu/</a>

## **DL.org**

### **Coordination Action on Digital Library Interoperability, Best Practices, and Modelling Foundations**

DL.org will create a framework where representatives from digital library initiatives and projects collaborate, share experiences and expertise. The project will work towards increased awareness and understanding of interoperability of digital libraries systems and towards a consolidated version of the DELOS Digital Library Reference Model.

The goal of the DL.org Coordination Action on Digital Library Interoperability, Best Practices, and Modelling Foundations is to create a framework where key representatives from major initiatives and on-going Digital Library related projects may collaborate, discuss experiences, exchange expertise, work on interoperability of their solutions, promote shared standards, and provide the DL community with a deeper understanding of key issues and new directions.

In using the **DELOS Digital Library Reference Model** as its conceptual and operational basis, DL.org will make an innovative attempt to achieve the above. The main instrument of the project consists of six thematic Working Groups composed by DL.org partners and representatives from important digital library projects and organisations in order to achieve a maximum impact on the digital libraries community and beyond.

Concretely, expected outcomes of DL.org include the following:

- a "Digital Library Technology and Methodology Cookbook" providing a portfolio of current best practices and patterns to facilitate cross-fertilization between existing systems and their enhancement in terms of critical interoperability issues;
- a consolidated and enhanced version of the DELOS Digital Library Reference Model;
- workshops, summer schools, eCourses and dissemination activities to communicate the impact of DL.org achievements to relevant communities.

During the first year of the DL.org project, the six working groups were set up and started working on the revision of the reference model. The result of this activity is Version 1.0 of the model which is available from the project website.

#### ***Project facts:***

Project type:	Coordination Action
Start date:	01 December 2008
Duration:	24 months
EU funding:	€ 1 200 000
Number of partners:	4
Project coordinator:	Consiglio Nazionale delle Ricerche - CNR, (Italy)
Website:	<a href="http://www.dlorg.eu/">http://www.dlorg.eu/</a>

# KEEP

## Keeping Emulation Environments Portable

KEEP will create portable emulators enabling access to and use of digital objects stored on outdated computer media. The emulators will ensure accurate rendering of both static and dynamic digital objects.

KEEP is developing an Emulation Access Platform enabling the accurate rendering of objects produced on obsolete machines, so that they can be securely accessed in the long term. The project is thus addressing the problems related to transferring digital objects stored on outdated computer media (such as floppy discs) to current storage devices in order to reduce the risk of data loss resulting from technical obsolescence.

The KEEP emulation tools will be flexible enough to handle both static and dynamic digital objects designed for a wide variety of computer systems: text, sound, and image files; multimedia documents, websites, databases, videogames etc.

Research involves the specification of file formats and the production of transfer tools exploited within the framework, and the consideration of possible legal and technical issues.

Being aware of the fact that emulation software itself is prone to digital obsolescence, the KEEP consortium plans to create a **portable platform** that can be run on any possible device and be implemented to future computer systems. The emulation framework will also be distributed as open-source software so that the emulation community as a whole can contribute to its further development.

In addition to producing a software package, the project will improve understanding about how to integrate emulation-based solutions with an operational electronic deposit system. Existing metadata models will be researched and guidelines will be developed for mapping digital objects to emulated manifestations. Through this work, KEEP aims at creating a foundation for the next generation of permanent access strategies based on emulation.

Although primarily aimed at stakeholders in cultural heritage, such as memory institutions and (computer games) museums, the Emulation Access Platform should also be able to serve the needs of a wider range of organisations and individuals.

### Intermediate results:

- During the first months, the project team has undertaken research into **media carriers and available transfer tools**, and into the **state-of-the-art in emulation**. Also, a user requirements analysis was carried out in the National libraries of France, Germany and the Netherlands, and a design has been formulated for creating flexible, user-friendly emulation services, media carriers and media transfer tools.
- Furthermore, an investigation was carried out into the potential **legal issues** arising when copying information from original data carriers, and a study about **metadata standards and approaches** in Europe has been produced.

### Project facts:

Project type:	Small or medium-scale focused research project
Start date:	01 February 2009
Duration:	36 months
EU funding:	€ 3 150 000
Number of partners:	9
Project coordinator:	Bibliothèque Nationale de France
Website:	<a href="http://www.keep-project.eu/">http://www.keep-project.eu/</a>

# PrestoPRIME

**PrestoPRIME addresses the long-term preservation of and access to digital audio-visual content by integrating media archives with European on-line digital libraries. Research will result in a range of tools and services, delivered through a networked Competence Centre.**

Audiovisual content collections are undergoing a transformation from archives of analogue materials to very large stores of digital data. As time-based digital media and their related metadata are edited, re-used and re-formatted in a continuously evolving environment, the concept of the unique original loses its meaning and we require dynamic processes that can preserve indefinitely not only the audiovisual signal but also its evolving associations, context and rights.

PrestoPRIME researches and develops practical solutions for the long-term preservation of digital media objects, programmes and collections, and will find ways to increase access by integrating the media archives with European on-line digital libraries in a digital preservation framework. This will result in a range of tools and services, delivered through a **networked Competence Centre** which is scheduled to start in the second half of 2010.

The project will deliver a **preservation framework**, complete with risk management and content quality and corruption control measures, capable of supporting audiovisual signal migration and multivalent preservation methods using federated services for distributing and storing content. It will create a metadata conversion and deployment toolkit, with a novel and efficient process for metadata vocabulary alignment, annotation and services for user-generated content metadata. A rights management system and audiovisual fingerprint registry will make it possible to track and manage content at all stages of its lifecycle, in all contexts of use.

The project will demonstrate and evaluate an integrated prototype of the preservation framework and software in the networked Competence Centre. The Competence Centre will be established to provide business models, registry and best practice services and training.

## **Project facts:**

Project type:	Large-scale Integrating Project
Start date:	01 January 2009
Duration:	42 months
EU funding:	€ 8 000 000
Number of partners:	15
Project coordinator:	Institut national de l'audiovisuel - INA (France)
Website:	<a href="http://www.prestoprime.eu/">http://www.prestoprime.eu/</a>

## **V-City**

### **The Virtual City**

V-City is creating a system that integrates computer vision, 3D-modelling and virtual reality research for rapid and cost-effective reconstruction, visualisation and exploitation of interactive high-resolution urban environments. This will lay the ground for large scale geospatial libraries.

3D geo-informatics has entered the digital age, hesitantly in some areas, and rampantly in others. Google Earth and Microsoft Virtual Earth are household names. Although limited to landscapes and few buildings envelopes, their massive digital geographic libraries are today the playground of millions of people and the generator of new forms of content and applications with tremendous impact perspectives. However, these pale in comparison to those that will be made possible as soon as urban digital libraries will be fully available and exploitable.

Therefore, the V-City project aims to research, develop and validate an innovative system integrating the latest advances in **Computer Vision, 3D Modelling and Virtual Reality** for the rapid and cost-effective reconstruction, visualisation and exploitation of complete, large-scale and interactive urban environments. The focus of the project on urban environments is not only made possible by the latest technological advances, but also justified. Urban environments represent one of the most important and valuable cultural heritage as acknowledged by the UNESCO.

This system will enable historians, architects or archaeologists to reconstruct from existing data, study, understand, preserve or document urban environments using an innovative interactive 3D user interface. This project will progress beyond the current state of the art in the field of **large-scale geospatial libraries** built from multi-source and multi-format architectural and cultural information.

It will also be an answer to concrete needs for a wide range of users as demonstrated by the commitment and the diversity of the end-user organisations involved in the V-City User Group. These will contribute to both the definition of the system and its validation on real-scale scenarios.

#### **Project facts:**

Project type:	Small or medium-scale focused research project
Start date:	01 December 2008
Duration:	36 months
EU funding:	€ 2 700 000
Number of partners:	7
Project coordinator:	CS - Systèmes d'Information (France)
Website:	<a href="http://vcity.c-s.fr/">http://vcity.c-s.fr/</a>