COINE Project: Cultural Objects in Networked Environments

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Workshop 4: Cultural diversity

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Summary

The idea behind the COINE Research and Development Project is to enable people to tell their own stories. COINE intends to provide the tools needed to create structured, World Wide Web-based environment, which allow content to be shared.

The Project's findings will assist the development of standards for structured deployment and retrieval of digital resources in distributed networked environments. The COINE Project was launch in March 2002 and ends in August 2004. Nowadays we are in the WorkPackage 5 where we are building the System, the software and interfaces. COINE intends to cover the widest possible range of potential users, from cultural heritage organizations and institutions of all sizes (mainly libraries, archives and museums) to individuals of any age without IT skills, or small citizen's groups. The users won't just use COINE as a search tool, they will contribute with their own content.

Project description

Libraries, museums, archives and other local institutions will find new ways to engage with their users through the COINE Project. It harnesses information technology to help people use information, photographs, audio recordings and other objects of interest to them in new ways. The COINE Project is part-funded by the European Commission Information Society Technologies (IST) Programme.

The idea behind the COINE Research and Development Project is to enable people to tell their own stories. New levels of interactivity will be possible for museums, libraries and other cultural bodies - visitors will be able not just to use 'exhibits' created for them, but to create their own. Children will be able to use pictures, texts and artefacts to record and share their family history. Older people might use oral history, photographs, video and images of written documents to tell the story of their lives. Each story can then be shared, and authors can make links with other people's stories.

Running from March 2002 - August 2004 COINE intends to provide the tools needed to create structured, World Wide Web-based environments which allow content to be shared locally, regionally, nationally and internationally. The Project's findings will assist the development of standards for structured deployment and retrieval of digital resources in distributed networked environments. Demonstrations will test the application in different cultural settings across Europe, including among schoolchildren and citizens' groups.

Introduction

Throughout Europe there are many cultures that are locally defined within communities. These cultures are often expressed through formal bodies such as libraries, museums, small cultural institutions, artistic groups, etc.

Before the emergence of Information and Communication Technologies (ICTs), the cultural collections of these communities where exposed to the public only on a local level and on a 'visiting-only basis', meaning that one had to be physically present in the area (e.g. in the museum premises), in order to see the collection.

Furthermore, there were many collections (e.g. personal archives, handwritten documents, etc) that remained unpublished and unknown to the public, mostly because there was no simple and effective way of promoting private collections.

But with the advent of ICTs, new ways were offered to local communities to capture and present their cultural heritage more efficiently and to share this heritage with other communities, locally, nationally and even internationally.

Furthermore, the relationship of the public with the cultural heritage institutions (museums, libraries, etc) was strengthened and became more interactive and collaborative, since the citizens were offered the opportunity to contribute their histories, experiences and knowledge to the cultural heritage of their local community.

Many current implementations of Information Systems:
Exploit the capabilities of the WWW to expose and share their collections, often present limitations in: structure, consistency and interoperability

These implementations are often simple web sites offering a limited set of services:
Simple list of links to external resources or a search & retrive functionality from a simple relational database

Aim

The main issue that COINE will deal with is the development of an efficient networked environment that will enable individuals and small communities to take full advantage of most, or all, of the capabilities that are offered by current Information and Communication Technologies.

Core Services

COINE is being designed to offer the following core Services:
- enabling people to tell and contribute their stories, knowledge and experiences to their local community through an interactive interface,
- and then offering them the capability to share this knowledge with other individuals through the exploitation of inter-community links, is regarded as one of the core service that COINE will offer.

Formal Objectives

1. To research the requirements of different groups and individuals for managed digital spaces for cultural purposes.
2. To develop a software infrastructure to enable cultural digital objects to be captured, stored, described, located, linked and maintained.
3. To develop a toolkit of software tools and techniques to enable such domains to be created, populated and maintained.
4. To validate and test the package in a number of challenging environments and in so doing to assess the environments required to ensure adequate quality control of content and description.
5. To develop a realisable exploitation plan and mechanisms for the COINE concept and product.
6. To disseminate the results of the Project across Europe and more widely.
7. To contribute to the development and acceptance of appropriate standards.

Policy Issues

The COINE Project is part-funded by the European Commission Information Society Technologies (IST) Programme through the Fifth European Community Framework Programme covering Research, Technological Development and Demonstration activities.

The Project finds its focus in Key Action III where it is exactly aligned with the theme of "enabling citizens and communities to create and access the digital records of their societies" while also addressing other themes.

The European Commission's policy objectives will thus be furthered by the COINE project in a number of ways:

♦ It contributes to the user-friendly Information Society by making it possible for users - the ordinary citizens of Europe - to play an active part in creating, managing and making available cultural content of the utmost importance to them personally. It thus takes 'user friendliness' far beyond considerations of access into active involvement;

♦ It directly addresses the quality of services, by providing a framework in which well-structured collections and their descriptions can be created and properly maintained;

♦ It supports the development of new organisational structures within which citizens will be able to develop their own cultural collections;

♦ It empowers citizens to become involved in their own cultural and memory institutions by reducing the entry barriers for communities which wish to invest in such resources and enabling them to link with other like-minded communities across Europe;

♦ It demonstrates practical, real-world integration of technologies, precisely by linking multimedia publication with cultural heritage understood in its widest sense

♦ It brings together partners from across Europe, including Associated State participation, so contributing to the globalisation of RTD co-operation. In particular it offers opportunities for new players to work alongside highly experienced European RTD players, so spreading experience and expertise across the Community.

The partners

Co-ordinator:
The Centre for Research in Library and Information Management of the Manchester Metropolitan University

Partners:
–The Ennis Information Age Town, that is focused on delivering Usability, Accessibility & Marketing Services
–Universitat Oberta de Catalunya from Barcelona, is a Virtual distance-learning University.
–University of Macedonia, Economic and Social Sciences from Thessaloniki
–Jagiellonian University in Krakow

Technical Partners:
– A company that delivers solutions for information discovery, library management and knowledge delivery, Fretwell-Downing Informatics from Sheffield.

–The National Microelectronics Applications Centre, from Limerick.

Management Issues

The COINE Project started on March 2002 and will run for 30 months, till August 2004.
Through the Project Plan we will easily see the Management issues.

The Project work plan is divided into seven work packages. The work packages have been designed to provide a logical structure to the Project which will enable the work required for each milestone to be managed and controlled, and the Project's outcomes delivered with economy of effort to meet the available budget.

The Work packages are:

WP1: Project Management
WP2: Concertation and Dissemination
     WP 1 i 2 are horizontal activities which provide the internal management framework and the public face
     of the project.
WP3: User Requirements
WP4: Specification and Design
WP5: System Build -> where we are now
WP6: Demonstration Trials
WP7: Exploitation Preparation

WP1: Project Management

This Workpackage is designed to ensure that the Project is managed in an efficient and effective manner and in accordance with the contract, including the Technical Annex, and the consortium agreement.

The Project is managed by the Coordinating partner through a Project Board, consisting of the seven partners, as we have already seen, which we meet approximately every six months during the Project. The Board will have responsibility for monitoring each workpackage and task, for approving all reports and deliverables, and for undertaking quality assurance.

In brief each Project partner is responsible for completing all work in the workpackages assigned on time, carrying administrative tasks assigned, etc. And where a partner is a leader of a work package there are additional responsibilities such as coordination of the work, distribution of the documents concerning the workpackage and reporting the progress of the work to the Project Coordinator.

There is a COINE's Intranet where we can share the documentation and work simultaneously.

There will be a Technical Committee, chaired by the Technical Director (MAC), which will provide guidance and make decisions, subject to the ratification of the PB, on technical development issues.

The co-ordinator will produce a six monthly Progress Report based on bi-monthly reports from every partner, which will be submitted to the Commission. Procedures will be established for the creation and operation of sub-committees of the Board.

WP2: Concertation and Dissemination

This Workpackage is intended to ensure the engagement of the Project with related work, including related projects, in Europe and wider. It includes attendance at meetings, workshops etc. where key technologies are discussed.

A variety of dissemination methods will be used to ensure that the widest possible audience is reached. These will include:

- Creation of a Project web site
- High quality project 'fliers'
- Information bulletins, both as email and as paper products
- Papers at appropriate conferences and in appropriate journals
- A workshop to discuss the Project's findings (Consideration will be given to establishing this as a semi-permanent conference if demand warrants it)

WP3: User Requirements

The work in WP3 deals mostly with the user analysis and design phase of the project. In general, it included a state-of-the art review of current technology that could contribute in the development of the COINE System, consultation with end-users in order to determine their requirements along with provision of a report on these requirements, report on the contexts within which COINE will operate (i.e. the legal environment, organizational, economic and cultural contexts and multilingual aspects) and the establishment of contacts with cultural organizations and agencies across Europe. The analysis of the end user requirements was in detail from a number of different standpoints, taking a number of different possible application organisations, which would be likely interested in operating in COINE.

We looked at the legal issues related specially with intellectual Property Rights, data protection, of each country and legislation in the European Community; the economic issues, including the costs associated with acquiring artefacts and other content and to specify an appropiate e-business model one about Public Service, the Community and Educational models.

Also there is an analysis of the cultural context trying to capture the requirements of the local cultures such as local history, language, social contexts, etc. and to describe the purpose of using the System. Then provide a list with the resources that the user is willing to provide and the technical abilities of the user.

WP4: Specification and design

The user requirement provided the starting-point for this work. This WP leads to the development of a detailed functional specification and an architecture design, which form the baselines for the software development itself. Activity will concentrate on achieving detailed system specifications for the system as a whole and its components, and these will be documented to enable them to be used as the baseline for testing.

This work gave consideration (at a very detailed level) to the different architectures and implementation options which could be employed to achieve the required functionality, and then makes decisions on which to use. Careful consideration was given to the likely hardware/software platforms among the target communities.

WP5: System Build

This will involve the co-ordinating partner in working through the detailed specifications to check functionality, usability and so on. A small amount of further systems development will be undertaken on the basis of these tests. The ability to route queries to sets of databases in an intelligent way. Scalability and maintenance issues were also addressed through the storage of resource and user information within distributed directory services.

In a highly distributed environment with large numbers of heterogeneous resources it is extremely difficult for an end user to locate and access the appropriate resources to be searched. The user interface will be crucial to achieving both usability and interoperability in highly complex environments where users have limited skill sets. The interface must limit the number of unnecessary queries broadcast to inappropriate databases and be highly configurable to meet the needs of different user groups.

The work package will develop a data and metadata store with facilities for publishing data and its associated metadata into the distributed COINE environment.

An interface to a distributed thesaurus, will be provided along with facilities for authentication and rights management.

Full text indexing will be available for source data as well as XML based metadata.

The platform will provide an interface to multiple search applications, including the COINE Resource Access platform.

Also in this Workpackage, there will be a formal process of verification, which in essence takes the user requirements, functional specification and system architecture documents and checks that the software which has been delivered complies in all respects. During this workpackage, any non-conformances are reported back to the developers and the Technical Director and decisions made on whether they require attention.

A toolkit or workbook which can accompany the software to guide its installation, use and exploitation is developed. The toolkit will incorporate evaluation procedures for use in the demonstration phase.

Implementation challenges

The COINE technical architecture is designed to solve 2 specific problems:
Seamless access to very highly distributed resources – this covers issues such as:

- Repository navigation – providing interfaces to allow users to navigate through descriptions of individual repositories/databases in order to target queries within the distributed resource base.
- Broadcast meta-data querying – the ability to simultaneously query large numbers of individual meta-data stores and present consolidated results to the user.

- Intelligent Query routing – the ability to route queries intelligently between sets of databases based upon what the user is querying for and forward knowledge about the general content of each database within the environment.
- Thesaurus expansion through distributed thesauri – the ability to expand the user's query through distributed thesauri accessed through standard protocol interfaces.

Provision of a highly distributed meta-data and data publishing platform – this covers issues such as:

- Resource XML Schema - provision of a XML schema and distributable authoring tool for resource meta-data creation. This will be based around the Open Archives Protocol.
- Repository XML schema – similar provision of a XML schema and distributable authoring tool for meta-data creation at the repository level. This will form the basis on repository navigation
- Harvesting of metadata in OAI-compliant repositories, along with repository level metadata, into searchable databases which form the basis of COINE's value-added service provision.
- Search protocol for the value added services, using ANSI Z39.50 to retrieve XML metadata records which include an item identifier which will provide access to individual items (digital objects) in repositories.
- Localised query expansion through distributed thesaurus access, based on the ZTHES Z39.50 profile.

WP6: Demonstration Trials

The main work of this Workpackage involves the demonstration of the COINE system in a series of large scale trials across different European countries. There are a number of stages to the demonstrations:

The demonstration sites are provided with the software and supporting documentation and are given a short training / familiarisation session before themselves undertaking implementation (and documenting the experience);

- The sites produce documentation to define the scope of their experiment and the end-users involved. (Note that they will be expected to have laid the groundwork for this in advance)
- The sites undertake a period of object and metadata capture and creation to populate their COINE domains
- The sites undertake an extensive period of use of the system, during which they undertake a series of formal evaluations: these include technical evaluations and, most importantly, end-user evaluations. The latter include studies based on structured methodologies to assess expectations and experience, including changes over time.
- During evaluation, care is taken to ensure that all features of the system are tested by the sites in a structured manner.
- Sites experiment with linking domains together by linking the demonstration sites and/or by allowing other communities to set up domains with which to interoperate. They thus demonstrate and test a pan-European dimension, including multi-lingual aspects.
- The process will provide feedback to the remainder of the consortium, who will use this feedback to determine desirable changes, if any, to the COINE product and the way in which it is presented.

Application scenarios

All participating partners have developed a wide range of application scenarios, where the demonstrations will be test. For example:

Ennis Information Age Town

Is a journal of collection of photos, videos and memories from the past with an emphasis on the people and places who are a key segment of local history. Acts as a forum to enable organizations and individuals, schools and groups to protect their heritage through the online exhibition. Through COINE, it is envisaged that a more navigable system can be developed to archive this resource to enable cultural digital objects captured, stored, described, located, linked and maintained. A further aim is to allow organizations such as schools to have their own domain for maintaining easily the gallery.

The Thessaloniki Design Museum

Is a non-profit organization that has the aim of approaching to design.
The permanent collections has 1.200 objects (furniture, light fittings, office equipment, domestic appliances, toys, etc.) representatives of the industrial design evolution in the 20th century.

WP7: Exploitation Preparation

Although partners will undertake some market research and market testing within the demonstration environments, this workpackage provides a broader and more formal approach, which will use a number of standard approaches including competitor analysis, technology profiling and so on. On the basis of this work an exploitation plan will be developed and agreed by the consortium.

The consortium believes that the most appropriate way to address exploitation, given the development and demonstration cycle, is to develop an Exploitation Plan towards the end of the project itself. This will be based both on the experience of the partners in using the COINE product itself (i.e. they will better understand the use scenarios which it best fits) and on market analysis - which will include technology assessment of likely implementers and the steps needed to make COINE an attractive product to them.

At the present time the consortium has views on likely exploitation and issues:

- There is a large and growing market both among individuals and small groups for software which can support their own interests. Much existing software is crude and often single-user (an example would be packages which support personal genealogical research). Given the rate of expansion of networked services, this is a huge potential market.

- Equally, local memory institutions and other small organisations are rapidly developing web sites, but are finding that the lack of structure, metadata and quality control is presenting severe limitations to their achievements, especially once they try to act collaboratively with others in networked spaces. Again, COINE offers a solution which the consortium believes will be attractive;

- Thirdly, Internet Service Providers are offering a wide variety of add-on products. The consortium will examine whether this forms a viable market;

- The consortium will examine the exploitation of the COINE product through content providers, such as publishers moving into digital environments and owners of large datasets which could be exploited by COINE operators;

- The design of COINE is such that opportunities to exploit individual modules, perhaps by linking them with other products, offers opportunities that will be investigated;

- Finally, COINE's exploitation is not simply in terms of the product. The concept itself, especially when it is proven in the diverse demonstration sites, offers the opportunity to promote social well-being and social cohesion, and the consortium intends to include these issues in its Exploitation Plan.

The participants thus see a number of opportunities for exploitation, both in terms of commercial activity and in terms of the use of COINE to promote local cultural activity. Such opportunities are not limited to Europe but can be expected to occur world-wide.

In terms of exploitation vehicles, the consortium believes (based on previous project experience) that a decision will need to be taken towards the end of the project as to whether COINE should become part of one of the technical partners' product ranges. Failing that it may become the subject of a joint venture between partners; or the subject of a joint venture with another organisation. These options, and others which will undoubtedly emerge, will be fully evaluated.