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EPOCH

**Excellence in Processing Open
Cultural Heritage**

Network of Excellence

Information Society Technologies

D1.1.1: Citizen's Charter

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1 Executive Summary

This report sets out the reasons why EPOCH's approach and efforts are relevant to the needs of Europe and its citizens on a number of levels. The activities are discussed from a number of perspectives:

- As an economic proposition in tourism and local development
- As an important social influence
- As an assistance to reinforcing multi-cultural and inter-cultural perspectives.
- As an engaging way of instilling values of citizenship
- As an effective way of enhancing and preserving our Cultural Heritage for future generations.

The report also outlines the activities of the project and provides directions to find out more about the work of the consortium.

2 Introduction – what's the problem

The basic proposition of the EPOCH network is that to be effective in using technology to preserve and enhance Cultural Heritage assets it is necessary for the different professions to work closely together in a team with mutual respect and understanding of each others professional skills and integrity. Furthermore to make the inter-disciplinary team effective requires engagement of those who own, control and make policy for the use of physical Cultural Heritage.

EPOCH is a large consortium which brings together many different perspectives and requirements. The Network is actively striving to understand the different agendas of the different interests in the field, and to bring those agendas into a common framework so that we all pull in the same direction, as far as is possible, and get the greatest impact for the investment.

Previous Framework programs have provided substantial support to pump-prime research and development for the application of technology to the fields of Cultural Heritage research and presentation. This significant input is reported as around 1500 person years of effort spread over 110 projects since 1999, involving several hundred participants and organisations and costing over 90M Euros. We should all be concerned to review and safeguard this investment for value-for-money and long term impact.

It is fair to say that much of the investment to date has been on projects where the relative contributions of Cultural Heritage professionals, IT specialists and policy makers were not in balance. One group would dominate the attitudes and interests of the work of individual projects, meaning that either IT professionals were working more in the expectation that the tools would be useful to Cultural Heritage professionals, or that Cultural heritage professionals were developing applications without the benefit of full

knowledge of the best of computing science research. A lot of good work has nevertheless been done and the level of inter-disciplinary knowledge has improved substantially. It is now time to harness the achievements and move to a new level of interdisciplinary collaboration.

EPOCH's goal is to create a strong community of interdisciplinary researchers working on an agreed set of research priorities, with an understanding of how their research is targeted at applications that will have a real impact on the exploration, preservation, and presentation of physical Cultural Heritage, if and when the research is successful. Another of EPOCH's goals is to reduce the imbalance among different regions of Europe in guaranteeing access to Cultural Heritage, for which ICT is an important tool.

3 The scope of the project

“The past is all around us. We live our lives, whether consciously or not, against a rich backdrop formed by historic buildings, landscapes and other physical survivals of our past. But the historic environment is more than just a matter of material remains. It is central to how we see ourselves and to our identity as individuals, communities and as a nation. It is a physical record of what our country is, how it came to be, its successes and failures. It is a collective memory, containing an infinity of stories, some ancient, some recent: stories written in stone, brick, wood, glass, steel; stories inscribed in the field patterns, hedgerows, designed landscapes and other features of the countryside.” [1]

EPOCH targets physical Cultural Heritage – the heritage that is represented by monuments, sites and museums. Although the project obviously has a European focus, many of the research issues that it faces are applicable to any culture's physical heritage. This restriction to monuments, sites and museums actually leaves a huge range of heritage to be concerned about.

Within this domain the vast challenge of Cultural Heritage can be demonstrated in many ways. The numbers of monuments, sites and museums in each major European Country is measured in the thousands. For example in the late 90's the UK had around 10,000 such venues, only half of them charging an entrance fee. France has almost 50,000 Cultural Heritage venues (mainly historic buildings) and there are over 200 UNESCO World Heritage Sites in Europe [2]. Even if Cultural Heritage venues are not charging directly for entrance, if they are acting as a powerful motivation for people to visit regions they are nevertheless responsible for revenue generation in support of their local economies from provision of other tourism services.

Preserving the huge number of sites and artefacts, not only as they are now, but analysing them for their variation over time, and assessing their historical background and importance is an unimaginably large challenge. Racing against the ravages of time, climate and pollution to preserve heritage before it is lost is an impossible task, but a worthwhile challenge is to do the best we can and to prioritise our efforts. Developing tools to automate processes which can be automated, and harnessing volunteer effort

where manual intervention is needed are both aspects which will impact how much of the challenge we are able to meet.

Another major challenge is recognising the modern social impact of material heritage, both as a source of local community identity and an instrument for intercultural and intergenerational dialogue. Cultural Heritage IT has a major role to play in this area, in enabling public heritage interpretation programs to present heritage from multiple perspectives that acknowledge the cultural diversity and varying interests of local residents and outside visitors.

4 Importance globally and to Europe

Cultural Heritage is an important factor:

- (a) in determining tourists decisions on destination
- (b) for education of the citizen and appreciation of cultural diversity

Technology can significantly enhance effectiveness in both sectors.

There are two primary and many secondary markets for the results of the quest of “bringing our Cultural Heritage to life”:

- Cultural Heritage Tourism, including day visitors and domestic tourists, but also, and importantly to Europe, potential visitors from outside the region.
- Education, providing for schools visits, developing enticing educational tools and other specifically educational activities, and Citizenship, including appreciation of cultural diversity and its origins and of common roots between apparently diverse modern social groupings.

Among the secondary markets, there are many opportunities to use the cultural assets in other forms, from publication to cinema sets, e-tourism to merchandising. Finally securing an international reputation for European industry's expertise in these technologies will provide another avenue of exploitation. Understanding the complexity of the different exploitation routes and the necessary conditions for successful deployment of technology is one of the goals of the integration activity.

The tourism sector alone is responsible for revenues of hundreds of billions of Euros annually, with “Cultural Heritage assets” and “picturesque environment” highly ranked in surveys as a motivating factor in the choice of destination [2]. Cultural Heritage Assets are a leading differentiator (USP) for European tourism as contrasted to other destinations. Education is a large portion of any nation's spending plans, and in both sectors investment to achieve more effective creation and application of digital cultural assets must be a strategic objective at both national and European levels.

4.1. Tourism

In a recent study [2] "Historic interest" was cited as the 5th most common reason for the choice of tourist destination (by 32% of those surveyed), behind (1) "Scenery" (49%) (2) "Climate" (45%) (3) "Cost of Travel" (35%) and (4) "Cost of Accommodation" (33%). The citation of scenery here may also have a Cultural Heritage component.

In Europe the tourism industry is a very significant economic sector and raises significant revenues from visitors from other parts of the world. To quote the recent report referred to above [1] "According to 1998-2000 figures, 12% of Europe's Gross Domestic Product (GDP) is generated by tourism and tourism-related activities and over 20 million jobs have been created in this sector, essentially within Small and Medium sized Enterprises (SMEs). This sustained growth is predicted to continue well into the future. According to forecasts by the World Tourism Organisation (WTO), the number of tourists in Europe is expected to double in the next 25 years. By 2020, there will be more than 700 million cross-border tourist arrivals a year. In economic terms, this corresponds to an annual growth rate of 3% and an increase of 100,000 new jobs a year, as experienced in the past few years."

In 2002 the WTO [5] were reporting that "Worldwide receipts amounted to US \$462 billion in 2001... . Half of all receipts are earned by Europe, The Americas have a share of 26%, East Asia and the Pacific 18%, Africa 2.5%, Middle East 2.4 % and South Asia 1.0 %".

4.2. Education

"The historic environment has immense value as an educational resource, both as a learning experience in its own right and as a tool for other disciplines. Whether at school, in further and higher education or in later life, the fabric of the past constitutes a vast reservoir of knowledge and learning opportunities. This is as true of the oldest archaeological remains as it is of buildings of the last fifty years. The history of buildings and places is also the history of the age in which they originated and of the eras in which they flourished. They can tell us about the individuals and the institutions that created them and occupied them and about the societies and the local communities they served. Nor is the educational significance of the historic environment confined to the teaching of history. It is also relevant to subject areas as diverse as economics, geography, aesthetics, science, technology and design. Buildings and places can also play a role in developing a sense of active citizenship; by learning about their own environment and how they can participate in its evolution, people feel a greater sense of belonging and engagement." [1]

The above quotation shows that value-added by digital technologies in the Education Sector cannot be measured as simplistically as that for tourism, which is itself an immensely complicated task. It would be possible to estimate the percentage of the education budget spent on teaching history and hence attribute value to education that used historic assets in digital form to help deliver curriculum. It is not clear that this would be particularly meaningful when much of the impact would be in terms of a new

generation placing more value on their heritage. Even this could have an economic benefit, as shown in this quotation

“Local Schools have taken part enthusiastically in educational work. Vandalism, formerly a serious problem, has been reduced.” Quote from Gt Yarmouth South Quay project [4]. Exposure to the past and the accompanying changes in the social fabric help to induce an attitude of social participation and active citizenship.

4.3. Entertainment (media and games)

Cultural heritage has long featured prominently in entertainment, from Shakespearian plays to costume dramas and films. Increasingly, films of all genres have used digital technologies to enhance their impact and we can expect to see increasing use of digital artefacts in historic settings. An obvious example where accurate digital modelling of Cultural Heritage would add to a film's impact is in the simulation of historic urban environments – as in the introductory sequence of ancient Rome in the film “Gladiator”. Where such models are based on archaeological interpretation of the evidence, the film would be more relevant to an understanding of history as well as providing the enhanced entertainment. Gladiator has in fact been criticised for doing the reverse – providing a misleading impression. Indeed the criticism most often raised against historical drama is that too frequently and, in many people's eyes, unnecessarily history is altered in the alleged interest of a more entertaining story-line.

As the use of accurate digital artefacts and environments in computer games becomes commonplace, a whole additional market opens up, with the potential to provide elegant and engaging learning opportunities. It is now several years since the computer games industry first overtook the film industry in terms of gross turnover. At the same time, the rapidly increasing visual quality of games will set the standard that cultural displays have to meet for future generations.

4.4. The importance to Europe

It is informative to think of the potential impact that EPOCH might make relative to the size of investment it represents. Alternatively if we consider the size of the market that EPOCH is trying to influence then the figures are truly impressive. The WTO estimate would imply that Cultural Heritage tourism is worth perhaps US\$100 billion p.a. Education would certainly rival the overall turnover on tourism but Cultural heritage would represent a smaller fraction of that activity. Entertainment is a large turnover, but the Cultural Heritage impact on the area in EPOCH terms is relatively new and more potential than real at present, even though a large percentage of computer games have a historic theme to them.

Using only the figure of \$100,000,000,000 turnover, if EPOCH improves Europe's performance by 0.002% in this market place then Europe is in profit from having funded the activity. Any impact in education, entertainment, and other industries would be pure

profit on top of this. The partners do not feel this is an ambitious target and would hope to have a much bigger impact than that!

5 Potential impacts

The EPOCH network's objectives are clearly in line with maximising the return on previous and new investments, as indicated by the effort devoted to areas such as brokerage of specialist facilities, and cross-fertilising experience through education, training and exchanges.

This kind of integrated thinking and planning is required to not only achieve the strategic objective of “reducing the cost of digitisation and modelling of cultural objects, monuments, sites etc within 5 years,” but also for making the resulting digitised models useful as a basis for analysing, discussing, and communicating Cultural Heritage. Only in this way can the sector address strategic target audiences and meet the secondary strategic objectives of “competitive economy” and “greater social cohesion.”

5.1. *Socio-economic Impact*

In 2002 the Council of Europe, in its report "Forward planning: the function of Cultural Heritage in a changing Europe" [6] stated that “European co-operation has done a great deal to heighten awareness, among decision-makers and the general public, of the interest of heritage, conservation methods, research and technical co-operation between countries. Consideration must now also be given to the societal implications. In this respect, Cultural Heritage is a key component of the multiple identities that shape Europe. Juxtaposition of these identities raises the question of intercultural dialogue and mutual understanding between communities.” The report concluded:

“The forward-looking work initiated in 2000 should be pursued in a number of directions:

- the "common heritage" concept, in connection with the Council of Europe's political role and the meaning to be given to Article 1 of its Statute;
- the function of Cultural Heritage in an information society for the benefit of all. ...
- diversification of means of participation and of public access to culture and heritage in the context of globalisation.

Research in these fields cannot be compartmentalised along traditional academic or administrative dividing lines, but should be pursued at an interdisciplinary, cross-sectoral level.”

This recognition of the need for a holistic and inter-disciplinary approach to Cultural Heritage is at the heart of the EPOCH philosophy.

“Policymakers need to regard the historic environment as a unique economic asset, a generator of wealth and jobs in both urban and rural areas. With this recognition there needs to be coupled intelligence and creativity. We must value the fabric of our past for its importance in attracting millions of visitors to this country each year. At the same time

we must recognise that effective management strategies are needed to ensure that much-visited fragile sites are not irreparably damaged. A high-quality, sustainable tourist product must be our aim and this chapter looks at how we might work better to achieve this.”

“In 2000 tourism expenditure in the United Kingdom totalled some £75 billion, and the value added by the tourist industry represented around 5% of GDP-larger than the car, steel and coal industries put together. The impact of foot and mouth disease on the tourism industry demonstrated both the importance of the industry to the economy and its interconnectedness with the wider economy.”[1]

In a recent survey undertaken in England it was found that “More than half (52%) of people in a nationwide poll in 2003 had visited a historic park or garden in the last twelve months, and 46% had visited a historic building. According to the same poll, more people had watched a TV programme about history or archaeology over the same period (66%) than had visited the cinema (51%)” [3]

5.2. Targeting open source

EPOCH is committed to targeting the production of low-cost, open source or open-licensed tools to support Cultural Heritage work. For the communities of monuments, sites and museums, this has the obvious advantage of potentially reducing the costs of developing Cultural Heritage experiences, reconstructions and other communications. However, labour costs will remain the dominant expense, so it is important that the tools made available are easy-to-use and effective. Open-source communities encourage additional effort to be put into tool development by the community that actually uses the tools and enhances the effectiveness of the tools, provided quality control mechanisms are included.

Such tools will be useful in the education sector, where the right tools could be used in schools and colleges for project work, as well as in the sector that creates applications for the monuments, sites and museum sectors.

In some parts of Europe, Cultural Heritage has historically attracted a huge amount of community effort through volunteering, often within preservation and historical societies founded in local communities. EPOCH's fundamental principles of low cost, easy-to-use tools running on low-end hardware, and wherever possible subject to open-source agreements is designed to also empower and mobilise this effort.

5.3. More focused research

No less important is EPOCH's focus on anticipating and agreeing the most promising future directions of research, through consultation and thorough survey of the existing base of activity. By focusing on the ultimate goal of delivering sustainable solutions for studying, processing, and communicating Cultural Heritage, the network will address the most critical outstanding research issues which are impeding the widespread adoption of technology in effective public communication of Cultural Heritage.

6 What we hope to achieve and when

EPOCH will combine expertise and resources of technologists, heritage administrators, heritage professionals and communication experts concerned with the effective and sustainable application of digital technology to archaeological research and Cultural Heritage presentation at museums, monuments, and historic sites. The network will promote the integration of research efforts in five vital subfields:

- Field Recording and Data Capture
- Data Organisation, Provenance and Standards
- Reconstruction and Visualisation
- Heritage Education and Communication
- Planning for sustainability of heritage projects

EPOCH involves a large consortium of leading European institutions and will promote interdisciplinary integration by initiating and supporting a wide range of activities to the benefit of network members and the wider community, including:

- 1) Undertaking integrating activities to create an integrated information base on the current and potential use of ICT in Cultural Heritage, the obstacles to progress in terms of both the technical research terms, and the understanding of the socio-economic and business issues, and to enhance use of existing resources.
- 2) Performing research to complete the toolkit for creating Cultural Heritage applications and create an integrated infrastructure.
- 3) Spreading Excellence through on-line services and resources, dissemination activities, education, training and staff mobility.

The EPOCH Joint Program of Activities has been structured around 4 large workpackages. The first workpackage is "Management" while the other 3 can be broadly characterised as

- (a) integrating the activities of the partners and analysing a comprehensive view of the current situation to identify stakeholder needs, and map out the priorities of the CH domain for sustainable integration of technology
- (b) jointly executed activities to create common technological infrastructure and enable efficient applications development, and to tackle the resulting perceived needs for new and improved tools development and
- (c) spreading excellence by providing information, actively enhancing its use and maturing those partial solutions into a self-sufficient and self-sustaining critical mass of activity.

The Joint Program of Activities (or JPA) is defined in detail for the first 18 months and then revised annually. So at the end of the first year the JPA is defined for the next 18 months. In this way the program can be refined and adapted to changing circumstances over the funded period. Each workpackage will go through a number of key milestones,

when successful results are brought together from more than one area of activity. These milestones represent moments when enhanced integration is achieved between the elements of the EPOCH plan.

1) Workpackage 2: Integrating Activities

This workpackage provides an information base over the full Cultural Heritage domain which serves as major input into other network activities. The approach is to form a consolidated view on the state of technological integration in Cultural Heritage quite fast, and then refine and update this view during the course of the project.

It is important to reach a sufficiently rich view of the state of the art in technology and Cultural Heritage early on which includes:

- a sufficiently wide and precise description of the need of the stakeholders
- a sufficiently detailed analysis of factors of success and failure in IT projects
- a sufficiently complete integration roadmap, both for technologies currently in use and for technologies with a sufficiently high potential use

When this view is achieved, the information can be used to help create a Common Research Agenda – the first drafts of which are expected towards the end of the first year with substantial revisions every two years and some revisions annually. The success of this process will be demonstrated by the influence of the common research agenda on funding agencies and other researchers in the field.

At the same time EPOCH will be defining socio-economic impact models, where there is a clear and viable role for small commercial companies. The models need to show a sound basis for the use of, and investments in, IT in Cultural Heritage, and are fundamental to the long-term success of the network as a self-sustaining grouping. It is expected to take two years to achieve a sound basis for modelling.

Finally, under this workpackage, EPOCH intends to establish a sustainable, self-supporting brokerage service to enhance the investment in facilities and skills acquisition. This will provide linkage between those with scarce facilities and skills and those who need the facilities, and support the creation of consortia to support endangered sites and take up new projects.

2) Workpackage 3 is the umbrella under which EPOCH will define and implement a common technological base for the project. This common infrastructure will be based on standards and wherever possible be open source (or licensed open source) in order to make it available as widely as possible at the lowest possible cost.

EPOCH expects to establish the design of this common infrastructure during the first year and then implement the components over the next three years. The project will continuously scout for existing solutions, will invest to bring these into line with the common infrastructure on a value-for-money basis, and will only resort to brand-new developments where needed. This said, Cultural Heritage comes with a particular blend of highly challenging requirements (low cost, easy-to-use, high precision, portable, rugged, no risk to damage delicate objects, etc.) and new developments will therefore be crucial.

- 3) Workpackage 4 is the outward facing part of EPOCH and seeks to make EPOCH the prime source for trusted information and the prime forum for representing the collective opinions of those working at the interface between ICT and its applications in the Cultural Heritage domain.

The activities that will be visible under workpackage 4 will be the website, the courses and bursaries program to spread excellence and bring on young researchers; EPOCH branded events – both research conferences and events for public awareness, and less obviously to the public and influence on international standards in support of Cultural Heritage work. Included in the standards work are the efforts to establish a Charter on the interpretation of Cultural Heritage sites, where worldwide consultation is currently going on through the ICOMOS organisation, which represents the specialists on monuments and sites worldwide.

7 The EPOCH Consortium

The EPOCH consortium is a wide and diverse group of 83 organisations comprising Cultural Heritage professionals, researchers in IST, curators of museums, owners of collections, and representatives of policy makers. This deliberately wide diversity means that almost all vested interests are represented. The names of all partners are listed on the Networks website at www.epoch-net.org.

The consortium is led by four core partners:

- 1) The University of Brighton, UK, are the coordinators of EPOCH (epoch@brighton.ac.uk)
- 2) The Ename Centre for Public Archaeology and Heritage Presentation, Belgium are the lead partner for “Integrating Activities”
- 3) The Katholieke Universiteit Leuven, Belgium, are the lead partner for WP3: “Jointly Executed Research”
- 4) PIN srl – Servizi didattici e scientifici per l’Università di Firenze, Italy, are the lead partner for WP4: “Spreading excellence”

8 Contact details

For more information, or to contact the project, go to the project website at www.epoch-net.org.

9 References

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- [3] English Heritage “Heritage Counts 2003”,

[4] English Heritage "Power of Place" <http://www.english-heritage.org.uk/default.asp?wci=mainframe&URL1=default.asp%3FWCI%3DNode%26WCE%3D108>

[5] World Tourism Organization, News release, Madrid, 18 June, 2002

[6] Council of Europe "Forward planning: the function of Cultural Heritage in a changing Europe", 2002