

Information flows in the digital age

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The desire to identify, record, understand, explain and enjoy the heritage of our historic sites, monuments and landscapes is characteristic of a society which values its history and culture. The capture of information about the historic environment, through archaeological and architectural survey and investigation, and the dissemination of information and interpretation, is central to this desire. Information about the historic environment should be available to all, both specialists and the public. The potential in the digital age is for survey data and information to flow electronically from its creation to the archive and to the end-user through Internet access. There is also the potential to encourage new groups within the community to engage with the historic environment, based on participation and social inclusion, as well as curriculum needs. While current developments in England are encouraging, the general picture looks patchy. The capture, storage and dissemination of historic environment information is fragmented and under-resourced. Only a strategic framework which includes all the key players and voluntary and commercial sectors will make integrated and virtual access a reality.

The knowledge base

Our understanding of the historic environment rests on the knowledge base, (see Fig 1). This base is enhanced through investigation and analysis which themselves create new archives and enhanced material for dissemination and set new agendas for further work in a on-going cycle. There are a large number of players including government, English Heritage, the Heritage Lottery Fund, re:source, local government, archaeological units, museums, archives, libraries and universities. Other sectors, the educational and environmental also have a part to play, as do voluntary and commercial interests. There is

also a hierarchy of levels, from the local, through the regional, national, UK and European to the international. The material is varied, including text, images, spatial and scientific/technical data. Much of it is now captured electronically, for example, as word-processed files, digital imagery, or through electronic distance measuring and global positioning techniques.



Fig 1 – The knowledge Base

The data model for the historic environment is necessary complex, (see Fig 2). There is a requirement to model change from the past through to the present and future, based on primary archives and the people associated with the historic environment. There are demands for the casework and advisory services associated with the historic environment to be automated and delivered electronically on grounds of efficiency, as well as to meet government targets for the delivery of modern services.

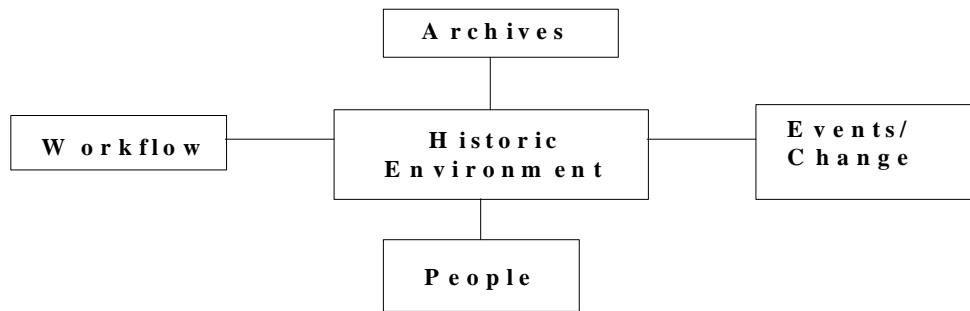


Fig 2 – Simplified data model

Some current dissemination initiatives

Although this paper focuses on England, there are good models to be found in Scotland and Wales. *CANMORE* provides on-line access to the database of the National Monuments Record of Scotland, (for details of the websites mentioned in the text see the appendix to this paper). Also in Scotland, *SCRAN* provides access to resources from a number of Scottish cultural institutions. In Wales, *CARN* provides access to the resources of the National Monuments Record together with other archaeological institutions across Wales. In England, a handful of local authority Sites and Monuments Records (SMRs) or Historic Environment Records (HERs), are on-line, or planning to be on-line, often encouraged by lottery funding. The Northumberland SMR is an example of this.

At a global level, details of World Heritage Sites are available on the web. There is also the *EUROPEAN HERITAGE.NET* project, which provides access to the cultural heritage policies of the countries associated with the Council of Europe. At UK level, *HEIRNET* provides a register of digital resources, while its sister project *HEIRPORT*, shows how a portal may be developed to provide access to the resources of several institutions. The *ARCHAEOLOGY DATA SERVICE* has made a major contribution to providing access to

digital resources, such as the Excavation Index of the English Heritage National Monuments Record, and to the promotion of standards for interoperability and digital archiving.

English Heritage has a number of on-going and forthcoming projects, including *IMAGES OF ENGLAND*, (which has incidentally generated perceptions of security risks from providing details of property on the web, in this case, photographs of listed buildings, including private dwellings). *LBS ONLINE* will make available the statutory record of listed buildings to local authorities and the statutory amenity societies later this year and to the public next year. Also later this year, *PASTSCAPE* will provide access to the main National Monuments Record database, using a prototype interface designed with intelligent 12-year olds as the target audience. English Heritage has also been active in providing web access to data standards and thesauri for monument inventories, (see the appendix to this paper). *PHOTOLONDON* is a partnership between public institutions with London photographic resources. The English Heritage National Monuments Record has also provided selected resources for dissemination by commercial networks with expertise in particular markets, for example the *LIVING LIBRARY* for education and the *HERITAGE IMAGE PARTNERSHIP* for picture researchers.

There are a number of other types of access initiatives; the *DEFENCE OF BRITAIN* is an example of a large number of thematic databases being developed in the voluntary sector, while the *PORTABLE ANTIQUITIES* recording scheme represents the interface between the historic environment and museum sectors. The *ACCESS TO ARCHIVES (A2A)* project provides access to archives catalogues and the National Monuments Record plans to join the project later this year. There are also important developments in related sectors, such as the *PLANNING PORTAL*, providing both the knowledge base for planning as well as advisory and casework services and *MAGIC*, which will enable the sharing of rural and countryside spatial information via a web-enabled geographical information system.

Issues

The historic environment sector in England is relatively fragmented for its size, for example, there are around 100 local SMRs or HERs. Traditionally, there have been compiled and maintained by archaeologists and many are not fully integrated into the historic buildings conservation framework. Indeed, there is some way to go before the knowledge base represents the holistic historic environment. It is suggested that the sector should look at the further development of portals to provide more integrated access to its information resources, portals which should be closely linked to related developments, such as the Planning Portal and Culture Online, if that project is funded by government. Perhaps there should be two complementary initiatives:

- for specialists, a portal and network which provides seamless access to information and archives resources, mapping across to annual state of the historic environment audits and OS digital products, as well as online advisory and casework services
- for public, access to information and archives resources, supported by interpretation and virtual experiences of the past. This will encourage new groups within the community to become engaged with the historic environment based on participation and social inclusion as well as curriculum needs.

While the provision of seamless access to the knowledge base is critical and is probably the easiest issue to resource, there are host of related issues which the sector needs to address together. These include:

- Understanding the user / customer base
- Developing business cases and justifications for funding
- Roles and responsibilities of partners
- Analysing the work processes which are supported by the knowledge base or create it
- Standards
- Backlogs in data capture and cataloguing

- How best to present the story of the historic environment from prehistory to present and future
- How best to apply the interactive technology being developed elsewhere
- How to acquire and harness commercial and marketing skills

Standards present a whole range of issues: technical, systems, data structure/models and terminology as well as how to apply and integrate specialist data categories such as images and spatial data. Standards for interoperability need to be decided and applied by the whole sector, such as:

- the Z39.50 international standard maintained by the Library of Congress, which specifies a client-based protocol for security and retrieving information from remote databases without imposing universal data standards
- the Dublin core standard for interoperable online metadata standards.

Conclusion

It is clear that increasingly the capture, storage, management and dissemination of historic environment information will be digital. It is also clear that a relatively fragmented sector must work together to ensure the efficient use of scarce resources and to avoid duplication and overlap. There needs to be a quantum shift in England towards exploiting the internet as the single most powerful tool for access to archives and the dissemination of knowledge. Web-enablement has the potential to deliver tailored and integrated information from many sources, including text, maps and overlays, air photographs and historic images. The gateway to knowledge should be through a seamless network of electronic services, including national and local resources.

When the expected broadband revolution finally arrives, there will be a demand for interactive content and services delivered over multiple distribution channels. The next

three years will be critical if the historic environment is not to fall far behind other sectors in making integrated and virtual access a reality. Failure here may mean failure to provide a usable knowledge base for specialists as well as to attract younger and future generations; that would be the route to marginalisation for everything that we care most about.

APPENDIX

Web address	Project Description
http://www.rcahms.gov.uk/canmore/html	<i>CANMORE</i> - On-line access to the database of the National Monument Record of Scotland, containing details of thousands of archaeological sites, monuments, buildings and maritime sites in Scotland together with an index to drawings
http://www.scran.ac.uk	<i>SCRAN</i> - Searchable online resource base of one million text and multimedia records covering images, video clips, audio clips, virtual reality etc.
http://www.rcahmw.org.uk/data/carn.html	<i>CARN</i> - Public entry-point to the Extended National Database for Wales , a national information resource for archaeology and architecture compiled by archaeological organisations across Wales.
http://www.northumberland.gov.uk/Services/countryside.htm	The Northumberland Sites and Monument Record (SMR) : The SMR includes all archaeological periods and site types up to and including World War II in Northumberland including the National Park. All scheduled monuments and all listed buildings are included. In addition to the computerised information, paper records are held on a parish basis, together with paper maps and a small library of published, unpublished and grey literature. Alongside these written sources is a range of aerial photographs, prints and slides, dating from the 1940s to the present.
Http://whc.unesco.org/archive	<i>The World Heritage Convention</i> - The Convention Concerning the Protection of the World Cultural and Natural Heritage (the World Heritage Convention) was adopted by the General Conference of UNESCO in 1972. To date, more than 150 countries have adhered to the Convention, making it one of the most universal international legal instruments for the protection of the cultural and natural heritage.
www.european-heritage.net	<i>Herein</i> - European funded project providing access to national cultural policies
http://www.britarch.ac.uk/HEIRNET/	<i>HEIRNET</i> - the Historic environment Information Resources network - formed by a group of organisations with an interest in information relating to archaeology and the historic environment. HEIRNET enables access to Historic Environment Information Resources for conservation, research, learning and general interest. It does this by promoting HEIRs, informing information managers about new developments in information technology and by offering them technical advice.
http://ads.ahds.ac.uk	<i>Excavation Index</i> - Gazetteer of archaeological Investigations in England via the on-line catalogues (ArchSearch) of the Archaeological Data Service
www.imagesofengland.org.uk	<i>Images of England Project</i> - Photographic record of listed buildings. Over 300,000 images are due to be placed on the Internet
(forthcoming)	<i>LBS Online</i> - This initiative seeks to broaden access to Listed Buildings Information for use by Local Planning Authorities, National Amenity Societies and members of the public.
(forthcoming)	<i>Pastscape</i> - The National Monuments Record of England (NMR) is currently prototyping this initiative which aims to provide user friendly access to a streamlined version of the principal NMR database of over 330,000 buildings and monuments records.
(forthcoming)	<i>HITITE</i> - EU funded project (under the 'User Friendly Information Society (IST) Programme) aims to develop by October 2002 an on-line

	thesaurus of monument terms illustrated with images from the National Monuments Record (England) archive
www.rchme.gov.uk/midas/index.html	<i>MIDAS/MIDAS THESAURI</i> - (the Manual and Data Standard for Monument Inventories)Online browsable thesauri for Monument Records
http://livlib.educweb.co.uk	<i>Living Library</i> –Developed to support learning across the school curriculum.
www.heritage-images.com	<i>Heritage Image Partnerships</i> - Commercial heritage online picture library of images taken from major collections such as the British Library, National Monument Record Centre, Guildhall , Science Museum etc. Images can be viewed easily online, and ordered or downloaded at the touch of a button.
http://www.finds.org.uk/index.html	<i>The Portable Antiquities Recording Scheme</i> - Pilot project set up in 1997 to encourage and develop voluntary recording of archaeological objects discovered by the public and by metal-detector users.
http://ads.ahds.ac.uk/cfm/dob/overview	<i>The Defence of Britain Project</i> – Archive consisting of primary records of field monuments of British twentieth century military defences, mostly from World War II. The field records were completed by volunteers throughout the UK between 1995 and 2002. In that time, nearly 20,000 twentieth century military sites in the United Kingdom were recorded by an army of some 600 volunteers.
http://www.planningportalprogramme.gov.uk/ (forthcoming)	<i>Planning Portal</i> - The Programme led by the Planning Inspectorate will consist of two main projects: <i>The Planning Portal</i> - a general planning advisory service linking the public, business and other users of the planning system to a wide range of advice, guidance and services on planning and related topics. <i>The Casework Service</i> - will be an electronic planning casework document handling and tracking facility. It is intended to automate the links between the Planning Inspectorate and applicants/appellants, local planning authorities, Government Offices, and other interested parties. It will provide direct access to progress and decision information on the 20,000 or so cases handled by Planning Inspectorate each year. The service will be one of those available via the Planning Portal.
www.magic.gov.uk	<i>MAGIC</i> – (Multi-Agency Geographic Information for the Countryside) Pilot project - enable the sharing of rural and countryside geographical information via a web based Geographical Information system. Sponsored by DEFRA
www.a2a.pro.gov.uk	<i>Access to Archives</i> - (archive catalogues available on the web)
www.photolondon.org.uk	<i>Photolondon</i> - Consortium providing information and advice on London's photographic collections