erpastudies

meteorological service (uk)

Information Society
Technologies

ELECTRONIC RESOURCE PRESERVATION AND ACCESS NETWORK

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Executive Summary

Digital records have many advantages over paper records in terms of the convenience and functionality they offer in the administration of organisations and companies. Despite these advantages, digital records are more vulnerable to certain risks such as technological change and loss of data through obsolescence. The meteorological sector produces high value data daily to which it is vital to apply digital preservation strategies in order to ensure their future accessibility. The Meteorological Office UK recognizes this risk and has taken steps to ensure the long-term preservation of their resources.

The Meteorological Office UK, and more specifically the chart weather department, has a high level of awareness on the issues surrounding digital preservation. However, it faces the problem that many large organisations face: there is not a central policy that applies to all the digital data they produce. Each department deals separately with different kinds of data (weather, radioactivity, etc.) and there is no intra-sectoral effort to tackle common digital preservation issues.

There is, therefore, an explicit link between appraisal and preservation and the information that is created on a daily basis (such as e-mails). Again, these policies don't apply to all types of data that Meteorological Office is holding. Appraising records according to their business value helps enterprises control the volume of records they preserve. By ensuring the only records kept are the ones that are the most vital to the organisation, records management helps to make digital preservation a more manageable proposition and channels resources to the most valuable digital assets. Many of the policies that the Meteorological Office UK are following are not written down; they are mostly based on a corporate commonsense that has been developed among the employees over several years. The Meteorological Office UK has a very solid understanding of digital preservation issues and in the future a common intra-sectoral approach will give them the opportunity to implement a coherent digital preservation strategy for the entire organisation.

Chapter 1: The ERPANET Project

The European Commission and Swiss Confederation funded ERPANET Project[1] (Electronic Resource Preservation and Access Network) works to enhance the preservation of cultural and scientific digital objects through raising awareness, providing access to experience, sharing policies and strategies, and improving practices. To achieve these goals ERPANET is building an active community of members and actors, bringing together memory organisations (museums, libraries and archives), ICT and software industry, research institutions, government organisations, entertainment and creative industries, and commercial sectors. ERPANET constructs authoritative information resources on state-of-the-art developments in digital preservation, promotes training, and provides advice and tools.

ERPANET consists of four partners and is directed by a management committee, namely Seamus Ross (HATII, University of Glasgow; principal director), Niklaus Bütikofer (Schweizerisches Bundesarchiv), Hans Hofman (Nationaal Archief/National Archives of the Netherlands), and Maria Guercio (ISTBAL, University of Urbino). At each of these nodes a content editor supports their work, and Peter McKinney serves as a co-coordinator to the project. An Advisory Committee with experts from various organisations, institutions, and companies from all over Europe give advice and support to ERPANET.

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[1] ERPANET is a European Commission funded project (IST-2001-32706). See www.erpanet.org for more details and available products.

Chapter 2: Scope of the Case Studies

While theoretical discussions on best practice call for urgent action to ensure the survival of digital information, it is organisations and institutions that are leading the drive to establish effective digital preservation strategies. In order to understand the processes these organisations are undertaking, ERPANET is conducting a series of case studies in the area of digital preservation. In total, sixty case studies, each of varying size, will investigate awareness, strategies, and technologies used in an array of organisations. The resulting corpus should make a substantial contribution to our knowledge of practice in digital preservation, and form the foundation for theory building and the development of methodological tools. The value of these case studies will come not only from the breadth of companies and institutions included, but also through the depth at which they will explore the issues.

ERPANET is deliberately and systematically approaching disparate companies and institutions from industry and business to facilitate discussion in areas that have traditionally been unconnected. With these case studies ERPANET will broaden the scope and understanding of digital preservation through research and discussion. The case studies will be published to improve the approaches and solutions being developed and to reduce the redundancy of effort. The interviews are identifying current practice not only in-depth within specific sectors, but also cross-sectorally: what can the publishing sector learn from the aeronautical sector? Eventually we aim to use this comparative data to produce intra-sectoral overviews.

This cross-sectoral fertilisation is a main focus of ERPANET as laid out in its Digital Preservation Charter.[2] It is of primary importance that disparate groups are given a mechanism through which to come together as best practices for digital preservation are established in each sector.

Aims

The principal aims of the study are to:

- build a picture of methods and match against context to produce best practices;
- accumulate and make accessible information about practices;
- identify issues for further research;
- enable cross-sectoral practice comparisons;
- enable the development of assessment tools;
- create material for training seminars and workshops; and,
- develop contacts.

Potential sectors have been selected to represent a wide scope of information production and digital preservation activity. Each sector may present a unique perspective on digital preservation. Organisational and sectoral requirements, awareness of digital preservation, resources available, and the nature of the digital object created place unique and specific demands on organisations. Each of the

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[2] The Charter is ERPANET's statement on the principles of digital preservation. It has been drafted in order to achieve a concerted and co-ordinated effort in the area of digital preservation by all organisations and individuals that have an interest and share these concerns.
http://www.erpanet.org/www/content/documents/Digitalpreservationcharterv4_1.pdf

case studies is being balanced to ensure a range of institutional types, sizes, and locations.

The main areas of investigation included:

- perception and awareness of risk associated with information loss;

- understanding how digital preservation affects the organisation;

- identifying what actions have been taken to prevent data loss;

- the process of monitoring actions; and,

- mechanisms for determining future requirements.

Within each section, the questions were designed to bring organisational perceptions and practices into focus. Questions were aimed at understanding impressions held on digital preservation and the impact that it has had on the respective organisation, exploring the awareness in the sector of the issues and the importance that it was accorded, and how it affected organisational thinking. The participants were asked to describe, what in their views, were the main problems associated with digital preservation and what value information actually had in the sector. Through this the reasons for preserving information as well as the risks associated with not preserving it became clear.

The core of the questionnaire focused on the actions taken at corporate level and sectoral levels in order to uncover policies, strategies, and standards currently employed to tackle digital preservation concerns, including selection, preservation techniques, storage, access, and costs. Questions allowed participants to explore the future commitment from their organisation and sector to digital preservation activities, and where possible to relate their existing or planned activities to those being conducted in other organisations with which they might be familiar.

Three people within each organisation are targeted for each study. In reality this proved to be problematic. Even when organisations are identified and interviews timetabled, targets often withdrew just before we began the interview process. Some withdrew after seeing the data collection instrument, due in part to the time/effort involved, and others (we suspect) dropped out because they realised that the expertise was not available within their organisation to answer the questions. The perception of risks that might arise through contributing to these studies worried some organisations, particularly those from sectors where competitive advantage is imperative, or liability and litigation issues especially worrying. Non-disclosure agreements that stipulated that we would neither name an organisation nor disclose any information that would enable readers to identify them were used to reduce risks associated with contributing to this study. In some cases the risk was still deemed too great and organisations withdrew.

Chapter 3: Method of Working

Initial desk-based sectoral analysis provides ERPANET researchers with essential background knowledge. They then conduct the primary research by interview. In developing the interview instrument, the project directors and editors reviewed other projects that had used interviews to accumulate evidence on issues related to digital preservation. Among these the methodologies used in the Pittsburgh Project and InterPARES I for target selection and data collection were given special attention. The Pittsburgh approach was considered too narrow a focus and provided insufficient breadth to enable full sectoral comparisons. On the other hand, the InterPARES I data collection methodology proved much too detailed and lengthy, which we felt might become an obstacle at the point of interpretation of the data. Moreover, it focused closely on recordkeeping systems within organisations.

The ERPANET interview instrument takes account of the strengths and weaknesses from both, developing a more focused questionnaire designed to be targeted at a range of strategic points in the organisations under examination. The instrument[3] was created to explore three main areas of enquiry within an organisation: awareness of digital preservation and the issues surrounding it; digital preservation strategies (both in planning and in practice); and future requirements within the organisation for this field. Within these three themes, distinct layers of questions elicit a detailed discovery of the state of the entire digital preservation process within participants' institutions. Drawing on the experience that the partners of ERPANET have in this method of research, another important detail has been introduced. Within organisations, three categories of employee were identified for interview: an Information Systems or Technology Manager, Business Manager, and Archivist / Records Manager. In practice, this usually involved two members of staff with knowledge of the organisation's digital preservation activities, and a high level manager who provided an overview of business and organisational issues. This methodology has allowed us to discover the extent of knowledge and practice in organisations, to understand the roles of responsibility and problem ownership, and to appreciate where the drive towards digital preservation is initiated within organisations.

The task of selecting the sectors for the case studies and of identifying the respective companies to be studied is incumbent upon the management board. They compiled a first list of sectors at the very beginning of the project. But sector and company selection is an ongoing process, and the list is regularly updated and complemented. The directors are assisted in this task by the advisory committee.

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[3] See Appendix 1. We include the questionnaire to encourage comment and in the hope that other groups conducting similar research can use the ideas contained within it to foster comparability between different studies.

Chapter 4: Introduction to Sector

National Meteorological Services play an important and leading role in the international exchange of meteorological data, on which all weather services depend. The Meteorological sector produces a wide range of meteorological and climatological products, services and advice to meet the needs of the government as well as of the citizens.

Generally, the Meteorological sector collaborates closely with different ministries of the Government, such as the Ministry of Defence and the Ministry of Development. They provide a range of meteorological and climatological data as well as maintain and advance the technical competence and quality of applied research in meteorology and climate.

Specifically, the Meteorological Office represents the United Kingdom's interests within the World Meteorological Organisation and other relevant international bodies, maintaining an up to date National Meteorological Library and National Meteorological Archive[4] in accordance with the Public Records Act 1958[5].

The World Meteorological Organisation (WMO)[6] coordinates global scientific activity to allow increasingly prompt and accurate weather information and other services for public, private and commercial use, including international airline and shipping industries. WMO's major scientific and technical programmes include the World Weather Watch (WWW), which is the backbone of WMO's activities. WWW offers up to the minute, world-wide weather information through member operated observation systems, telecommunication links with four polar-orbiting and five geostationary satellites, about 10,000 land observation, 7,000 ship stations and 300 moored and drifting buoys carrying automatic weather stations.[7]

Each day, high-speed links transmit over 15 million data characters and 2,000 weather charts through 3 World, 35 Regional and 183 National Meteorological Centres cooperating with each other in preparing weather analyses and forecasts in an elaborately engineered fashion[8]. Thus transoceanic ships and aeroplanes, research scientists on air pollution or global climate change, the media and the general public are given a constant supply of timely data. It is through WMO that the complex agreements on standards, codes, measurements and communications are established internationally.

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[4] http://www.metoffice.com/corporate/legal/framework.pdf
[5] http://www.pro.gov.uk/about/act/default.htm
[6] http://www.wmo.ch
[7] http://www.wmo.ch/index-en.html
[8] http://www.wmo.ch/index-en.html

Chapter 5: Details of Interviews

THE METEOROLOGICAL OFFICE UK
http://www.meto.gov.uk

The Meteorological Office was formed in 1854; it is the official governmental body in the UK in charge of the weather forecasting. Forecasting is only one of a wide range of activities carried out by the Meteorological Office. Other activities include studying global climate issues such as ozone depletion, developing the new instruments for weather satellites to ensure that the quality of the data gathered by weather satellites continues to improve, supplying weather information to many different customers (in the UK, Europe and throughout the world), and maintaining an education and library service. The Meteorological Office UK produces a huge amount of digital data daily, so it has selected a solution capable of scaling petabytes of data to be warehoused, managed, and accessed by scientists using atmospheric computer models for weather forecasting and climate research through one of the largest relational databases.

The Meteorological Office UK operates two networks of weather forecasting services: one providing information to the armed forces and the other focusing on services to industry, commerce and the public. Unlike traditional data warehouse systems, StorHouse software provides direct record-level access, including the processing of SQL queries, to data anywhere in the application's automated storage hierarchy (including tape) regardless of the source application. With traditional data warehouse systems, it can take hours and even days to restore archived data from tape to disk for analysis and decision-making.[9]

This report focuses on the digital weather charts and specifically on the digitisation project that they have just undertaken.

Chapter 6: Circumstances

The Meteorological Office UK is now in the process of running a digitisation project of which the aim is to establish issues on digital preservation of weather maps, which are currently archived on paper. It was difficult to identify someone in the organisation who is responsible for all digital material that the Meteorological Office UK is producing. Claire Ross, the senior project manager within the Meteorological Office UK, was eventually identified as the best person to interview and was contacted. She is currently managing a project developing an electronic chart archive for newly created records.

As the organisation is extremely large and not centrally administrated in terms of a records management or an archival point of view, it was quite difficult to find the right people to interview at the Meteorological Office UK. In addition, the Meteorological Office UK was in the midst of re-locating from Bracknell to Exeter, and staff time was therefore very restricted. Participation in the case study is greatly appreciated.

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[9] http://www.filetek.com/press/releases/1999/PR_1999_UKMet.htm

Chapter 7: Analysis

This section presents an analysis of the data collected during the case study. It is organised to mirror the sequence of topics in the questionnaire.

- Perception and Awareness of Digital Preservation
- Preservation Activity
- Compliance Monitoring
- Digital Preservation Costs
- Future Outlook

Perception and Awareness of Digital Preservation

Digital Preservation is clearly an issue at the Meteorological Office UK. The Meteorological Office UK has been preserving digital information since the early 1980's. All such information has been kept with the intention of it being useable in the long term.

During these years, they have learned a lot through personal experience and 'corporate commonsense'. They have been able to identify the main threats to their digital data which they believe are:

- Choice of storage media (and subsequent conversions to it)
- Choice of file formats
- Preservation of software and knowledge to read and understand old records

The digital data produced are used to support research (internal and external to the Meteorological Office UK) and commercial contracts. Therefore, it is very important to preserve digital information as the Meteorological Office supplies the maps and bulletins that are used in newspapers and broadcasting not only in the UK, but world-wide. In particular, long-term data archives are necessary to build up climatology research that must be based on data series that span at least 25-30 years.

Asset Value and Risk Exposure

At present the types of information that are digitally preserved in the short and the long term include: observations, radar rainfall data and data from marine and climate numerical models. These are expected to be kept for at lest 10 years, but more probably 30 years. As of August 2003, some charts (i.e. weather maps) will be stored for the long term in softcopy as well.

The main reasons for preserving digital information are legal requirements, financial and business requirements (loss of revenue from commercial activities), scientific research and historical value as well. As of August 2003, the digital charts will form part of their Public Records function. There is no consolidated source for risk or business analysis. However, the digitally preserved information has been assessed for its business needs prior to being archived.

There are a number of different types of data digitally preserved and each type has a working group in charge of that data's management. Each group manages its risks and should maintain a risk register with major risks being passed up to departmental or even the corporate risk register. In some cases, formal risk management based on the Office's ISO9001[10] processes may be in their infancy.

Preservation Activity

Policies and Strategies

The Meteorological Office UK has its own internal working group that deals with all the issues surrounding digital preservation normally comprising of data suppliers, customers and IT experts.

They have also approached the PRO for advice as well as external IT specialists when purchasing a mass storage facility. This corporate facility tackles many technical preservation issues. In addition, they cooperate with various consultative groups such as external meteorological and government committees.

The task force within the organisation is developing specific organisational policies that relate to digital preservation internally. These policies do not apply across the whole organisation. Some are implemented centrally but others are merely local working practices.

The Meteorological Office UK has developed preservation strategies and standards that are implemented across the organisation. A central corporate facility is used for the digital storage of climate, marine and observational data. These policies were introduced in-house through special development and implementation projects, using off-the-shelf IT solutions wherever possible and they are being updated approximately every 1-5 years. The fact that the corporate storage facility is centrally managed means that digital preservation policy; strategy and standards have a central point through which they can be implemented. Some of the policies that apply both to the Meteorological Office UK and to the specific project are not written as they are office wide policies based on 'corporate commonsense'. Because of the nature of the digital data produced in the Meteorological Office UK, selection criteria varies from department to department depending on individual business requirements.

Whenever major IT systems are upgraded, the digital preservation of information is one of the key issues. As such, digital preservation is endemic to the way the Meteorological Office UK works. Some digital information is expected to be kept 'forever', some for 25 or 30 years and some for only a few years. However, they didn't give any detailed information on appraisal and selection policies.

As the Meteorological Office UK had to change its Place of Deposit status, they approached the PRO. The expected outcome of the consultation will require the Meteorological Office UK to prove that its facility to preserve softcopy chart archives as public records is appropriate and well managed.

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[10] http://www.iso.ch/iso/en/iso9000-14000/iso9000/selection_use/iso9000family.html

In terms of intra-sectoral collaboration the Project manager visited the Hydrographic Office to find out about their digital preservation of maps, she also approached the Ordnance Survey.

There are two main policies: an IT Security Policy and an IT Strategy that apply across the whole organisation but not for any archives that the Project manager was aware. The IT Security and IT Strategy policies are implemented by various working practices and processes. Any policies relating to a specific archive series would be implemented locally by working practices.

The IT Security and IT Strategy policies are reviewed annually. The corporate storage facility is updated every 5-10 years, depending on capital depreciation, business requirement for digital preservation and technological advances.

Selection

The Meteorological Office UK is currently in the process of updating their selection policy for digital preservation. At the moment, nearly all their digital data are unclassified. Retention is agreed when records are created: records are created daily so a 'selection' policy is inappropriate according to the Project manager. The type of data preserved is agreed for each archive type at the time of development of the digital archive.

The selection policy has been driven by the legal requirements they have to meet but surprisingly it is not linked and implemented throughout the entire company.

The various internal working groups are responsible for the maintenance and implementation of these schedules. Most of their digital archives are in constant use, so they don't worry about information being "complete", as normally it is collected and stored in 'real time'. For example, all wave numerical model hind cast and analysis fields are archived for 30 years in real-time. There is no need to 'select' any particular event. However, a 'selection policy' was agreed that there was no business requirement to preserve numerical wave model forecast fields beyond 5 years.

There are no corporate criteria for the selection of information for preservation beyond those of business and financial needs based on realistic expectations of revenue from the individual 'archive'. The Meteorological Office's main aim is to preserve raw basic data. Again, this is not a written policy but it is based on their own experiences and 'corporate commonsense'. However, reconstructing this raw data in the future to have relevance is one of the main goals for the preservation of digital information and must be addressed in the selection and retention policies.

A specialist internal group with the development of the electronic chart archive is currently reviewing their own retention schedule. Individual management groups review other retention schedules, generally when a significant change in data is expected.

Preservation

As the Meteorological Office has created working groups to be responsible for the preservation of the digital data, preservation activities are undertaken in-house.

these working groups are generally composed of staff within 'middle management' with IT expertise.

The company is well aware of external standards and they are currently examining guidelines from the PRO. They are specifically interested in the mass digital archiving of real-time data, which are fairly relevant to meteorology.

The Meteorological Office didn't specify the exact types of information they preserve, but they are saving their data onto discs, cd-roms and dat tapes. Digital information is migrated to new storage media approximately every 10 years.

The Meteorological Office do not use standard data formats for preservation, the charts will be stored as Computer Graphics Metafile (CGM) starting in August 2003; observations stored in industry-supplied relational database. Most other data are stored in-house as flat file formats. The CGM is an ISO/IEC standard format for storing and transferring vector graphics (Henderson and Mumford, 1990)[11]. CGM files are highly compact, and the format is widely implemented on a variety of platforms.

As mentioned above, each type of data that is digitally preserved has an individual or team responsible for it in the various departments and sectors of the organisation.

From August 2003, the chart archive will include metadata consistent with the Dublin Core Metadata Scheme, but it is actually based on the WMO standard for transmitting gridded data that was developed by the Meteorological Development Laboratory[12]. This will enable automated collection as well as automated production of metadata. Metadata requirements are also based on PRO, WMO and OGC[13] and comply with the ISO17799[14] Information Management standard.

There is a centrally managed corporate system based within central IT services for storage of digital information. In addition, local stores are also available.

The PRO and government metadata and ISO standards are non-specific to this sector. The WMO metadata standard is specific to meteorology and slightly contradicts the UK government guidance.

If the data is extracted for commercial customers then it is often processed into other agreed file formats. In future, the relational database may have to be migrated into another relational database format. Certainly the CGM file format is unlikely to be kept for more than 2-3 years.

Access

Access issues, such as copyright, access security and privileges are important to the project. In order to protect the digital data from unauthorised access and manipulation, the Meteorological Office UK has adopted an IT security policy, which controls the access permissions to the files and the systems. Employees at the organisation generally have 'read-only' access to the digital files, except for those who are involved in the creation procedures.

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[11] http://ibis.nott.ac.uk/guidelines/ch62/chap6-2-refs.html#henderson90

[12] http://www.nws.noaa.gov/tdl/iwt/grib2/encoder.htm

[13] Open GIS Consortium, http://www.opengis.org/

[14] ISO/IEC 17799:2000
Information technology, Code of practice for information security management

In the near future, access to the chart archives, which are part of Public Records under the 1958 Act, will only be indirect. This means that the public cannot directly access the digital archives but rather that archive staff will place copies of the charts onto the external website for the requester to collect.

Compliance Monitoring

The monitoring of actions is not yet developed for the workflow of the project. The preservation process is not audited on a regular basis, nor is the compliance to policies and standards. The Meteorological Office UK has not yet adopted a strategy to check whether the preserved material has presented signs of deterioration. The Meteorological Office UK is audited for ISO9000 compliance.

Digital Preservation Costs

The Meteorological Office UK did not specify whether they undertook a cost benefit analysis in terms of their preservation activities. The preservation of climate data for research is funded by an inter-government contract. There has been a budget for the digital preservation programme; mostly funded by Research i.e. the main beneficiaries, but no detailed percentages or amounts allocated for digital preservation issues were available.

The purchase of expensive IT capitalised equipment is subject to external government scrutiny. The Meteorological Office UK has a contract, which requires data preservation, but it doesn't yet specify activities for digital preservation as opposed to paper preservation.

Future outlook

The current preservation policies and strategies adopted for the project are expected to meet the organisation's preservation needs for about 10-20 years. However, the technical solutions that they follow are expected to satisfy their needs for less than 10 years.

The project manager, Claire Ross, does not think that the budget allocated for digital preservation is going to change in the future and also believes that if more funds were available, they would be useful for digitising paper records.

Ms. Ross believes that the basic digital preservation strategy and the organisation's policies work in a satisfactory level. The organisation is committed to reviewing and adjusting its preservation policies and strategies often, as well as keeping up to date with new technological solutions. Within her own project Ms. Ross was surprised by the lack of technical guidance from PRO.

Chapter 8: Conclusions

The Meteorological Office UK doesn't have a single digital preservation strategy that applies across the entire organisation. As the organisation is very large, central policies are difficult to implement. There are several working groups and several projects within the organisation that deal with digital preservation issues but the strategies appear to apply to individual departments rather then the organisation as a whole. Once again, it must be stated that this report focuses only on the specific project of developing an electronic chart archive for newly created records. The project manager for this process, Claire Ross, is committed to addressing the issues surrounding digital preservation and is working to ensure that the Meteorological Office's digital records remain accessible in the future.

Currently many existing policies and strategies are being reviewed. For instance, the specialist internal group developing the electronic chart archive is currently reviewing the chart archive retention schedule. However, wider collaboration and communication between the various departments would be beneficial in developing policies that apply to the entire organisation (i.e. what kind of data are being preserved, what strategies are being applied).

The commitment on the part of the Meteorological Office UK to preserve its data for the long-term is evident in the on going, independent projects undertaken by various departments. However, the implemented strategies seem to apply to a small part of the organisation's digital data and most of them are not written but are based on the 'corporate commonsense' within the organisation. There is undoubtedly an increased level of awareness of the necessity for digital preservation in the Meteorological Office UK and by building on the solid foundation of the existing IT security and IT strategy policies, a coherent, institution-wide digital preservation strategy could be developed.

Appendix 1: List of Resources

Meteorological Office UK, Framework
http://www.metoffice.com/corporate/legal/framework.pdf

Public Record Office
http://www.pro.gov.uk/about/act/default.htm

World Meteoriligal Organisation
http://www.wmo.ch

Meteorological office UK
http://www.meto.gov.uk

Press Releases: "UK Meteorological Office Selects FileTek for Massive Database
Solution - Multi-million Dollar Contract Will Span Five Years" (November 30, 1999)
http://www.filetek.com/press/releases/1999/PR_1999_UKMet.htm

Henderson LR and Mumford AM (1990). *The Computer Graphics Metafile*.
Butterworths
http://ibis.nott.ac.uk/guidelines/ch62/chap6-2-refs.html#henderson90

WMO Standards
http://www.nws.noaa.gov/tdl/iwt/grib2/encoder.htm

Open GIS Consortium
http://www.opengis.org/

ISO
http://www.iso.ch

Appendix 2: List of Acronyms used

WMO: World Meteorological Organisation

WWW: World Weather Watch

CGS: Computer Graphics Metafile

OGC: Open Geographic Information Systems

Appendix 3: Interview Instrument

Perception and Awareness of Digital Preservation

We would like to begin by asking you a few questions about your general impressions of digital preservation, and the impact that it has on the _____ sector. We will use the term 'digital information' throughout to refer to all forms of digital data, records and information.

1. Is there a general awareness in the _____ sector that the long-term preservation (more than five years) of digital information is an important issue?

2. To what extent does the sector recognise the importance of preserving digital information in the long-term?

3. What are the main problems associated with digital preservation in the _____ sector?

4. From what sources have you heard about the issues surrounding digital preservation?

5. What values does digital information have in the _____sector beyond the original purposes for which it was created?

Understanding How Digital Preservation Affects Your Organisation

We would like to focus on how some of these digital preservation issues affect your own organisation

6. What type of information is digitally preserved in the short and the long term in your organisation?

7. What are the reasons that digital information is preserved in your organisation:
    - ❑ Legal requirements
    - ❑ Financial requirements
    - ❑ Business requirements (e.g. document important decisions and activities)
    - ❑ Historical value
    - ❑ Other (Please specify)

8. What risks is your organisation under if digital information is not preserved in the long-term?
    - ❑ Legal risks
    - ❑ Financial risks
    - ❑ Business risks
    - ❑ Historical value
    - ❑ Other (Please specify)

9. Has the organisation conducted a risk analysis and/or business needs analysis with regard to the preservation of information? If yes, can you indicate the main results?

Actions Taken: Policies, Strategies, Standards and Practices Developed

The questions in this section aim to explore some of the actions that the organisation has undertaken to deal with the preservation of electronic records. It will examine the above as well as selection, preservation, storage, and access activities.

Policies, Strategies, and Standards

10. Is there any collaborative effort across the _____ sector to tackle common digital preservation issues?
    - ❑ Conferences
    - ❑ Newsletters
    - ❑ Journals
    - ❑ Common Institutions
    - ❑ Collaborative Projects
    - ❑ Other (Please specify)

11. Has your organisation attempted to find information external to the sector regarding preservation?
    If yes, please indicate the sources
    - ❑ Government agencies
    - ❑ Higher education institutions
    - ❑ Archives
    - ❑ Libraries
    - ❑ Museums
    - ❑ IT Specialists
    - ❑ Other (Please specify)

    Please specify the kind of information provided and how useful it proved to be.
    _____
    _____
    _____
    _____

12. Do you cooperate with other institutions in the research and development of policies, strategies, and standards? In what way?

13. How useful is this common effort in applying it to your organisation's own needs?

14. Do you have any specific organisational policies that relate to the preservation of information?

15. Who (and what) was/is involved in the creation of these policies?
    - ❑ Management
    - ❑ Employees
    - ❑ Special task force in the organisation
    - ❑ Results of internal analyses (e.g. risk analysis)
    - ❑ External sources, models, advice
    - ❑ Other (Please specify)

16. Do these policies apply across the entire organisation?
17. How are these policies implemented?
18. Has your organisation developed preservation strategies, standards, and practices and implemented them?
    - ❑ Yes
    - ❑ No
    If YES, Please specify.
    _____
    _____

_____
_____

19. How were they introduced and implemented (e.g. by department, with training)?

20. How, and under whose responsibility have these been established?
    - ❑ External Advice/Sources/Models
    - ❑ Survey of information resources
    - ❑ In-house solutions developed
    - ❑ Other (Please specify)

21. How often are your preservation policies and strategies updated and renewed?

Selection of Digital Information for Preservation

22. Do you have a selection policy, or classification and retention policy that determines what information in your organisation is to be preserved?
    - ❑ Yes
    - ❑ No

    If YES, Please specify.

    _____
    _____
    _____
    _____

23. Is your classification and retention schedule linked and implemented across the organisation?

24. Who is responsible for the maintenance and implementation of these schedules?

25. How do you ensure that selected information is complete, accurate and identifiable?

Preservation of Digital Information

26. Does your organisation take care of its preservation activities itself, or are these outsourced?
    - ❑ Outsourced
    - ❑ In-house

    If outsourced, what reasons were behind this decision, and who carries out the preservation activities?

    _____
    _____
    _____
    _____

27. Are there specific individuals in your organisation responsible for the preservation of digital information?

28. What positions do these people hold in the organisation, and what are their responsibilities and competencies?

29. What type of training or advice is available for them?

30. Is your organisation aware of any external standards, best practices, and guidelines available on preservation?
    - ❑ Yes
    - ❑ No

    If YES, Please specify.

    _____
    _____
    _____
    _____

31. Are these specific to your sector?

32. Where did you learn about them? Please specify your sources.

33. Which of these standards, practices and guidelines do you use?

34. What technologies do you use for preservation? For the following list of current techniques, please specify which ones you use and for what kind of information.

Technique	Specify Type/Technology Used	Information Preserved
Print to Paper		
Scanning		
Save on Disk		
Save on Other Media		
Emulation		
Migration		
Microfilm/Microfiche		
Other		

35. On what grounds were these techniques chosen? Please specify your answers.
   ❑ External Advice
   ❑ Trials and Evaluations
   ❑ Recommendations
   ❑ Intra-sectoral standards available
   ❑ Other
   Please provide as much information as possible about why these decisions were taken.
   _____
   _____
   _____
   _____

36. What data formats do you use for preservation?
   ❑ Standard data formats
   ❑ Others
   Please specify for both answers
   _____
   _____
   _____
   _____

37. Do you convert the information to be preserved into other data formats for technical (or other) reasons?

38. What metadata do you use to describe both your digital information and the processes of storage and preservation? Does it follow any standards available (Dublin Core or others)? Can you provide a copy of the metadata set?

39. Is the collection and production of metadata automated?

40. Who is responsible for the transfer of information into long-term storage?

41. How often (if undertaken) does digital information migrated or refreshed?

Storage of Digital Information

42. Do you have a particular storage area for digital information to be preserved?
    - ❑ Yes
    - ❑ No

    If Yes, how is this organised and equipped?

    _____
    _____
    _____

43. Do you keep redundant copies of the digital information to be preserved for safety (or other reasons)?

Access to Digital Information

44. How is information protected from inadvertent or unauthorised access and manipulation?

45. Does your preservation solution allow direct access to the digital information stored (i.e. are they stored in an executable format)? If no, how is the access provided?

46. What access issues does your organisation face?
    a. Copyright
    b. Privacy Issues
    c. Access Security and Privileges
    d. Others (Please specify)

47. How does your organisation intend to provide access to digital information into the future?

Digital Preservation Costs

48. Did your organisation attempt to undertake a cost benefit analysis concerning its investments in preservation?

49. Has this analysis been assessed in light of your actual preservation activities? Did it prove to be accurate?

50. To which section of the budget are the economic resources for your preservation programme allocated?

51. What percentage of the organisation's budget is spent on preservation? Can you compare that to some other area of the organisation's activity?

52. Is the organisation attempting to address amortisation issues in the preservation budget?

53. Are there available sources of funding within the _____ sector allocated for digital preservation issues?
    - ❑ Yes
    - ❑ No

    If Yes, please specify

    _____
    _____
    _____
    _____

54. Are you satisfied with these cross-sector services?

55. If no, what would you like to see available? [i.e. what would you think could best be solved in common in your sector?] Would you be willing to engage financially in such information?

56. Are there other external sources available for digital preservation activities, (e.g. government grants, cross-sector funds)?
   - ❑ Yes
   - ❑ No

If Yes, please specify

_____
_____
_____
_____

Monitoring of Actions

After having identified what has been undertaken in your organisation with regard to preservation activities, we would like to find out about how these efforts have been monitored.

57. Is the preservation process audited on a regular basis?

58. Is compliance to policies, standards, and strategies audited on a regular basis?

59. Is compliance to other requirements (legal, business etc.) audited on a regular basis?

60. How often are checks made to the preserved material, (e.g. for signs of deterioration)?

61. Please specify the criteria used for these audits.

62. Who performs these audits? (e.g. Internal/External)

Future Requirements

We would like to ask about the areas in which there is a need for additional attention in your organisation and the sector as a whole.

63. How long do you predict that your current preservation policies, strategies, and solutions will meet your organisation's preservation needs?

64. Is the amount of money allocated for preservation going to change in the future? Will it need to be changed?

65. If more funds were available, what could/would they be used for?

66. What conclusions has your organisation come to about its preservation efforts? Are these satisfactory?

67. What preservation efforts are remaining to be addressed within your organisation?
   - ❑ Further data to be preserved
   - ❑ Revision and adjustment of preservation policies and strategies
   - ❑ Additional resources dedicated to preservation
   - ❑ Technological solutions
   - ❑ Other (Please specify)

68. Would you like to see more cross-sectoral or intra-sectoral activity with regard to preservation?

69. Are there any other areas in which you would like to have more information made available on digital information? Where do you expect this information to come from?

Thank you very much for your valuable contribution.

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