



Information Society
Technologies

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Further information on ERPANET and access to its other products is available at <http://www.erpanet.org>.

A great deal of additional information on the European Union is available on the Internet. It can be accessed through the Europa server (<http://europa.eu.int>).

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Executive Summary

The main driving forces for the preservation of digital data are legal and business requirements. For telecommunication firms it is obvious that these requirements need to be met at all costs, and the importance of digital preservation is therefore widely recognised, with policies and strategies developed and implemented throughout the organisations. The business software solutions already in use play an important role for preservation, but are supplemented by additional software packages. However, as legal stipulations generally do not require the telecommunication firms to keep their data for more than ten years, there is smaller interest in preserving digital information for the long term. Still, efforts for long-term digital preservation are being undertaken as well. Although the problems encountered by telecommunication companies are similar, the study did not reveal any common effort across the sector to tackle the issues.

Chapter 1: The ERPANET Project

The European Commission and Swiss Confederation funded ERPANET Project¹ (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-ordinator to the project. An Advisory Committee with experts from various organisations, institutions, and companies from all over Europe gives advice and support to ERPANET.

¹ ERPANET is a European Commission funded project (IST-2001-32706). See www.ermanet.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.² 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. It is anticipated that upwards of 500 organisations, institutions and public bodies will eventually contribute to this research. 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 sectors included, but also through the depth at which they will explore the issues.

ERPANET is deliberately and systematically approaching disparate sectors 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.³ 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.

² Chapters 2 and 3 are taken from 'Cross-sectoral Development of Digital Preservation Strategies: ERPANET and the Expansion of Knowledge', given at *Preservation of Electronic Records. New Knowledge and Decision-making*, Symposium 2003.

³ 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.

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 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.

Ten organisations in each sector, and 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 focussed questionnaire designed to be targeted at a range of strategic points in the organisations under examination. The instrument⁴ 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 an advisory committee.⁵

⁴ See Appendix. 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.

⁵ See www.erpanet.org for the composition of this committee.

Chapter 4: Introduction to the sector

In recent years, the European telecommunication sector has faced two decisive developments. The first of these was caused by the market liberalisation that partially released the former state-owned, monopolistic telecommunication enterprises from public possession. Some organisations remain state-controlled, while others have seen the influence of the state reduced to a minority or a so-called 'golden share'. Simultaneously, new players emerged, competition developed, and international collaboration and mergers occurred. Among other results, this has led to an increase in the range of services offered and price reductions for consumers.

The second transformation was a technological one. The conversion from analogue to digital telephone technology has only been completed relatively recently, and as a result, new services have become available. One of the repercussions of this is that the mass of data to process has considerably increased. The recent boom of cellular phones that was supported by the market liberalisations and technical advancements has accentuated this issue. Aside from these more specific developments, the general digitisation of business procedures has also made an impact. Considerable amounts of data are held digitally and will have to be preserved. An interesting aspect to examine will be the consequences of the rapid and often overwhelming developments.

Chapter 5: Details of the interviews

Two telecommunications companies were involved in the case study – a short profile of each is outlined below. Many organisations were approached to take part in the study but were unable to participate for a variety of reasons. These included the fact that there were too many business pressures and not enough resources to participate, as well as that there were no personnel in the company able to answer the questions.

Swisscom

<http://www.swisscom.com/>

The leading Swiss telecommunication provider Swisscom emerged from the division of former post and telephone monopolist PTT in 1997 as a special public limited company. In 2001 the company employed 21,300 people and had 14,17 billion CHF (around 9,7 billion EUR) in sales. Since 2002 Swisscom has been a holding company, comprising the independent telecom companies Fixnet and Mobile (including German cell phone company Debitel), as well as organisations dealing with enterprise solutions, information technology, and systems.

Orange

<http://www.orange.com/>

Orange was launched as a mobile phone company in the United Kingdom in 1994 and now belongs to France Télécom. At present, it is the market leader in the UK and France. It operates in 19 countries worldwide, is rapidly expanding, and has introduced a number of services that have become widely used⁶. For this case study the company was contacted in Switzerland, where Orange appeared on the mobile phone market in 1999. Since then it has become number two in the market with annual sales of EUR 694 million. By the end of 2002, Orange had close to one million customers and 1700 employees.

⁶ Examples are per second billing or talk plans and inclusive minutes.

Chapter 6: Circumstances

It has proved difficult to establish links to the telecommunication companies and contact attempts in most instances did not meet with any success. This may be due in part to the same reasons given by several companies for not taking part in the case study, namely heavy workload and lack of staff resources available. In most of the cases the initial contact was established through the client service or the press office. The request was then usually passed on to either the records management or to the IT department. It was, however, occasionally difficult to find the appropriate person to speak to. Success at Orange and Swisscom was somewhat easier and the IT department was able to direct the questionnaire to the relevant individuals.

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 important issue in the telecommunications sector. The need for preservation of digital data (although in general only for a time span of up to ten years) and the associated risks are well understood. Two main problems influence and complicate digital preservation. On the one hand, the fast moving environment leads to a quick turnover of technology and may also cause short-term staff problems. The frequent changes of software versions and formats and the unreliable prospects for the media shelf life call for frequent media refreshing and format changes. On the other hand, telecommunication companies have to deal with extremely large amounts of data being generated every day, which causes high costs for storage media.

Although the problems encountered by telecommunication companies are similar, the study did not reveal any common effort across the sector to tackle these. As yet, there are no common efforts or sources of funding across the telecommunications sector, nor any other attempts to tackle the problem in a joint manner.

Asset Value and Risk Exposure

On the whole, the risk exposure of the sector is limited, especially with regard to the long-term preservation of information. The main impetus for information preservation is dictated by legal prescriptions. Normal business data such as contracts, real estate documents and the like must be preserved for legal reasons until a certain date. The same holds true for more specific telecommunication data – call detail records and interconnect data are the basis for accounting. They are subject to legal retention periods: 6 months for client-related data such as personal data, phone numbers, time and duration of calls; 3 years for data as evidence for invoices. They can also be of value for market analysis and management decisions. However, the useful lifespan of information is considered to be short. After the legal preservation period, generally ten years, business information is considered to be no longer important. There is no perceived historical value in transaction data.

As most organisations contacted feel that they have good understanding of the issues and risks associated with their digital assets there was little concern with conducting formal risk analysis studies or other surveys.

Regulatory Environment

Awareness among senior management is driven by the legal requirements (Art. 962 of the Swiss Code of Obligation) and is promoted by the respective legal departments rather than by records management or the company archives. As a

consequence preservation policies and strategies as well as budget allocations, are shaped by senior management.

Preservation Activity

Policies and Strategies

Policies for digital preservation solutions in telecommunications are being developed internally with knowledge and information gained from the industry itself. At Orange, a formal data archiving policy has been revised and issued annually to reflect business changes. The policy is based on input from a cross functional management team from various departments including, but not limited to: Legal, Controlling, Quality Management, Finance, IT.

At Swisscom IT, a special task force, composed mainly of financial department staff, and at a high management level, undertook the development of a preservation policy. The external service provider Mailsources conceptually assisted them, while the company's own IT (SAP) division contributed to the technical implementation. The company further benefited from a recent merger with AGI who already had a preservation solution in place.

The efforts of Swisscom IT resulted in a management-approved policy, called "Archivierungskonzept" (archival concept). Since this is an internal and confidential document, few details were provided. A directive has been formulated based on the concept, governing concrete preservation activities. This is distributed and implemented in the organisational units with the help of so-called data owners. They are responsible for digital preservation in their respective units and receive special training in legal, archival, and access issues. They are important contact persons for all stages of digital preservation.

Selection

Both interviewed companies have a selection policy in place. This is governed by the legal requirements the companies have to comply with, and the policy is linked and implemented throughout the company. Swisscom IT indicated that the retention schedule used was compiled with the help of all organisational units' management, arranged according to the organisational units and the types of documents, and its implementation and use supervised by the data owners. At Orange, retention times have been defined for all major data stores (currently 77 in number) and are documented in the Orange Archiving policy which is updated annually. Overall retention times are defined based on the longest period from either legal regulations and internal business needs.

Preservation

Both companies interviewed primarily take care of their preservation activities in-house. Swisscom IT uses Ixos, the archiving tool for its business software SAP. This integrates seamlessly and handles the SAP-specific data formats, thus requiring little effort for preservation. Migrations are conducted with every update to newer versions of the software. This solution is expected to meet all their needs for the compulsory retention period of ten years. After this time, the preserved information is deleted from the system and transferred to CD-ROM. The company is well aware of this medium's limited life span and therefore considers this further preservation as a supplement that is not actually necessary.

Important documents are conserved in paper form for the long term. This includes project documentation, strategy documents, and policies. Swisscom IT rejects the transferring of these records to microfilm as the company views this as an additional effort and wished to avoid outsourcing this activity.

Orange saves call data, subscriber statistics, and interconnect information to disk and tape, preserved in special storage areas. This solution is driven by the availability of techniques. In early 2003, Orange deployed CAS (Content Addressable Storage) to preserve unchanging digital assets that need to be retained for reference and long-term availability. The CAS solution is based on EMC (Centera) technology. It enables Orange to be compliant with many regulatory requirements and regulations for data retention as well as reduce the media costs associated with storing data. The retention period for the data can be defined to meet both internal and external requirements.

The overall archiving solution is a combination of a vendor hardware/software solution complimented with internal (Orange) processes.

Since the deployment of the CAS/Centera equipment, Orange has deployed CAS for e-mail archiving complimented with the use of KVS to minimize storage requirements and maximize data retention time and to comply with regulatory requirements. Additional (select) data stores are in the process of being deployed in 2003 including historical call data records older than 13 months. Other data stores are being explored as possible candidates for archiving. The limiting factors for deployment include cost of media (online disk versus archive media), business benefit, and the added processes complexity.

To prevent data loss due to disasters, all archived data is replicated real-time across two physical data centre sites using identical equipment separated by 170 km distance.

With few exceptions, Orange does not use tape media for long term data archiving, but for data protection (backups).

Both organisations gathered additional information concerning digital preservation, especially about external standards and solutions, through offers by vendors of archival resolutions. Swisscom IT, being specialised in information technology, has easy access to available technology solutions.

Neither of the companies particularly addressed the issue of metadata beyond those continually used together with the data. No standard metadata sets are applied, and in general there is little awareness of the importance of metadata.

Access

Since the preservation solutions adopted are closely linked with the normal office network, access control stems naturally from these systems (SAP access control and Unix based security respectively). Therefore access strategies did not need to be implemented as these were already in place with the organisations' business software. In addition to standard security policies, physical security systems are in place for tape storage areas. Swisscom IT pointed out that access to the preserved data is presently hampered by restrictions to their search facility, which has not yet been fully programmed.

Compliance Monitoring

As preservation technologies and access control are linked to business software, monitoring schemes in place are closely linked to the regular monitoring processes inside the organisations. At Orange, compliance is inherent to the chosen CAS solution provided by EMC Centera, and monitoring is performed as an internal business (administrative) process.

Swisscom IT specified that quality management and internal revision applied also to preservation processes. It pays particular attention to the auditable legal requirements, and importance is attached to the progression of this process.

Digital Preservation Costs

Orange Switzerland did not disclose budget details concerning digital preservation. Swisscom IT informed us that there has been a budget in place for the implementation of a preservation solution. The funds used are accounted as management fees and shared amongst all the company's divisions. No detailed numbers were made available, partly due to the incompleteness of the preservation programme.

Future Outlook

The measures adopted and the solutions implemented so far are considered satisfactory by both interviewed companies. Although the preservation activities are fairly recent, at present they meet the organisations' needs. The amount of money allocated is also considered sufficient. This positive result seems to be due to the general awareness of the necessity for digital preservation. Nevertheless, both companies acknowledged that further efforts have to be addressed: for instance, the search facility for Swisscom IT's Ixos preservation solution still remains to be fully programmed. In addition, respondents indicated a desire for a greater exchange of information within, and external to, the sector.

Chapter 8: Conclusions

The research conducted so far on digital preservation in the telecommunication industry leads to three main conclusions:

- The telecommunication sector is sufficiently aware of the need for digital preservation. This is driven principally by legal reasons, namely the compulsory periods of record keeping imposed by law. This cannot be disputed or challenged. Apart from legal, there are also valid business reasons for preserving information, namely customer analysis and strategic decision-making.
- A digital preservation policy is the guideline to approach digital preservation in the interviewed companies. The policies have been developed in-house in an effort shared between different departments. They are supplemented with detailed retention schedules. The top-down approach starting from a detailed analysis through a preservation policy proves viable.
- There is more interest in viewing companies' digital assets in the light of their direct business and legal value than in according them a long-term value. However, awareness of and interest in the possible long-term value of digital information is rising, and this is coupled with investments for long-term preservation systems, although there are differences as to the extent to which these efforts go.

Chapter 9: Resources

Detailed searches on the internet and in digital preservation resource repositories, combined with the data provided by the companies indicates that there is very little information available on the subject of digital preservation in the telecommunications sector. This report therefore draws almost exclusively on the information gathered through the interviews, partly supplemented by company information that resulted from web-searches.

Appendix 1: Interview Instrument

ERPANET Case Study

Administrative Section

Interview Details

Organisation Details

Disclosure/Privacy Information

Tracking of Activities



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?
- 6.

Understanding How Digital Preservation Affects Your Organisation

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

7. What type of information is digitally preserved in the short and the long term in your organisation?
8. 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)
9. 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)
10. 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

11. Is there any collaborative effort across the _____ sector to tackle common digital preservation issues?
- Conferences
 - Newsletters
 - Journals
 - Common Institutions
 - Collaborative Projects
 - Other (Please specify)
12. 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.

13. Do you cooperate with other institutions in the research and development of policies, strategies, and standards? In what way?
14. How useful is this common effort in applying it to your organisation's own needs?
15. Do you have any specific organisational policies that relate to the preservation of information?
16. 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)
17. Do these policies apply across the entire organisation?
18. How are these policies implemented?
19. Has your organisation developed preservation strategies, standards, and practices and implemented them?
- Yes
 - No
- If YES, Please specify.

20. How were they introduced and implemented (e.g. by department, with training)?
21. How, and under whose responsibility have these been established?
- External Advice/Sources/Models
 - Survey of information resources
 - In-house solutions developed
 - Other (Please specify)
22. How often are your preservation policies and strategies updated and renewed?

Selection of Digital Information for Preservation

23. 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.

24. Is your classification and retention schedule linked and implemented across the organisation?
25. Who is responsible for the maintenance and implementation of these schedules?
26. How do you ensure that selected information is complete, accurate and identifiable?

Preservation of Digital Information

27. 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?

28. Are there specific individuals in your organisation responsible for the preservation of digital information?
29. What positions do these people hold in the organisation, and what are their responsibilities and competencies?
30. What type of training or advice is available for them?
31. Is your organisation aware of any external standards, best practices, and guidelines available on preservation?
- Yes
 - No
- If YES, Please specify.

-
-
32. Are these specific to your sector?
33. Where did you learn about them? Please specify your sources.
34. Which of these standards, practices and guidelines do you use?
35. 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		

36. 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.
-
-
-

37. What data formats do you use for preservation?
- Standard data formats
 - Others
- Please specify for both answers
-
-
-

38. Do you convert the information to be preserved into other data formats for technical (or other) reasons?
39. 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?
40. Is the collection and production of metadata automated?
41. Who is responsible for the transfer of information into long-term storage?
42. How often (if undertaken) does digital information migrated or refreshed?

Storage of Digital Information

43. Do you have a particular storage area for digital information to be preserved?

- Yes
- No

If Yes, how is this organised and equipped?

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

Access to Digital Information

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

46. 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?

47. What access issues does your organisation face?

- a. Copyright
- b. Privacy Issues
- c. Access Security and Privileges
- d. Others (Please specify)

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

Digital Preservation Costs

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

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

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

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

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

54. Are there available sources of funding within the _____ sector allocated for digital preservation issues?

- Yes
- No

If Yes, please specify

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

56. 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?

57. 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.

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

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

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

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

62. Please specify the criteria used for these audits.

63. 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.

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

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

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

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

68. 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)

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

70. 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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