ICA - IT Committee

The Sub-Group on Long-term Preservation of Electronic Records

Long-term Preservation of Electronic Records: Policy and Practice in Archives

Final Report

January 2004
In 2001, the sub-group on long-term preservation of electronic records decided to gather information on the status and practices in the field of long-term preservation of electronic records and make this information available to others. Hopefully this can help speed up the distribution of knowledge in the field. The group made its first questionnaire in 2001. It was sent out using various methods, by e-mail and snail mail. It was sent to meetings, distributed at congresses etc. Very few answers came in. The questionnaire was revised and sent out again in 2003, along with questionnaires from other sub-groups. This time the questionnaire was sent to the different ICA branches. The responses were better this time. In all 54 archives responded. This report is an attempt to analyze the answers to the questionnaires.

Most of the answers came from the area EURBICA. In addition, some big countries in S-America responded along with Portugal. ALA is therefore fairly well represented too. In all six archives in PARBICA answered, a fairly good representation. Moreover, N-America’s biggest archives, the national archives of USA and Canada answered the questionnaire. This survey tells almost nothing about the situation is in other areas.

The following 54 organisations sent their answers to the questionnaire: Questions on Electronic Records Preservation. They can be divided into three groups:

A. National and State archives, totalling 29 and 16 of them European.
B. Regional and community archives, totalling 17 and 15 of them are in Europe.
C. Other archives, totalling nine and five of them are in Europe.

The National and state archives are about half of the institutions, which answered.

**A. National and State archives:**
Archives of Yugoslavia (A of Yugoslavia)
Archives of the Federated Estates of Micronesia
Archivio Centrale Dello Stato - Italia (SA of Italy)
Archivo General de la Nación, Argentina (AGN of Argentina)
Croatian State Archives (SA of Croatia)
Nationaal Archief, The Netherlands (NA of Netherlands)
National Archives and Records Administration, USA (NARA of USA)
National Archives and Records Service of South Africa (NARS of South Africa)
National Archives of Australia (NA of Australia)
National Archives of Brazil (NA of Brazil)
National Archives of Brunei (NA of Brunei)
National Archives of Canada (NA of Canada)
National Archives of Columbia (NA of Columbia)
National Archives of Costa Rica (NA of Costa Rica)
National Archives of Estonia (NA of Estonia)
National Archives of Finland (NA of Finland)
National Archives of Iceland (NA of Iceland)
National Archives of Ireland (NA of Ireland)
National Archives of New Zealand (NA of New Zealand)
National Archives of Norway (NA of Norway)
National Archives of Portugal (NA of Portugal)
National Archives of Singapore (NA of Singapore)
National Archives of Slovenia (NA of Slovenia)
National Archives of the Bahamas (NA of Bahamas)
National Archives of United Kingdom (NA of UK)
State Archive of Montenegro (SA of Montenegro)
State Archives of Poland (SA of Poland)
State Archives of the Republic of Macedonia (SA of Macedonia)
The General Department of Archives of Bulgaria (GDA of Bulgaria)

B. Regional and community archives
Archives Departementales de la Savoie, France (ADS of France)
Archivio di Stato di Brindisi
Archivio di Stato di Cagliari
Archivio di Stato di Como
Archivio di Stato di Cremona
Archivio di Stato di Frosinone
Archivio di Stato di Latina
Archivio di Stato di Livorno
Archivio di Stato di Macerata
Archivio di Stato di MilaNo:
Archivio di Stato di Roma
Archivio di Stato di Terni
Arquivo do ReiNo: de Galicia, Spain (ARG of Spain)
Essex Record Office, United Kingdom (ERO of UK)
Hampshire Record Office, United Kingdom (HRO of UK)
Public Record Office Victoria, Australia (PRO of Victoria, Australia)
Queensland State Archives, Australia (QSA of Australia)
C. Other archives.

Archive Impact, USA (AI of USA)
Art Archives of the Slovak National Library (NL of Slovak)
Belarusian Research Center of Electronic Records (BRCER of Belarus)
Canterbury Cathedral Archives, Canterbury, United Kingdom (CCA of UK)
City Archives of Karmiel, Israel (CA of Karmiel, Israel)
Lucy Cavendish College, Cambridge, United Kingdom (LCC of UK)
National Library of Wales, United Kingdom (NLW of UK)
University of Queensland of Australia (UQ of Australia)

Summary of answers

(1) Sixteen of the organizations, responding to the questionnaire, have agreed policies for long-term preservation of electronically created records, or 30% of those, which answered. They are widely spread over the world, in Europe, America, Australia, Africa, and Asia. Twelve of these Archives have websites where further information can be found. In addition, seven of those sixteen name publications they have on the issue.

(2) Again, sixteen organizations have agreed standards or guidelines for long-term preservation of electronically created records. Thirteen of those are included in the sixteen organizations mentioned in the section above. Eight of the sixteen have published or use publications with standards or guidelines. So we can conclude that a number of archives have managed to obtain the technical solutions needed in the field of long-term preservation, at least sufficient to start this venture.

(3) According to the answers, 12 organizations of 54 had projects for the permanent preservation of electronically created records. Most of them were from the Group A, The National and state archives. Seven of them had some information on the subject available on their websites.

(4) Eleven organizations had either hardware or software systems and at least two were constructing such systems. One could make the conclusion that nowadays National Archives are constructing applications for facilitating the use of records in their databases. This means that they have to make the necessary software by themselves.

(5) Only three organizations allowed public access to the electronic records they have accessioned. The reason for this is uncertain; it could be either juridical or technical.

(6) Organizations were asked to give a brief description and a timetable for their plans on implementing any of the above-mentioned items (in 1-5). Seventeen archives answered. Twelve said they would do so before 2004 (2001-2004). That means adopting a policy, hiring qualified personnel, following standards etc. The other organizations estimate that they need more time, up to the year 2008.

Likewise, the organizations were asked when they plan to adopt a policy on the long-term preservation of electronically created records. Twenty-two (13 of the sixteen just mentioned included) answered this question. Fifteen say they will do so before 2004 (2002-2004), some name later dates and a few do not mention any dates.

Asked when the archives plan to start accessioning electronically created records we got eighteen answers. Eight of them say before 2004 (2002-2004). Other answers are more open or inaccurate.

(7) All but two organizations welcomed the possibility to have published standards. One of two negative answers came from the NA of UK, in their opinion there are enough standards nowadays.
(8) It was delightful to notice that 24 organizations had at least one person who was involved one way or another in designing strategies, guidelines, or doing technical work. Seven organizations had more than five persons who could concentrate on the long-term electronic preservation. The largest resources in this aspect were in the National Archives of USA.

Financial resources varied from $25,000 to $2.5 million. However, the figures are not very accurate or comparable because in the questionnaire the financial resources were not subdivided, so in some cases the salaries were included, in other cases not.

It can be concluded that in the regions EURBICA, ALA and in PARBICA the matter of long-term preservation of electronically created records is addressed by about third to half of the archives. Moreover, in the next few years they will grow in number because many archives are in the preparation stages. The time is in for ICA to strengthen its support to the archives, by making it easier for those who have the knowledge and experience to help those who want to learn how to tackle the task of preserving electronic records for the unforeseeable future. The distribution of knowledge is the key element to success in this matter.

Eirikur G. Gudmundsson
Markku Mäenpää
Questionnaire on Long-term Preservation of Electronic Records

Questions and Answers

1. Does your organization have agreed policies or strategies for the long-term preservation of electronically created records?

Yes: 16

- HRO of UK
- NA of Australia
- NA of Brazil
- NA of Canada
- NA of Finland
- NA of Netherlands
- NA of New Zealand
- NA of Norway
- NA of Singapore
- NA of South Africa
- NARA of USA
- PRO of Victoria
- QSA of Australia
- SA of Macedonia
- SA of Montenegro

Sixteen organizations have policies or strategies. The answers to question No. 6 reveal that at least additional ten archives are working towards such policies or strategies.

No: 38

The National Archives of Brazil participates in the Technical Committee on Electronic Records (Camara Técnica de Documentos Eletronicos) of the National Council on Archives (Conselho Nacional de Arquivos-CONARQ). The objective of this joint work is to develop studies, recommendations, standards, and policies for electronic records preservation.

a) Website (give website details): 12

- NA of Brazil: http://www.arquivonacional.gov.br/conarq/cam_tec_doc_ele/index.asp
- NA of Finland: http://www.narc.fi/
- NA of Netherlands: www.riksarchiefinspectie.nl --> wet- en regelgeving ---> ministeriële regelingen
- NA of New Zealand: www.archives.govt.nz/continuum/
- NA of Singapore: Government intranet website

Final Report – January 2004 – ICA-IT Committee

6
Long-term Preservation of Electronic Records: Policy and Practice in Archives

b) publication (give title, publisher): 6

NA of Canada: OAIS, Inter Pares.
NA of Finland: Sähköisten tietojärjestelmien ja aineistojen käsittely (The Processing of the electronic records and archives).
NA of USA: 36 CFR 1234 Subpart c.

c) Other (describe):

HRO of UK: Available only on an intranet.
NARA of USA: Internal Guidance.
NA of Norway: Internal.
NA of Canada: Internal.

2. Has your organisation agreed any standards or guidelines for the long-term preservation of electronically created records?

Yes: 16:

BRCER of Belarus
HRO of UK
NA of Australia
NA of Brazil
NA of Canada
NA of Finland
NA of South Africa
NA of UK
NLW of Wales
PRO of Victoria, Australia
QSA of Australia
SA of Macedonia

No: 38

NA of Columbia answered no, but they continued: “However, the general law of archives (Law 594 of the year 2002), contains some guidelines about organization and conservation of digital
archives. Now we are working on the development of this law.”

NARA of USA answered no to this question, which must be due to misunderstanding, because they have several guidelines on the subject. Perhaps they mean that they have many disagreements on the subject amongst themselves.

if so, where are copies of these available?

a) website (give website details):

NA of Australia:  

NA of Brasil:  
http://www.cpba.net

NA of Finland:  
http://www.narc.fi/sahk/

NA of Netherlands:  
www. rijksarchiefinspectie.nl --> wet_ en_regelgeving --> ministeriële regelingen

NA of Singapore:  
Government intranet website

NA of South Africa:  

PRO of Victoria, Australia:  

SA of Macedonia:  
http://www.arhiv.gov.mk

b) publication (give title, publisher):

BRCER of Belarusia:  

NA of Brazil:  
Portuguese versions of seven specific technical publications of the series printed out by the project “Conservação Preventiva em Bibliotecas e Arquivos”, supported by the Commission on Preservation and Access, The Andrew Mellow Foundation and Arquivo Nacional- Brazil, 1997.

NA of Norway:  
Bestemmelser om elektronisk arkivmateriale som avleveres eller ovefores som depositum til Arkivverket”, published by the National Archives (regulations about transfer of electronic archives – in Norwegian).

NA of Netherlands:  

NA of Slovenia:  
(MoReq) Model requirements for the management of electronic records, INSAR, Supplement VI, European Commission, 2002 - ISO 15489 Information and documentation records management

NARS of South Africa:  
Managing electronic records in governmental bodies: Policy


SA of Montenegro: The Project ARHIS includes policies and standards/guidelines.


c) other (describe):


NA of Norway: Other documents.

3. Has your organization completed any projects for the permanent preservation of electronically created records?

Yes: 12

BRCER of Belarus. Beginning from 2000 the Archive of the Belarusian Research Centre of Electronic Records has taken for preservation the electronic records and databases from the state organizations. Accessioned 60 sets of electronic records

HRO of UK
NA of Australia
NA of Finland
NA of Netherlands
NA of Norway
NA of Singapore
NA of UK
NARA of USA*
NARS of South Africa
NLW of Wales
SA of Montenegro

*Department of Public Service and Administration’s PERSAL database. The NARS and the State Information Technology Agency (SITA) is co-operating in a project to preserve snapshots of the public service’s personnel records database PERSAL with a view to preserving statistical data in electronic form. Department of Foreign Affairs. The NARS and the State Information Technology Agency (SITA) are co-operating in a project to preserve the terminated correspondence databases of Foreign Affairs’ missions in other countries.
No: 42

If so, where are details of the projects available?

a) Website (give website details): 7

NARA of USA:  http://www.nara.gov/nara/electronic/tlintro.html
NA of Finland:  http://www.narc.fi/sahke/
NA of Netherlands:  http://www.digitaleduurzaamheid.nl
NA of UK:  Nationalarchives.gov.uk/about/preservation/digital/default.htm and ICA Conference Presentation 3 April 2003 – at the National Archives, Kew
NLW of UK:  http://www.llgc.org.uk/
SA of Montenegro:  www.dacg.cg.yu.

b) Publication (give title, publisher): (here was nothing)

c) Other (describe):

HRO of UK:  Available on intranet.
NA of Norway:  Other documents in Norwegian.
NARS of South Africa  Archival inventories and internal records

4. Does your organization have any dedicated hardware or software systems for the long-term preservation of electronically created records?

Yes: 11

No: 43

NA of Slovenia:  No. Currently no, but a special new application for archives is being developed, primary intended for archival description (called Info-Arch), on the other hand it will be capable of storing of records in XML format. In the state administration of Slovenia the application SPIS 6 (on Lotus Notes platform) is being developed, which will be capable of storing of electronically created records as well.

NARS of South Africa:  The NARS is currently investigating the possibility to create an archival infrastructure for the management of archival electronic records.

If so, what format(s) do these use?

BRCER of Belarus:  The Automated Information System for the Electronic Records Archive has been developed and implemented. The system has been under operation since 1999.

HRO of UK:  Space allocated on the corporate mainframe Oracle-base for the storage of the Hantsnet archive.
NA of Australia: Not yet operational for production use.
NA of Finland: Aix-system; RS6000, format flat files ISO 8859-1, ISO 8859-15
NA of Norway: Yes, among others the system “Arkade” for analyzing, checking and converting archival material originating from databases (Norway) For “records” from databases: Permanent storage in text files (fixed format, comma separated values, or XML), temporary storage in SAS data sets during processing. For electronic documents: PDF, XML, TIFF, WAV.
NA of UK: Original Bit stream storage with later manifestations in various formats.
NA of Netherlands: XML (see: www.digitaaleduurzaamheid.nl).
NARA of USA: APS and AERIC.
NLW of UK: DLT and LTO (referring to tape recording technology.
QSA of Australia: Twain, Omni scan, MS Access. The formats employed: RTF, JPEG, HTML, XML.
SA of Montenegro: We have database server Compaq ML530 with15 workstations on win2000, our application is on the first phase of evaluation (of three). Now we planed to change application for internal library.

5. Does any system you described in 4 also allow public access to the records it holds?

Yes: 3
No: 51

NA of Finland: In Finland researchers are allowed to have access in principle, but there are some restrictions due to the legislation. It is also very industrious for a researcher to take advantage of the material because it is kept in flat files in ASCII–format.

NA of UK: They have a public access to the electronic records via Internet. (http://www.nationalarchives.gov.uk/about/preservation/digital/digital_archive.htm).

BRCER of Belarus Yes

NA of Slovenia: No. Currently no, but in the future the aforementioned system will allow the limited access to registered users (on site) and possibly also on-line access with the password acquired in the Archives RS (the IP number and password will be controlled).
6. If your organization has definite plans for implementing any of the things referred to in questions 1-5, even though these are not yet begun, please answer the following questions:

Give a brief description, and timetable, for your plans:

ADS of France: Year 2002, Choice of Format and system for text and image.
CCA of UK: Clarifying concepts.
NA of Brunei: Once the E-government is on, Brunei National Archives will implement the digitations of archive holdings in stages according to priority.
NA of Estonia: We are working on the guidelines for the long-term preservation of datasets. Due to be finished by the end of 2003. We are also in testing stage of acquiring our first electronically created record -. A database of the discontinued Estonian Building registry.
NA of Iceland: We plan to have a policy in 2002 and start accessioning in 2003.
NA of Ireland: We are about to appoint an archivist with specific responsibility to electronic records, Once this person is in place work will commence on the development of a programme to secure the long-term preservation of electronic records covered by the National Archives Act, 1986.
NA of Netherlands: We plan to have a policy on the long-term preservation of electronically created records by the end of 2003.
NA of New Zealand: We have recently begun a project, which is investigating establishing a digital repository within Archives NZ. We expect that the research phase of this project will last until around June 2005 – by this stage, we hope to have a fully developed model for the preservation of electronic records, and the provision of access to those records. The research phase will include some practical “test bed” projects, which will involve experimenting with preservation techniques on digital records, as well as an examination of the approaches used elsewhere. After this, we expect to produce a business case to obtain the extra funding required for the digital repository from the government. If this is successful, we will be able to start implementing the digital repository in 2006-07.
NARS of S-Africa: The NARS is currently investigating the possibility to create an electronic archival infrastructure with a technology partner. Investigation to be completed by April 2004.
NLW of UK: Operational plan 2001-2002 includes investigation of content management system for a digital collection.
PRO of Victoria, Australia: Working with a Victorian government office to implement a record keeping system; system is due to roll out by mid 2002.
QSA of Australia: Implementation of Information Standard 41 in Government Agencies will occur concurrently with Information Standard 40; record keeping over a 3-5 year period from 2002.

SA of Macedonia: It depends on the subsystem integration, which is in final stage of realization.

SA of Montenegro: In our project of “Arhis” we have three phases to complete implementation, now we are changes of part program for library and part for internal communications with user who come to search documents, and most important part for ARHIS how sign all documents. We have problems with part of documents who are not ready yet for computer (archival are not ready). And how find solution for that, with program ARHIS. And part of problem with microfilm and part of application for linking scanned microfilms with tiff, jpeg and other formats.

SA of Poland: The special research team engaged in works related to preparation the model requirements for management of electronic records (from Polish archival perspective).

SAS of Slovenia: The project of long-term preservation of electronic archives is the project of the whole government administration (the working group consists of representatives of five state sectors, see answer II/1). The general plan is that until the end of 2004 the preparation part of the project should be finished - this embrace the formulation of regulations (obligatory for the whole state administration) and technical guidance for archiving and long-term preservation of electronic archives. The decision on software selection will also be included in this part of the project. After 2004 the organisational part and the implementation of the project will start.

When do you plan to have a policy on the long-term preservation of electronically created records?


Croatian State Archives: 2003.

GDA of Bulgaria: After adopting the Law on the National Archival Fonds and the Archives.

HRO of UK: Spring 2002.

NA of Australia: Late 2002.

NA of Brunei: Cannot specify the time frame. Probably in 5, 10, 15 years time.

NA of Bahamas: 2005

NA of Costa Rica: There is a plan to establish procedures for the regulation of electronic documents and therefore, its preservation. This proposal is now in discussion by the Electronic Document Committee of the National Archives of Costa Rica.


NA of Ireland: Within the year 2004.
NA of New Zealand: We have a policy in place, but are still working on its implementation.
NARS of S-Africa: When the NARS have an archival electronic records infrastructure. Not later than 2008.
New Zealand: We currently have a policy in place, but are still working on its implementation.
NLW of UK: Available by end of March 2002.
QSA of Australia: June 2002.
SA of Italy: 2004.
SA of Montenegro: One year (i.e. 2004)
SA of Poland: Approximately in the year 2008, if the international projects would not be adopted earlier.

**When do you plan to start accessioning electronically created records?**

CCA of UK: We do accession them in floppy disk format.
NA of Australia: During 2002.
NA of Bahamas: When they are deposited.
NA of Brazil: There is no start programming, yet.
NA of Brunei: As soon as E-government is implemented.
NA of Ireland: It has not yet been decided whether we will accession such records, have them, or require the creators to preserve them according to standards yet to be decided.
NA of Netherlands: Mid year 2003.
NA of New Zealand: Started, but now we already have a few electronic records in our custody. However, we are aware that we are not managing these as well as we should, and we will not be actively encouraging the transfer of electronic records until at least 2006, when the digital repository is established. We will probably continue to receive small quantities of electronic records in the meantime.
NARS of S-Africa: As soon as the necessary infrastructure is in place.
NL of Wales: March 2002.
Long-term Preservation of Electronic Records: Policy and Practice in Archives

PRO of Victoria, Australia: After 2003.
QSA of Queensland, Australia: Not in the short term.
SA of Montenegro: When we fulfil all requested standards.
SA of Poland: After adoption of the national law on electronic records.

7. Would your organization welcome published standards for long term preservation, for example on metadata and on formats for preserved material?

It was clear that all organisations welcomed published standards although NA of UK answered: “No: – There are standards in existence now”, and SA of Montenegro also gave a negative answer.

8. What resources does your organization currently put, per year, into the long-term electronic preservation of electronically created records?

NA of New Zealand: At present we do not have any resources specifically allocated for preserving electronic records in our custody. We expect that the digital repository project will require the equivalent of one full-time staff member per year. We also have one staff member who is working on the electronic records policy, with a focus on improving electronic recordkeeping within government agencies.

Number of staff:

<table>
<thead>
<tr>
<th>Organization</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belarus Research Center</td>
<td>9</td>
</tr>
<tr>
<td>Canterbury Cathedral Archives</td>
<td>1 (a very small part time)</td>
</tr>
<tr>
<td>Hampshire Record Office</td>
<td>1 (part time)</td>
</tr>
<tr>
<td>NA of Australia</td>
<td>2</td>
</tr>
<tr>
<td>NA of Bahamas</td>
<td>2</td>
</tr>
<tr>
<td>NA of Brazil</td>
<td>5</td>
</tr>
<tr>
<td>NA of Estonia</td>
<td>2</td>
</tr>
<tr>
<td>NA of Finland</td>
<td>2 (part time)</td>
</tr>
<tr>
<td>NA of Iceland</td>
<td>2 (part time)</td>
</tr>
<tr>
<td>NA of Ireland</td>
<td>1</td>
</tr>
<tr>
<td>NA of Yugoslavia</td>
<td>1</td>
</tr>
<tr>
<td>NA of Netherlands</td>
<td>4</td>
</tr>
<tr>
<td>NA of Norway</td>
<td>10</td>
</tr>
<tr>
<td>NA of Singapore</td>
<td>1</td>
</tr>
<tr>
<td>NA of Slovenia</td>
<td>3</td>
</tr>
<tr>
<td>NA of UK</td>
<td>10</td>
</tr>
<tr>
<td>NARA of USA</td>
<td>47</td>
</tr>
</tbody>
</table>
NARS of S-Africa currently has one Assistant Director responsible for the management of the electronic records programme. This official is responsible for the formulation of the NARS’s electronic records management policy that is published in the NARS’s new publication *Managing electronic record in governmental bodies: Policy Guidelines.*

The number of staff varied from one to 47. Moreover, it was clear that in some cases these employees were assigned to some other tasks as well. The largest number of staff was in the National Archives of USA (47).

**Money:**

<table>
<thead>
<tr>
<th>Country</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA of UK</td>
<td>was regarded commercially sensitive</td>
</tr>
<tr>
<td>SA of Macedonia</td>
<td>EUR 30,000</td>
</tr>
<tr>
<td>NARA of USA</td>
<td>USD 2,500,000</td>
</tr>
<tr>
<td>NA of Australia</td>
<td>AUD 600,000  (contracts etc included)</td>
</tr>
<tr>
<td>SA of Queensland</td>
<td>AUD 55,000</td>
</tr>
<tr>
<td>PRO of Victoria</td>
<td>USD 100,000</td>
</tr>
<tr>
<td>NLW of UK</td>
<td>GBP 200,000</td>
</tr>
<tr>
<td>NA of Estonia</td>
<td>EUR 25,000</td>
</tr>
<tr>
<td>SA of Macedonia</td>
<td>USD 30,000</td>
</tr>
<tr>
<td>BRCER of Belarus</td>
<td>USD 26,000</td>
</tr>
<tr>
<td>NA of Norway</td>
<td>USD 500,000</td>
</tr>
<tr>
<td>NA of Ireland</td>
<td>EUR 50,000 including salaries</td>
</tr>
</tbody>
</table>

NA of Slovenia Financial means are planned for the project Info-Arch, already mentioned, for which they pay EUR 51,000 (part of this is also digital archives project). This means that only part of this value (ca. 5%) is the investment for the digital preservation. Exact financial estimation for the aforementioned state project of electronic archiving is not yet available.

**Other e.g. facilities, contracts, etc.:**

NA of Australia Not applicable.

NDAD contract (NA of UK).

BRCA of Belarus USD 13,000.