

# DigiCULT

Integrity and Authenticity of Digital  
Cultural Heritage Objects



Thematic Issue 1

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# DIGICULT EXPERTS SEARCH

SUMMARY OF THE FORUM IN BARCELONA, MAY 6, 2002

By Michael Steemson



*Photo: Beeld en Geluid*

## What's at Risk?

'Virtually every private and public organization which uses information technology to facilitate its recordkeeping functions has experienced the undesirable effects of adopting new technologies without forecasting and planning for the consequences of the proprietary nature of software applications, media and digital obsolescence, and hybrid paper/digital environments.'

InterPARES 1,  
[http://www.interpares.org/  
background.htm](http://www.interpares.org/background.htm)

# FOR E-ARCHIVE PERMANENCE

What size is the risk inherent in the new technologies for cultural heritage preservation? The institutions agree it's huge. Technologies come and go with such shattering rapidity. What can be done about it? That's the task the nine experts – archivists, librarians, technologists and academics – were set at the first DigiCULT Forum, held in May 2002.

They met in round table discussion in sunny Barcelona, Spain, to debate the *Integrity and Authenticity of Digital Objects*. They differed over what these terms actually meant but identified this confusion as one of the problems: Many different kinds of digital objects, countless usages and values, and innumerable users each bringing their own evaluations of the objects, whether they be single documents, books or video recordings.

There was, as yet, little adequate technology to do the job, they decided. Solutions lay in the hands of the object creators and preservers, who were sometimes one and the same but who needed criteria to work to. But, what should those criteria be? They must find out, the Forum experts realised.

But they did discover a future for recordkeepers. One of the Nine told the group: 'We don't call them archivists any more. If we called them archivists, nobody would let them near the place.'

## 'DEFINE AUTHENTICITY, INTEGRITY'

### Provenance Corrupt or Not

'Authenticity in recorded information connotes precise, yet disparate, things in different contexts and communities. It can mean being original but also being faithful to an original; it can mean uncorrupted but also of clear and known provenance, "corrupt" or not.'

Abby Smith, *Authenticity in a Digital Environment*, Council on Library and Information Resources (CLIR). Washington, D.C., May 2000. <http://www.clir.org/pubs/reports/pub92/contents.html>

The agenda called for investigation of the question 'How to implement methods for assuring authenticity and integrity in the long-term'. Forum Moderator, Hans Hofman, archivist with the National Archives of the Netherlands

(*Nationaal Archief*), told the experts: 'What the agenda doesn't say is who are really involved in dealing with authenticity and what do we understand authenticity is. We have people from different backgrounds and they might have different perceptions of what authenticity is.'

Years ago, that would not have been difficult for Sir Hilary Jenkinson, the grand old man of British recordkeeping who took from a dusty academic shelf the Archivists' Art and returned it a Science. In his 1960's *Manual of Archive Administration*, he defined authentic archives as those 'preserved in official custody . . . and free from suspicion of having been tampered with'.<sup>1</sup>

But this was about the time the Father of the Internet, New Yorker Leonard Kleinrock, was at the Massachusetts Institute of Technology preparing his PhD thesis, *Information Flow in Large Communication Nets*,<sup>2</sup> destined to be the first little twinkling light at the far end of the line of communication that transformed into the roaring information superhighway of the 21<sup>st</sup> Century.

Now, in the new millennium, the problem is more complex. One of the Forum experts, Luciana Duranti, professor at the School of Library, Archival and Information Studies at the University of British Columbia in Vancouver, summed up the problem to the Forum e-journal, *DigiCULT.Info*: 'The fast pace with which technology for creating and recording information is developing threatens the authenticity of records. Archivists, governments and other institutions that rely on these records are losing control. I would not hesitate to call the situation disastrous.'<sup>3</sup>

As the Barcelona discussion opened, the Forum's search for 'authenticity and integrity' was questioned by another Netherlands expert, Annemieke de Jong, from the Netherlands Audiovisual Archive (*Nederlands Audiovisueel Archief*). She argued that the theme implied that Forum members already knew 'what authenticity is in the digital domain'. She asked: 'Can these traditional concepts of authenticity and integrity still be applied on digital objects in the first place? Can we still think of authenticity in the domain of digital objects?'

Archivschule Marburg archives science lecturer, Nils Brübach, approached it from another angle. He preferred to see the concepts as functional rather than technical. He questioned current opinion that saw authenticity and integrity as absolutes and he

<sup>1</sup> Jenkinson, Hilary: *A Manual of Archive Administration*. London: Percy Lund, Humphries & Co. Ltd., 1965.

<sup>2</sup> Kleinrock, Leonard: *Information Flow in Large Communication Nets*. Cambridge: Massachusetts Institute of Technology, 1961. <http://www.lk.cs.ucla.edu/LK/Bib/REPORT/PhD/>.

<sup>3</sup> DigiCULT.Info, Issue 1, July 2002. <http://www.digicult.info/pages/newsletter.html>

proposed that, as functional concepts, they applied to three levels, the content, context and structure of digital objects.

He said: 'The question is about interrelationship and ... how to guarantee authenticity and integrity at all three levels. The question is also do we need to establish a concept of authenticity and integrity on all three levels?' He added: 'I would say the first thinking should be on fixity and stabilising digital objects and then we could think about integrity and authenticity.'

### Fixed and Fluid

'If the utility of both the fixed and the fluid is recognized, the Web may develop much of its innovative power from the possibility of producing documents that combine both fixity and fluidity. Already, many documents retain a constant text while their links are continually changed. ... This interplay between fixity and fluidity, formerly possible only on the scale of collections, may now become a central feature of individual documents.'

John Seely Brown and Paul Duguid, *The Social Life of Documents*, Palo Alto, CA., Palo Alto Research Center (PARC), May 1996. <http://www2.parc.com/ops/members/brown/papers/sociallife.html>

Professor Duranti, who is also director of the International Research on Permanent Authentic Records in Electronic Systems, the InterPARES project, had doubts about 'fixity'. She said that the InterPARES project had, at first, presumed fixity to be an essential element of authenticity. She went on: 'But the reason for the InterPARES project 2 is that we are discovering that by stabilising records that, by their nature, are dynamic we, in fact, end up forging them. That is, we are eliminating their authenticity.'

She continued: '... should we have questions that apply to all digital objects or shouldn't we really have separate questions for different kinds of digital objects? Because, certainly, authenticity is not the same thing to music that it is to a legal record and I think that the primary concern should be actually separation not unification. We should set out by thinking of types of digital objects separately, different characteristics, different solutions and different concepts.'

After further lengthy discussion on varying requirements for the integrity of different digital objects, Hans Hofman suggested that from users' perspectives the question was simply one of trust. Professor Duranti agreed but warned against archives' past faith in creators. She said: 'This is no longer true. The person who generates the material may trust it and might be wrong. Because, with digital records, the fluidity of the record is such that if you don't have

very detailed methods of control in place all along, so that you can say that you have a trusted system, it doesn't work.'

InterPARES had decided on two levels of requirements, she said. One was a need to presume the authenticity of the records based on how they were generated and maintained. The other was the requirement to create authentic copies of the records to preserve them over time.

Paul Fiander, Head of Information & Archives, BBC, had an example. The Corporation had almost one and a half million commercial recordings ranging in medium from wax cylinders to CDs. The problem lay with the 78 r.p.m. and LP vinyl records that were too fragile and low quality to issue for use – 'too many clicks, so we clean them up'. They were copied onto CDs and, as a result, were no longer authentic versions.

University of Antwerp (*Bibliotheek Universiteit Antwerpen*) librarian, Julien van Borm, didn't particularly mind that process, so long as he knew what had been done, particularly if the original no longer existed. He considered that: 'In the future, I think we need not only the document in itself but also the history, lets call it a C.V. of the document that has to be documented in the document itself.'

Dr. Brübach agreed completely. An archival object had to include both the digital object and its processing history ... 'what has been changed and maybe what has been lost and both together this could give the user a hint of authenticity, not authenticity itself'.

And he went on: 'When we turn to born-digital objects, does an original really exist in the digital world? Do we have an original there which can be identified independently as an original? I would say no. Any original in the digital world can be defined as an original by somebody using some means, maybe metadata, which would be the instrument to solve the problems you have just outlined.'

Talk around the Forum table began to turn towards the responsibility of creators to contribute towards digital authenticity and integrity. Hans Hofman developed a diagram showing the 'digital object' hemmed in by three entities, the creator, the preserver and the user.

He explained: 'What we are talking about is digital objects in different domains created by different creators and used by all kinds of different users. What authenticity means is, in my perception, what the creator has an intention to convey to a user with the object. So, we are talking about the relationship between the creator, the digital objects he is creating and the user. But the user has to know what the intention was of the creator.'

‘The preserver has to take care that this digital object is carried through time to new users, current users. In different contexts it might be different perceptions of what authenticity is, and what we want to achieve is a certain trust in the user that this is the digital object that was once created with this identity, because the identity is dependent on the creator.’

The Austrian National Library’s Max Kaiser, pointed out three different types of digital object: ‘When we receive the object we have to decide what part of it is to be preserved. Then we have to submit it to our archives and begin recording the changes that have to be made to it – migration and other things. We have to record rights issues and then, based on this complicated information package, we have to decide how we can disseminate it to our users.’

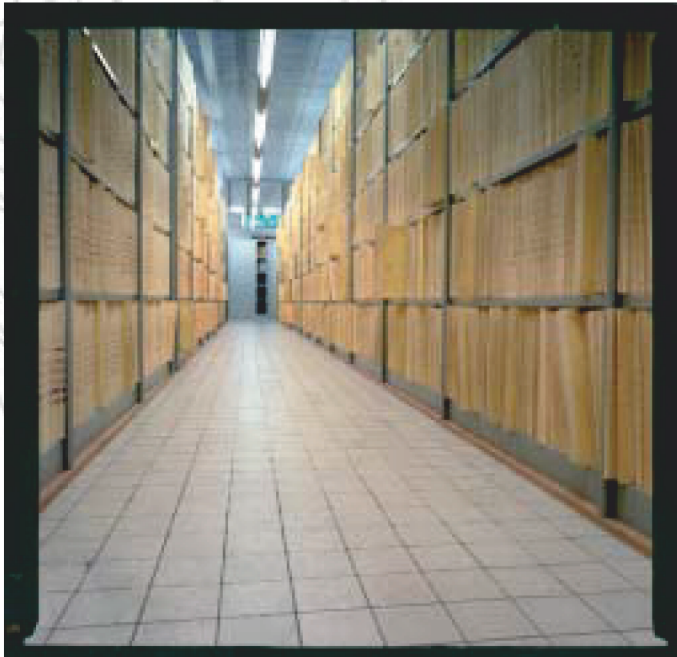


Photo: Beeld en Geluid

Professor Duranti put it: ‘So, in fact, the grave responsibility for future preservation is with the creator. The creator has to make sure the object is identifiable; that it has metadata to ensure its integrity can be proved; that it can be seen, with access privilege; that sort of thing. We therefore should also look at methods that should be used by the creator to generate the objects properly for future preservation.’

She said that the InterPARES project had created two different sets of requirements for authenticity, one for the creator and another for the preserver.

Other members thought perhaps three sets of requirements were needed: ‘ingest’, ‘preservation’ and ‘dissemination’ was Nils Brübach’s model. The group discussed the role of the preserver as mediator between the creator and user. The preserver’s task was to create records, too, it was suggested, records such as protocols describing what had been lost or added in the preserving process, giving authenticity to what was left. Once these had been satisfied and an audit trail tracking process was in place then authenticity could be presumed.

In his summing up, Hans Hofman said the group had agreed that authenticity was not a static thing but had to be approached from the contextual point of view. He added: ‘We did not come up with a lot of criteria, but at least one is that an authentic object is what it purports to be, and there are different players: the creators, the preservers and the users, and all have their own views that influence the way we deal with authenticity.’

# RELATED PROJECTS AND A (SMALL) SELECTION

## **InterPARES - International Research on Permanent Authentic Records in Electronic Systems**

### **InterPARES 1:**

The first phase of the project began in 1999 and was concluded in 2001. It built on an earlier project at the Vancouver, Canada, University of British Columbia (UBC), 'The Preservation of the Integrity of Electronic Records' (1996), which addressed issues surrounding the creation and maintenance of authentic and reliable electronic records in their active, pre-archival state. See: <http://www.interpares.org/UBCProject/index.htm>

InterPARES 1 focused on the preservation of the authenticity of records that are no longer needed by the creating body to fulfill its own mission or purposes. Results from InterPARES 1 included guidance on conceptual requirements for authenticity, models of the processes of selection and preservation of authentic electronic records, a glossary, and several other documents are available on the project website.

The final text of the InterPARES 1 findings will be electronically published on its website by September 2002 and published in book form by the Italian Ministry for Cultural Properties and Activities in the winter 2002-2003.

### **InterPARES 2:**

The key aspects distinguishing the second phase of the InterPARES project from the first are described on the project website as 'dramatically innovative'. InterPARES 2 will not only address issues of authenticity but also reliability and accuracy. It will study them throughout the records' life-cycle from creation to permanent preservation, unlike phase 1 that was concerned only with non-current records destined for permanent preservation. Importantly, InterPARES 2 will focus on records produced in new digital environments, experiential, dynamic, and interactive whereas phase 1 was concerned only with records generated in databases and document management systems. The focus of InterPARES 2 will not be just on records resulting from administrative and legal activities, but those resulting from artistic, scientific and government activities.

The InterPARES studies began in January 2002 and will continue until December 2006.

<http://www.interpares.org/>

## **Reference Model for an Open Archival Information System (OAIS)**

The Reference Model for an Open Archival Information System provides a common framework for describing and comparing architectures and operations of digital archives. It was developed by the U.S. Consultative Committee on Space Data, and has been adopted as ISO 14721:2002.

A useful short presentation and review of the reference model is provided in the Research Libraries Group and Online Computer Library Center (RLG/OCLC) report 'Trusted Digital Repositories' (2002) highlighting the necessary functions of a long-term digital repository. The RLG proposes compliance with this model as the defining attribute of a trusted digital repository.

The OAIS reference model was used, for example, by the Leeds University, England, Consortium of University Libraries' (CURL) Exemplars in Digital Archives (Cedars) project (<http://www.leeds.ac.uk/cedars/>), whose participants discovered 'the benefit of adopting a shared vocabulary and set of concepts to allow implementation across a number of different local situations'. In fact, Cedars has provided one important demonstrator project based on this model. (cf. Russell, 2000; see: Literature)

Another major project using the OAIS reference model is the new digital library system of the British Library that is designed to provide long-term access to digital collections.

Sources:

NASA: ISO Archiving Standards: Overview (this site contains links and background information to the reference model and other archival standardization efforts) <http://ssdoo.gsfc.nasa.gov/nost/isoas/overview.html>

Blue Book of the Reference Model: CCSDS 650.0-B-1: Reference Model for an Open Archival Information System (OAIS). Blue Book. Issue 1. January 2002.

[http://ssdoo.gsfc.nasa.gov/nost/isoas/ref\\_model.html](http://ssdoo.gsfc.nasa.gov/nost/isoas/ref_model.html)

Research Libraries Group: Open Archival Information System (OAIS) Resources, <http://www.rlg.org/longterm/oais.html>

Helen Shenton: From Talking to Doing: Digital Preservation at the British Library. In: Preservation 2000, <http://www.rlg.org/events/pres-2000/shenton.html>

# STANDARDS



Photos: Beeld en Geluid

## **Project Prism - Preservation, Reliability, Interoperability, Security and Metadata**

Project Prism at Cornell University, (U.S.A.), is an interdisciplinary research project started in 1999 and funded by the U.S. National Science Foundation. A collaborative effort between Cornell's University Library and its Computer Science Department, it investigates and develops policies and mechanisms to ensure information integrity in digital libraries.

Prism focuses on five key areas, Preservation, Reliability, Interoperability, Security and Metadata, in the context of component-based digital library architecture with special attention to distributed collections and web content. The preservation component of the research is examining longevity issues for web resources using risk management methods.

Sources:

<http://www.prism.cornell.edu/>

<http://www.library.cornell.edu/iris/research/prism/>

Kenney, Anne R, et al.: Preservation Risk Management for Web Resources. In: *D-Lib Magazine*, January 2002, <http://www.dlib.org/dlib/january02/kenney/01kenney.html>

## **David among the Digital Goliaths**

The Belgian Foundation for Scientific Research project, Digital Archiving in Flemish Institutions and Administrations (Digitale Archivering in Vlaamse Instellingen en Diensten - DAVID), aims to produce a manual of guidelines for archiving digital records by the end of 2003, supported by Antwerp City Archives and the Leuven University's Interdisciplinary Centre for Law. The group has created a simple, stable e-mail archiving protocol with set data fields that must be completed by originators and recipients before archiving as microfilm or imaged hard copy.

<http://www.dma.be/david/eng/index.htm>

## **Australia and Victoria State Metadata Standards: the VERS Metadata Scheme**

National Archives of Australia sees the VERS (Victoria Electronic Recordkeeping System) scheme as a reference tool for government agency, corporate managers, IT personnel and software vendors involved in the design, selection and implementation of electronic recordkeeping and related information management systems. But, for Victoria's State Public Record Office (PROVic), the VERS designer, its purpose is to represent information required for preserving records over a long period.

The national system (<http://www.naa.gov.au/recordkeeping/control/rkms/summary.htm>) defines a basic set of twenty metadata elements (eight of which constitute a core set of mandatory metadata) and sixty-five sub-elements that may be incorporated within such systems, and explains how they should be applied within the Australian sphere.

The PROVic method differs (see: <http://www.prov.vic.gov.au/vers/standards/pros9907/99-7-2s2.htm>).

In its Standard for Electronic Records Management (PROS 99/007) the Office says: 'The VERS approach is to fix records at (or close to) the time of creation using digital signatures. Although the VERS approach has many advantages over migration, it has one significant disadvantage; metadata that changes or accretes (e.g. use histories) over time is not well supported. Although it is possible to "layer" metadata to support changing or accreting metadata, this is not efficient for elements that are continually modified.'

The Victorian State Government earlier this year authorised expenditure of more than Au\$8 million (c. 4.5 million EUR) to begin a VERS implementation programme across State agencies that will eventually cost Au\$50 million.

## 'IDENTIFY METHODS, TECHNOLOGIES'

'The volume of information is growing at an unprecedented pace. We already produce more information per year than we did in the whole period since we descended from the trees. A lot of information is digital only and an XML document, for instance, is created while you view it. So, how do you keep it?'

Ulrich Kampffmeyer, President of Project Consult, Germany

Forum Moderator, Hans Hofman, set the direction in the experts' search for technologies and methods to ensure authenticity. 'Are the current information technologies able to achieve it? If not, how should it be done and is there something that should be done with standardisation?' he asked.

The BBC's Paul Fiander dropped in yet another pressing concern ... costs. He detailed the broadcasting Corporation's holdings of radio and television material, a collection growing exponentially as interactive television comes on stream. MPEG compression compromised digital authenticity, he said, and resource constraint was 'forcing us to change our selection and retention policy'.

So, another word entered the Forum debate ... appraisal. Director of U.S. National Archives and Records Administration (NARA) Electronic Records Archives (ERA) Program, Kenneth Thibodeau, said it was still the top criteria. Harking back to their earlier discussion, he reminded the experts: 'Once you say that authenticity is contextual you cannot validly pose the question "can technology save everything in an authentic way?"'

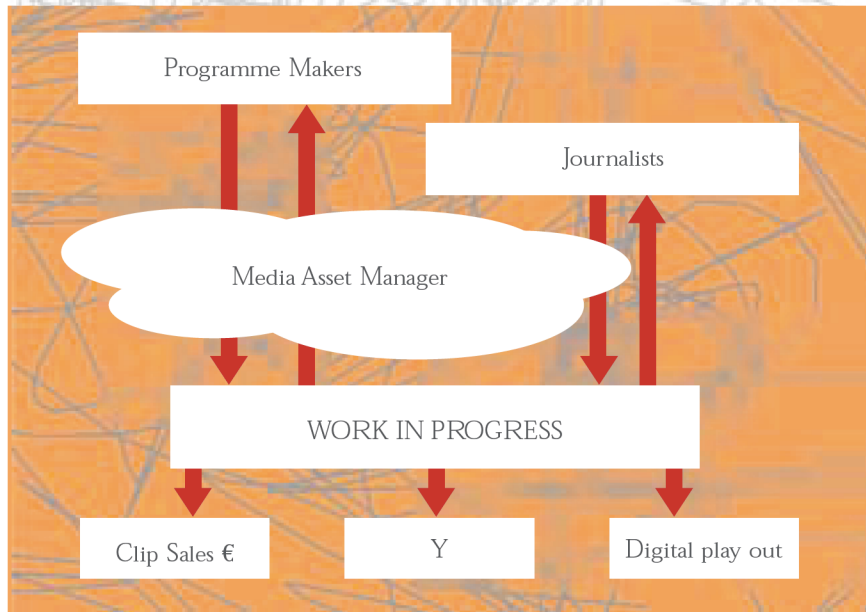
Luciana Duranti believed the problem really lay with creators who continued to 'generate (records) in an inappropriate way'. She complained: 'Each record generator creates records in an idiosyncratic way not respecting the many of rules. They make things very difficult for the preserver.' She wondered whether the creator 'is doing it because he is not interested in permanent preservation or because he doesn't know what he is supposed to do'.

The BBC's Paul Fiander demonstrated how the Corporation solved the problem. In so doing, gave a happy glimpse of the future for recordkeepers ... not a place in the retirement sun but in the white heat of the technologies mediating between creators and users, just where the Forum thought they should be.

Paul Fiander drew a diagram of the BBC's production process – programme managers and journalists making and using archivable material, fulfilling the

roles of both creators and users in the production of their work. He categorised the process as 'work in progress'.

He said: 'The programme maker adds input, the journalist puts stuff in and they take it back out again. I call that, because I come from an industrial background, work in progress. Stuff also goes out there to what we call clip sales so people are generating money out of this work in progress.'



It goes many times because of the number of channels we have. We have people taking material out to recreate new stuff and they put it back in. Finally, it goes out to playout. Where is the role of the archivist in this?

All over the place?

'Exactly!' said the Man from the BBC. Stabbing the diagram's *Media Asset Manager* 'cloud', he emphasised: 'The role of the archivist is there, except we don't call them archivists anymore, because if you called them archivists nobody would let them near the place. We call them media managers. The skill of the archivist is to work in this cloud over here, because if they didn't do their job properly here, we would never find the material again.'

An incredulous delegate asked: 'Is this your day to day reality or the future?'

Mr Fiander was firm. 'That is what we are doing today, we are putting people with library qualifications into that cloud there, calling them media asset managers. I am talking about the archivist as the creator, being involved in part of the creation process. That is where the argument about changing – making the creator do something different – is being taken care of.'

*Paul Fiander's 'Work in Progress' workflow model*



Hans Hofman wondered how the archivists were coping with this change of culture.

Paul Fiander said they had to be able to work with journalists and programme makers. They did not simply write new rules for the creators, though. 'You have to work with them. You have to be immersed with them if you want them to change.'

Netherlands' archivist Annemieke de Jong saw how archives could aid the integration of asset management systems in an organisation. 'In the BBC model, you could see that programme makers and journalists use the same procedures, structures and metadata for copyright that is being developed in the archiving world. So, it is not just the system. You should make the rules in the archive and then distribute them to the creators and producers.'

This would function working directly with the creators, she said, but she wanted to know: 'If you want to preserve material that is being produced outside of your organisational model how do you maintain this form of control?'

The consensus was that market pressure could have a positive effect although systems vendors were often

hard to influence. The Forum discussed technological solutions, migration, emulation and 'persistent object preservation'<sup>4</sup>, a process being researched by Dr Thibodeau's NARA project at University of California's San Diego Supercomputing Centre.

Delegates were dubious about system emulation ('It remains an ethical question,' said Professor Duranti) and migration ('You are entirely controlled by the software industry,' said Dr Thibodeau).

'So there is no technology actually that can really deal with what we require, is that the conclusion at this moment?' asked Moderator Hofman. 'Shouldn't we then move in earlier in the creation process in order to influence the way things are created for example open source, creating standards, etc.' That was the way the BBC had done it and not just for the archives.

Dr Brübach was all for telling the software industry 'Hey, folks. Build in an interface which we can use to export stuff to one of our archiving formats. Make the process as easy as possible with metadata collected clandestinely so the user does not even know what is happening in the background'. Others were doubtful if the industry would comply but agreed that archivists could achieve some success clandestinely.

Summing up, Hans Hofman told the Forum: 'The aspects we have been discussing are mainly the requirements. We have also the technological issues because technology is the reason why we are now suddenly facing all these issues around authenticity in preserving digital objects. There are cultural aspects as well. How do we convince people that they have to have a different attitude towards what they are creating and preserving?'

'But what I also hear is that there are different communities and may be different perceptions in authenticity although there still might be a more generic idea of authenticity. This may lead to different solutions because the requirements are not always the same.'

<sup>4</sup>San Diego Supercomputer Center: Collection Based Persistent Archives, <http://www.sdsc.edu/NARA/Publications/collections.html>

### Persistent Object Preservation

'Question: How are the government's electronic records going to be preserved over multiple generations of technology so that future archivists and historians can access them? Answer: Nobody knows yet.

But Kenneth Thibodeau, director of the National Archives and Records Administration's Electronic Records Archives (ERA) program in College Park, Md. thinks he's on the trail of a solution. It's called persistent object preservation'.

#### *State it simply*

In the persistent object method, the structure of a record and of aggregates of records is described in plain language—simple tags and schemas—so that any future technologies, and people, will recognize the essential properties of the record and be able to access it, he said.

That gives managers the ability to change hardware and software over time with no significant impact on the records that are being managed and preserved.

"What San Diego is telling us is that records in this format should be good for 300 to 400 years," Thibodeau said.'

From: 'For the record, NARA techie aims to preserve', by Richard W. Walker. In: *GCN* magazine, July 30, 2001; [http://www.gcn.com/vol20\\_no21/news/4752-1.html](http://www.gcn.com/vol20_no21/news/4752-1.html).

For a description of NARA's Electronic Records Archives Program see Thibodeau, Kenneth (2001): Building the Archives of the Future: Advances in Preserving Electronic Records at the National Archives and Records Administration. In: *D-Lib Magazine*, No. 2, Vol. 7, February 2001, <http://www.dlib.org/dlib/february01/thibodeau/02thibodeau.html>.

## 'MAKE CONCLUSIONS, RECOMMENDATIONS'

### Address the Challenges Cooperatively

'The importance of maintaining the viability and accessibility of digital objects over the long term underscores the need to develop infrastructure in support of these objectives. Given the many shared challenges associated with digital preservation, preservation metadata among them, there is tremendous scope to address these challenges co-operatively ... to advance the imperative of preserving digital objects over the long term.'

*Preservation Metadata and the OAIS Information Model: A Metadata Framework to Support the Preservation of Digital Objects.*

OCLC/RLG Working Group on Preservation Metadata, June 2002.

[http://www.oclc.org/research/pmwg/pm\\_framework.pdf](http://www.oclc.org/research/pmwg/pm_framework.pdf)

The DigiCULT Forum discussions preceded the OCLC/RLG Working Group by a month, but the two gatherings reached the same conclusion ... co-operation is needed between study groups. OCLC/RLG published their report in June<sup>5</sup> acknowledging the 'tremendous scope' to addressing co-operatively challenges of digital preservation, especially development of metadata protocols.

The DigiCULT experts discussed the RLG's earlier report on *Trusted Digital Repositories*<sup>6</sup>, the Australian Victorian Electronic Recordkeeping System (VERS)<sup>7</sup>, InterPARES<sup>8</sup>, and the project Prism at Cornell University.<sup>9</sup>

The group wanted a survey of these and other reports and initiatives with which the Forum could collaborate. Members considered they should be better informed on existing study infrastructures like the European Commission-backed digital libraries network DELOS<sup>10</sup>, the ERPANET project<sup>11</sup> and MoReq specifications<sup>12</sup>, and the German state Nordrhein-Westphalia's VERA Project<sup>13</sup>, an Internet-based archives administration project.

Group members asked also for the inclusion of projects implementing long-term access to digital collections based on the U.S. Reference Model for an Open Archival Information System (OAIS) that has been adopted as an international standard ISO 14721:2002.

Hans Hofman suggested that such a collaborative effort should 'make available knowledge of what is happening in all these institutions'. He said: 'Everybody who is doing something in the area of digital preservation and authenticity should be involved and should be connected to that network to help identify research issues and solutions, as we have today. We have shown how difficult it is to identify those issues.'

He said the Forum had identified a need for greater archival influence at the moment of the creation of

### Short Time Horizons on Authenticity

'A great deal of technology and infrastructure now being deployed will be useful in managing integrity and authenticity over time. However, these developments are being driven by commercial requirements with short time horizons in areas such as authentication, electronic commerce, electronic contracting, and management and control of digital intellectual property.'

Clifford A. Lynch, *Authenticity and Integrity in the Digital Environment: An Exploratory Analysis of the Central Role of Trust*. Washington, DC: Council on Library and Information Resources, 2000.  
<http://www.clir.org/pubs/reports/pub92/lynch.html>

digital objects. Now the group had to identify where it would work.

Luciana Duranti agreed it would work in public environments. 'People I have spoken to in the library field who are publishers etc, do want guidelines on how to do the things right. You cannot impose them on them, but they would be very glad if you gave them criteria because they do have a problem at the source, at the creation of the digital works.'

Other delegates thought some of this guidance was already available from standards, notably the International Standards Organization's Records Management work, ISO15489.

<sup>5</sup>Preservation Metadata and the OAIS Information Model: A Metadata Framework to Support the Preservation of Digital Objects. OCLC/RLG Working Group on Preservation Metadata, June 2002  
[http://www.oclc.org/research/pmwg/pm\\_framework.pdf](http://www.oclc.org/research/pmwg/pm_framework.pdf).

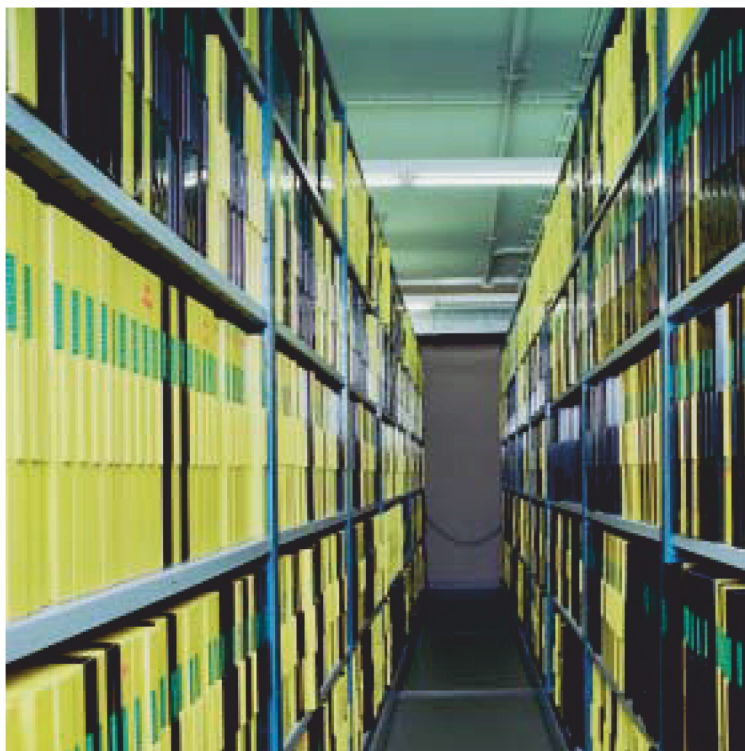
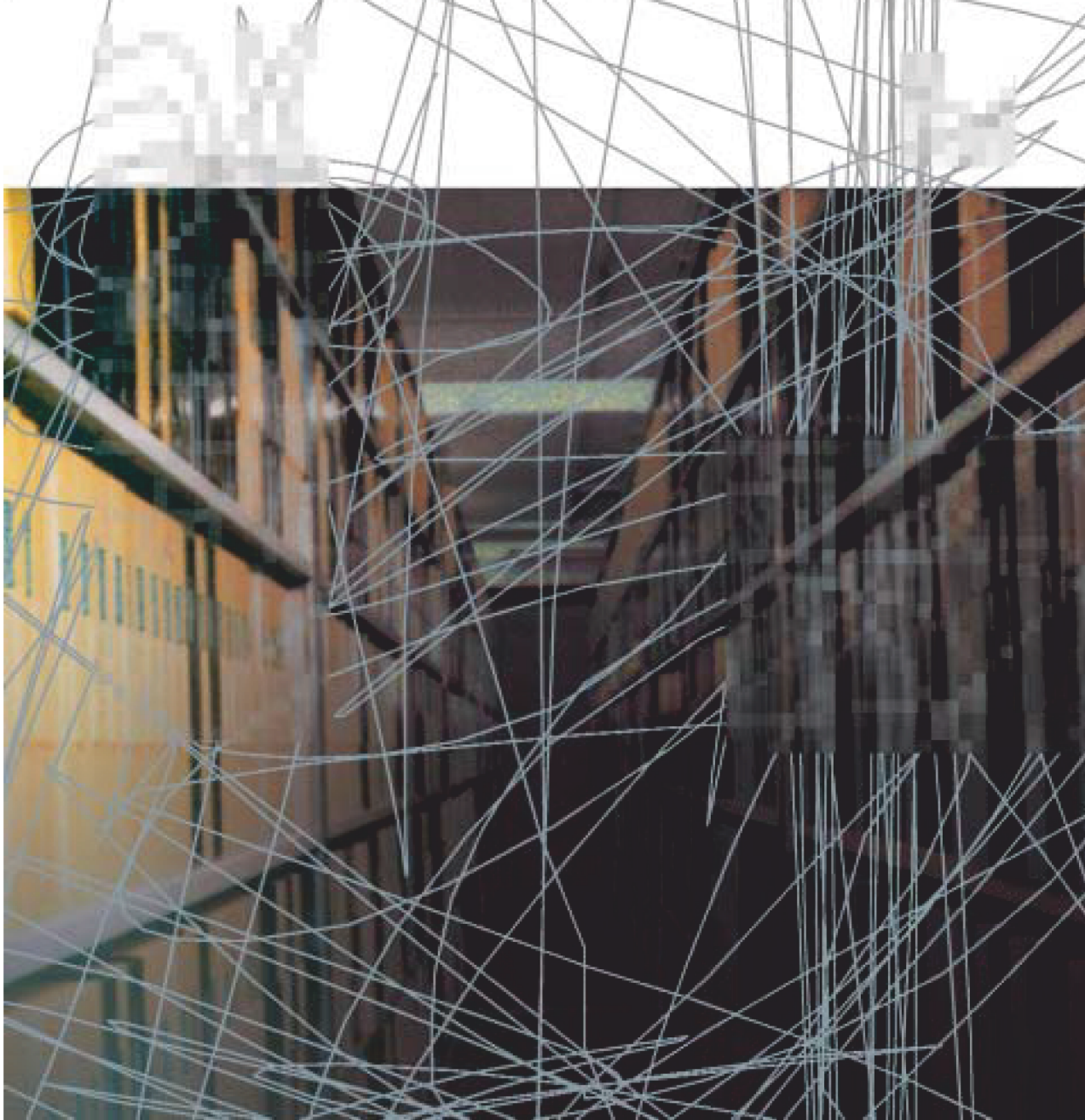


Photo: Beeld en Geluid

The group requested a survey by the DigiCULT Secretariat of research projects and case studies over the last three years. Annemieke de Jong suggested the survey should concentrate on subjects she had looked for in the past and rarely found, things like interactivity, multi-



<sup>6</sup>Trusted Digital Repositories: Attributes and Responsibilities. Mountain View, CA: RLG and OCLC, May 2002. <http://www.rlg.org/longterm/repositories.pdf>.

<sup>7</sup>Victorian Electronic Recordkeeping System. Melbourne: Public Record Office, Victoria, Australia, 1999. <http://www.prov.vic.gov.au/vers/standards/pros9907/99-7-2s2.htm>.

<sup>8</sup>InterPARES: International Research on Permanent Authentic Records in Electronic Systems. <http://www.interpares.org>.

<sup>9</sup>Prism, <http://www.library.cornell.edu/iris/research/prism/>

<sup>10</sup>DELOS Network of Excellence on Digital Libraries, <http://delos-noe.iei.pi.cnr.it/>.

<sup>11</sup>ERPANET, European Resource Preservation and Access Network, <http://www.erpanet.org/>.

<sup>12</sup>MoReq, Model Requirements for the management of electronic documents and records management systems, <http://www.cornwell.co.uk/moreq.pdf>.

<sup>13</sup>Frank M. Bischoff: Staatsarchiv Münster, Das Projekt VERA in Nordrhein-Westfalen: Nutzung der Internettechnologie für die Erschließung und archivübergreifende Verwaltung der Bestände. Münster, NRW. <http://www.uni-marburg.de/archivschole/bischoff.pdf>

<sup>14</sup>Clifford A. Lynch: Authenticity and Integrity in the Digital Environment: An Exploratory Analysis of the Central Role of Trust. Washington, DC: Council on Library and Information Resources, 2000. <http://www.clir.org/pubs/reports/pub92/lynch.html>.

media, audio-visual objects and 'complete digital resources'. Case studies should be selected according to the types of digital objects the archives preserved 'so that the object is the criteria, not the institution itself'.

Dr Thibodeau described a 'very strongly argued' paper by Coalition for Networked Information (CNI) Executive Director Clifford A. Lynch<sup>14</sup> asserting that digital authenticity depended on trust. The DigiCULT survey should include 'two aspects of the trust issue'. He identified these as: 'What are the major factors that drive trust decisions, a willingness to place faith in person or institution or solution, that apply in the digital world. And secondly what are the risks entailed with that, those acts of faith.'

It all added up to a lot of work for Forum Secretary, John Pereira, and his Salzburg Research colleagues before the second DigiCULT Forum in Essen, Germany, in September 2002. But at the end of the long, long day, he was still smiling and continuing to ask delegates: 'Is this something we should add to the list?'

Moderator Hans Hofman, reviewing the forum

debate, commented afterwards: 'The discussion showed that the notion of authenticity is still a difficult subject that is being interpreted differently by people with different backgrounds and different perceptions.'

There was some agreement, however, that the creator, the preserver and the user each play important roles in identifying and maintaining the authenticity of digital objects be they records, publications or audiovisual material. It was also clear that ensuring authenticity starts at the creation of the digital object itself.'

He thought that the concept of authenticity was still seen as confusing. He said: 'It is difficult to get hold of, let alone to approach or deal with it. The Forum asked for a survey of existing initiatives that try to deal with the preservation of digital objects to discover how they approach the notion of authenticity. It was emphasised that closer collaboration between different disciplines or communities is necessary, with a more prominent role for the archival community and its perception of authenticity. So the final word has not yet been spoken on this issue.'