Digital Preservation

An Overview of Where We Are

Keynote Speech to the
NDAP 2008 Annual International Conference
National Digital Archives Program, Taiwan

Technology Building, National Science Council
Taipei, Taiwan, 18 March 2008

Deanna B. Marcum
Associate Librarian of Congress for Library Services
Library of Congress, Washington, D.C., U.S.A.

NDAP International Conference
Technology Building, NSC, Taipei, Taiwan
18 ~ 20 March 2008

Digital Preservation Challenge

- Digital media is far more fragile than books and journals
- Electronically recorded information is in danger of becoming unreadable even before the digital media deteriorates
  - Computer hardware and software used to create digital files become obsolete

Digital Preservation Challenge

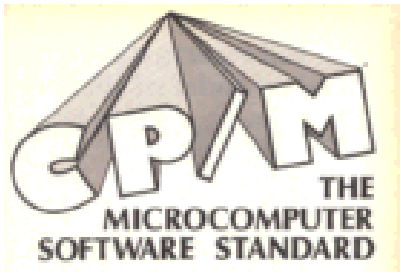
- Ever-increasing volume of electronic material to be preserved
- More materials are “born digital”
  - Scientific and academic journals
  - Documents, reports, email messages
  - Databases and data sets

Digital Preservation Challenge

- Material comes in a wide array of complex and sometimes unpredictable formats
  - Dynamically generated Web pages
  - Animations, Simulations, and 3-D Models
  - Geographic Information Systems
  - Blogs, Listservs, and Bulletin Boards

Preservation Techniques: Migration

- May require abandoning original formats and systems



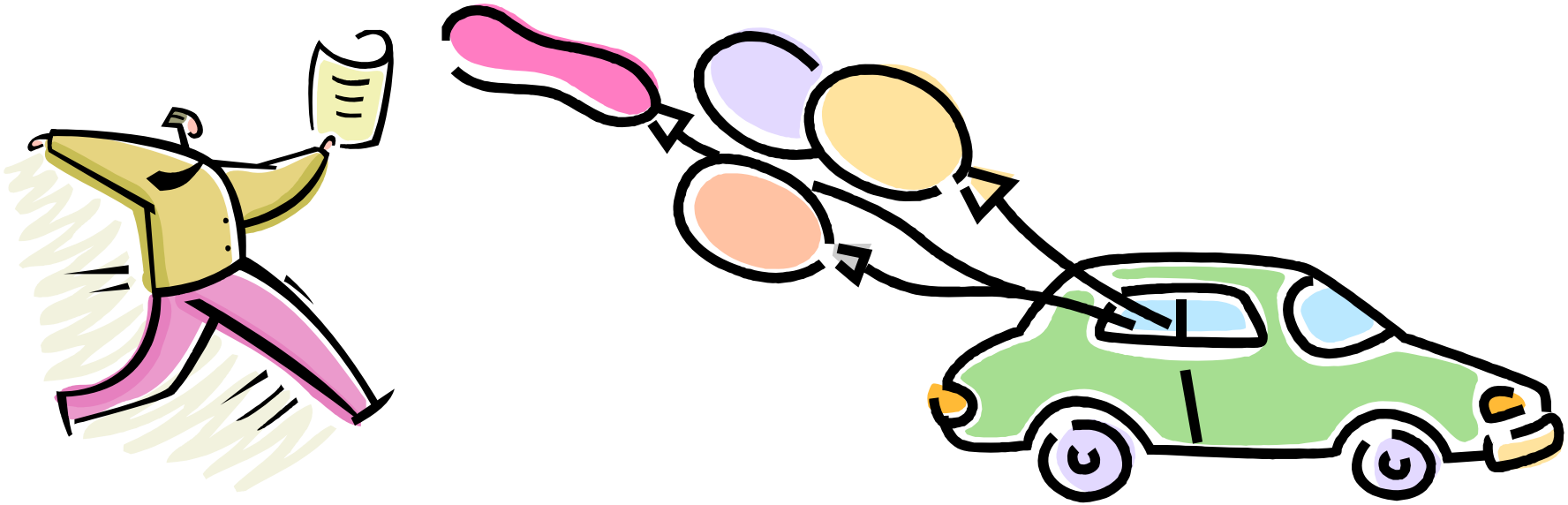
Preservation Risks

- Search engines, information hubs, and publishers of periodicals
  - do not promise perpetual preservation of their material
- Publishers who do submit materials for preservation
  - often impose severe access restrictions to protect copyright

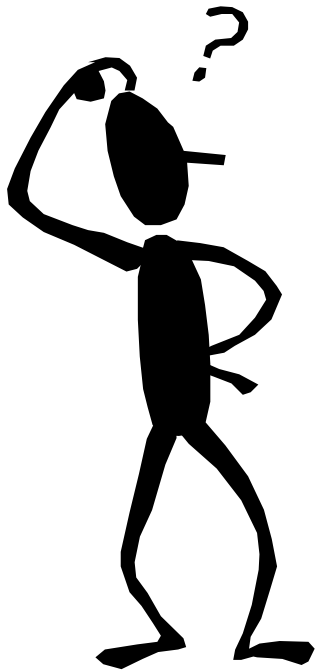
More Challenges

- Increasing preservation = more $$$$
- Additional funds also needed for R&D
- Selection decisions become difficult

“because developments in publishing, information services, and technology are rapid and dynamic … developing [a preservation] strategy is akin to jumping onto a moving vehicle.”



How are we doing?



The Netherlands

KB nationaal archief planets DIOSCURI

Dioscuri - the modular emulator

Dioscuri is an x86 computer hardware emulator written in Java. It is designed by the digital preservation community to ensure documents and programs from the past can still be accessed in the future.
The Dioscuri emulator has two key features: it is durable and flexible. Because it is implemented in Java, it can be ported to any computer platform which supports the Java Virtual Machine (JVM), without any extra effort. This reduces the risk that emulation will fail to work on a single architecture in the future, as it will continue to work on another architecture.
Dioscuri is flexible because it is completely component-based. Each hardware component is emulated by a software surrogate called a module. Combining several modules allows the user to configure any computer system, as long as these modules are compatible. New or upgraded modules can be added to the software library, giving the emulator the capability to run these.

Dioscuri is the best choice to retain access to your old documents, games and other applications!

Latest news

14 February 2008

Dioscuri

- Idea and key features
- Digital Preservation
- Screenshots
- Latest news!

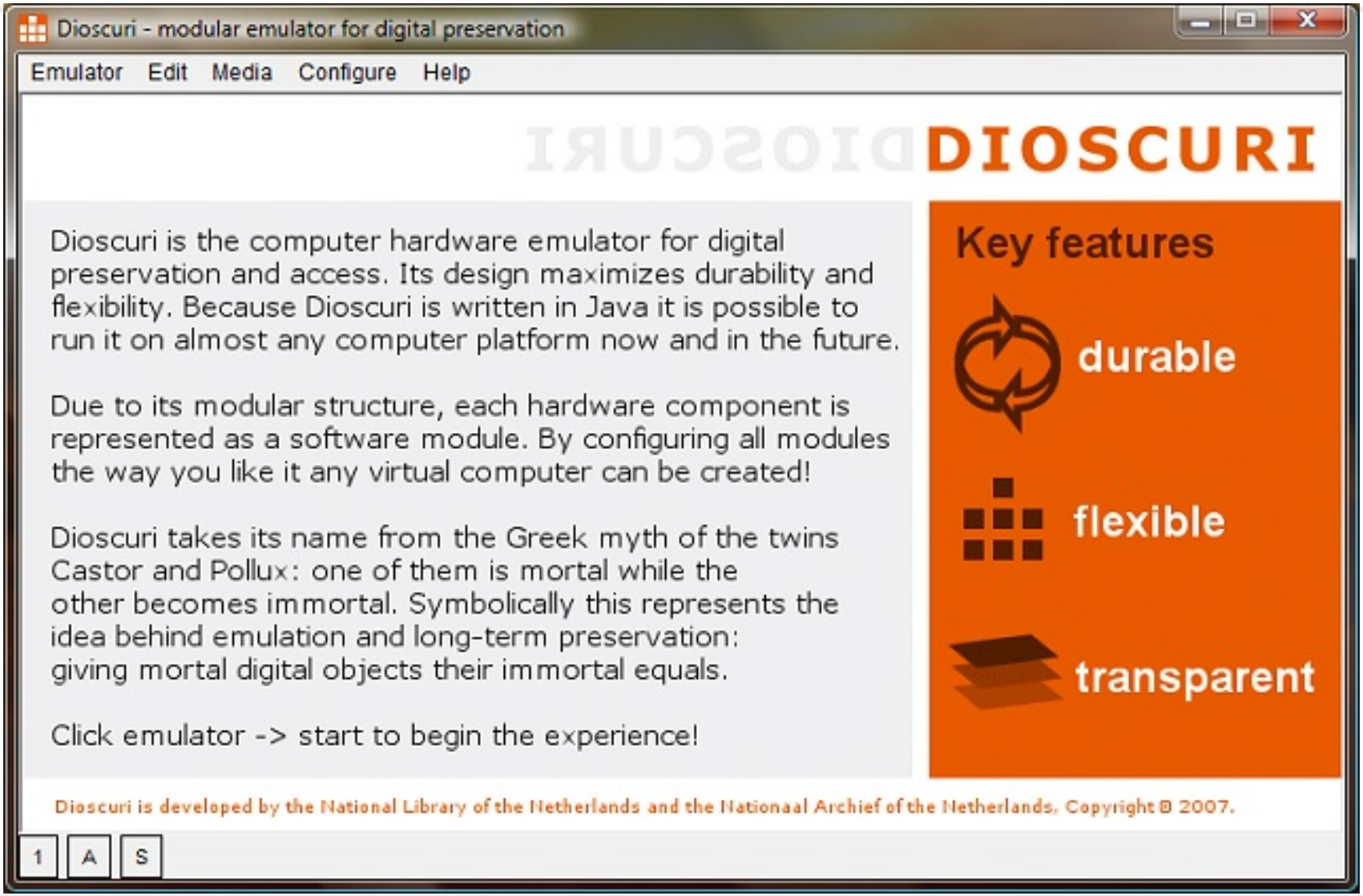
Downloads

- Latest version
- All versions / sourcecode
- Disk images

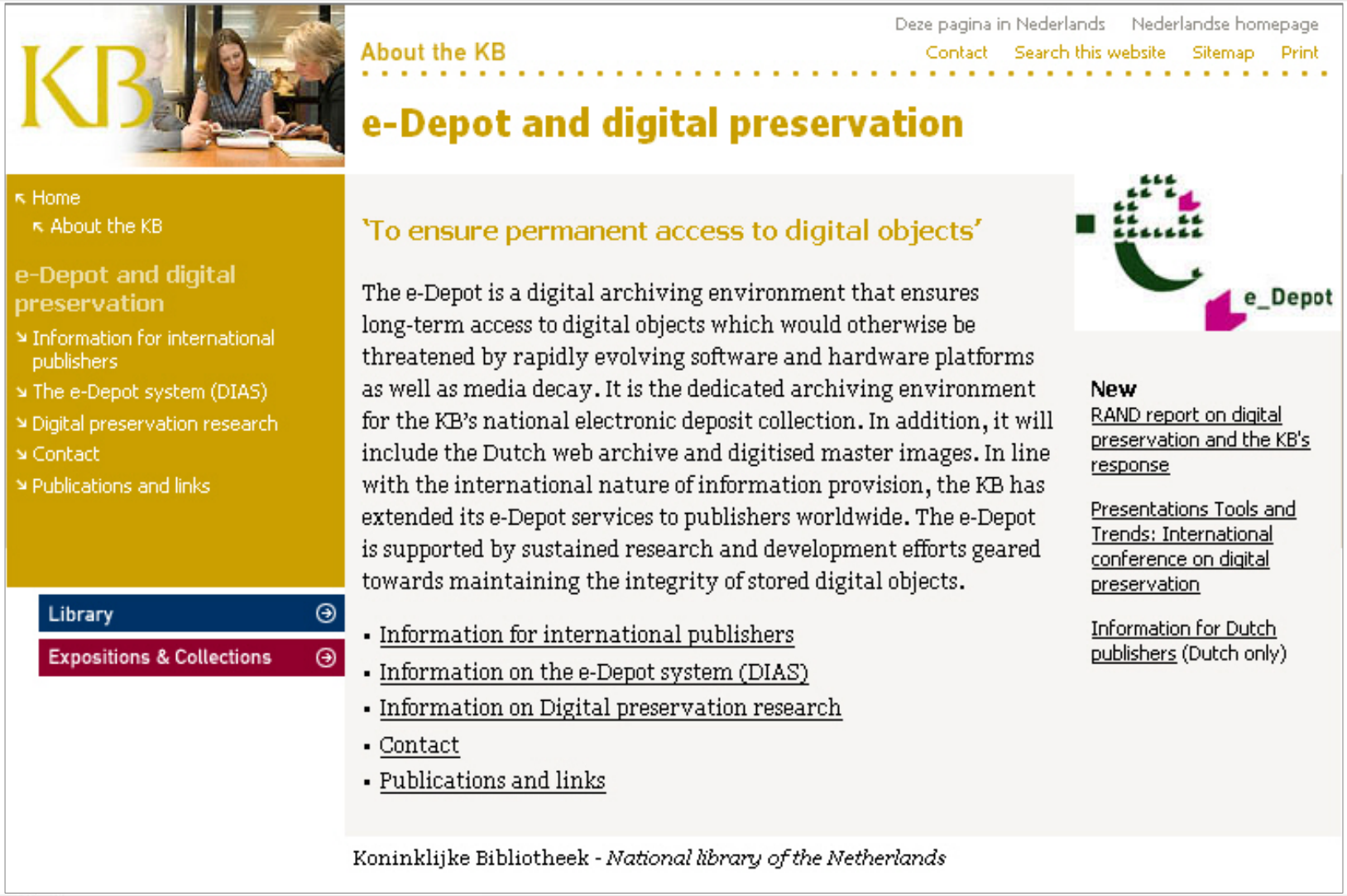
Documentation

- User manual
- Reference docs

The Netherlands



The Netherlands



The Netherlands

Nederlandse homepage

About the KB | Contact | Search this website | Sitemap | Print

Facts & figures

↖ Home
↖ About the KB
↖ e-Depot and digital preservation
↖ The e-Depot system (DIAS)

Facts and figures

Library

Expositions & Collections

Costs: digital archiving and R&D digital preservation

- € 1,1 million structural funds for staff and system maintenance
- € 1,2 million structural funds for research
- 20 full-time equivalents involved

Volume and capacity

- More than 5,000 e-journal titles, 10 million e-journal articles, approximately. 11 TB
- Current storage capacity 25 TB, to be extended to 1,5 PB

System properties

- Operating system AIX 5.3
- Software: Tivoli Storage Manager, Access Manager, DB2, Content manager, Web Sphere, Java
- Hardware: IBM P570, P520, 4 Gb fibre channel switches

Publishers with archiving agreements

Facts and figures as of November 2007

Koninklijke Bibliotheek - *National library of the Netherlands*

The Netherlands

Deze pagina in Nederlands Nederlandse homepage

About the KB Contact Search this website Sitemap Print

DARE: Digital Academic Repositories

- Home
  - About the KB
    - e-Depot and digital preservation
      - Digital preservation research
        - Current projects

DARE

Contact

Library

Expositions & Collections

Introduction

The DARE programme is a joint initiative of the National Library of the Netherlands (KB), the Dutch universities, the Royal Netherlands Academy of Arts and Sciences (KNAW) and the Netherlands Organisation for Scientific Research (NWO). DARE's aim is to store the results of all Dutch research in a network of repositories, in which the National Library fulfils the role of safe place in charge of digital preservation. In this way all participants retain responsibility for and control over their own data while making them accessible at the same time. Moreover, as the KB takes responsibility for storage and long-term preservation, the universities can concentrate on their research work.

Use of the e-Depot

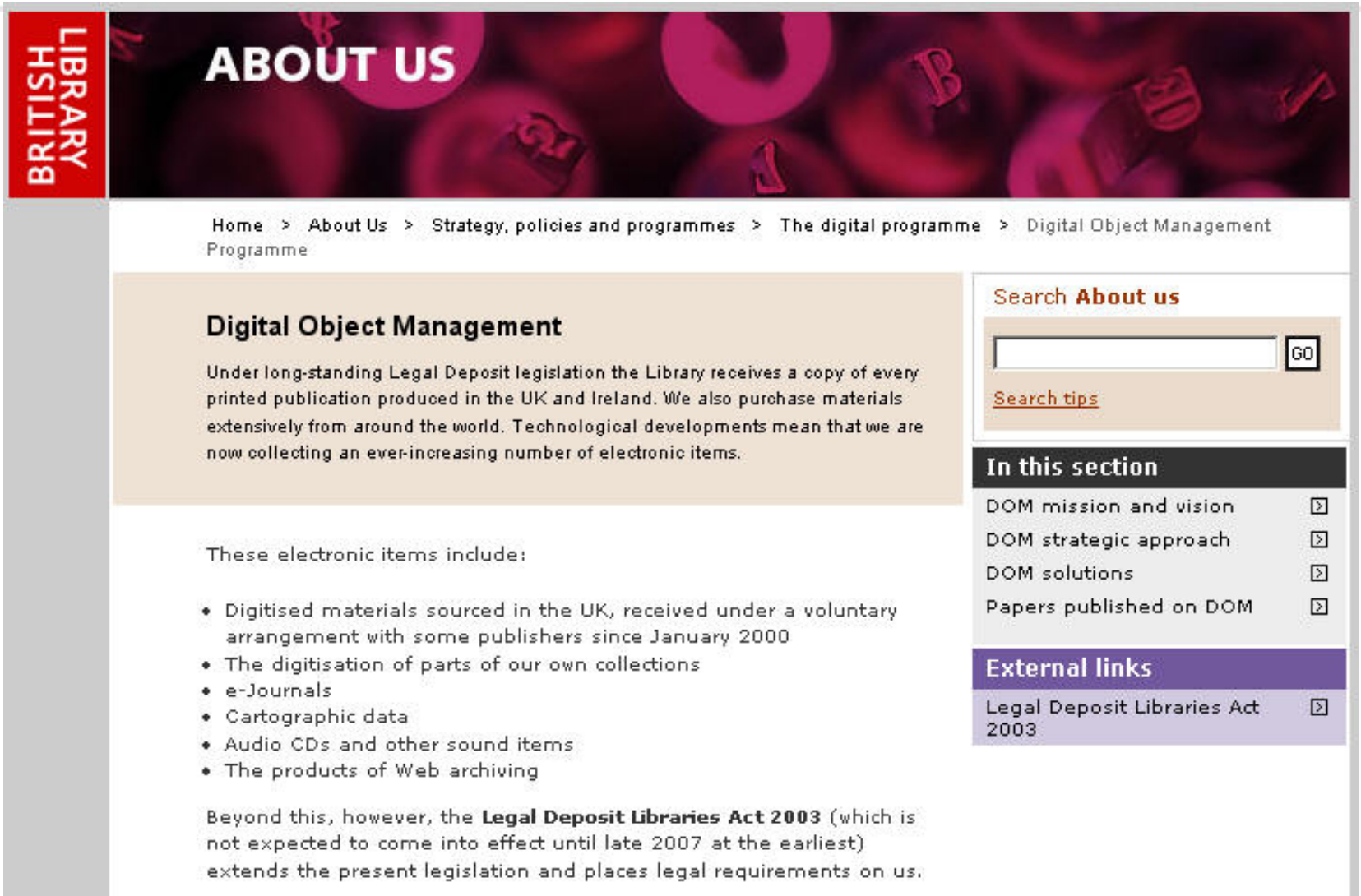
Long-term preservation and accessibility of the repository material is safeguarded as the KB's e-Depot is used for the deposit. Not only is the e-Depot the world's first electronic deposit system, the KB also is one of the leading institutions in the field of digital preservation research in the world. The participants of the DARE programme can benefit from this expertise.

At the moment the focus is on establishing the technical link for the delivery, the quality of the metadata in the repositories and the procedures for deliveries and versioning. Furthermore a start will be made with the retrieval aspect of the project. The technical issues required for batch retrieval are currently being implemented, most of them in collaboration

The Netherlands

- Just one repository in what they call a “safe places network”
- Network would comprise several repositories engaged in preserving international electronic publications

British Library – “Dom Programme”



British Library – “Dom Programme”

- store and preserve any digital material in perpetuity
- provide access with appropriate permissions
- ensure that the material is easy to find
- ensure that users can view the material with contemporary applications
- ensure that users can experience material with the original look-and-feel

Germany – Kopal

kopal
Data into the future

deutsch | Home | Masthead

About kopal

- Goal
- Service
- Project Timetable
- Work Packages
- Downloads

Technical Aspects

- Object Specification
- Standards
- Software
- **koLibRI** - kopal Library for Retrieval and Ingest

About kopal

kopal - Co-operative Development of a Long-Term Digital Information Archive

Making digital documents available long-term is one of the still unsolved problems of our information society. With the increasing number of electronic publications, it is becoming critical that we reliably archive them. In the course of technological development, new digital file formats which are dependent on specific hardware and operating systems are continually being developed and used. Thus, older data are often not usable with current hardware and software. The kopal project is dedicated to finding a solution to this problem in the form of a cooperatively developed and operated long-term archive for digital data.

The ■ **kopal demonstrator** visualizes concept and workflow of the kopal archival system.

The German National Library, the Niedersaechsische Staats- und Universitaetsbibliothek Goettingen

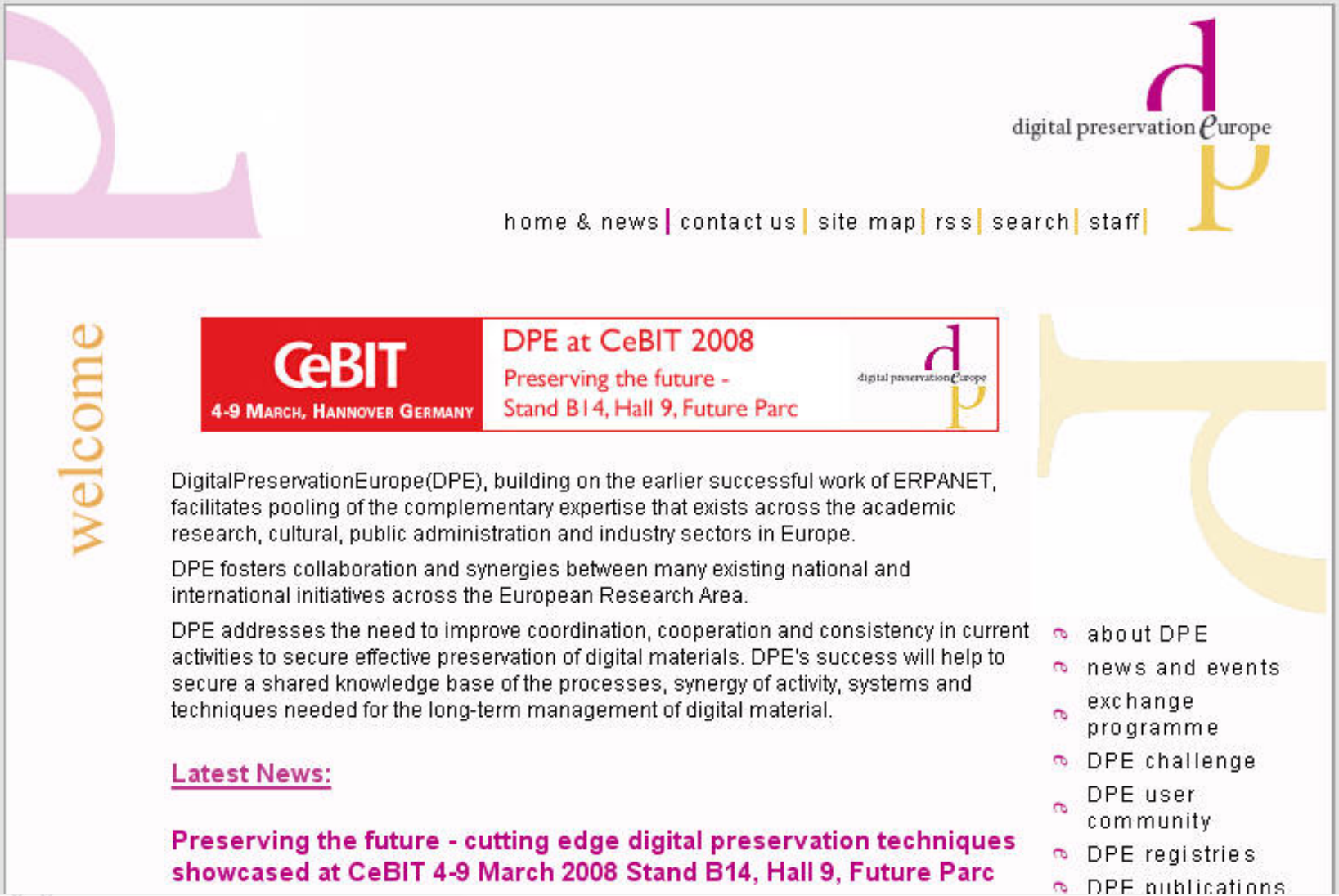
News

Call for Papers - E-Government and Digital Archives...
by Stefan Strathmann, 2008-02-27

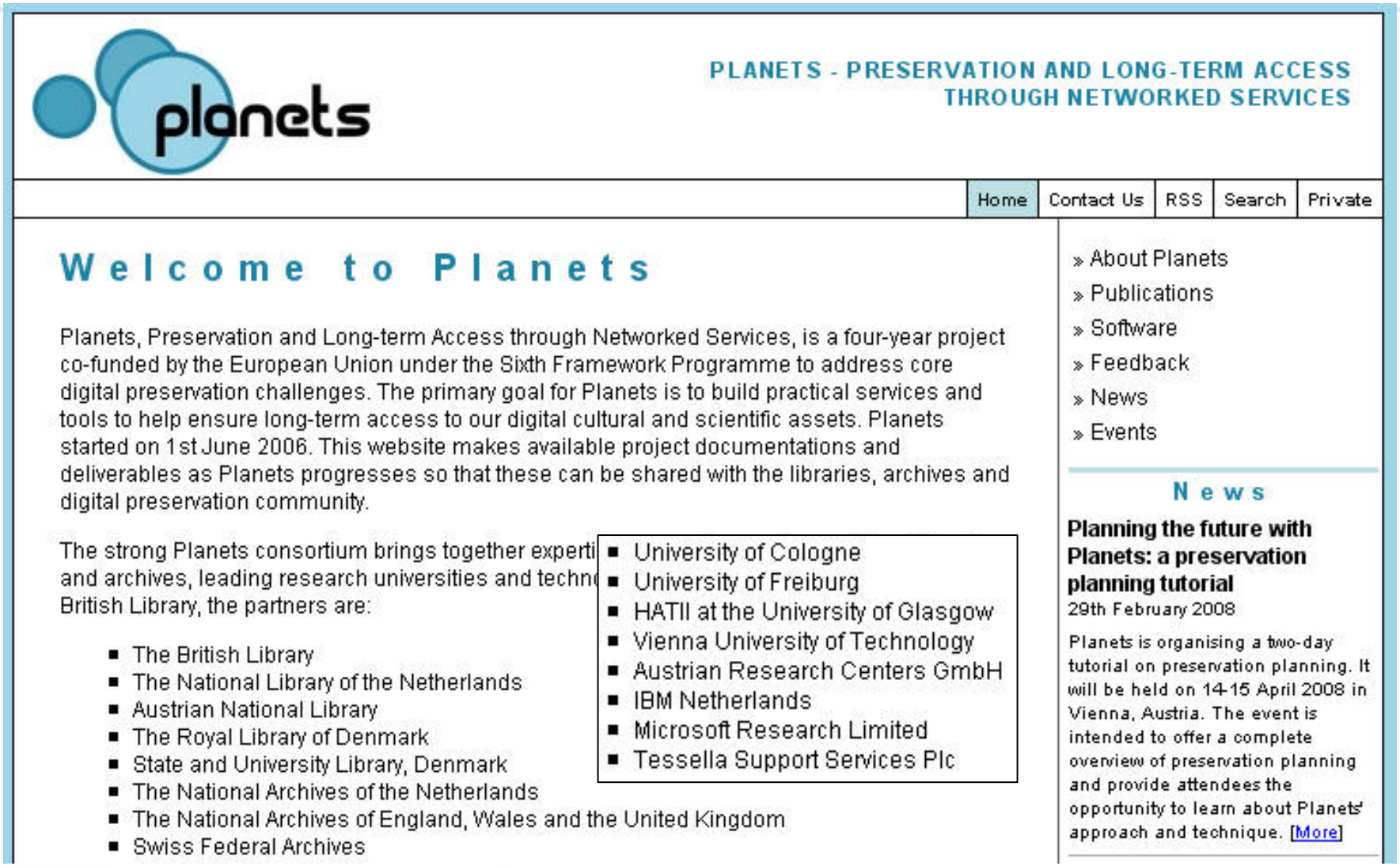
Start of intended standardization processes at the Normenausschuss Bibliotheks- und Dokumentationswesen (NABD)...
by Philipp Höhler, 2008-02-22

New UK National Nuclear Archive announced...
by Stefan Strathmann, 2008-02-14

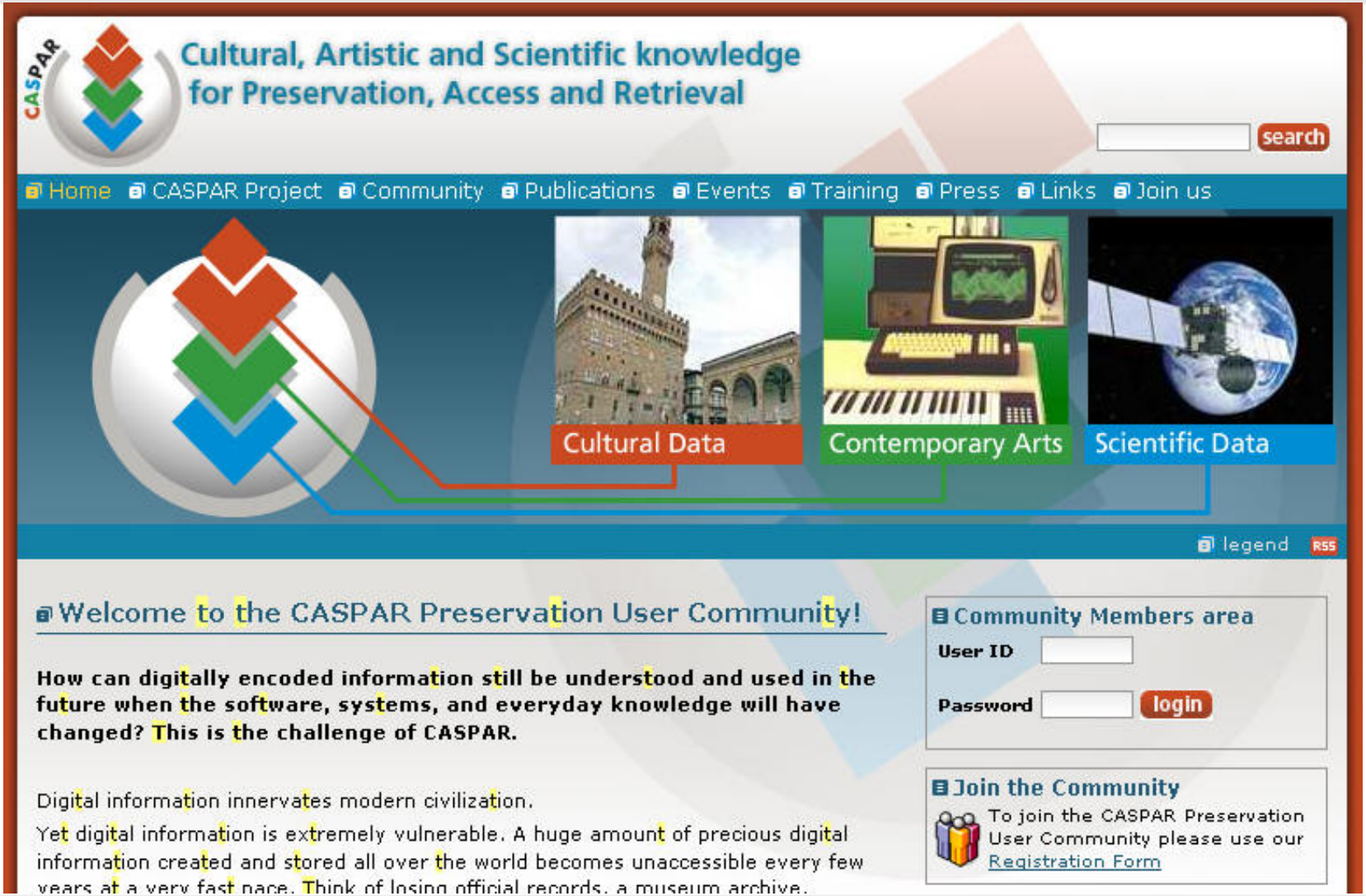
European Union - DPE



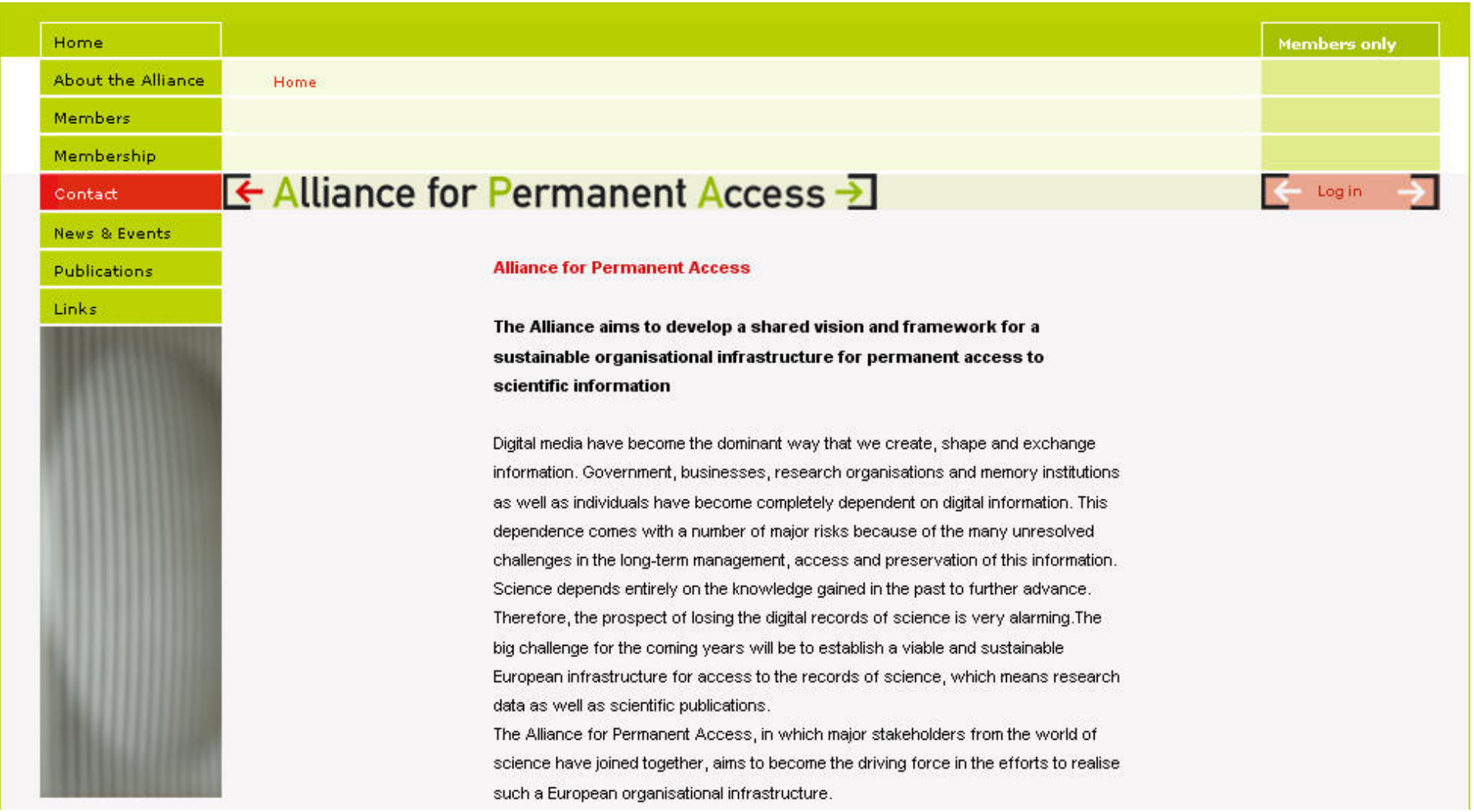
European Union - PLANETS



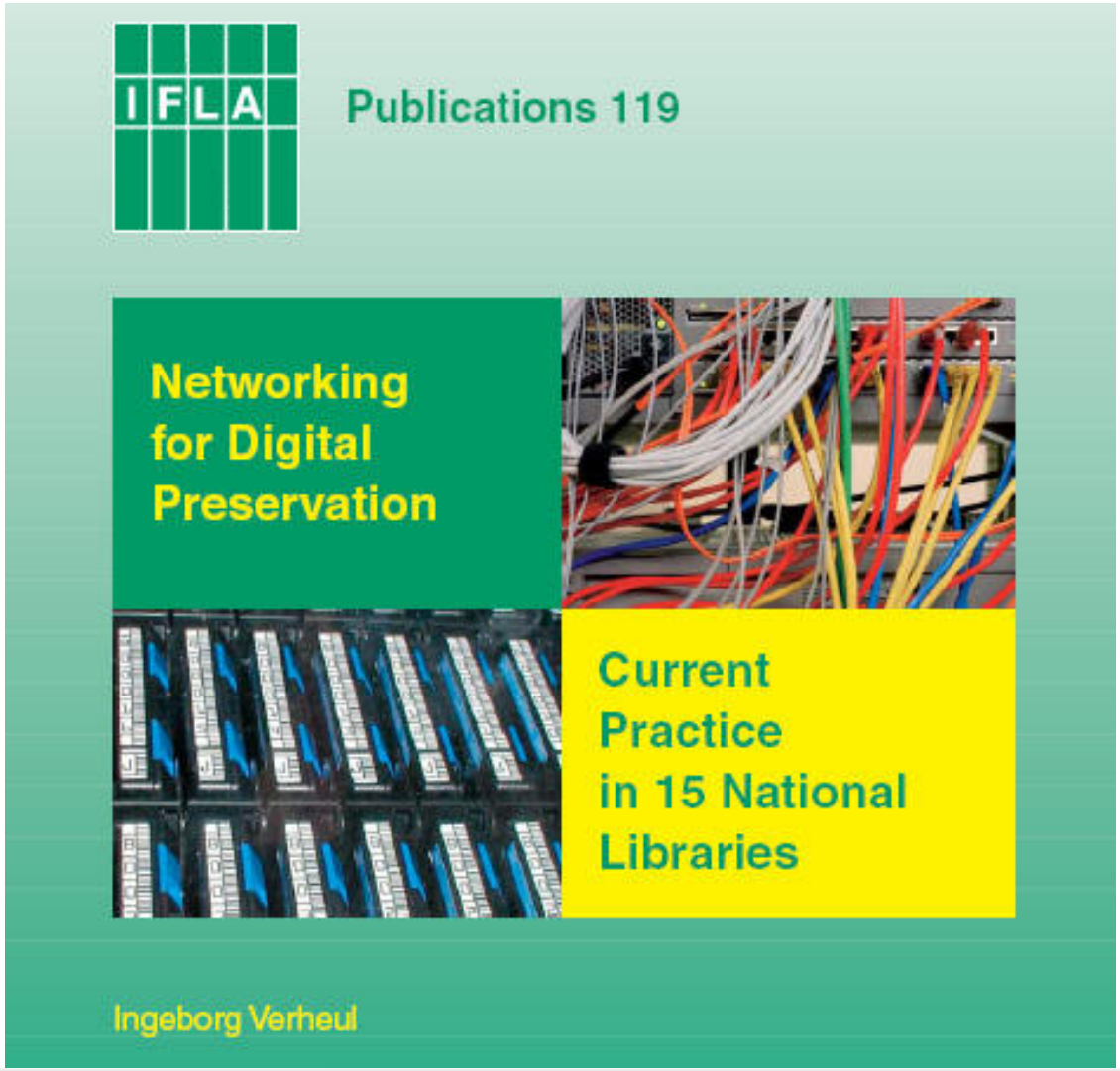
European Union - CASPAR



Alliance for Permanent Access



IFLA



NDAP International Conference
Technology Building, NSC, Taipei, Taiwan
18 ~ 20 March 2008

KEYNOTE ADDRESS
Deanna Marcum, Library of Congress

Australia - PADI

Australia - PANDORA

Canada - CISTI

United States - NDIIPP

The LIBRARY of CONGRESS | ASK A LIBRARIAN | DIGITAL COLLECTIONS | LIBRARY CATALOGS | GO | Options

The Library of Congress > Digital Preservation

DIGITAL PRESERVATION

Search this site GO

- Digital Preservation Home
- Importance of Digital Preservation
- What the Library Is Doing
- Partners
- Achievements
- What You Can Do
- News & Events
- Contact Us

Related Resources

- Standards at the Library of Congress
- Digital Collections & Programs
- U.S. Copyright Office

TODAY | TOMORROW | FOREVER

National Digital Information Infrastructure and Preservation Program (NDIIPP)

Talking about Digital Preservation
- David Kirsch, University of Maryland
- Abby Smith, consultant to NDIIPP
- American Voices: Digital Preservation

Video Transcripts

|| Meeting the Challenge ||

The Library has just opened a state-of-the art conservation center for its audio and visual works. Learn what the Library is doing.

Read more

|| News & Events ||

NDIIPP Grows to Over 100

With the addition of 21 state partners, the preservation network continues to grow.

Read More

OSI Strategic Plan Released

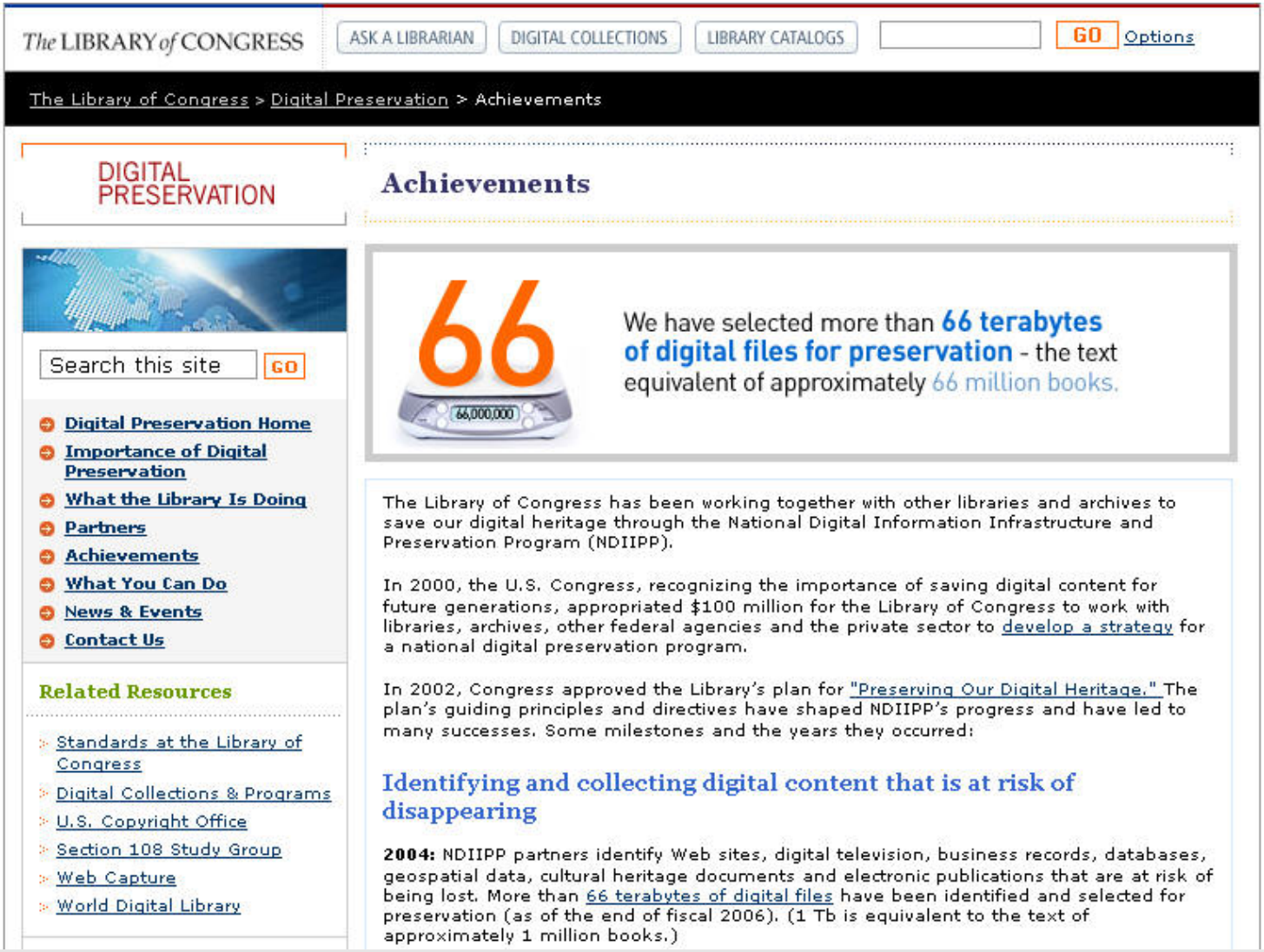
OSI has just issued its Strategic Plan for the next six years. The plan is intended as a living document that will guide OSI as it develops programs, plans and strategies for the Library of Congress's digital future.

Read More

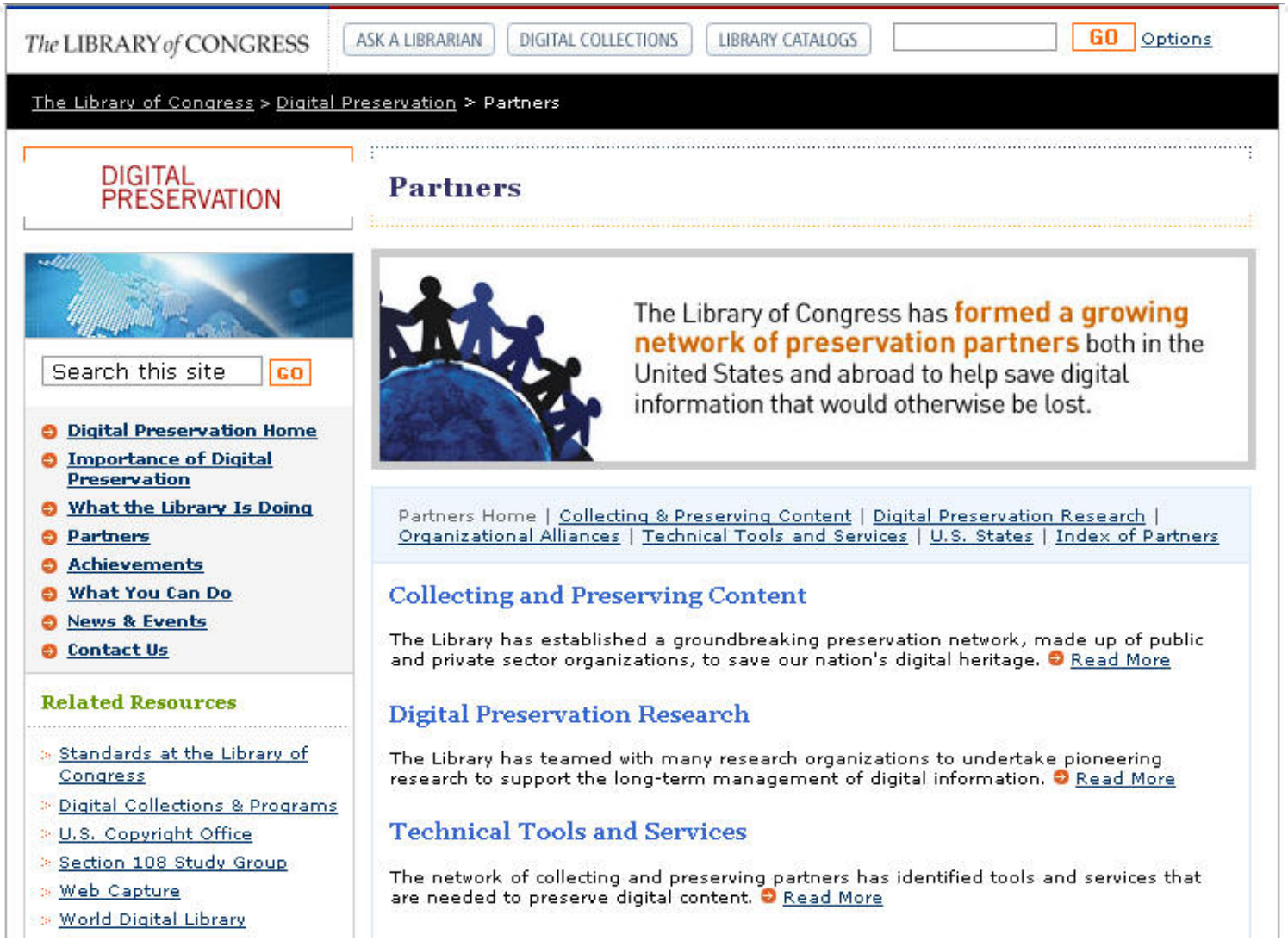
NDIIPP – Primary Goals

- Identify and preserve significant digital content that is at risk
- Support the improvement of tools, models, and methods for digital preservation
- Develop a national digital collection and preservation strategy
- Establish a network of partners committed to these goals

NDIIPP - Selection



NDIIPP - Partners



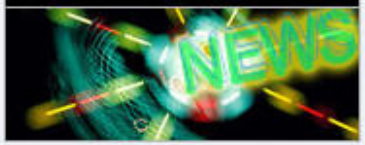
LC and NSF - DIGARCH

National Science Foundation
WHERE DISCOVERIES BEGIN

SEARCH
NSF Web Site

HOME | FUNDING | AWARDS | DISCOVERIES | NEWS | PUBLICATIONS | STATISTICS | ABOUT | FastLane

News



- News
- News From the Field
- For the News Media
- Special Reports
- Research Overviews
- NSF-Wide Investments
- Speeches & Lectures
- Multimedia Gallery
- *NSF Current* Newsletter
- News Archive

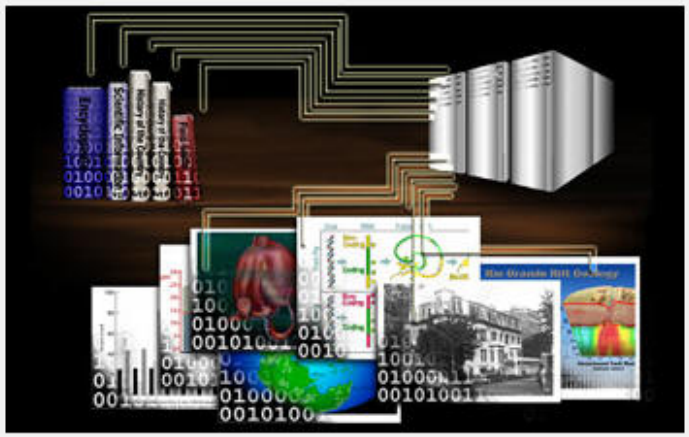
News by Research Area

- Arctic & Antarctic
- Astronomy & Space

Press Release 05-074

National Science Foundation and Library of Congress Announce Digital Preservation Awards

Projects will develop new technologies to advance digital archives



View video

NSF and the Library of Congress made awards for their DIGARCH program.
Credit and Larger Version

National Archives - ERA

National Archives - ERA

Press Release
December 13, 2007

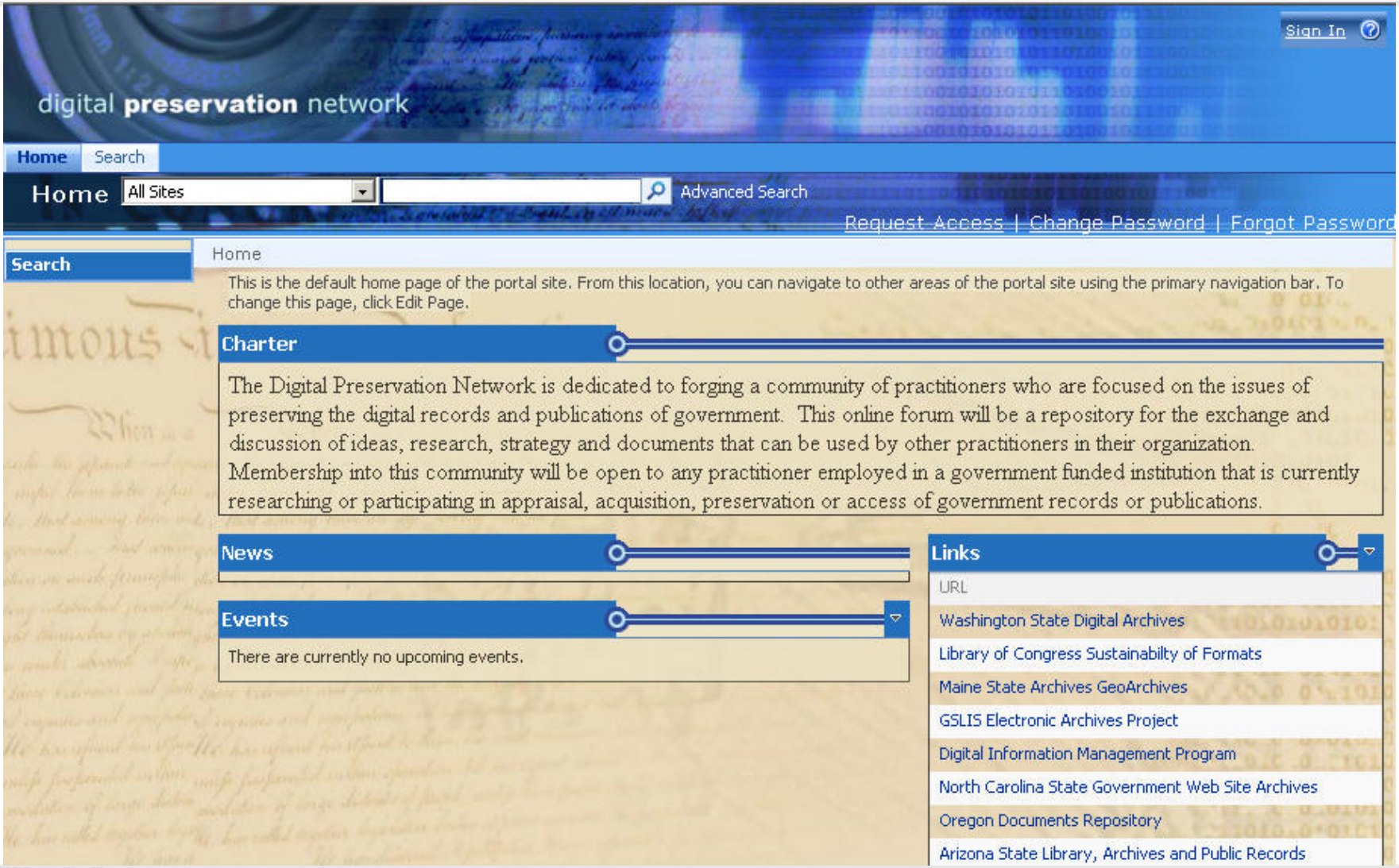
Successful Test for First Phase of National Archives Electronic Records Archives System

Washington, DC…The development of the Electronic Records Archives (ERA) system has passed a significant milestone, with the successful completion of government testing of the first delivery of software from the developer, Lockheed Martin Corporation. ERA is the National Archives and Records Administration's strategic initiative to preserve and provide long-term access to uniquely valuable electronic records of the U.S. Government, and to transition government-wide management of the lifecycle of all records into the realm of e-government.

Lockheed Martin started deploying ERA hardware last spring and released the first pilot software to the National Archives on September 27, 2007. After extensive engineering and end-user testing of the system, the National Archives gave Lockheed Martin the green light to complete development of the second pilot.

The first pilot supports creating and processing records schedules and requests for transfer of records. The second pilot, to be delivered at the end of December, 2007, will add system functions for transferring electronic records. The third pilot, scheduled for delivery in early March, 2008, will provide tools for automated inspection of electronic records. Ken Thibodeau, ERA Program Director at the National Archives, describes the pilots as "three ounces of prevention" aimed at ensuring that the system's Initial Operating Capability (IOC) meets the government's needs with a robust design and a high quality user interface.

Digital Preservation Network



Preserving Creative America

The LIBRARY of CONGRESS | ASK A LIBRARIAN | DIGITAL COLLECTIONS | LIBRARY CATALOGS | GO | Options

The Library of Congress > News Releases > Library Makes Awards to Preserve Creative America

NEWS RELEASES

Search this site GO

- News Releases Home
- The Library Today

Related Resources at the Library

- Events at the Library of Congress
- Exhibitions at the Library of Congress
- Library of Congress Information Bulletin
- Wise Guide to loc.gov
- About the Library of Congress
- More Than a Library

For More information

Public Affairs Office

The Library of Congress

News from the Library of Congress

Contact: Guy Lamolinara (202) 707-9217

August 3, 2007

Digital Preservation Program Makes Awards to Preserve American Creative Works

Preserving Creative America Initiative to Engage Private Sector Creators of Films, Sound Recordings, Photographs, Cartoons and Video Games in Digital Formats

The Library of Congress, through its National Digital Information Infrastructure and Preservation Program (NDIIPP), today announced eight partnerships as part of its new Preserving Creative America initiative to address the long-term preservation of creative content in digital form. These partners will target preservation issues across a broad range of creative works, including digital photographs, cartoons, motion pictures, sound recordings and even video games. The work will be conducted by a combination of industry trade associations, private sector companies and nonprofits, as well as cultural heritage institutions.

Several of the projects will involve developing standardized approaches to content formats and metadata (the information that makes electronic content discoverable by search engines), which are expected to increase greatly the chances that the digital content of today will survive to become America's cultural patrimony tomorrow. Although many of the creative content industries have begun to look seriously at what will be needed to sustain digital content over time, the $2.15 million being awarded to the Preserving Creative America projects will provide added impetus for collaborations within and across industries, as well as with libraries and archives.

"America's creativity is unrivaled in the world, and it is among our most important exports," said Librarian of Congress James H. Billington. "The Library is pleased to be able to bring together creators of such diverse content for the sake of saving our nation's heritage, which is increasingly being created only in digital formats."

San Diego Supercomputer Center

SDSC
SAN DIEGO SUPERCOMPUTER CENTER

Placing Trust in Organizations: San Diego Supercomputer Center

David Minor wants you to trust him. He seems honest enough, so it might be worth it to take a pass, depending on the circumstances. But he also wants you to trust his organization, the San Diego Supercomputer Center (SDSC), with managing, storing and preserving some of your most valuable digital assets. Now how willing are you to trust him?

This is the question the Library set out to answer when the NDIIPP program engaged SDSC in the Data Transfer and Storage Project, a one-year demonstration project to test the feasibility of engaging external partners as service providers to fill digital management needs. Minor and Richard Moore, SDSC division director for Production Services came to the Library on Sept. 19, 2007, to present their findings.

Many cultural heritage institutions and government agencies are suffering from tight budgets and a shortage of resources and expertise, with many forced to look outside their walls to find the needed expertise. This is especially true in the digital preservation environment, where technical knowledge is rare, and the costs of long-term information management remain speculative. Additionally, the geographic distribution of materials, capabilities and expertise has the benefit of helping to ensuring that digital materials survive into the future by maximizing the benefits of cooperation and maintaining a level of redundancy that prevents total loss from happening due to the breakdown of any one node.

PORTICO

Portico offers a not-for-profit service that provides a permanent archive of scholarly literature published in electronic form, beginning with electronic journals.

PORTICO

6,142,211
articles ingested into the archive

50
participating publishers

7,334
committed titles

425
participating libraries

4,031
archived titles

- Contact Us
- About Portico
- For Publishers
  - How to Participate
  - Archive License
  - Annual Archive Contribution
- For Libraries
  - How to Participate
  - Archive License
  - Annual Archive Support
- News and Resources
  - Holdings Comparison Service
  - Trigger Event and Other Announcements

Audit the Archive
for designated librarians and publishers

Access the Archived Content
for researchers at participating institutions

NDAP International Conference
Technology Building, NSC, Taipei, Taiwan
18 ~ 20 March 2008

KEYNOTE ADDRESS
Deanna Marcum, Library of Congress

Digital Library Federation

CLIR

NDAP International Conference
Technology Building, NSC, Taipei, Taiwan
18 ~ 20 March 2008

KEYNOTE ADDRESS
Deanna Marcum, Library of Congress

Additional Projects

The world's libraries.
Connected.

aDORe Archive

LOCKSS

"...let us save what remains: not by vaults and locks which fence them from the public eye and use in consigning them to the waste of time, but by such a multiplication of copies, as shall place them beyond the reach of accident." Thomas Jefferson to Ebenezer Hazard, February 18, 1791.

navigation

- Home
- About LOCKSS
- Libraries
- Publishers + Titles
- How It Works
- For Librarians
- For Publishers
- Installing LOCKSS
- LOCKSS Alliance
- Related Projects
- Publications
- Talks
- CLOCKSS
- Contact Us

search

Go Search

Home

LOTS OF COPIES KEEP STUFF SAFE™

Welcome

LOCKSS (Lots of Copies Keep Stuff Safe) is an international non-profit community initiative that provides tools and support so libraries can easily and cost-effectively preserve today's web-published materials for tomorrow's readers.

Libraries inform and educate citizens and provide critical support to democratic societies by acting as memory organizations. The memory of a library is its collections; therefore in order for a library to be a memory organization it must build collections. LOCKSS helps libraries stay relevant by building collections even as an increasing portion of today's content is born digitally and published on the web.

LOCKSS replicates the traditional model of libraries keeping physical copies of books, journals, etc. in their collections, making it possible for libraries to house copies of digital materials long-term. Hundreds of publishers and libraries around the world have joined the LOCKSS community and are working together to ensure that libraries continue their important social memory role.

The ACM award-winning LOCKSS technology is open source, peer-to-peer, decentralized digital preservation infrastructure. LOCKSS preserves all formats and genres of web-published content. The intellectual content, which includes the historical context (the look and feel), is preserved. LOCKSS is OAIS-compliant; the software migrates content forward in time; and the bits and bytes are continually audited and repaired. Content preserved by libraries through LOCKSS becomes a part of their collection, and they have perpetual access to 100% of the titles preserved in their LOCKSS Box.

LOCKSS, now in its tenth year, is a Stanford University Libraries Program. The software is freely available for you to examine and use. Please join us!

NDAP International Conference
Technology Building, NSC, Taipei, Taiwan
18 ~ 20 March 2008

KEYNOTE ADDRESS
Deanna Marcum, Library of Congress

CLOCKSS

"...let us save what remains: not by vaults and locks which fence them from the public eye and use in consigning them to the waste of time, but by such a multiplication of copies, as shall place them beyond the reach of accident." Thomas Jefferson to Ebenezer Hazard, February 18, 1791.

navigation

- Home
- FAQ
- News Archive
- Triggered Content
- LOCKSS
- Contact Us

search

Go Search

Home

CLOCKSS: Controlled LOCKSS™

A Trusted Community Archive

February 22, 2008

Vicky Reich honored with the 2008 Ulrich's Serials Librarianship Award

The CLOCKSS Initiative is proud to announce that Vicky Reich is the recipient of the 2008 Ulrich's Serials Librarianship Award in recognition of her distinguished and ongoing contributions to the field of digital preservation. Vicky's leadership role in the development and adoption of digital preservation solutions like LOCKSS and CLOCKSS ensures the accessibility of serial publications and other digital content for future generations.

more here

January 30, 2008

CLOCKSS Works

Researchers increasingly access journal articles online, but the real possibility exists that, due to natural disaster or human/computing failure, digital content might not always be available. Libraries and publishers have joined forces in an initiative called CLOCKSS*, providing leadership and the supporting technology, to ensure reliable, long-term access to scholarly e-content.

NDAP International Conference

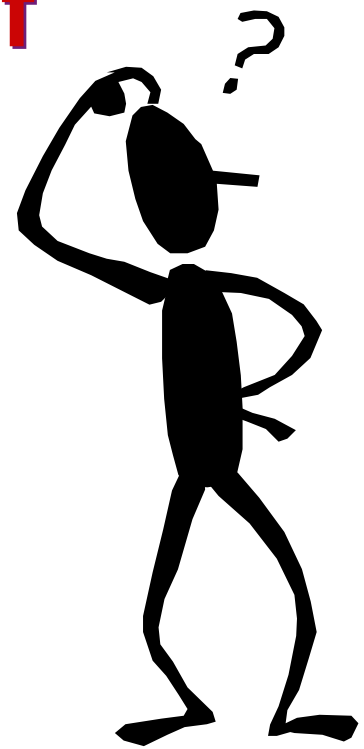
Technology Building, NSC, Taipei, Taiwan

18 ~ 20 March 2008

KEYNOTE ADDRESS

Deanna Marcum, Library of Congress

Even if we can develop the technological means to ensure digital preservation of all kinds, can we afford what it will cost?



Blue Ribbon Task Force Named

Library Leaders Named to Task Force on Sustainable Digital Preservation and Access

Norman Oder -- Library Journal, 1/22/2008

Two-year project
Report due in 2009
Lynch, Courant among members

Several library leaders, scholars, and technologists have been named to the Blue Ribbon Task Force on Sustainable Digital Preservation and Access, **announced** last September and funded by the National Science Foundation (NSF) and the Andrew W. Mellon Foundation. The task force will sponsor quarterly discussion panels involving international experts from the academic, public, and private sectors. Two reports are expected, including a final report in late 2009 that will offer recommendations for digital preservation,

The task force is co-chaired by Fran Berman, director of the San Diego Supercomputer Center at University of California, San Diego, and Brian Lavoie, a research scientist with OCLC. The **Task Force members** include:

- Paul Ayris, Director of Library Services, the University College of London, England
- G. Sayeed Choudhury, Associate Dean of Libraries, Johns Hopkins University, Baltimore, MD
- Elizabeth Cohen, Academy of Motion Pictures Arts and Sciences, Stanford University, Stanford, CA
- Paul Courant, University Librarian, University of Michigan, Ann Arbor, MI
- Lee Dirks, Director of Scholarly Communications, Microsoft Corp.
- Amy Friedlander, Director of Programs, Council on Library and Information Resources (CLIR), Washington, DC
- Vijay Gurbaxani, Senior Associate Dean, Paul Merage School of Business, University of California at Irvine
- Anita Jones, Professor of Engineering and Applied Science, University of Virginia, Charlottesville, VA
- Ann Kerr, Independent Consultant, AK Consulting, La Jolla, CA
- Clifford Lynch, Executive Director, Coalition for Networked Information (CNI), Washington, DC
- Dan Rubinfeld, Professor of Law and Professor of Economics, University of California at Berkeley
- Chris Rusbridge, Director, Digital Curation Centre, University of Edinburgh
- Roger Schonfeld, Manager of Research, Ithaka, Inc.
- Abby Smith, Historian and Consulting Analyst to the Library of Congress, (based in San Francisco)
- Anne Van Camp, Director, Smithsonian Institution Archives, Washington, DC

RELATED A

Is It OK for

Alumnus S
Archive

British Stu
Must Step

Columbia U

Will NIH Pul

LIBR
JOUR

Ex Libris : N
the world ca

Proquest :
images from

Elsevier : Taking care to ensure long term preservation of electronic journals with our digital archive

3M : This workstation improves efficiency by processing both barcodes and RFID tags at checkout and return

NDAP International Conference
Technology Building, NSC, Taipei, Taiwan
18 ~ 20 March 2008

KEYNOTE ADDRESS
Deanna Marcum, Library of Congress

International Collaboration Needed

"It would be to the mutual benefit of these initiatives [preservation of electronic journals] to establish relationships with each other… it would be natural to share costs and technology, exchange best practices, and cooperate in agreeing on common standards."

International Collaboration Needed

"It is important to collaborate on a national and international scale and to share knowledge…no institution can solve the digital preservation problem on its own."

Digital Preservation

An Overview of Where We Are

Keynote Speech to the
NDAP 2008 Annual International Conference
National Digital Archives Program, Taiwan

Technology Building, National Science Council
Taipei, Taiwan, 18 March 2008

Deanna B. Marcum
Associate Librarian of Congress for Library Services
Library of Congress, Washington, D.C., U.S.A.

NDAP International Conference
Technology Building, NSC, Taipei, Taiwan
18 ~ 20 March 2008