An introduction to digital libraries

Jens Vigen, 3rd CERN-UNESCO School on Digital Libraries, Dakar, Senegal, Nov. 2011
I. Digital libraries

Digital libraries vs traditional libraries
Digital libraries vs traditional libraries

Traditional libraries will **EVOLVE** to digital libraries
Digital libraries require multidisciplinary skills

- Subject and community knowledge
  - Targeted services
- Technical knowledge
  - Tools, protocols, transport
- Information science
  - Models for information access and storage
- Human factors
  - Usability, adaptability
- Law
  - Digital rights management (DRM)
- Economics
  - The big deals
  - New models

Digital libraries vs traditional libraries
Digital libraries vs traditional libraries

Libraries differ from the Web itself

Things might grow organically;
while libraries are maintained.
Digital Libraries versus the Web

• The input to digital libraries is controlled
• Digital libraries do have targeted customers
• The Web has low archival & management characteristics

Content, services and long-term preservation
Digital libraries vs traditional libraries

Which level of access?

• Different perceptions and definitions
• Definition will vary over time
• Definition varies depending on who’s talking
• Will soon also include data
Digital libraries vs traditional libraries

The cost of libraries

Each of these libraries cost more to build than the cost of scanning its books

The British Library, London £450 M

The Bibliothèque de France, Paris FFr 5B
Digital libraries vs traditional libraries

The classical library
information, public workspace and services
Digital libraries vs traditional libraries

More and more visitors ...

online and in the reading rooms

Total 2007: 88,505 visits
Total 2008: 96,308 visits
Total 2009: 99,391 visits
Total 2010: 110,555 visits
Digital libraries vs traditional libraries

A hybrid model

will exist for many years to come
Digital libraries vs traditional libraries

Your users will be able to **CHOOSE** how to read the information
“Lone scientist” stereotypes

Max Munk
http://history.nasa.gov/SP-4103/ch4.htm

H. J. E. Reid
http://history.nasa.gov/SP-4103/ch4.htm

Enrico Fermi
http://www.anl.gov/Media_Center/logos20-1/fermi01.htm

John Stack
http://www.hq.nasa.gov/office/pao/History/x1/stack.html

Albert Einstein
http://www.artnet.com/artist/92724/Vishniac_Roman.htm

Slide borrowed from Michael L. Nelson <mln@cs.odu.edu>
Digital libraries vs traditional libraries

Science done in collaborations
Digital libraries vs traditional libraries

Several people will be able to access the **SAME RESOURCE** at the **SAME TIME**
Digital libraries vs traditional libraries

No more physical **SPACE CONSTRAINTS**

**BOOKSHELF**
Size: 80x28x202 cm
Fits: 46 books

**HARD DISK DRIVE**
Size: 10.1x14.6x2.5 cm
Fits: Thousands of books

... while disk space is required
Digital libraries vs traditional libraries

Offering users FULL TEXT search

Council and Committee of Council

Search:

<table>
<thead>
<tr>
<th>Search collections:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Council and Committee of Council...</td>
</tr>
</tbody>
</table>

Sort:

Display results:

Output format:

Council and Committee of Council 72 records

1. Draft Minutes
   Procès-verbal (Projet)
   CERN/0261/Draft
   14th Meeting of Committee of Council ; 1958
   English - PDF
Digital libraries vs traditional libraries

Converting a scanned-1958-type-written text (a reproduction?) into machine readable text is not always obvious

The DIRECTOR-GENERAL pointed out that, as Professor Amaldi was not yet a member of the Scientific Policy Committee, he should be appointed a member of that Committee in replacement of Professor Bernardini, who had joined the CERN staff. Moreover, it would be necessary for the Council formally to re-elect Professor Niels Bohr, Professor Scherrer and Sir John Cockcroft members of the Scientific Policy Committee, as they had been serving on the Committee for 3 years.

The Committee agreed that Professor **Bohr**, Professor Scherrer and Sir John Cockcroft be put up for re-election as members of the Scientific Policy Committee.

In the first case **Bohr** became **Behr** ...

The precession of a **FULL TEXT search** depends on how much is spent on OCR and automatic/manual inspection/correction
Digital libraries vs traditional libraries

Readers can **JUMP** from one book to another just **CLICKING**
Digital libraries vs traditional libraries

Be aware; fancy solutions does not need to be expensive

SFX: Overview
The Keystone of the Library's Electronic Resource Infrastructure

SFX® is the most widely used link server and the linking solution of choice for over 1,500 libraries worldwide.

SFX provides users with context-sensitive links to article full-text and other library-defined resources including the online public access catalog (OPAC) local holdings, preferred document-delivery suppliers, related Web-based resources and services, local information repositories, and a range of other services.

Open source alternatives exist:

“Go Direct” does basically the same and is free. The application is maintained locally and can easily be extended if needed.

“Submit “the triplet” to DOI and voila!

Open source alternatives exist:

In the CERN Library we do all this within the framework of Invenio.
Digital libraries vs traditional libraries

DIGITAL Libraries are (still?) a COMPLEMENT to TRADITIONAL Libraries
I. Digital Libraries

Requirements
Requirements

Think **WIDE**!

A road is hardly never getting too wide ...
Requirements

What is **EXCITING** for your **USERS**?
Exploring new channels ... 

Reaching out to all new comers
Have a look yourself
http://cdsweb.cern.ch/record/1270161?ln=en
Your users **SHOULDN’T NEED ANY TRAINING**
Requirements

Setting up a digital library is **CHALLENGING**

In order to make it **SIMPLE** for the users
Be **CREATIVE**
Digital libraries vs traditional libraries

Pro & cons

• Digital libraries are clearly superior at:
  – Dissemination, sharing, linking, storing information variety

• Traditional libraries have other advantages:
  – Lots of copies keep stuff safe
  – Who will archive the future research information?
    • The publishers?
    • The institutions?
    • The libraries?
    • The authors?
  – Will digital object collected today still be accessible in 50 years?

image from: http://www.ancientegypt.co.uk/writing/rosetta.html
Digital libraries vs traditional libraries

New boarder lines are being made

• Publishing
  – Shelf publishing
  – Institutional publishing
  – Commercial publishing

• Publishing as a business
  – Is there a future in selling content?
  – Converting to selling services related to content

• Where does publishing stop and libraries begin?
Digital libraries vs traditional libraries

Paradigm shift

• Transition from paper to digital hypermedia
• There is a high degree of comfort from books for the following reasons
  – Portability, compact, light in weight and comfortable to read. Anything you can't read in bed will never displace a book.

With many new tablets entering the market, the situation might however change rapidly
Paradigm shift (contd.)

- **Reliability**
  - Reading books would still be possible even if every computer on earth were down

- **Familiarity with the medium**
  - The pages of a book are easy to turn, the book can be opened to any page, and the linear hierarchical organization of the material is easy to grasp
Digital libraries vs traditional libraries

... but it is not easy to think in a

DIFFERENT WAY

Be tough with yourself and patient with your users