

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

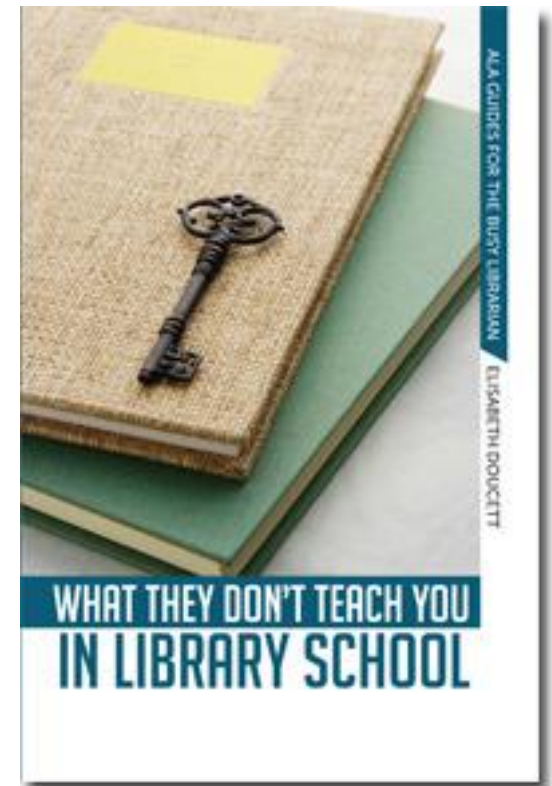
Digital libraries vs traditional libraries

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

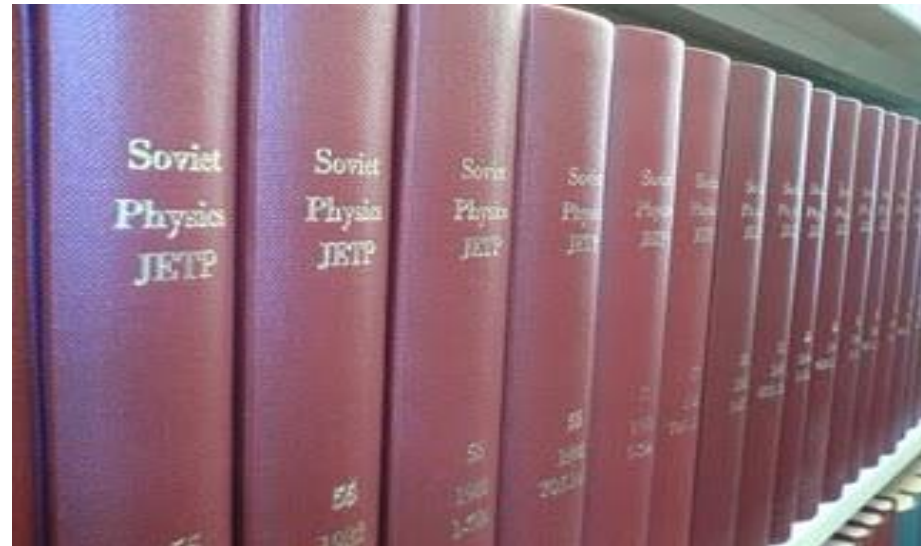
Libraries differ from the Web itself



Things might grow organically;



while libraries are maintained.



Digital Libraries versus the Web

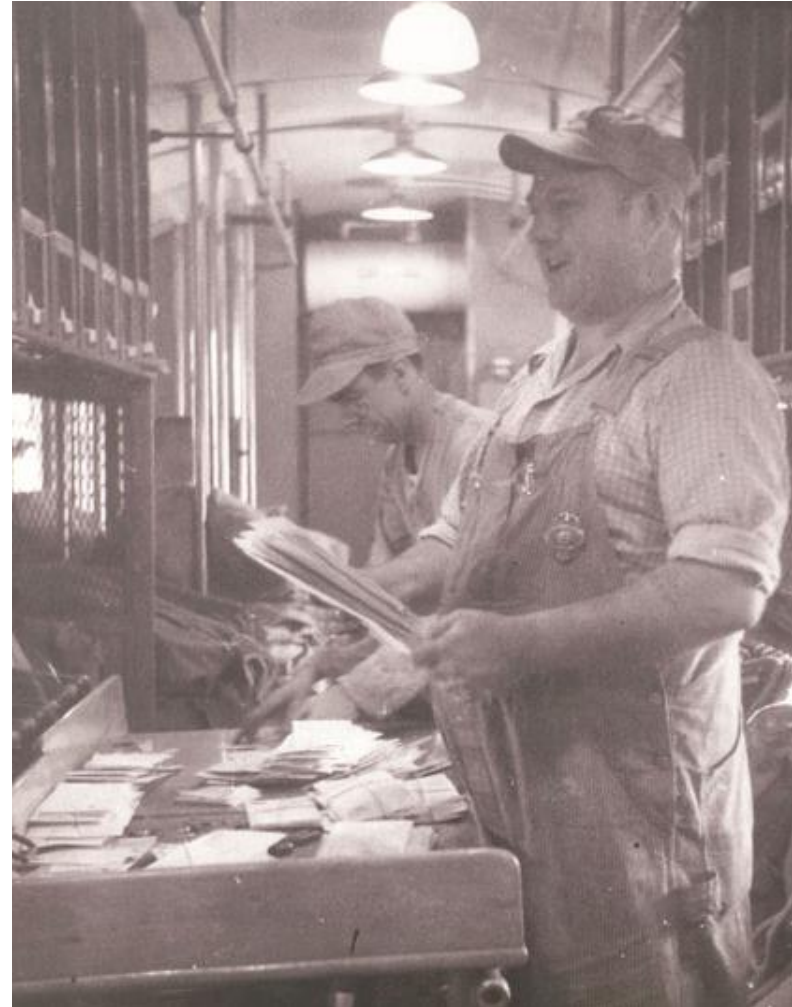
- The input to digital libraries is controlled
- Digital libraries do have targeted customers
- The Web has low archival & management characteristics



Content, services and long-term preservation

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

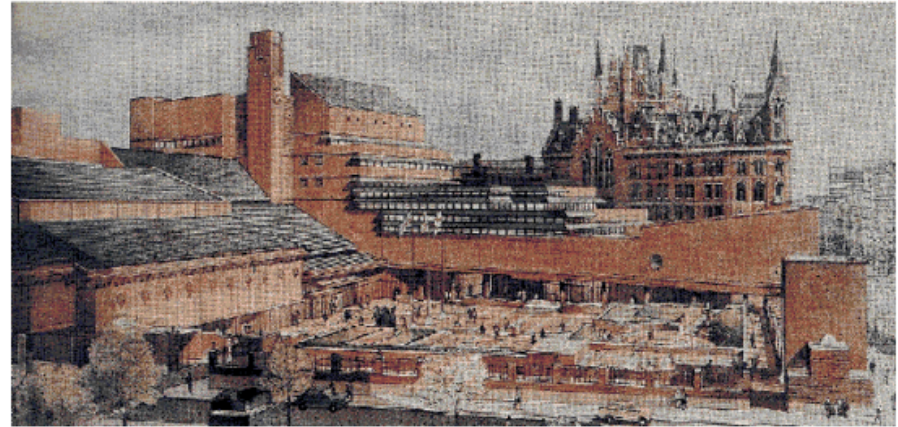


Digital libraries vs traditional libraries

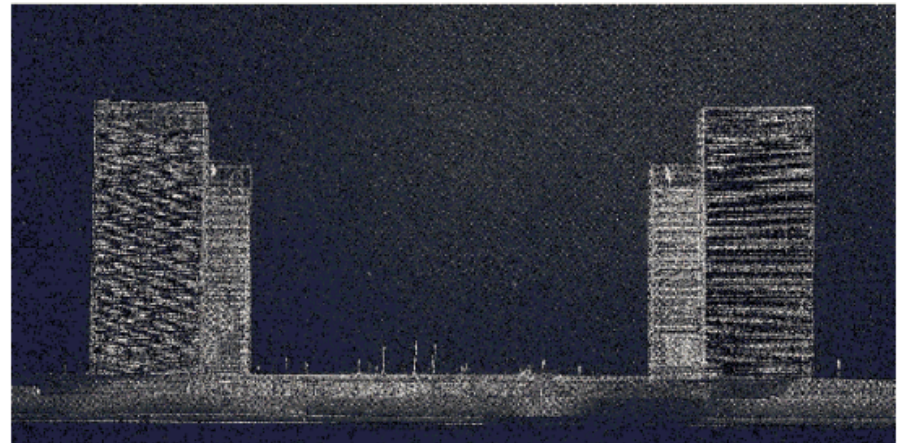
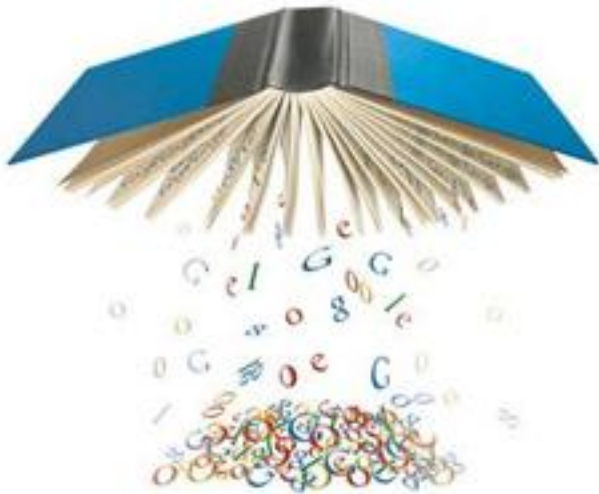
The cost of libraries



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



The British Library, London £450M

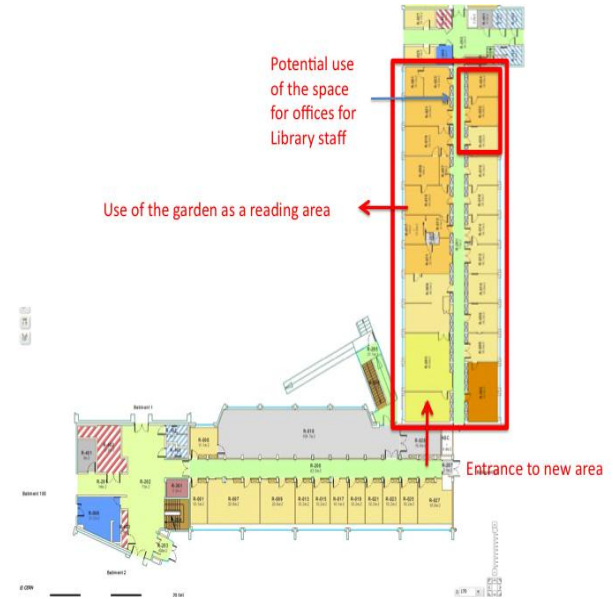


The Bibliothèque de France, Paris FFr 5B

Digital libraries vs traditional libraries

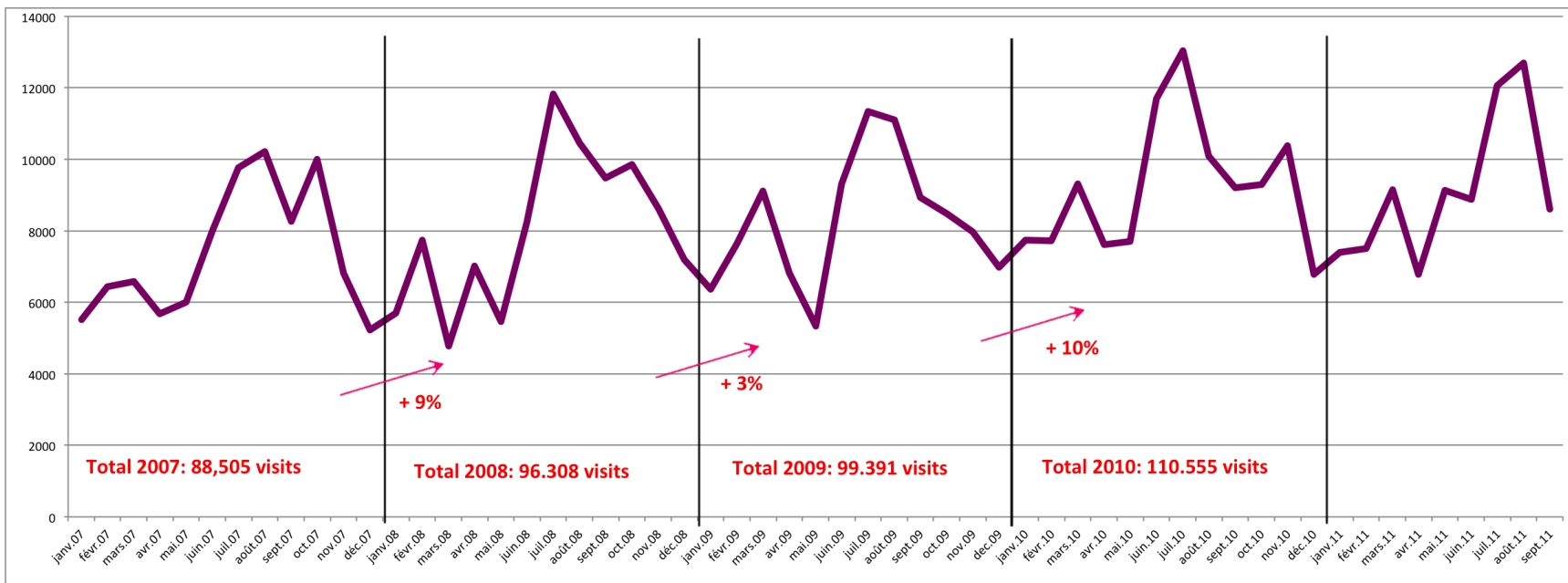
The classical library

information, public workspace and services



Digital libraries vs traditional libraries

More and more visitors ... online and in the reading rooms



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



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Things fall apart By Chinua Achebe



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Things Fall Apart, when Okonkwo is forced to his death and his heroic life is reduced to a single paragraph in a racist European text, was very much an issue in 1958. However, unlike many other African writers of his generation, Achebe did not see colonial rule as something that could be transcended simply by an appeal to an heroic and romantic African past. And where other writers could see the culture of colonialism as the antithesis of an African identity, Achebe was interested in discovering a redemptive moment in colonialism, asking himself, in his own words, 'what possibility, what encouragement, there was in this episode of our history for the celebration of our own world, for the singing of the song of ourselves, in the din of an insistent world and song of others' (*Chinua Achebe: A Celebration*, 3).

Achebe's novel presents the colonial experience from an African perspective, but it does so without romanticizing the African past.

“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>



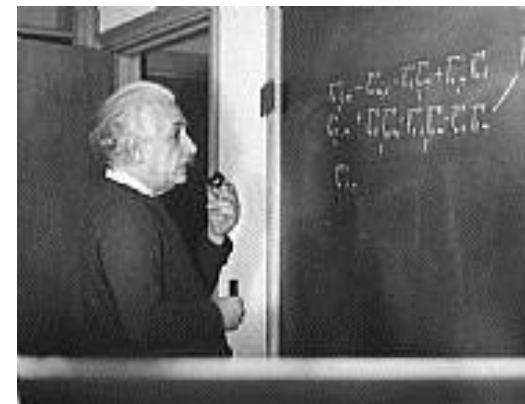
Enrico Fermi

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



John Stack

<http://www.hq.nasa.gov/office/pao/History/x1/stack.html>

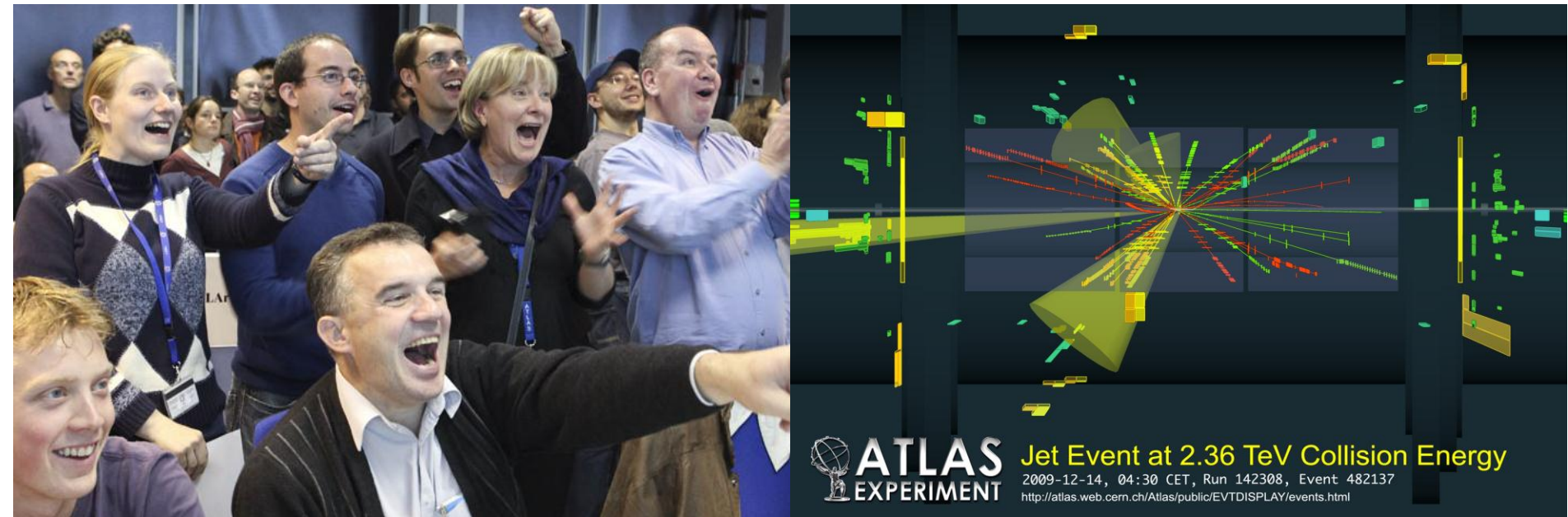


Albert Einstein

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

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



... while disk space is required

HARD DISK DRIVE

Size: 10.1x14.6x2.5 cm

Fits: Thousands of books

Digital libraries vs traditional libraries

Offering users **FULL TEXT** search

Council and Committee of Council

Search:

[Search Tips](#) :: [Advanced Search](#)

Search collections:

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 Behr, 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**

Proof. We have just shown that Ψ gives a bijection between \mathbb{RP}^2/S_3 and \mathcal{M} , and we can give \mathcal{M} a topology which makes Ψ a homeomorphism. Proposition [A.1](#) shows that Φ is a homeomorphism between $\bar{\mathcal{S}}_m/\sim$ and \mathbb{RP}^2/S_3 . \square

REFERENCES

- [1] P. Baird and L. Danielo. Three-dimensional Ricci solitons. *Math. 608* (2007), 65–91.
- [2] F. Bourliot, J. Estes, P. M. Petropoulos, and P. Spindel. Geometric flows. Preprint at [arXiv:0906.4558v1](#) [hep-th].
- [3] A. L. Besse. Einstein manifolds. *Ergebnisse der Mathematik und Related Areas (3)*, 1. Springer-Verlag,
- [4] X. Cao, J. Guckenheimer, and L. Saloff-Coste. The backward flows on $SL(2, \mathbb{R})$. Preprint at [arXiv:0906.4157v1](#) [math.DG].
- [5] X. Cao, Y. Ni, and L. Saloff-Coste. Cross curvature flow on manifolds. *Pacific J. Math.* 236 (2008), no. 2, 263–281.
- [6] X. Cao and L. Saloff-Coste. Cross curvature flow on locally symmetric spaces. Preprint at [arXiv:0805.3380v1](#) [math.DG].

[arXiv.org](#) > [hep-th](#) > [arXiv:0906.4558](#)

High Energy Physics - Theory

Gravitational instantons, self-duality and geometric flows

F. Bourliot, J. Estes, P.M. Petropoulos, Ph. Spindel

(Submitted on 25 Jun 2009)

We discuss four-dimensional "spatially homogeneous" gravitational instantons. These are self-dual solutions of Euclidean vacuum Einstein equations with potentially non-vanishing cosmological constant. They are endowed with a product structure $\mathbb{R} \times M_3$ leading to a natural foliation by three-dimensional subspaces evolving in Euclidean time. For a large class of three-dimensional subspaces, the dynamics coincides with the three-dimensional homogeneous slice, driven by the Ricci tensor plus an $so(3)$ gauge connection. The metric on the three-dimer related to the vielbein of the three-dimensional subspace, while the gauge field is inherited from the anti-self-dual component of the Levi-Civita connection.

Comments: 14 pages
Subjects: **High Energy Physics - Theory (hep-th)**
Report number: CPHT-RR038.0409
Cite as: [arXiv:0906.4558v1](#) [hep-th]

Submission history

From: John Estes [view email]
[v1] Thu, 25 Jun 2009 18:09:11 GMT (18kb)

Which authors of this paper are endorsers?

Link back to: [arXiv](#), [form interface](#), [contact](#).

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.



SFX--an integral part of the library's information infrastructure

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.



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Discovery & Access Solutions

eResource Management Solutions

Integrated Solutions

Products and Services

Key Benefits

News & Events

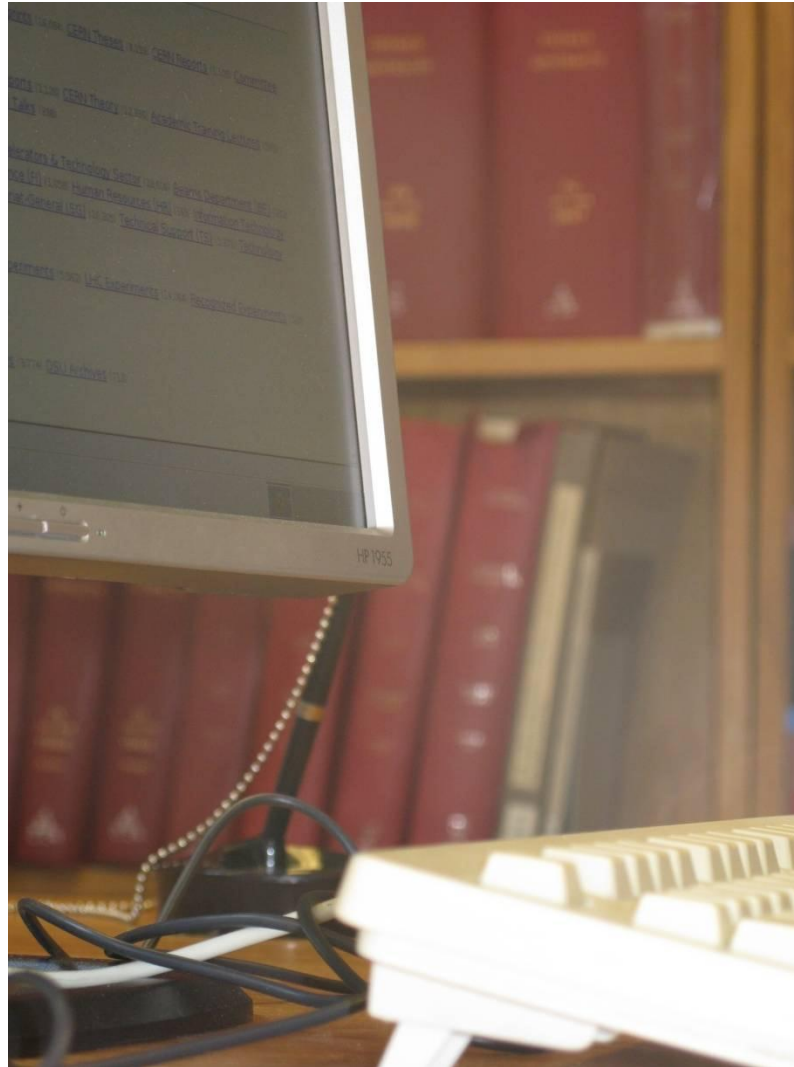


LATEST NEWS < || >

TDNet is an Information Management company that provides innovative tools and services, to help libraries and information centers to effectively discover, access, manage and maintain their electronic resources. Our international client base includes academic, corporate, government and medical libraries, as well as national and multi-national consortia. TDNet enables libraries to design customized e-research environments for their patrons and maximize their investment in online resources while containing costs.

Digital libraries vs traditional libraries

DIGITAL Libraries are (still?) a **COMPLEMENT** to **TRADITIONAL** Libraries



I. Digital Libraries

Requirements

Requirements

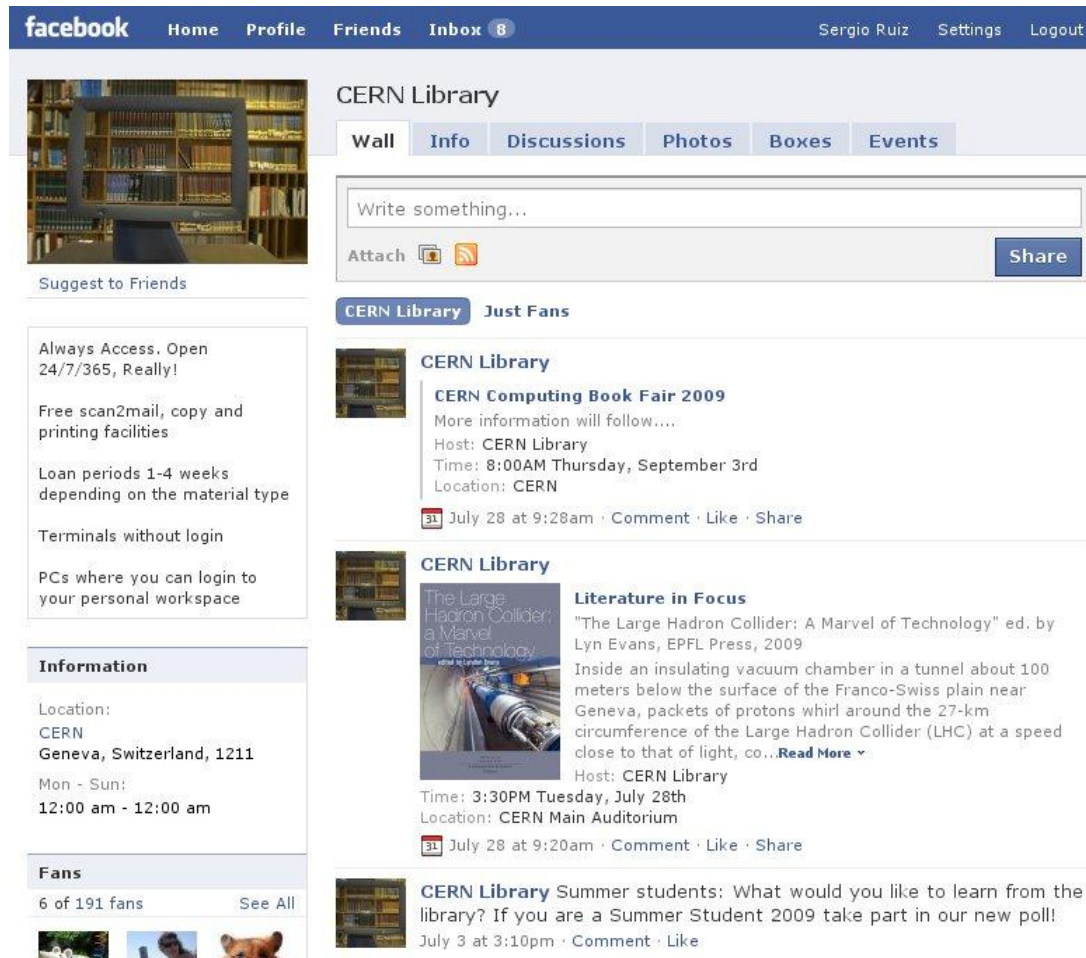
Think **WIDE!**

A road is hardly never getting too wide ...



Requirements

What is **EXCITING** for your **USERS**?






The screenshot shows the Facebook interface for the CERN Library page. At the top, the Facebook navigation bar includes 'Home', 'Profile', 'Friends', 'Inbox' (with 8 notifications), 'Sergio Ruiz', 'Settings', and 'Logout'. The page header for 'CERN Library' features tabs for 'Wall', 'Info', 'Discussions', 'Photos', 'Boxes', and 'Events'. Below the header is a text input field for writing a post, with an 'Attach' button and a 'Share' button. The left sidebar contains a 'Suggest to Friends' button, a list of library services (Always Access, Free scan2mail, Loan periods, Terminals, PCs), an 'Information' section with location and hours, and a 'Fans' section showing 6 of 191 fans.

facebook Home Profile Friends Inbox 8 Sergio Ruiz Settings Logout

CERN Library

Wall Info Discussions Photos Boxes Events

Write something...

Attach    Share

CERN Library Just Fans

CERN Library

CERN Computing Book Fair 2009
More information will follow....
Host: CERN Library
Time: 8:00AM Thursday, September 3rd
Location: CERN
July 28 at 9:28am · Comment · Like · Share

CERN Library

Literature in Focus
"The Large Hadron Collider: A Marvel of Technology" ed. by Lyn Evans, EPFL Press, 2009
Inside an insulating vacuum chamber in a tunnel about 100 meters below the surface of the Franco-Swiss plain near Geneva, packets of protons whirl around the 27-km circumference of the Large Hadron Collider (LHC) at a speed close to that of light, co...[Read More](#)
Host: CERN Library
Time: 3:30PM Tuesday, July 28th
Location: CERN Main Auditorium
July 28 at 9:20am · Comment · Like · Share

CERN Library Summer students: What would you like to learn from the library? If you are a Summer Student 2009 take part in our new poll!
July 3 at 3:10pm · Comment · Like

Always Access. Open 24/7/365, Really!

Free scan2mail, copy and printing facilities

Loan periods 1-4 weeks depending on the material type

Terminals without login

PCs where you can login to your personal workspace




Information

Location:
CERN
Geneva, Switzerland, 1211

Mon - Sun:
12:00 am - 12:00 am

Fans

6 of 191 fans [See All](#)

Exploring new channels ...



Library Induction Clip Presentation of Library for new arrivals

© CERN



A short clip introducing the library - used in the induction process for those new to CERN.

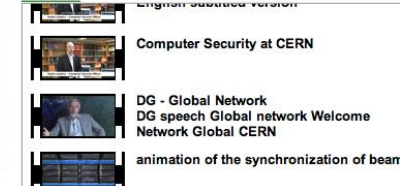
Produced by: CERN Video Productions
5 min 20 s min. / 05 June 2010 / CERN AV

Keywords: [CERN Library](#), [Library](#), [Induction](#), [Induction video](#), [Presentation of library](#)

Language: English
Source Medium: DVCProHD PAL

Reference: CERN-MOVIE-2010-117

See also:



Reaching out to all new comers
Have a look yourself
<http://cdsweb.cern.ch/record/1270161?ln=en>

Requirements

Your users **SHOULDN'T NEED ANY TRAINING**



Requirements

Setting up a digital library is **CHALLENGING**



In order to make it **SIMPLE** for the users

Requirements

Be **CREATIVE**



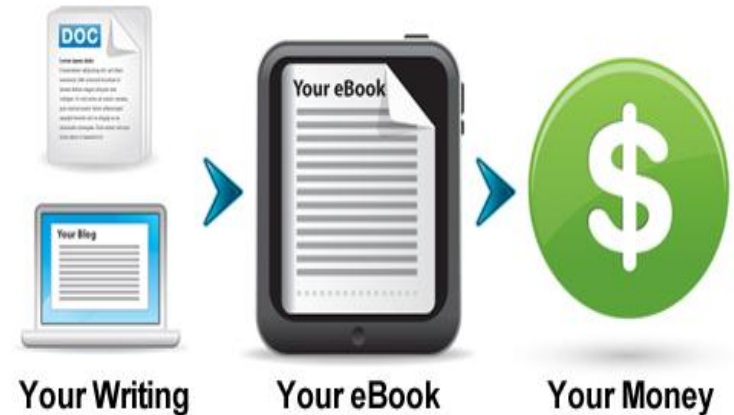
Pro & cons

- 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?



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?



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