



# Building integrative environment for the improvement of scientific communication

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# Introduction

- Scientific communication based on paper journals and peer review system reached its peak in development
- 10836 electronic journals and bulletins (8/2001)
- Scientific community shifts toward electronic environment for research, communication and collaboration
- **Problem:** how to link research findings, papers, and sci. ideas easily?

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# New era of scientific publishing

- First electronic journal appeared in 1987
- New era of scientific publishing
- Need for a new communication and collaboration framework
- Greatest value of the Internet: potential for development of new custom-made services for different user groups

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# Computer mediated communication

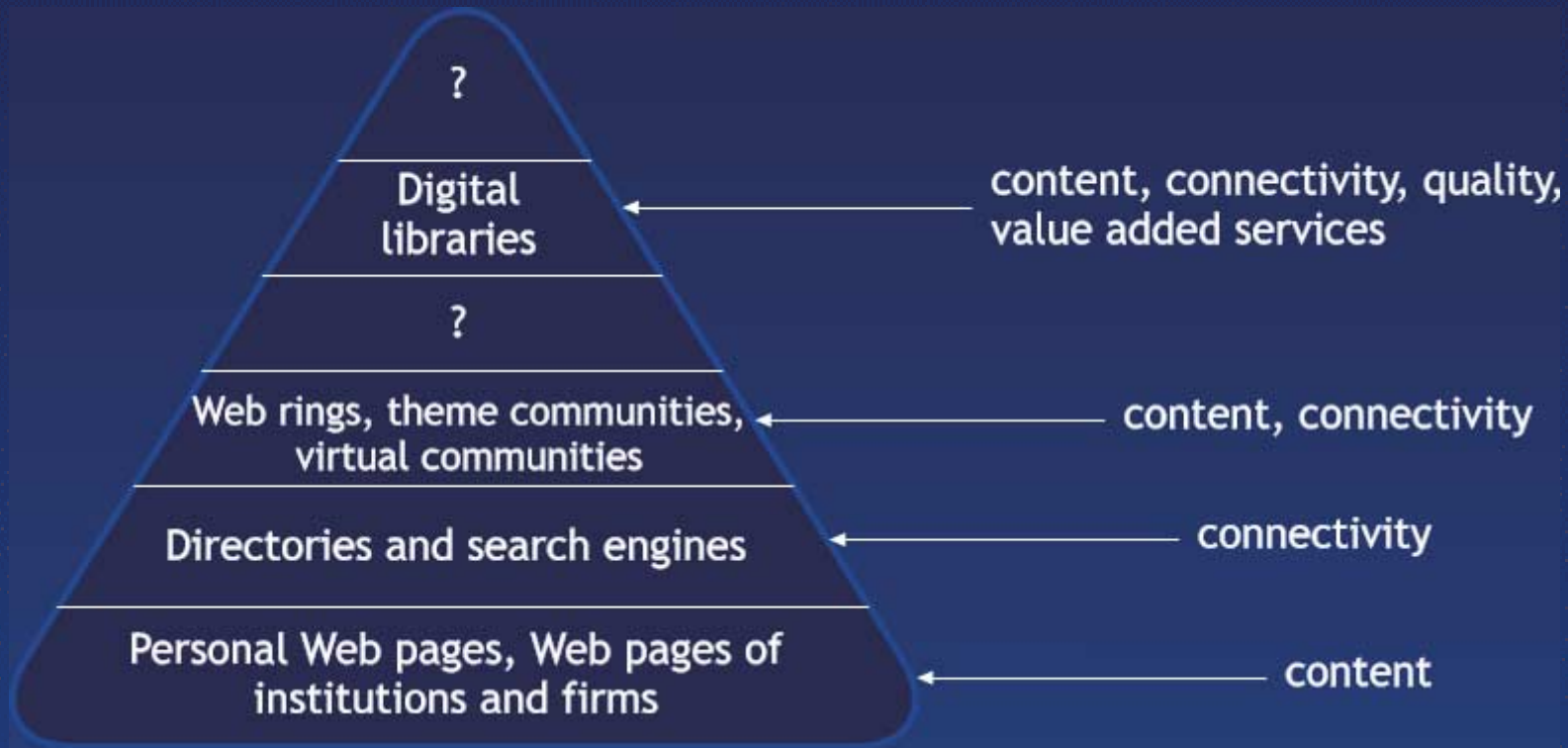
- **Utopian vision:** the network creates new anthropological space
- **Pragmatic vision:** global network is recognized as the most recent form adopted to organize the knowledge system
- Pragmatic vision recognized as realistic
- **Problem:** organization (and linking) of related content on the Internet to meet quality criteria of scientific community

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# Key advantages of electronic environment for scientific communication

- Material is delivered quickly
- Material is delivered directly to a computer station without patron having to collect material from around the library building
- Material is accessible 24 hours a day, during the whole year

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# Communication and collaboration obstacles

- Additional software and hardware requirements
- Regulation of user access rights
- Funding the cost of Internet materials
- User education and assistance
- Stability of Internet locations
- Long term access
- Product licensing
- Cataloging of Internet materials
- Delays in access due to heavy Internet traffic.

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# Building integrative framework for the improvement of scientific communication

- Framework set when criteria are met (persistent URLs, user rights etc.)
- Existing paper-based framework more or less stable but **slow and expensive**
- New electronic framework emerging (digital libraries, el. journals and books)

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# Connecting the scientific research results in the electronic environment

- From bibliometrics to cybermetrics
- **Bibliometrics**: identifying core sets of articles, authors and journals in particular fields of study
- **Cybermetrics**: represents a step further by applying most of the elements of bibliometrics to the electronic environment

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# Content linking on the Internet

- Electronic references
- Reference forward and backward linking
- Clustering of authors within same disciplines and observing interdisciplinary collaboration on topics of mutual interest
- **Goal:** content availability by support of linked references

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# Ease and persistency of linking

- Open URL:  
<http://xxx.xxxxxxxx.xxx/library?genre=article&id=doi:10%2E1045%2Fjuly2001-roes&atitle=Digital%20Libraries%20and%20Education&title=D-Lib%20Magazine&stitle=Digital%20Libraries%20and%20Education&issn=1082-9873&date=2001&volume=7&issue=7%2F8&aualast=Roes&aufirst=Hans>

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1. Lawrence, Steve and others. 2001. "Persistence of Web References in Scientific Research." Computer. 34(2). p. 26-31. <<http://ieeexplore.ieee.org/iel5/2/19496/00901164.pdf>>.

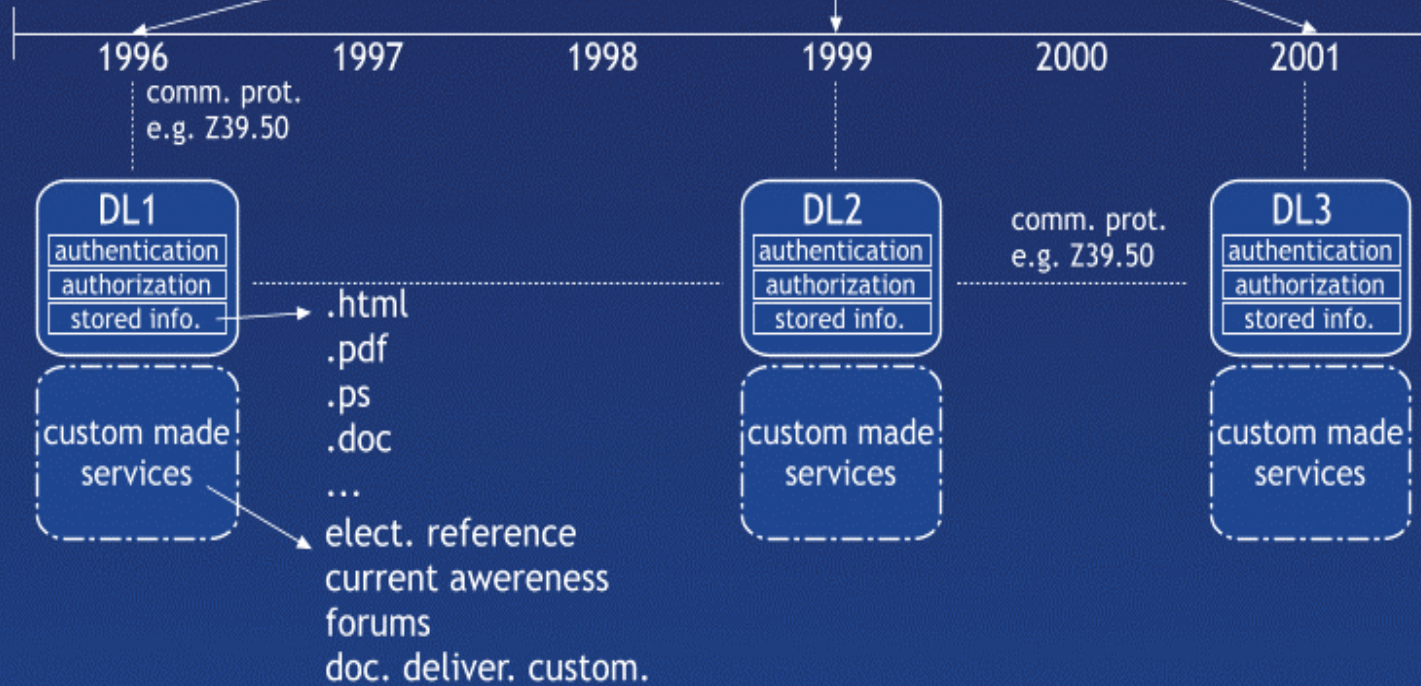
...

8. Van de Sompel, Herbert and Patrick Hochstenbach. 1999b. "Reference Linking in a Hybrid Library Environment. Part 2: SFX, a Generic Linking Solution." D-Lib Magazine. 5(4). <[http://www.dlib.org/dlib/april99/van\\_de\\_sompel/04van\\_de\\_sompel-pt2.html](http://www.dlib.org/dlib/april99/van_de_sompel/04van_de_sompel-pt2.html)>.

...

13. Howes, T and M. Smith. 1996. RFC1959: An LDAP URL Format. <<http://www.ietf.org/rfc/rfc1959.txt?number=1959>>.

## digital library databases





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National and university library in Zagreb  
(11.7.2001.)

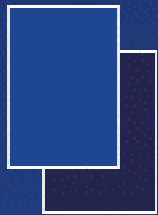
link:www.nsk.hr - total of 326 results, only first  
100 counted

national domains	72
.edu domain	15
.org domain	7
.com domain	6

72 national domains represent URLs of:  
magazines/newspapers (1/1 link), government  
bodies/institutions/ministries/agencies (13 links),  
faculties/universities (2/4 links), **libraries (27 links)**, conferences  
(1 link), portals/directories/uncategorized pages with variable  
content (13 links), commercial firms (10 links)



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Library of the "Rugjer Bošković" institute  
(11.7.2001.)

link:nippur.irb.hr - total of 215 results, only first  
100 counted

national domains	86
.com domains	7
.edu domains	3
.net domains	2
.org domains	2

86 URLs with national domains represent:  
European organizations (6 links), faculties/universities (3 links),  
professional associations (1 link), directories/ uncategorized pages with  
variable content (8 links), journals (1 link), libraries (27 links),  
**government institutions/agencies/institutes (39 links)** and personal Web  
pages (1 link).

**62 of 86 URLs "self-linking from "R.B." Institute - only 24 unique URLs.**



CLIC 2001



HEUREKA portal for exchange of scientific links on the Internet (11.7.2001.)

link:heureka.foi.hr - total of 1 result

national domain	1
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**Only one** Web site recorded in Google's database linked to this project's URL, and this Web site is the URL of portal itself (heureka.foi.hr).



# Scientists' role in development of sci. comm. environment

- Using information stored in digital libraries
- Citing information sources in digital libraries
- Influence and encourage development of peer review in electronic environment
- Publish their works in electronic form and store them in digital libraries

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- Participating in coordination of standards for storage and exchange of data in electronic environment
- Helping librarians in development of their profession by giving them support in negotiations with publishers about copyright and other important issues
- Carrying on projects in collaboration with digital libraries and by using them to communicate the results of their projects.



# Conclusion

- Increasing of awareness of advantages of electronic environment in sci. community
- Increasing of awareness of advantages of digital libraries
- Enabling forward and backward linking
- Consent about communication and information exchange standards on the Internet

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