

What are digital libraries?

Differing conceptions =
differing approaches, concerns,
implementations

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ToC of this lecture

- Libraries and technology
 - problems addressed
- On the scene: Various differing (though related) perspectives of digital libraries:
 1. technological
 2. institutional
 3. disciplinary
 4. publishing
- Issues – economic, social
- Opportunities

Libraries & societies

A remarkable thing about libraries – no matter what civilization, what society:

- Libraries are fundamental to *collection, organization, preservation, dissemination & use of human knowledge records* - in all societies
- Libraries change as technologies change but their fundamental role stays the same

Libraries & technology

- Libraries appeared some 3000 years ago
 - first using clay tablet technology – Mesopotamia
 - since then many technologies used
 - from gypsum on wooden boards to papyrus & bamboo stripes
- Gutenberg & printing changed libraries & society
 - along came invention of codex – formatting of texts in books rather than scrolls
 - and now invention of ebooks

Libraries & technology (cont.)

- Information & communication technology changing libraries again: a technological imperative
 - digital resources – variety of forms & media
 - distributive, network & interactive technology
 - distant, electronic access
 - redefined older & entirely new services
 - drastically changing economics & other issues
 - requiring new professional competencies

“What’s in a name?”

that which we call a rose by any other name would smell as sweet.”

- For digital libraries name & concepts varied
 - electronic library, eLibrary, virtual library, ‘library without walls,’ ‘library of the future’ ...
- “Digital library” (DL, DLib) now prevailing
- Evolution of DL has a short history, but
 - implemented widely throughout the world
 - many projects in the US & globally
 - many publications, conferences

On the scene

- Several different communities involved in digital libraries, each with quite different
 - perspective, concepts, orientation in dealing with digital libraries
 - concentration, emphasis, approach, models differ
- Many disciplines, institutions involved

on the scene ...

- Great many operational implementations
 - hybrid libraries – old & new
- Large R&D projects
- National & global interest & priorities
- Digital libraries relate to the social role of libraries
 - importance to information society

Basic problems addressed

- Creating means & ways for dealing with & using human **knowledge records** in the new **digitalized and networked world**
- What to do with the electronic book (eBook), electronic journals, publications, images, sounds, assembly of data?

problems addressed...

- Problems are technical, organizational, managerial, social, legal, economic, cultural ...
- Social & individual effects & problems
- Digital revolution may be as far reaching as that created by Gutenberg & the printed book

What is a DIGITAL LIBRARY?

- No single, all-encompassing answer
- Several perspectives
 - from different communities - different agendas
 - little communication among them
- Coherent, integrating concept, approach not yet emerged – will it ever?
- Complex problems in any approach
- Highly exiting & volatile area

What are digital libraries all about?

Related but diverse views:

- *Michael Lesk*: **content**. Digital libraries let one access, from your desk, vast amounts of material, often never easily available before.
- Also: **searching**. Never before could we quickly search an entire library for a single phrase.
- *Tefko Saracevic*: **services**. Digital libraries provide access, searching, and the equivalent of circulation. But they require new ways of organization & evaluation.
- *Chris Borgman*: **users**. Digital libraries extend a library's audience to the entire world, and to children and the elderly, far beyond the usual community that walks into a university or any other library.

Technological (computer science) perspective

- Concentrating on **R&D**
- **Technology** centered
 - distributed & organized **knowledge resources** in digital formats
 - how to collect, store, organize, diverse types of information - texts, images, sounds, multimedia ...
 - new kind of **distributed database services to manage unstructured multimedia resources**
- Important for infrastructure

Related definition (these are old but still valid definitions

National Science Foundation, 2002

“The notion of a "digital library" is a metaphor for thinking about data collections in a networked world. Digital libraries may take many forms, but they all share some common infrastructure and goals. For starters, digital libraries build upon collections of digital or digitized data and rely on the Internet for accessing and sharing these collections. Common goals include preserving the data over time for interested communities and helping transform the data into information and knowledge.”

Examples of research areas

- Interoperability among heterogeneous collections
- Data integration
 - text, video, sound; metadata
- Representation, metadata
- Network protocols and standards
- Searching & content analysis
 - filtering, navigating, summarizing, integration, browsing
- Visualization & interaction
- Preservation
- Covered in *Research & Preservation* lectures

Examples of projects

- Large number in the U.S. - various institutions - e.g.:
 - [National Digital Library of the Library of Congress](#)
- Numerous projects in Europe – e.g.
 - [Digital agenda for Europe: Digital Libraries Initiative](#)
- All have web pages & many links to projects –
- Close to home:
 - [Rutgers University Libraries – mission, vision](#)
- Will be covered later in lecture & exercise on *Diversity*

Library & institutional perspective

- Concentrates on institutions, service, **practice**
 - logical extension of libraries
- **Content, collection** centered
 - **Creation** of digital collections
 - variety of materials
 - repositories of digital materials
 - **Access** to collections
- Guided by service **mission**
 - various environments, user communities
 - various degrees of integration or separation

Big problems addressed

- Integration between print and digital
 - mixing new digital technology with print, local with global; managing diverse resources - all difficult
- Gap between **have's & have not's** increasing
- Competition for scarce resources sharpening
- Cultural & social adjustments not easy

Related definition ([Digital Library Federation, 1998](#))

“Digital libraries are organizations that provide the **resources**, including the specialized **staff**, to **select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of**, and ensure the **persistence over time** of collections of **digital works** so that they are readily and economically **available for use** by a defined community or set of communities.”

(added: key concepts in **bold**)

Perspective of professional & related organizations

- Concentrate on collections & new forms of publishing in their area
- Field, application centered - highly diversified
- Variety of organizations
 - scientific & technical societies
 - various fields, academic units
 - projects - institutions, consortia
 - government agencies
- Services to communities or perceived needs

Publishing perspective

- Publishers concentrate on opportunities
- Marketplace centered
- Information resources and services
 - world, fields, market niches
 - integration, extension of old
- Publishers
 - experimenting - traditional & new emerging
- Mix of technology & economics

Interdisciplinary perspectives

- **Technical:** mostly computer science/engineering
- **Organizational:** librarianship, computer science
- **Access, use:** information science, librarianship
- **Behavioral:** cognitive science, human-computer interaction

Interdisciplinary perspective ... cont.

- **Economic:** economics, publishers, management
- **Disciplinary:** variety of disciplines where applied
- **Social, political:** social sciences, law, policy

Economic issues

- Costs not insignificant - **WHO PAYS?**
- Dilemma in **library budgets**
 - licensing of digital publications
- **Publishers'** economics for digital publications
 - approaches vary, not settled, even scared
 - even: who is a publisher? - lines blurring
- Economics of digital libraries still up in the air
- Covered in *Economics* lecture

Social issues

- **Legal** issues: copyright protection, security; digital rights management
- **Individual:** privacy protection; rights; obligations
 - role in information exchanges, work, needs; life ...
- **Organizations:** integration; changing structure

Social issues ... cont.

- **Traditional libraries:** disappearing? changing?
- **Computing & society:** growing disparity between information rich & poor
- **Impact:** on research, education, people? E.g. on
 - **Digital scholarship:** support by digital libraries
 - **Education:** professional, continuing, general – on levels from K to postgraduate
 - **Digital natives:** challenges & innovations in reaching out to digital born generations

Issues – creating DLibs

Michael Lesks:

- Does everyone want to get everything on their screen?
- If so, can we do it technically?
- If so, can we do it legally?
- If so, can we afford to do it?
- If so, should we do it?

General opportunities

For many libraries:

- Building digital collections of national importance from existing texts, documents, images
 - historical, educational, strategic, legislative ...
- Creating new digital documents & linking them
- Cataloging Internet resources in own domain

General opportunities... cont.

- Selecting digital resources from wherever & creating & maintaining linkages
- Developing/adapting search engines & other management tools for digital collections
- Integrating digital & other library collections
 - incl. integration of OPACs & library management tools
- Providing access to digital collections

General opportunities ... continued

- Establishing services for digital libraries
 - online access & offline support
 - education & training of users, and librarians
 - promoting information & digital literacy
- Addressing social, legal, policy issues
- Cooperative national & international ventures
- Outsourcing services; going into business of DL

Conclusions

“War is much too serious a matter to be entrusted to the military.”

Georges Clemenceau

- **Digital libraries are too important to be entrusted to any one discipline, any one agency**
 - Why? Work on digital libraries is defining the future of handling of human knowledge records
- Caught a lot of interest globally & politically
- Provide challenge & opportunity for cooperative, interdisciplinary ventures

Conclusions ... continued

- Provide a GREAT opportunity for many institutions to participate in many ways
 - have lots of room for smaller institutions & projects
- Digital libraries will not replace libraries
- But no matter what: libraries and information agencies cannot escape digital libraries
 - must change
 - so might as well actively join the movement

Digital libraries are also

- Redefining the role of libraries in society & the role of librarians & information specialists
 - of **you** and **your professional future**
- And raising questions about the future of libraries
 - will they disappear?
 - change into what?
 - hybrid libraries?
 - join with other institutions, such as museums?

