The Future of Libraries at IIT:
A Perspective

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"Great Uncle George occupied a chair of applied electronics at an important government institution. He was attached to his position by the strongest of ties, and his death came as a great shock."
Libraries

A Matter of Definitions!
The Basic Question

What is a library?
Definition

A place in which literary, musical, artistic, or reference materials (as books, manuscripts, recordings, or films) are kept for use but not for sale.

- Merriam-Webster Online, 2002
Definition

Libraries are service organizations that are responsible for gathering, selecting, organizing, disseminating, preserving recorded knowledge, and information in all forms as well as providing assistance and instruction in their use.
Images of Library

Evocative names

Monastic library, Chained library, the Library of Alexandria, Subject library, University library, Modern library, Private collector’s library,
Romanticized Library

Has the idea of library assumed mythic proportions?

The real university, Collective memory of civilization, Poor persons university, Heart of the university, Library of record, Cultural institution

- Jerry Campbell, 2000
Cosmic Struggle

• Can civilizations survive without libraries in buildings with paper publications?

• Would the lack of librarians cause higher education to crumble?

• If libraries as we know them fail, will the demand for information build a whole new path to knowledge?
Changing Definitions

• How much is our concept of library a function of recent history?

• How pertinent to the future are our beloved definitions of library?

• Does our concept limit our imaginations?
New Definitions!

The Internet is the new universal library.
Is it?
Why Not?

- It is missing essential library characteristics
- It has minimal cataloging
- It does not yield effective retrieval of information
- It lacks standards and validation
- It is not equally accessible, a Pay Per View system
Library Values

• Stewardship
• Service
• Intellectual Freedom
• Privacy
• Commitment to Literacy & Learning
• Unfettered Access to Recorded Knowledge and Information
• Democracy
Will it Contain our Current Collections?

Unique titles in OCLC catalog = 43,000,000 Titles
Given an average of 300 pages/title = 12,900,000,000 pages
Digitizing 1 million pages/month = 1,075 Years
## Equal Access!

<table>
<thead>
<tr>
<th>Stat</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>US Population (2000 Census)</td>
<td>281,421,906</td>
</tr>
<tr>
<td>US Internet Users</td>
<td>150,000,000</td>
</tr>
<tr>
<td>US Households with PC’s</td>
<td>61.00%</td>
</tr>
<tr>
<td>US Households with no phones</td>
<td>6,000,000</td>
</tr>
<tr>
<td>12 Graders reading &lt; grade level</td>
<td>23%</td>
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</table>
Universal Access!

“Imagine that we could shrink the world’s populations to a village of precisely 100 people, with all existing human ratio remaining the same. If we did so, it would look like this: there would be 57 Asians, 21 Europeans, 14 from the western hemisphere (north and south) and eight Africans. Fifty-one would be female; 49 male. Seventy would be non white; 30 white. Eighty would live in substandard housing. Seventy would be unable to read. Fifty would suffer from malnutrition. Only one would have a college degree. No one would own a computer.”

- Larry Irving

Asst. Secretary for Communications and Information, US Dept. of Commerce, 1998
Validation!

“On the Internet, nobody knows you’re a dog.”
- The New Yorker, 1993
Effective retrieval of information

Searching on the Internet today can be compared to dragging a net across the surface of the ocean.

- 44,700,000 hits about “nothing”! High recall/Low precision

- Most of the Web's valuable information is buried far down on dynamically generated sites, and standard search engines never find it.
Deep Web

*BrightPlanet* has quantified the size and relevancy of the deep Web in a study based on data collected between March 13 and 30, 2000. Key findings include:

- Public information on the deep Web is currently 400 to 550 times larger than the commonly defined World Wide Web.

- The deep Web contains 7,500 terabytes of information compared to nineteen terabytes of information in the surface Web.

- The deep Web contains nearly 550 billion individual documents compared to the one billion of the surface Web.

- More than 200,000 deep Web sites presently exist.
Deep Web

- Sixty of the largest deep Web sites collectively contain about 750 terabytes of information — sufficient by themselves to exceed the size of the surface Web forty times.

- On average, deep Web sites receive fifty per cent greater monthly traffic than surface sites and are more highly linked to than surface sites; however, the typical (median) deep Web site is not well known to the Internet-searching public.

- The deep Web is the largest growing category of new information on the Internet.

- Deep Web sites tend to be narrower, with deeper content, than conventional surface sites.

- Total quality content of the deep Web is 1,000 to 2,000 times greater than that of the surface Web.
Deep Web

- Deep Web content is highly relevant to every information need, market, and domain.

- More than half of the deep Web content resides in topic-specific databases.

- A study at the NEC Research Institute published in Nature estimated that the search engines with the largest number of Web pages indexed (such as Google or Northern Light) each index no more than sixteen percent of the surface Web. Since they are missing the deep Web when they use such search engines, Internet searchers are therefore searching only 0.03% — or one in 3,000 — of the pages available to them today.
Preservation: Will the information be there as long as we need it?

If Shakespeare had written Hamlet on a word processor…or if *da* Vinci had used computer graphics system to create the Mona Lisa, would their great achievement still be available to us today?

- *Council on Library & Information Resources, 1999*
Change is difficult in Academe

“Taking, as a starting point, 1530 when the Lutheran Church was founded, some 66 institutions existed then still exist today in the western world in a recognizable form; the Catholic Church, the Lutheran Church, the parliaments of Iceland and the Isle of Man, and 62 universities. They experienced wars, revolutions, depressions, and industrial transformation, and have come out less changed than almost any other segment of their societies.”

- Clark Kerr, 1980
Universities are Changing

- 80% of undergraduates are above 22 years of age
- New emphasis in both undergraduate and graduate education
- Rise of distance education/virtual universities (700 listed in college guide)
- Rise of corporate universities
Learning Models are Changing

- Passive students to active learners
- Faculty centered to learner-centered
- Solitary learning to interactive, collaborative learning
- Classroom learning to learning communities
- Linear, sequential curricular to hyper learning experiences
- Just in case to just in time to just for you learning
- Student or alumnus to lifelong member of learning community
- Campus-based to asynchronous to ubiquitous learning opportunity
Information is Changing

“The Information ecosystem is a ferociously Darwinian place that produces endless mutations and quickly weeds out those no longer able to adapt and compete. The real challenge is not the technology, but rather imagining and creating digitally mediated environments for the kind of lives we will want to lead and the sort of communities we will want to have.”

- William Mitchell
City of Bits, 1995
Information Overload!

“What information consumes is rather obvious. It consumes the attention of its recipients. Hence, a wealth of information creates a poverty of attention.”

- Herbert Simon
Scientific American, 1995
Users have Changed

“... students entering colleges and universities will have grown up on the network. Sometimes called ‘Generation Y,’ Generation Y views computers and the network as basic equipment, no more puzzling or remarkable than a refrigerator.”

- Tuller/Oblinger, 1998
Information Age Mindset

- Computers aren’t technology
- The Internet is better than TV
- Reality is no longer real
- Doing is more important than knowing
- Multitasking is a way of life
- Staying connected is essential
- Zero tolerance for delays
- Typing is preferred to handwriting

- Frand, 2000
Students Attitudinal Drivers

- Self-service and self-control
- Customer-service
- Demand for immediacy
- Impatience with bureaucracy
- Integrated environment
- Desire to be “connected”

- Adapted from Kvavik, 2001
What Students Value

• Making connections between in- and out-of-class activities
• Working and studying in groups
• Mentored internships
• Being exposed to people of diverse backgrounds
• Participating in extra-curricular activities

- Light, 2001
Study Definition

Fundamentally self-selected, independently organized, student centered groups who form their own networks to achieve a specific academic purpose.

Learning community systems are continually renegotiated by members who function in mutual engagement that binds them together into a social entity. They share resources and norms that they developed over time.
Study Findings

Groups anatomy:

- 79% study in groups
- 92% of the groups are self-selected
- 91% highly benefited from group experience
- 8% work with students from other universities
Study Findings

Communications:

• 97% use email as a communication method followed by chat and instant messaging at 62%
• 76% always or often meet face to face (92% prefer meeting face-to-face)
• 56% of these meetings take place with some members participating on a virtual basis
• 46% meet completely virtually through a chat room
Study Findings

Study Locations:

• 46% meetings occur in labs around the university
• 68% take place at the residence halls and homes
• 29% of meetings take place at the library
Study Findings

Information Sources:

• 80% always or often search the Internet
• 68% use group mates as source of info
• 38% ask upperclassmen
• 29% go to library
• 5% ask a reference librarian
Study Findings

Internet Usage:

- 98% look for the info first in Google
- 55% use library website (2nd option)
- 40% search class homepages (3rd option)
Study Findings

Rating of Sources:

• 59% rated their peers good or excellent
• 79% ranked faculty as good or excellent
• 53% ranked experts in their field as good or excellent
• 40% considered the Library a good to excellent source while 26% thought it is fair to poor
• 16% felt librarians were a good to excellent source while 53% rated librarians fair to poor
What Will Change at IIT Libraries?

- Function, resources, processes, services
- Users and use
- Business models
- Institutional and corporate partnerships
- Staffing patterns
- Electronic publishing
- Rise of distinctive collections of unique resources
What Will *Not* Change?

- Existing collections
- Role as cultural depository
- Global perspective
- Effective organization of information
- Staff/user interaction
- Commitment to equitable access
- Commitment to long-term preservation
IIT Libraries: The Shape of Things to Come

• IIT’s current hybrid library will continue for many years to come.

• While the library will continue its current rate of acquisition and preservation effort, a few national repositories will be identified for archiving digital materials and IIT will be a partner/client.

• Huge changes in scholarly publishing system will occur, IIT library will play a large role in facilitating faculty publishing.

• Resources not on the Web will be increasingly unused.
IIT Libraries: The Shape of Things to Come

• IIT’s learning communities will continue to provide purpose for the library--but with growing emphasis on digital delivery.

• With the rise of large, international providers of high use digital publications, the library will continue to validate/facilitate access on behalf of its users.

• There will be significant pressure to move resources into digital format and tailor info to the user cognitive style.

• The Library will increasingly concentrate on original/unique materials.
Librarians role will evolve dramatically

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<tr>
<th>From</th>
<th>To</th>
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<tbody>
<tr>
<td>Collection builders</td>
<td>Knowledge prospectors</td>
</tr>
<tr>
<td>Catalogers</td>
<td>Metadata/developers publishers</td>
</tr>
<tr>
<td>Info retrieval specialists</td>
<td>Knowledge navigators</td>
</tr>
<tr>
<td>Reference librarians</td>
<td>Info analysts/knowledge interpreters</td>
</tr>
</tbody>
</table>
IIT Libraries: The Shape of Things to Come

• The primary definition of “library” will change, but it will remain the intellectual hub of the institute.

• The next generation will define “library” as content and services available on the Internet or its incarnation!
Remember

In a time of dramatic changes it is the learners who inherit the future. The learned usually find themselves equipped to live in a world that no longer exists.

- Eric Hoffer
12 Axioms to live by

1. Paranoia has real survival value in the e-economy because the competition is from anyone and everywhere.
   - Hartman & Sifonis

2. America is the first culture in which the young teach the old.
   - Margaret Mead

3. If we do as we have always done, we will always be where we always been.
   - Anonymous

4. There is a giant shadow between an idea and action.
   - T. S. Elliot
12 Axioms to live by

6. No moral rights are implicit in the old division of labor.
7. New windows of opportunity will open.
8. New windows of opportunity will be short lived.
9. Sure bets will be hard to recognize.
10. Dare to take risks: action cannot wait for painstaking discussion.
11. Whoever acts will create the future.
12. Imagine the future you want and make it.
Thank You!
Questions?