

SERIAL

Science, Education Research &
Innovation in Academic Libraries



Dr. Y. Srinivasa Rao

NIT Rourkela



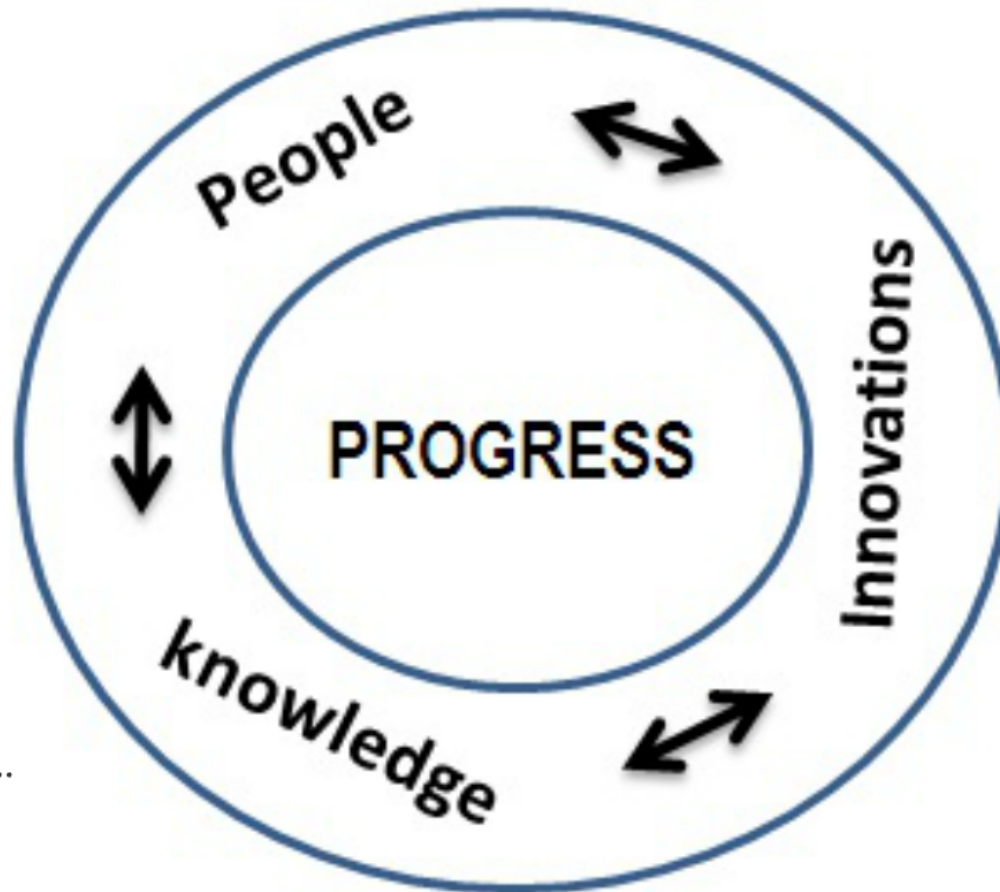
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S E R I A L

Contents:

- Knowledge Progress Cycle
- What is Intellectual Property
- Strategy for Intellectual Base
- Content is King
- Library of an Academic Setting
- Content, Connectivity and Cost
- Proliferation of Publishing Sector
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- Advantages
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- India: Research Outputs and Innovation
- Conclusion

KnowledgeProgress Cycle



In order to create



Intellectual Creations

What is Intellectual Property

1. Industrial Property

Paris Convention, 1883

patent

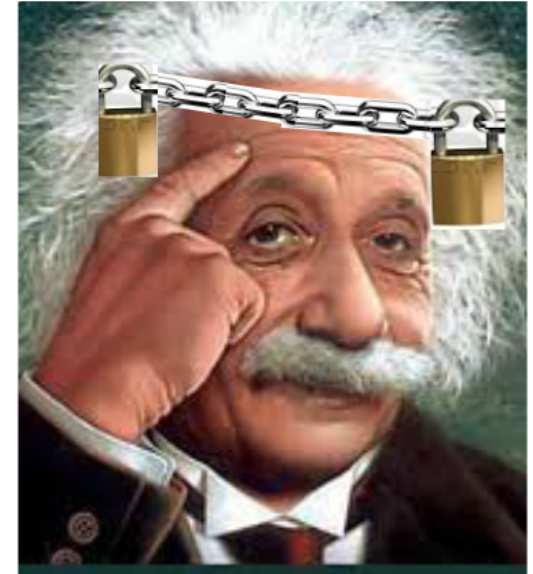


trade mark



geographical indication

industrial design



2. Copyright

Berne Convention, 1886

music and performances



literary and
artist works

phonograms

broadcasts

computer programs

As tool IPR

- to protect creativity
- generate revenue

But... how to create intellectual base

Strategy for Intellectual Base

change in...

- Perception
- Structure
- Processes
- Implementation

how to create, improve & share

Academic Writings



commitment and contributions

to make community better, more transparent, and more valuable

need

Content

Content is King

Content Ubiquitous



A famous declaration by Bill Gates in 1996

93% information/content in digital form

(Lee, K., Guttenberg, N. and McCrary, V , 2002)

Content not captured is faded/lost

need

Creations in the forms of Content

Printed Books - In US, tripled last 5 years (Bowker)

Output grew 6% in 2011 (from 328,259 titles in 2010 to a projected 347,178 in 2011) - (Bowker)

E-books - 30% to 40% growth (Nik Bogaty, IDPF)

Journals - more than 10 millions articles in a year (Jha, 2001)

Patent - filings worldwide grew by 7.2% in 2010 (WIPO 2011)

Trademark - filings worldwide grew by 11.8% in 2010 (WIPO 2011)

Webpage - In UK, every 2 sec. (Schaffner, 2000)

Online and Newspaper ratio: 8:1 articles (Carlson,03 2003)

Blog - about 420 lac posting & 5 lac new posts daily (WordPress.com)

Facebook - 30 billion pieces (web links, news, posts, notes, photos etc) shared each month (Infographic)

Youtube - More than 4 billion views per day
72 hours of video uploaded every minute

LIBRARIES



LIBRARY of an Academic Setting

Central and integral part of academic system

not only

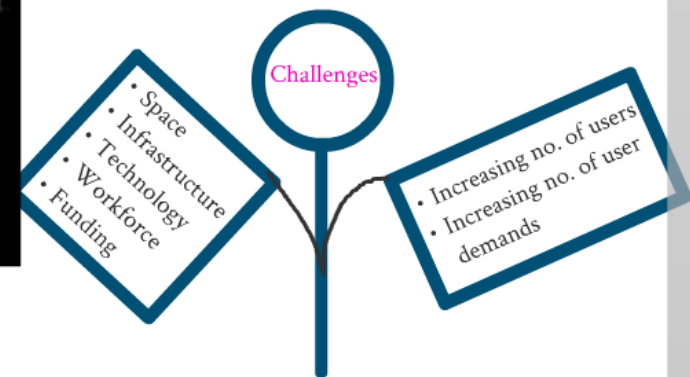
serve academic community

but also

manage & provide content

No. library in the world is self-sufficient

CONTENT



Rabindranath Tagore at Newberry Library 1956 (Chicago's Independent Research Library Since 1887)

As a tool, library system is redesigned to support academic system in production of new knowledge, products, processes and services

Content - Connectivity - Cost

Library is connecting content in economic way

enriched content.....
would make the system healthy

- empowers
- educates
- entertains

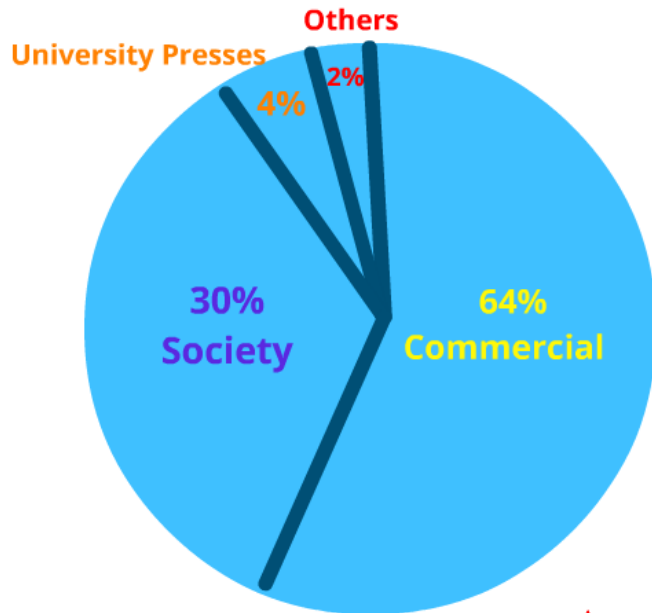
however...



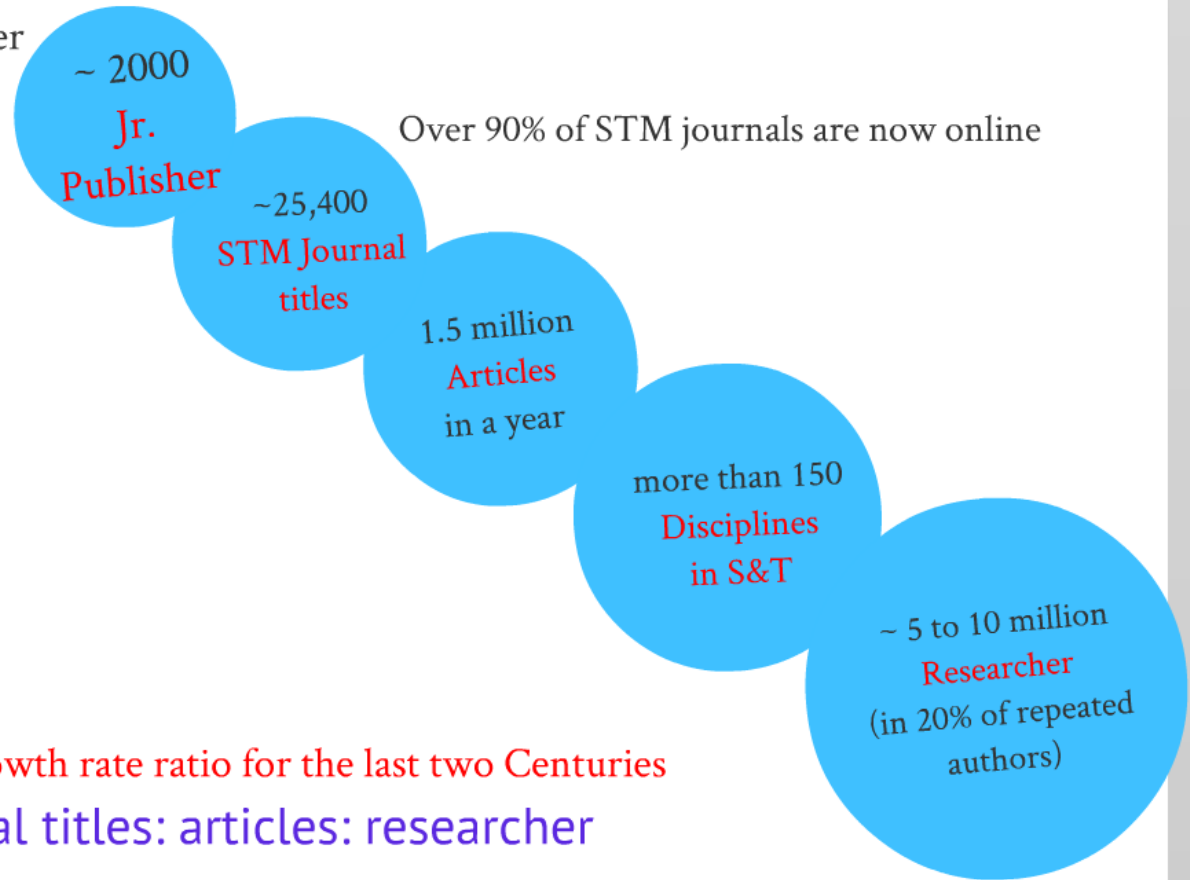
Price would no longer be an obstacle to connecting a **qualitative content**

Proliferation of Publishing Sector

Proportions of Article Output by the Publisher



Source: Journal Citation Database, Thomson Reuters



Over 90% of STM journals are now online

Average growth rate ratio for the last two Centuries

Journal titles: articles: researcher

3.5 : 3 : 3

sources:
The stm report, 2006 & 2009
Thomson's Reuters

The global market for English-language STM journals is about \$5 billion.

(The STM report, 2009)

In order to **Acquire Branded Content**

Branded Content

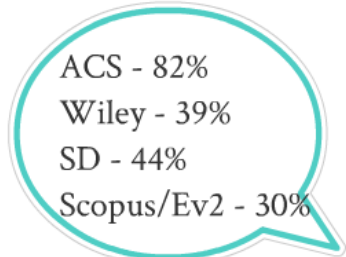
Librarians look for branded content

- Nature of content
- Peer review system to ensure its **quality**



Publishers monopoly over content

- Exorbitantly high prices
- Bundles
- Discount offer
- Retain Copyright



E-resources sub. at NIT Rourkela from 2010 to 2013

Scientific Misconduct

2,047

Biomedical and Life-science research articles

Indexed by **PubMed** as retracted on May 3, 2012

Why because.....

21.3% of retractions were errors

67.4% of retractions were attributable to misconduct

- Fraud or suspected fraud - 43.4%
- Duplicate publication - 14.2%
- Plagiarism - 9.8%

Source: PNAS, 2012

- **Huge Lobbying** (misuse power to publish papers without peer review)

- **Pay and publish policy in reputed journals**

Therefore,

Commercial publishing being replaced by open access models

Every model involves costs



Librarians look for ...

Content...

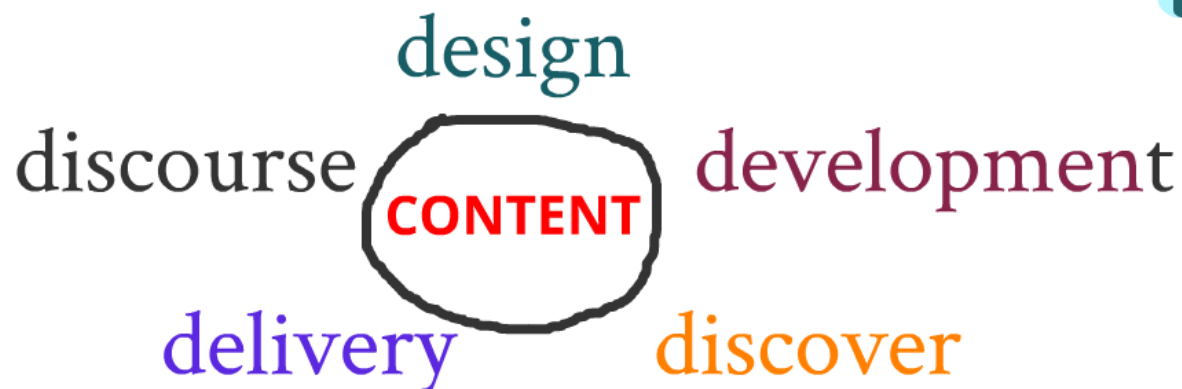
Acquisition - originality, quality, reliability, validity

Accessibility - creating high-end infrastructure facilities for print and electronic

Availability - 24 / 7 both local and remote

Affordability - to minimize the costs involved

- Return on investments
- Create new sources of revenue



Advantages

Libraries creates space for capturing, storing, providing and disseminating content for best needs of the academic community.



- Accuracy-in-content
- Speed-in-access
- Availability-in-24/7
- Sharing-in-content
- Interface-in-user friendly way
- Affordability-in-costs
- Efficiency-in-operations
- Flexibility-in-format
- Frequent-in-updates
- Quality-in-service
- Results-in-time

India: Education and Research in Engineering and Science

India's Higher Education System (HES)

Largest in the world : Institutions - 26455 (504 universities and 25951 colleges) - Gupta & Gupta, 2012

3rd largest in the world : Enrollment - after China and USA

Total Enrollment

1950 - 3, 97, 000
2001 - 83, 99, 000
2010-11 - 1, 69, 75, 000

Girls Enrollment

(UGC annual report 2009-10)1950 - 43, 000
2001 - 33, 06, 000
2010-11 - 70, 49, 000.

Approved intake
2012-2013
UG_ PG/Diploma
technical colleges/institutions
34,49,355
(AICTE, 2013)

12.4 % of students go for higher education from the country - MHRD Report 2009-10

1989-2009
S&E doctorates
Foreign Recipients of US
223245
China (57,700)
India (24,800)
(NSF, 2012)

Doctoral degrees
in science and engineering
India - 6,000
US 25,000
China 9,000
(Agarwal, 2006)

Engineers
India - 3,50,000
USA - 70,000
China - 6,00,000
(USDE, 2006)

PhD. & M.Phil
Awarded
2008 - 10,781
2009-8,525
(UGC annual report 2009-10)

Science
Ph.D - 3317
M.Phil - 2374
(UGC annual report 2009-10)

Two-third of India's colleges and universities are below standard - South Asia Monitor, 2010.

FICCI Edu. Summit - HRD Minister Kapil Sibal said "We will need 800 new universities and 40,000 new colleges to meet the aim of 30 percent GER (gross enrolment ratio) by 2020. Government alone cannot meet this aim,"

India: Research Outputs and Innovation

Research outputs

Total No. of publications

2001-05	2006-10	2011-15	% of Growth
1,06,456	1,77,208	3,00,000	66%

No. of publications in Subject Wise

Relative rank in volume share		Subject	Number of Publications 2001-05	Number of Publications 2006-10
2010	2005			
1	1	Chemistry	25719	38920
2	2	Physics	13490	20525
3	3	Clinical medicine	10046	19273
4	4	Engineering	9605	18596
5	6	Materials Science	7987	14190

3.5% of global research output and expected to reach **5%** global share by 2017

India ranks **9th** in scientific publications

Comparison of Indian research outputs with China

Subjects	India	China
Materials Science	6.4%	26%
Physics	4.6%	19%
Computer Science	2.4%	15%
Mathematics	2%	17%

Innovation performance in the world

World Innovation Index

2004-08

Japan - 01

India - 56

Global Innovation Index

2012

Switzerland - 01

India - 64

based on no. of patents per million - Economist Intelligence Unit 2009

Lower-middle (LM) income in the world

Denmark - 01

Sweden - 02

India - 03

Central and Southern Asia (CSA) Region - **India hold Rank No. 01**

2012 Innovation Efficiency Index

China - 01
India - 02

- India Ranks at 96th in inputs
- India Ranks at 40th in outputs

- Strengths**
- ICT Ranks at 04 (Access (108th) Use 117th)
 - Creative outputs (34th)
 - Market sophistication (46th),
 - Knowledge and Technology outputs (47th)

- Weaknesses**
- Research & Development (55th)
 - elementary education (113th)
 - Institutions (125th)
 - tertiary education (135th)
 - Human capital and research (131st)

Source: Evidence report of Thomson Reuters December 2011

Conclusion

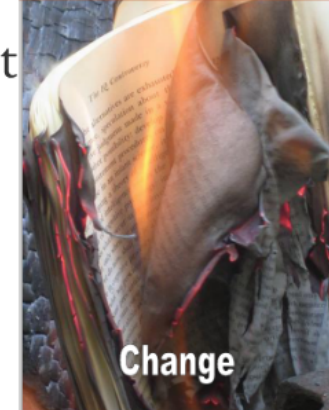


Technology is every part of library system

Library shelves become empty

It is a change the format not death of print

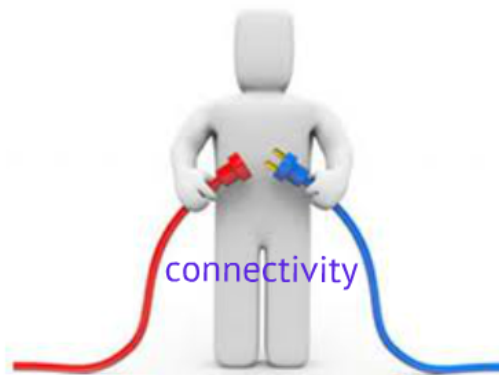
93% of world content in digital form



It's not the death of the book to fear...

it's our dependency on **formats** as our community (service delivery) **value!**

http://www.flickr.com/photos/aprilbwa/2585184233/



cost is king



Tony Chou, weVICTORY, Jan. 2, 2012

without efficient and comprehensive search services, online content may not improve access greatly - Lawrence , 2001



based on

richness of the content & its quality

reaching domestic and global academic and research needs

more discoverable way

more economic way

Google – Earns about \$0.07 per search
Yahoo & Demand Media earn about 0.9 cents per page view

“as king, content is creating and ruling innovation society by its nature, scope, mode and speed”

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Questions

