



The global voice of scholarly publishing

Current Developments in Academic Journals

Michael A Mabe

CEO, STM

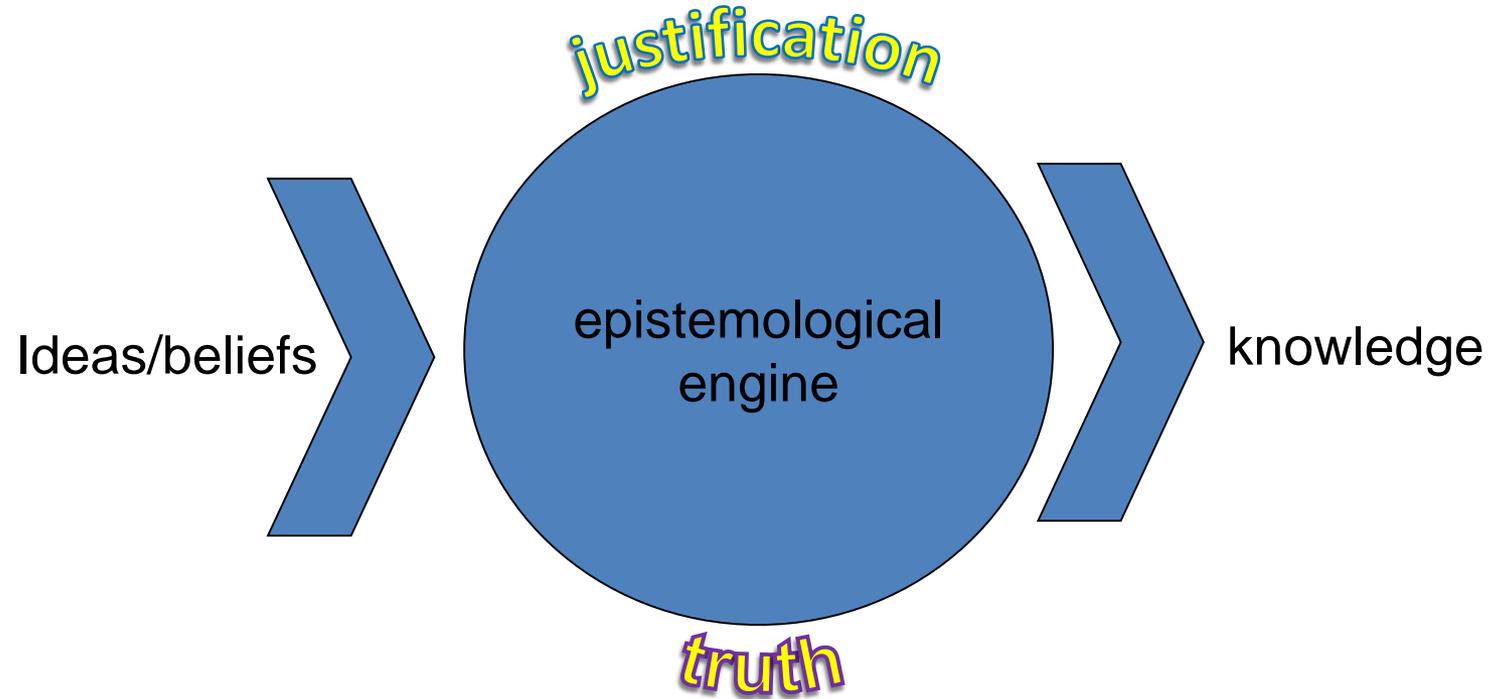
&

*Visiting Professor, Information Studies,
University College, London*

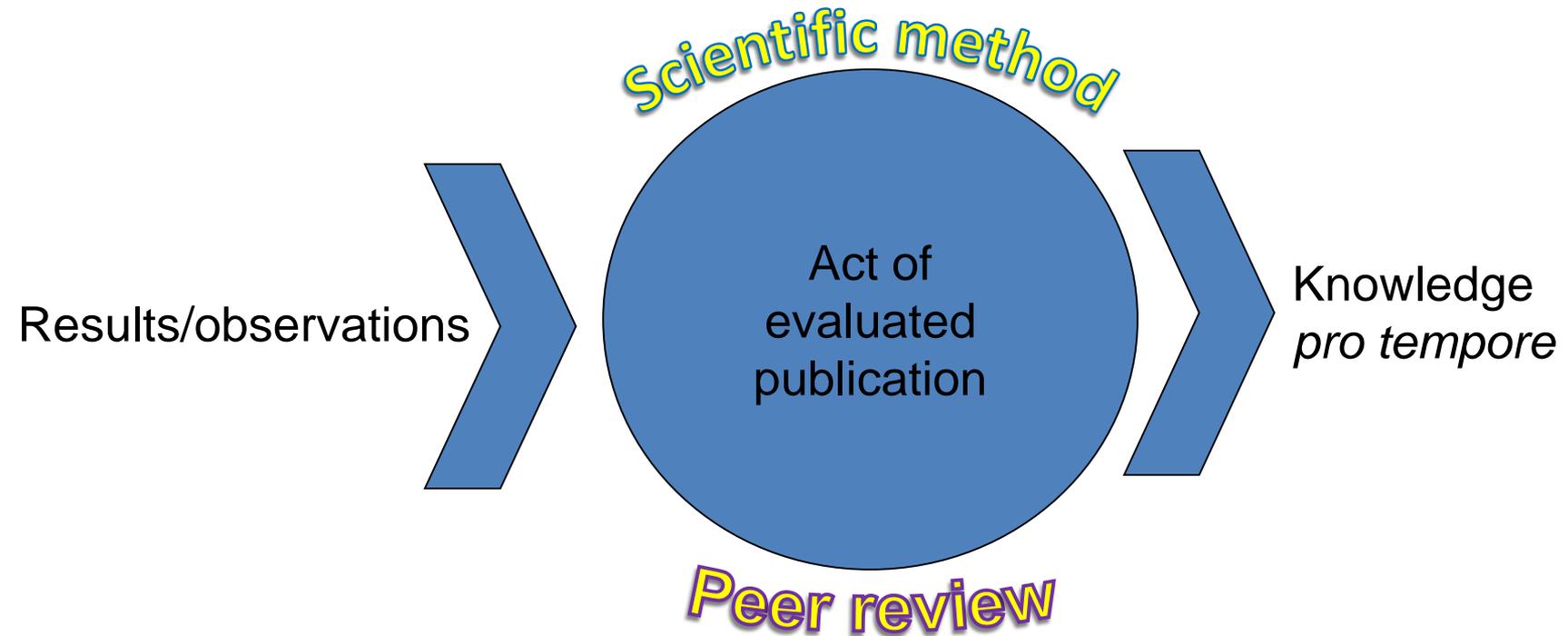
TOPIC 1: ROLE OF THE JOURNAL

Will researchers still communicate and be evaluated by journal publication?

Generating knowledge



Generating knowledge



Fundamental needs of researchers (I)

AUTHOR MODE

- To be **seen** to report an idea **first**
- To feel **secure** in communicating that idea
- [For empirical subjects] To **persuade** readers that their results are general and arise from enactment of a canonical (scientific) method
- To have their claim **accepted** by peers
- To **report** their idea to the **right audience**
- To get **recognition** for their idea
- To have a permanent **public record** of their work

Fundamental Needs of Researchers (II)

READER MODE

- To *identify* relevant content
- To *select* based on *trust* and *authority*
- To *locate* and *consume* it
- To *cite* it
- To be sure it is *final* and *permanent*



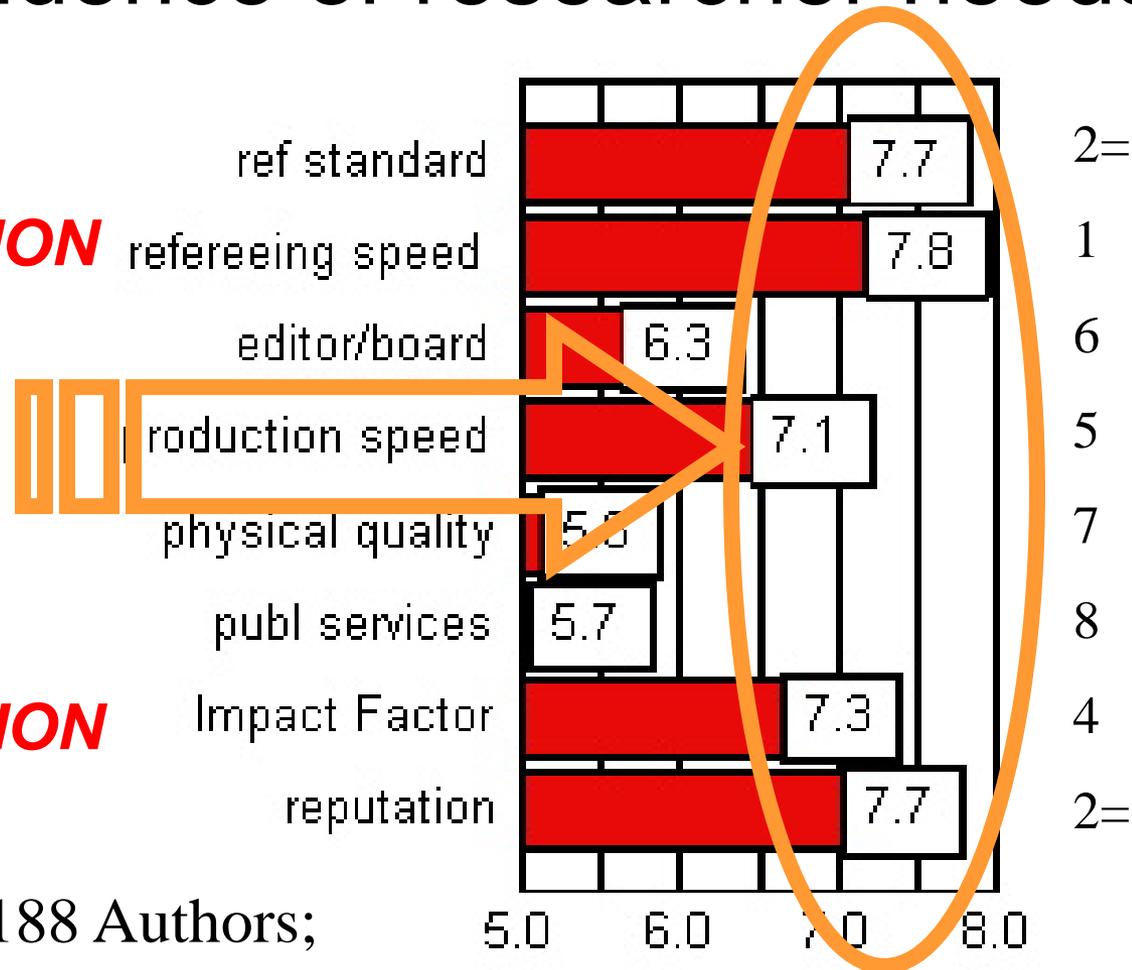
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Evidence of researcher needs

CERTIFICATION

**QUALITY
&
SPEED**

REGISTRATION



Data from 36,188 Authors;

0= unimportant

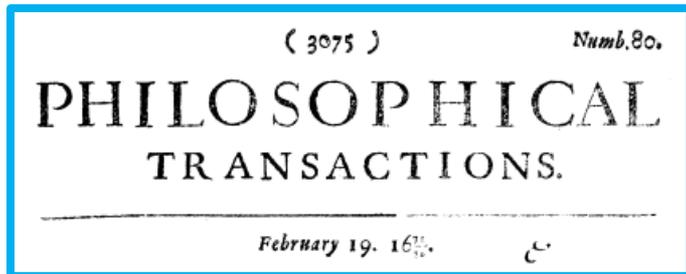
10= very important

Mean

STM

Source: Elsevier Author Feedback Programme

Example from 19 February 1672



The CONTENTS.

A Letter of Mr. Isaac Newton, Mathematick Professor in the University of Cambridge; containing his New Theory about Light and Colours: Where Light is declared to be not Similar or Homogeneous, but consisting of differr rays, some of which are more refrangible than others: And Colours are affirm'd to be not Qualifications of Light, deriv'd from Refractions of natural Bodies, (as 'tis generally believed;) but Original and Connate properties, which in divers rays are divers: Where several Observations and Experiments are allged to prove the said Theory. An Account of some Books: I. A Description of the EAST-INDIAN COASTS, MALABAR, COROMANDEL, CEYLON, &c. in Dutch, by Phil. Baldæus. II. Antonii le Grand INSTITVTIO PHILOSOPHIÆ, secundum principia Renati Des-Cartes: novâ methodo adornata & explicata. III. An Essay to the Advancement of MUSICK; by Thomas Salmon M.A. Advertisement about Thæon Smyrnæus. An Index for the Traills of the Year 1671.

A Letter of Mr. Isaac Newton, Professor of the Mathematicks in the University of Cambridge; containing his New Theory about Light and Colours: sent by the Author to the Publisher from Cambridge, Febr. 6. 1672; in order to be communicated to the R. Society.

S I R,
T O perform my late promise to you, I shall without further ceremony acquaint you, that in the beginning of the Year 1666 (at which time I applyed my self to the grinding of Optick glasses of other figures than Spherical,) I procured me a Triangular glass-Prisme, to try therewith the celebrated Phenomena of
G B B B Colours.

A Letter of Mr. Isaac Newton, Professor of the Mathematicks in the University of Cambridge; containing his New Theory about Light and Colours: sent by the Author to the Publisher from Cambridge, Febr. 6. 1672; in order to be communicated to the R. Society.

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G B B B Colours.

Example from 14 November 1985

162

LETTERS

NATURE VOL. 318 14 NOVEMBER 1985

C₆₀: Buckminsterfullerene

**H. W. Kroto*, J. R. Heath, S. C. O'Brien, R. F. Curl
& R. E. Smalley**

Rice Quantum Institute and Departments of Chemistry and Electrical Engineering, Rice University, Houston, Texas 77251, USA

During experiments aimed at understanding the mechanisms by which long-chain carbon molecules are formed in interstellar space and circumstellar shells¹, graphite has been vaporized by laser irradiation, producing a remarkably stable cluster consisting of 60 carbon atoms. Concerning the question of what kind of 60

Received 13 September; accepted 18 October 1985.

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2. Dietz, T. G., Duncan, M. A., Powers, D. E. & Smalley, R. E. *J. chem. Phys.* **74**, 6511-6512 (1981).
3. Powers, D. E. *et al. J. phys. Chem.* **86**, 2556-2560 (1982).
4. Hopkins, J. B., Langridge-Smith, P. R. R., Morse, M. D. & Smalley, R. E. *J. chem. Phys.* **78**, 1627-1637 (1983).
5. O'Brien, S. C. *et al. J. chem. Phys.* (submitted).
6. Rohlfsing, E. A., Cox, D. M. & Kaldor, A. *J. chem. Phys.* **81**, 3322-3330 (1984).
7. Marks, R. W. *The Dymaxion World of Buckminster Fuller* (Reinhold, New York, 1960).
8. Heath, J. R. *et al. J. Am. chem. Soc.* (in the press).
9. Herbig, E. *Astrophys. J.* **196**, 129-160 (1975).

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Example from 10 May 2009

Tetrahedron Letters

Volume 50, Issue 30, 29 July 2009, Pages 4307-4309

► Article

Figures/Tables

References

PDF (1648 K)

doi:10.1016/j.tetlet.2009.05.010

🔍 Cite or Link Using DOI

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P(*i*-PrNCH₂CH₂)₃N: an efficient catalyst for TMS-1,3-dithiane addition to aldehydes

Kuldeep Wadhwa^a and John G. Verkade^a ✉, a, ✉

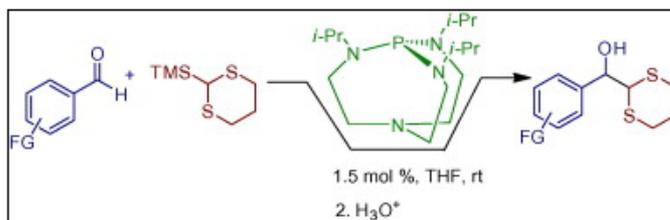
^aDepartment of Chemistry, Gilman Hall, Iowa State University, Ames, IA 50011, USA

Received 1 April 2009; revised 1 May 2009; accepted 6 May 2009. Available online 10 May 2009.

Abstract

Herein we report the use of commercially available P(*i*-PrNCH₂CH₂)₃N (**1a**) as an efficient catalyst for 2-trimethylsilyl-1,3-dithiane (TMS–dithiane) addition to aldehydes at room temperature. The catalyst loading required for these reactions (5 mol %) is the lowest recorded in the literature, and the majority of the reaction times for this transformation are the shortest thus far reported. A variety of functional groups are tolerated on the aryl aldehyde substrates.

Graphical abstract



Publishing functions and vehicles

	Global	Community based/run	Registration	Certification	Dissemination	Archive
Web pages			0	0	X	?
Institutional Repositories			0	0	X	X
Subject Repositories	?	?	0	0	X	X
Journal	X	X	X	X	X	X

0 = done by document NOT vehicle

X = done by vehicle

Functional breakdown?

Registration

Ownership \Rightarrow co-authorship levels

Certification

Internal review \Rightarrow co-authorship levels

Peer review \Rightarrow practice per discipline

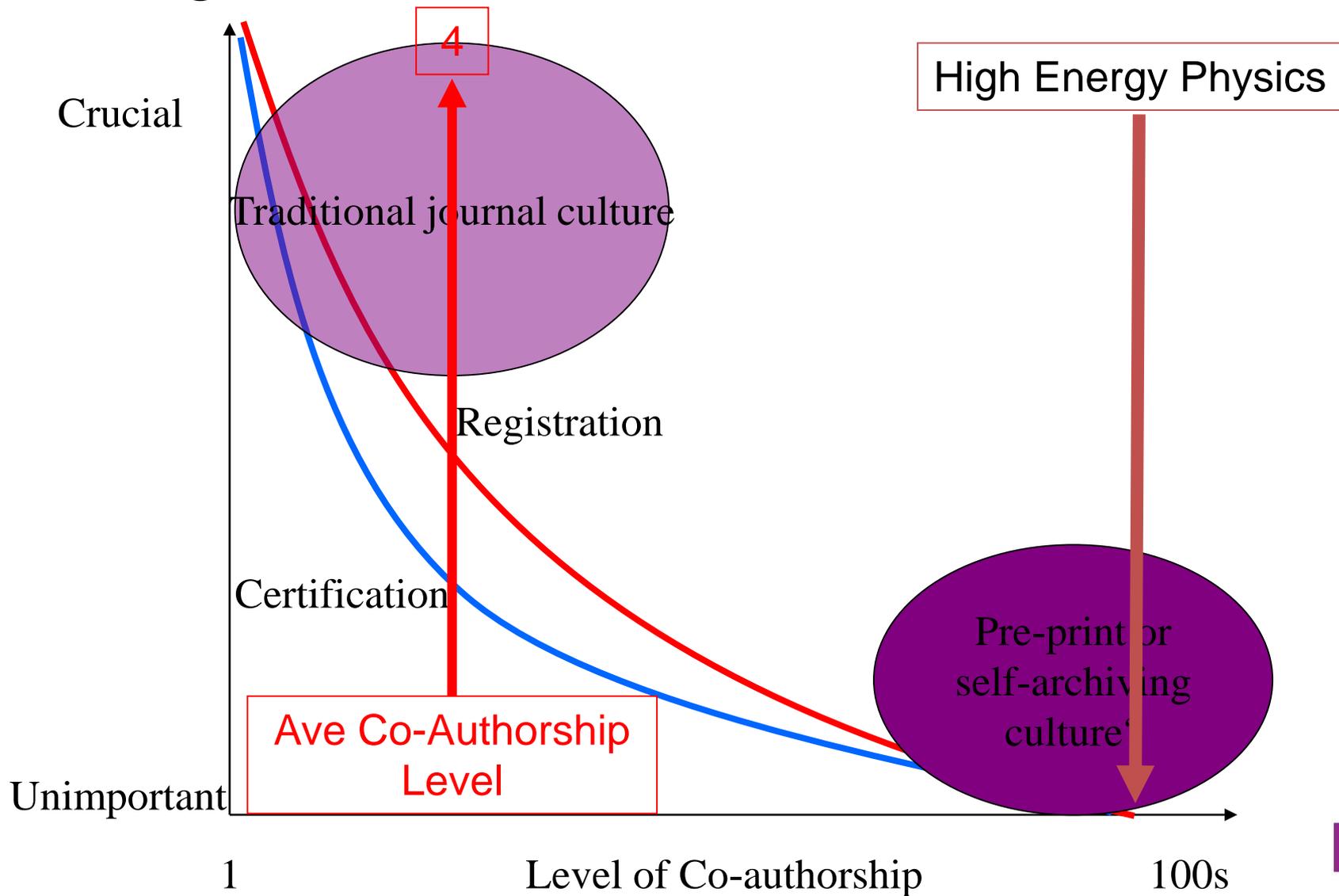
Dissemination

Disclosure \Rightarrow access, visibility to search

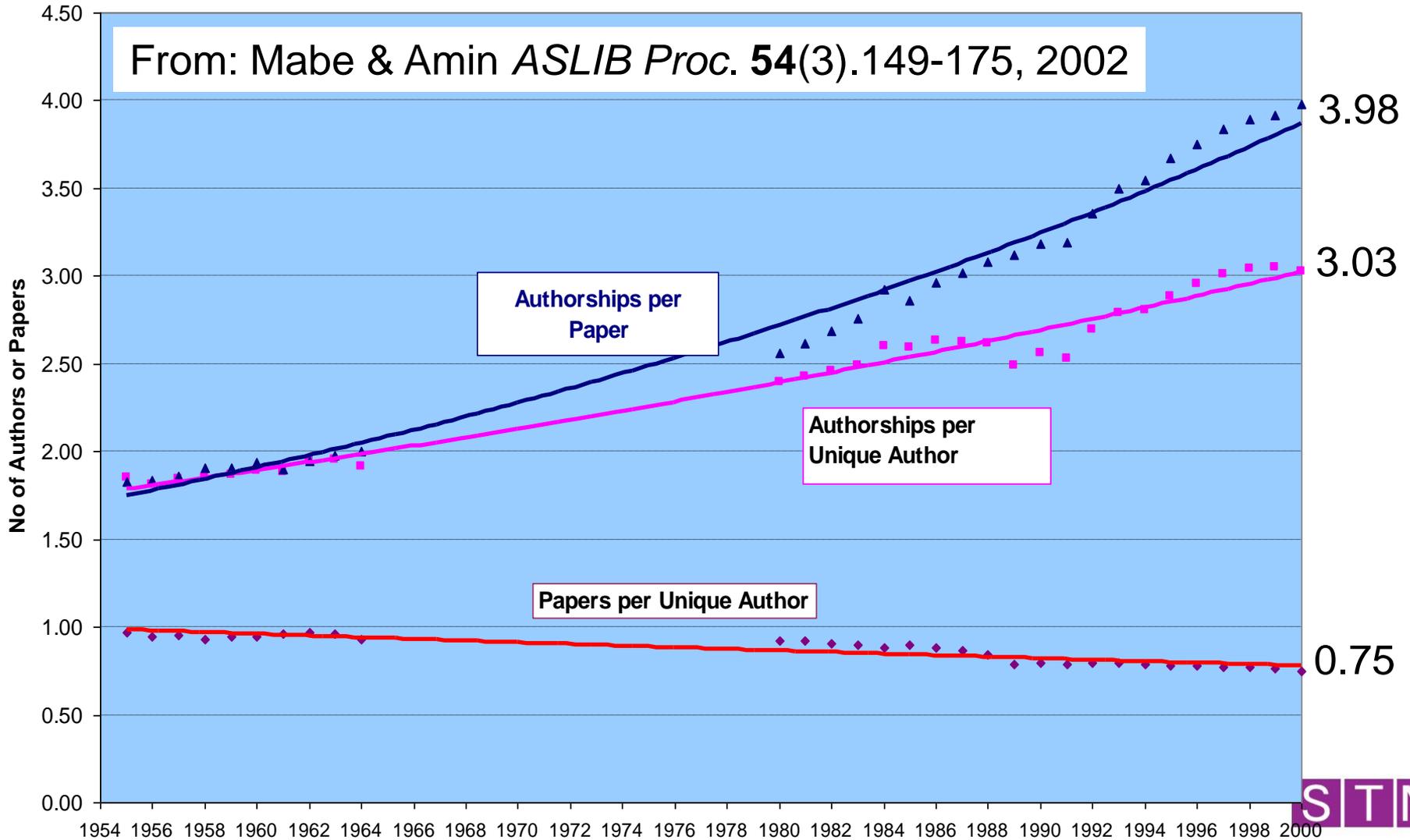
Archive

Permanence \Rightarrow organisation & technology

Registration/Certification & Co-author Levels

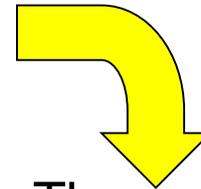
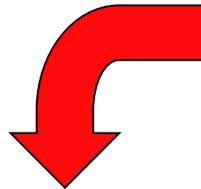


Co-authorship levels



Certification Breakdown by Discipline

Subject variation



Small to Medium Scale
Experimental/Empirical

Theoretical
& V Large Scale Experimental

Many
investigators

Co-authorship
low

Small fields
where quality of
each researchers'
work is known

Peer review as methodological
and quality filter

MOLECULAR &
ATOMIC & SOLID
STATE PHYSICS
CHEMISTRY
LIFE SCIENCES
MATERIALS SCIENCE
ENGINEERING
GEOLOGY

Very
strong

Theoretical paper,
"Right" or "Wrong"
by inspection

MATHS
COMPUTER
SCIENCE

Small fields
where quality of
each researchers'
work is known
personally to
peers

THEORETICAL
PHYSICS

Co-authorship
high

ENERGY
PHYSICS

Very
weak

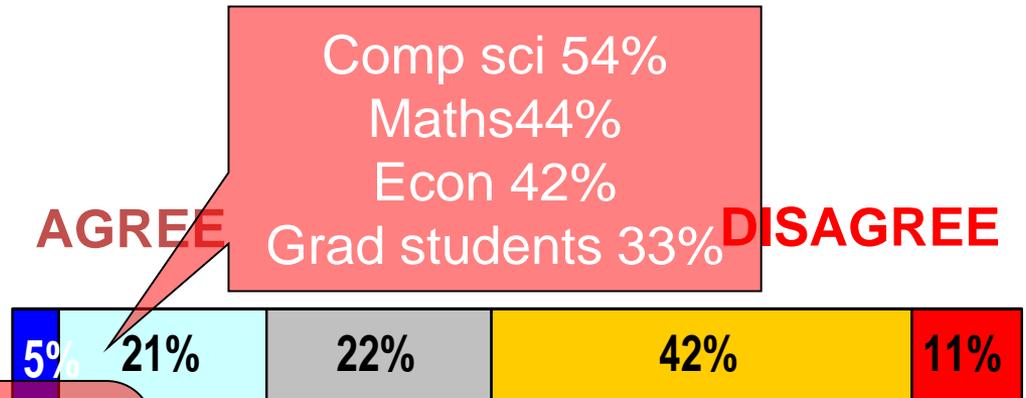
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Certification function

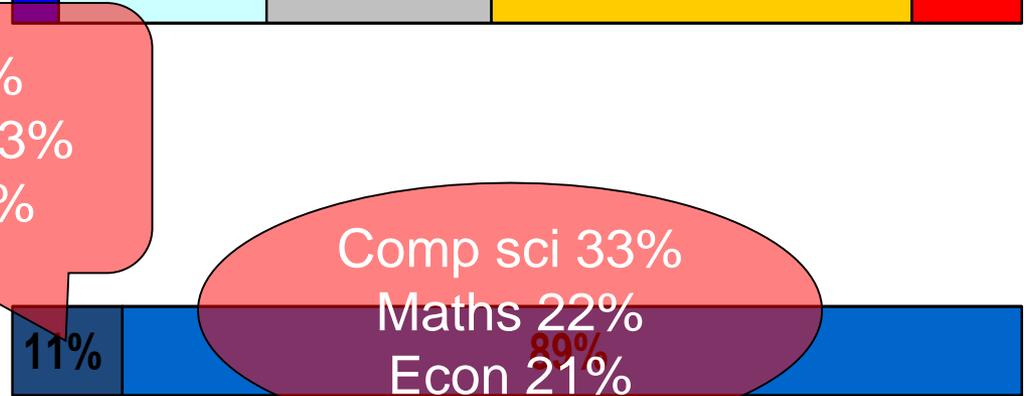
Decoupling from the Journal

Elsevier/NOP 2005 Core Trends Study (N=6344)

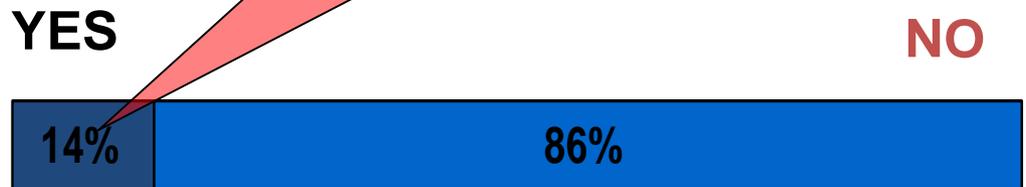
I always search authors websites for the full article



I place an early version on my website



I place a final version on my website



TOPIC 2: TECHNOLOGY

Will tools develop that make the current journal obsolete?

The internet changes everything...



- “Here, on the edge of the twenty-first century, a fundamental new rule of business is that **the Internet changes everything**”
 - Bill Gates *Business @ The Speed of Thought*, 1999
- ‘ “The Internet changes everything!” They say.’
 - *New York Times* 14 December 1998, digital commerce article

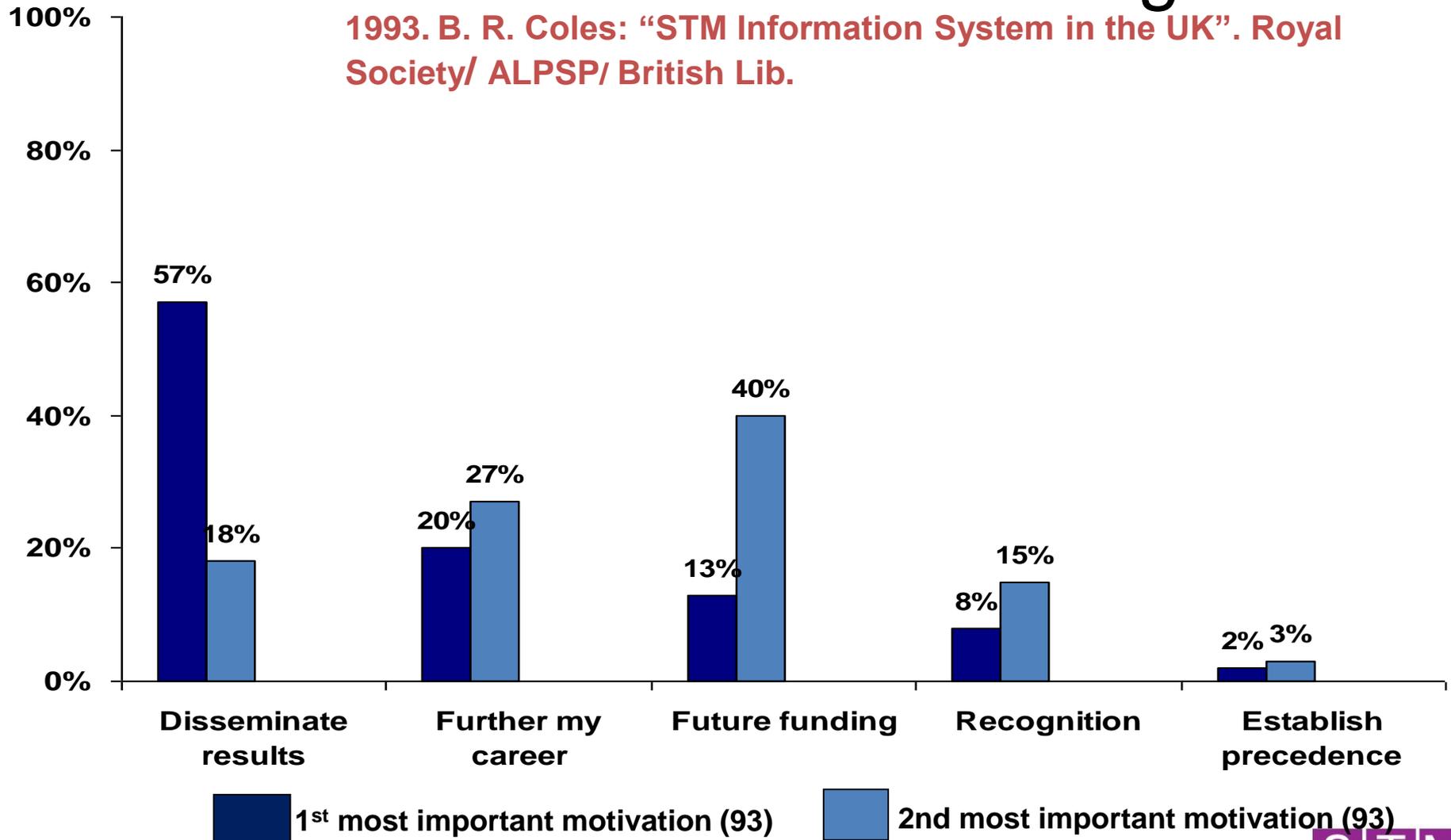
Digital Maturity

- 6 August 1991 – world wide web goes live
- 22 April 1993 – Mosaic launched
- 13 October 1994 – Netscape
- August 1995 – Internet Explorer
- 1992 first www journal – *Online Journal of Current Clinical Trials*
- 1993/94 handful of www journals
- 1991-1995 TULIP large-scale bit image trial
- 1996 onwards — e journal platforms: Ideal, ScienceDirect, Synergy, Interscience etc.

The www is 24 in 2015, www journals are just 22 and e platforms are teenagers (19)

Motivations for Publishing

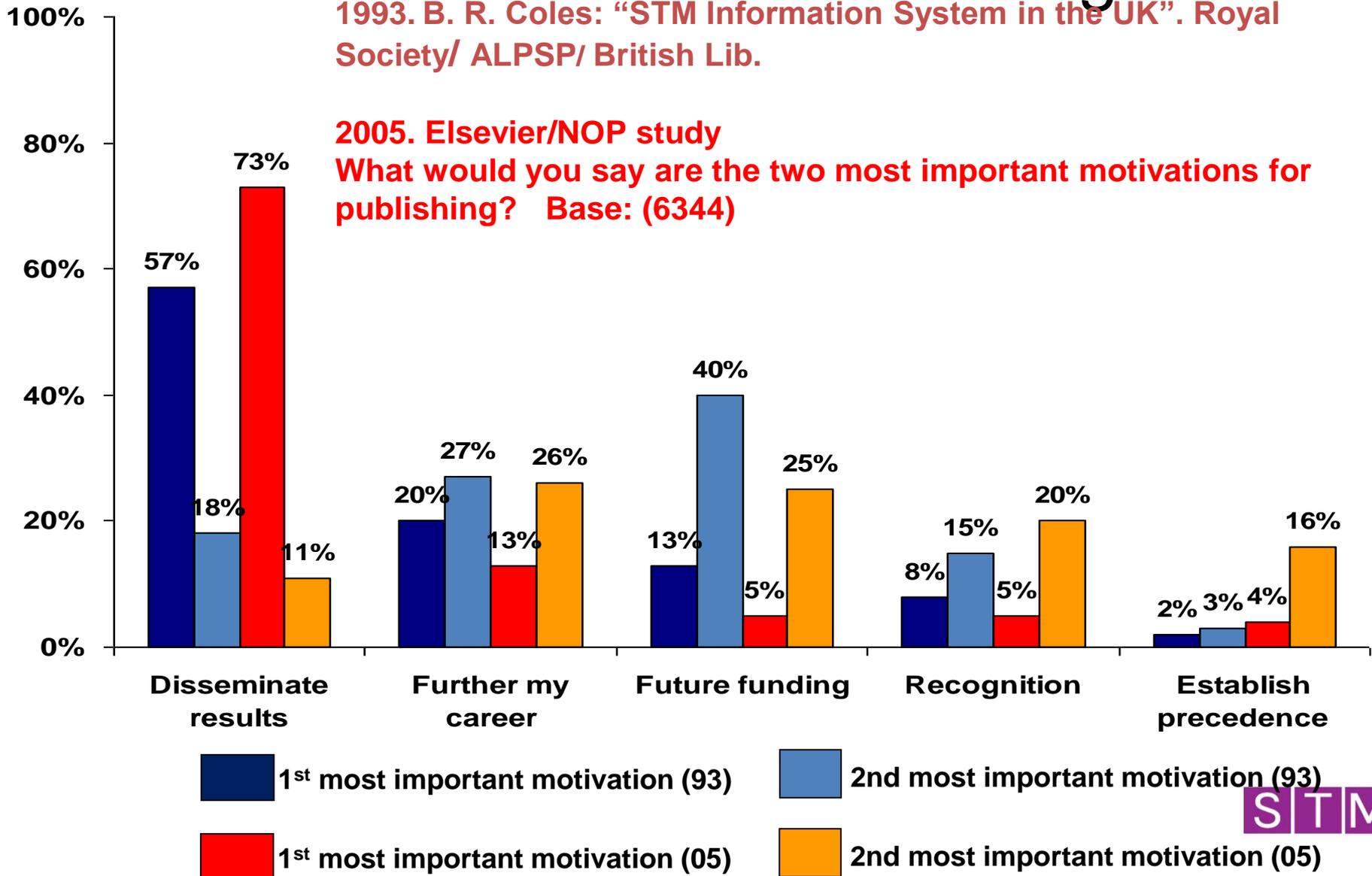
1993. B. R. Coles: "STM Information System in the UK". Royal Society/ ALPSP/ British Lib.



Motivations for Publishing

1993. B. R. Coles: "STM Information System in the UK". Royal Society/ ALPSP/ British Lib.

2005. Elsevier/NOP study
What would you say are the two most important motivations for publishing? Base: (6344)



Challenges of Web 2.0

- User provided content undermining traditional information roles
 - Free vs paid
 - Democracy vs quality
 - Removal of gatekeepers
- Authority systems destroyed
 - Newspaper correspondents vs bloggers
 - Expert analysis vs amateur opinion
- Value added paid services undermined/fail
 - Encyclopedia Britannica vs Wikipedia
 - Repositories vs journals?

[See Andrew Keen *The Cult of the Amateur* for more]

New communication possibilities

- Informal research collaborations
- Semi-formal sharing of information and practice
- Opinion leaders engaging debate
- Collaborative authoring
- Internet relay chat
- Internet forums
- Blogs
- Wikis

**New tools for
old purposes**

Unclear how these might be monetized

Information Ecology

- Communication Dimensionality
 - Mode
 - 1:1, 1:many, many:many
 - Directionality
 - unidirectional, interactive
 - Delivery regime
 - oral, written
 - Temporality
 - Live or recorded
 - Register:
 - private, public, informal, formal
 - Enhancement:
 - local, at a distance

Information Ecology: An Example

- Case of an oral lecture (like this!)
 - Mode: one-to-many
 - Directionality: unidirectional (except for Q&A)
 - Delivery regime: oral
 - Temporality: live
 - Register: public, formal
 - Enhancement: in the lecture hall none
 - but technology allows development to “at a distance”
 - broadcast, but reduced directionality
 - webcast, no reduced directionality

Delivery regime	Mode	Paper		Digital	
		World	Directionality	World	Directionality
Oral	One-to-one	[Green shaded area]	[Green shaded area]	[White area]	[White area]
	One-to-many				
Written	One-to-one				
	One-to-many				
	Many-to-many				



TOPIC 3: BUSINESS MODELS

Will there be any viable business models to sustain publishing operations with net returns?

Business Model Options

- Supply or demand-side user payment
 - 1. Authors pay
 - 2. Authors' institutions pay
 - 3. Authors' granting bodies pay
 - 4. Readers pay
 - 5. Readers' agents (library) pay
 - 6. National authorities pay
 - Third party tolls and tariffs
 - Advertising
 - Telecommunication access charges
 - Sponsorship
 - Charities, foundations, companies, government
 - Rental or timeshare: DeepDyve
-
- | Business Model Option | Percentage of Papers |
|---|----------------------|
| 1. Authors pay | 2% of papers |
| 2. Authors' institutions pay | |
| 3. Authors' granting bodies pay | |
| 4. Readers pay | 98% of papers |
| 5. Readers' agents (library) pay | |
| 6. National authorities pay | |
| Third party tolls and tariffs (Advertising, Telecommunication access charges) | ~5% of papers |
| Sponsorship (Charities, foundations, companies, government) | ?3% of papers |
| Rental or timeshare: DeepDyve | |

Open Access

- Definition
 - Availability of electronic content to readers without any payment
- Variations
 - *What* is made free
 - *When* and *where* it is made free
 - *How* it is made free (business model)

Stages of Publication

Public Investment

Publisher Investment

Stage One	Stage Two	Stage Three
<p>Primary Outputs of Research:</p> <ul style="list-style-type: none">•raw data•Draft for submission to a journal	<p>Author's draft incorporating peer review enhancements and imprimatur of journal</p>	<p>Final published article on journal website: version of record with copyediting, typesetting, full citability, cross-referencing, interlinking with other articles, supplementary data</p>

Types of Open Access

Gold OA:

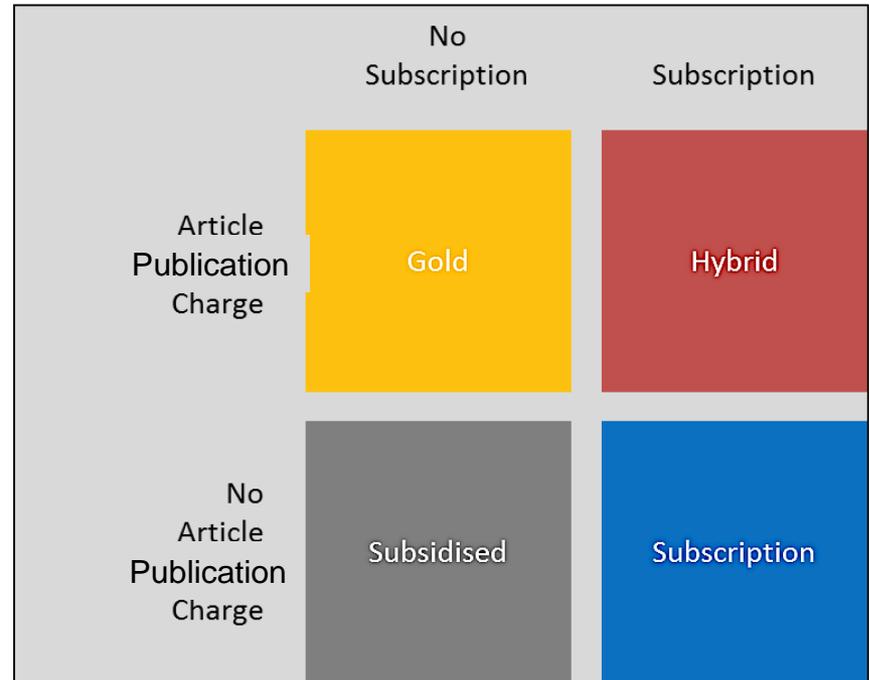
- No payment to read – full journal
- Final published article
- Often with author payment
- “author pays” model

Hybrid OA:

- No payment to read – select articles
- Final published article
- Often with author payment
- “sponsored articles,” “author choice,” “open choice,” etc.

Green OA:

- “self-archiving,” often after delay
- Article versions varies but often accepted author manuscripts
- the “nobody pays” model



Delayed access (embargo):

- Free access on journal platform after delay

Reverse moving wall:

- Free access on journal platform for initial period

Open Access in Asia

China: May 2014, two Chinese funders published their Open Access mandate

Chinese Academy of Sciences (CAS)

- Requires its researchers and graduate students to deposit final, peer-reviewed manuscripts of research articles into the open access repositories of their respective institutes within **12 months of their official publication in academic journals;**
- CAS support publishing in OA journals with reasonable APC's *

National Natural Science Foundation of China(NSFC)

- Requires researchers to deposit final, peer-reviewed manuscripts of research articles into NSFC repository within **12 months of their official publication;**
- To build NSFC institutional repository.

Japan

Japan Science and Technology Agency (JST)

April 2013, JST announced a policy of Open Access for research outputs funded by JST

- JST will implement this open accessibility only with the explicit consent of the journal the researcher has published in and within the embargo time period of the institutional repository, and will clearly state the above in the application guidelines**
- Author final version
- Publishing in Open Access journals is allowed

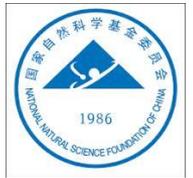
Japan Society for the Promotion of Science (JSPS)

JSPS does not have an own OA policy;

- Upon request STM learned that CAS will not fund APC's in hybrid journals because „they think it is complicated/difficult to offset the gold payment from hybrid journals subscriptions“.



中国科学院
CHINESE ACADEMY OF SCIENCES



STM

STM's position on sustainable access

STM issued a position on sustainable Open Access; signed by over 45 STM + members

<http://www.stm-assoc.org/publishers-support-sustainable-open-access/>

Publishers are committed to the widest possible dissemination of and access to the content they publish. We support any and all sustainable models of access that ensure the integrity and permanence of the scholarly record. Such options include 'gold' open access, ... [which] provides one approach toward our shared goal of expanding access to peer-reviewed scientific works and maximizing the value and reuse of the results of scientific research.

We believe that authors should be able to publish in the journal of their choice, where publication will have the greatest potential to advance their field. Institutions and funders have a key role to play in ensuring that public access policies allow for funding of peer reviewed publication and publishing services in whatever journal that an author chooses. Publishers look forward to working with all stakeholders to achieve this goal and to advance scholarly communication.

TOPIC 4: ZEITGEIST

Will public (political) attitudes regarding the internet make publishing impossible?

Digital *is* Different!

DOMAIN

- Documents
 - Infinite reproducibility
 - Total changeability
- Attitudes
 - “e = free”
 - “yours = mine”
 - “public funding = public access”
 - “(intellectual) property = theft”

CHALLENGES

Business models

Copyright

Authority/trust

Copyright

Business models

Conclusions

- Does journal publishing have a future?
 - **Scholarly behaviour** is remarkably unchanged
 - **Technology** has provided new tools, but these are new tools for old purposes
 - Some **business models** will work in the future but all depends on continuing respect for copyright and business conditions that make publishing economic

➤ **YES, probably...**

➤ **But altering in a few subjects**

➤ **But affecting attitudes to information**

➤ **Perhaps, but not if copyright removed and unfunded mandates allowed**

Predicting the future...

"There will never be a mass market for motor cars — about 1,000 in Europe — because that is the limit on the number of chauffeurs available!" — Gottlieb Daimler, inventor of the gasoline-powered automobile, 1889



Questions?

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