AN IDEAL APPROACH TO OPEN ACCESS AUTHOR PAYMENT

CRADLE PRESENTATION

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BACKGROUND

- There are hundreds of articles advocating Open Access by author payment and/or by self-archiving and institutional repositories
- House Roundtable on Open Access and Related Issues: Participant (non member) June – September
- Advisor on two national studies
- ARIST Chapter with Carol Tenopir ≈ 240 references
- A number of articles mostly with Carol Tenopir and others
- Two articles stimulated my interest in an ideal approach
- Not an advocate

COMPELLING ARGUMENTS FOR AUTHOR PAYMENT

- "The key question is whether there are new opportunities and new models for scholarly publishing that would better serve researchers and better communicate and disseminate research findings." (OECD 2005)
- Many have advocated author payment (e.g., Harnad 2009)
- Many have claimed author payment yields more use (e.g., Davis, et al. 2008, CEPA 2008, Houghton et al., 2009)
- The value of information is in its use
- A principal objective of both authors and funders
- Reasons use is increased: researchers unaware; do not have direct access to libraries, insufficient funds

MY CONCERNS WITH AUTHOR PAYMENT IN SCIENCE

- Will enough authors be willing to pay the fees (King 2004, King et al. 1981, King & Roderer 1981)
  - 1970s over 50% of articles had some from author payment ($900 in current $s)
  - Federal policy for Science & Technology stated that page charges could not be paid to journals operated for profit
  - Commercial publishers gained manuscripts and societies lost
  - Societies lost author payment revenue and had to raise prices

OTHER ISSUES

- About 4.5 million scientists in US based on highest degree and relevant jobs (2006 NSF SESTAT)
- Some scientists are self employed (17%)
- Some are in small firms with less than 100 employees with about 50 necessary for library (29%)
- Some are in non-4year colleges (7%)
- Medical practitioners and scientists above lack sufficient library access and average about six personal subscriptions vs. reading from over 25 journals by those having libraries (King, et al 2006)

SIZE OF AUTHOR PAYMENT FEE

- Examples (King & Alvarado-Albertorio 2008)
  - Public Library of Science (PLoS): $2,250/article. Biology & Medicine ($2,900), PLoS one ($1,300)
  - BioMed Central (BMC): $665 to $2,365
  - Hinawi Publishing: $600 - $1,500
  - AIP: $2,500
  - APS: $995 - $2,160
  - OUP: $2,800
  - Springer Open Choice: $3,000
  - Blackwell Online Open: $2,500
- PLoS and BMC both started too low (PLoS 2004, Butler 2006)
- I estimated 1st copy costs to be about $1,500 per article in 1998 (King 1998)

WHO PAYS FOR AUTHOR PAYMENT FEES?

- Author payment can be made by:
  - Authors themselves
  - Sources of the funders of research reported in articles
- Very little evidence of funding sources:
  - In 1977 major funding sources: government (57%), industry (8%), universities (27%), non-profit & other (9%) (King et al, 1981)
  - University of Pittsburgh University (35%), government (33%), industry (25%), foundations (7%)
  - Some articles had multiple sources of funds and medical faculty not included

TWO ARTICLES LEADING TO IDEA

- Government and universities should form a compact to ensure all their funded articles are covered by them (Shieber 2009)
- Many articles can not be paid by funding sources because funding has run out by time payment is due (Schroter, et al 2006)
- Three-fourths of articles written by university scientists (Ternopir & King 2000)
- Why not go all the way and have the federal governments cover all peer-reviewed science and medical articles?
- Form a compact among nations

THE CASE FOR US SCIENCE

- Number of science articles – 320,400 (Science & Engineering Indicators, Bjork & Roos 2008)
- US R&D funds about $55billion projected to 2009 (Science & Engineering Indicators)
- Assume author fees of $1,500 and $2,500 and that government pays fees for 40, 60 or 100% of the articles
- At 100% the cost to government is $480.6 million at $1,500 and $801.0 million at $2,500, but some is obligated to fund articles reporting their research
- What proportion of the $55billion is necessary?

ADDITIONAL SCIENCE R&D FUNDING REQUIRED

Proportion of Articles Federally Funded (%)	Article Payment Fees			
	$1,500		$2,500	
	Additional Obligation ($ millions)	Proportion Required (%)	Additional Obligation ($ millions)	Proportion Required (%)
40	$288.4	0.52%	$480.6	0.87%
60	$192.2	0.35%	$320.4	0.58%

ADDITIONAL SCIENCE R&D FUNDING REQUIRED

- Calculation example at $1,500 fee: All (100%) federally funding would cost $480.6 million and 40% article funding would cost $192.2 million. The additional funding required is $288.4 million ($480.6-$288.4)

- The maximum federal funding required is less than one percent (0.87% at 40% of articles reporting federally funded research at $2,500 author payment fee)

IMPORTANT 100% AUTHOR PAYMENT CONSIDERATIONS

- Should journal brands be maintained?
- How should access to journals/articles be achieved?
  - Libraries
  - Publishers
  - National archives

PARTICIPANT INVOLVEMENT IN THE SCIENCE JOURNAL SYSTEM IN THE US

System Participants	Proportion of Total Costs of Resources (%)
Authors	12%
Donated reviewers/editors	3%
Publishers	9%
Libraries/intermediaries	11%
Readers	65%
Total	**100%**

PARTICIPANT INVOLVEMENT IN THE SCIENCE JOURNAL SYSTEM IN THE US

- Library proportion does not include purchases
- Based on CEPA, 2008; Houghton, et al., 2006; Houghton et al., 2009; Morris 2005; King, et al., 1981

LIBRARY ASSUMPTIONS & COST SAVINGS

- Print and electronic subscriptions and ILL will drop dramatically
- Print subscription savings: $690 per title
- Print subscriptions for periodicals room savings: $310 per title
- Electronic subscription savings: $150 per title
- ILL savings (borrow and loan): $20-$40 per loan
- Costs based on 25 year life cycle

  (King et al. 2004)

INTERMEDIARY ASSUMPTIONS & COST SAVINGS

- Subscriptions agencies will decline or disappear
- Consortia will cut back
- US consortia average $64,00 per member (King & Xu, 2002)
- Commercial publishers more likely to make sales to consortia than not-for-profit publishers (Cox & Cox, 2008)

PUBLISHER ASSUMPTIONS & COST SAVINGS

- Most library print subscriptions will discontinue except for those used for periodicals rooms
- Personal or society membership subscriptions will decline more slowly because they are preferred by scientists and medical practitioners (Tenopir et al., 2009; King et al., 2006)
- First copy costs should remain about the same with author payment with payment processing for most subscription maintenance costs

PUBLISHER ASSUMPTIONS & COST SAVINGS

- Suspension of electronic subscriptions should save about $10 per subscription

- Suspension of print subscriptions should save about $40 to $100 per subscription depending on size, number of issues, features, etc

  (Tenopir & King 2000)

RESEARCHERS ASSUMPTIONS & COST SAVINGS

- Scientists who do not have libraries immediately available will save time and money by “free” access
- These scientists should save an average of 36 minutes and $10 per reading (King et al. 2009)

CHANGE IN FLOW OF FUNDS

- Some scientists will pay less to publishers or societies
- All libraries (academic, special, public) will pay less to publishers, vendors, and/or consortia
- Federal R&D funds will be diverted to publishers and national repositories

OTHER ISSUES

- Authors might be tempted to write more, but:
  - Articles are peer-reviewed discouraging poor articles
  - The cost of authorship is about 80 to 100 hours (Tenopir & King, 2000)
- All publishers must compete for relevant and quality manuscripts:
  - Keep fees competitive
  - Continue value-added peer-review, editing, formatting, and other features
  - Cash flow poorer

OTHER ISSUES

- Publishers might accept higher proportion of manuscripts
  - Peer-review should control this
  - Authors and readers would soon recognize that quality has deteriorated

- Author payment processing fees must be non-fungible, be funded by an independent agency/administration, and be non-political

THE END…..

- PHEW!!!!!

References

- Bjørk, B.-C., Roos, A., & Lauri, M. (2008, June). Global annual volume of peer reviewed scholarly articles and the share available via different open access options. *Proceedings of ELPUB 2008*, Toronto.
- Butler, D. (2006). Open-access journal hits rocky times. *Nature, 441*(914). Retrieved from http://www.nature.com/nature/journal/v441/n7096/full/441914a.html
- Davis, P. M., Lewenstein, B. V., Simon, D. H., Booth, J. G., & Connelly, M. J. L. (2008). Open access publishing, article downloads, and citations: Randomized controlled trial. *BMJ, 337*(a568), 6.
- Harnad, S. (2009a). The post-Gutenberg open access journal. In B. Cope & A. Phillips (Eds.), *The Future of the Academic Journal* (pp. 125-137). Oxford: Chandos Publishing.
- Harnad, S. (2009b). Reply to Anthony Watkins' entry. *Open Access Archivangelism Blog.* Retrieved from http://openaccess.eprints.org/
- Harnad, S. (2009c). Validating multiple metrics as substitutes for expert evaluation of research performance. *Nature, 457*(785). Retrieved from http://openaccess.eprints.org/index.php?/archives/508-quid.html
- King, D. W. (2004). Should commercial publishers be involved in the model for open access through author payment? *D-Lib Magazine, 10*(6). Retrieved from http://www.dlib.org/dlib/june04/king/06king.html
- King, D. W., McDonald, D. D., & Roderer, N. K. (1981). *Scientific journals in the United States: Their production, use, and economics.* Stroudsburg, PA: Academic Press.
- King, D. W., Tenopir, C., & Clarke, M. (2006). Measuring total reading of journal articles. *D-Lib Magazine, 12*(10).
- OECD (2005). *Digital broadband content: Scientific publishing.* Paris: OECD. Retrieved from http://www.oecd.org/dataoecd/42/12/35393145.pdf
- Schroter, S., Tite, L., & Kassem, A. (2006). Financial support at the time of paper acceptance: a survey of three medical journals. *Learned Publishing, 19*(4), 291-297.
- Shieber, S. M. (2009). Equity for open-access journal publishing. *PLoS Biology, 7*(8). Retrieved from http://www.plosbiology.org/article/info:doi%2F10.1371%2Fjournal.pbio.1000165
- Tenopir, C., & King, D. W. (2000). *Towards electronic journals: Realities for scientists, librarians, and publishers.* Washington, DC: Special Libraries Association.
- Houghton, J. W., & Sheehan, P. J. (2009). Estimating the potential impacts of open access to research findings. *Economic Analysis and Policy, 39*(1).
- Morris, S. (2005). The true costs of scholarly journal publishing. *Learned Publishing, 18*(2), 115-126.