STM Innovation through Collaboration

Supporting researchers, librarians and academic decision makers through innovation

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Senior Vice President
Global Academic Relations

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Agenda

- Innovation at the core of the Science, Technology and Medical (STM) strategy – innovation has to be customer focused

- Going digital:
  - Long-term digital preservation
  - More content, more usage
  - More usage, higher science productivity
  - Better access: alternative access models (sponsored, for doctors, for patients, for developing nations)

- Innovation for scientists:
  - Web 1.0: adding value to the journal article
  - Web 2.0: collaboration tool 2Collab
  - Web 3.0: semantic searching through illumin8

- Innovation for decision makers: Spotlight, supporting strategists in academe: services built on top of the world class content to address
  - benchmarking,
  - talent management and
  - interdisciplinary collaborations
Elsevier has a long history of scientific publishing

- The Publishing House of Elzevir was first established in 1580 by Lowys (Louis) Elzevir at the University of Leiden, Holland.

- Keeping to the tradition of publishing established by Lowys Elzevir, Jacobus George Robbers established the modern Elsevier Company in 1880.

- Among those authors who published with Elsevier are Galileo, Erasmus, Descartes, Alexander Fleming, Julius Verne.
Elsevier and the Greek science community

- **John H. Argyris** (Mathematics – Finite Element Method)
  - Elsevier Journal: Computer Methods in Applied Mechanics and Engineering etc

- **Dimitri Nanopoulos** (Physics – flipped SU(5))
  - Elsevier journal: Physics Letters etc

- **Fotis Kafatos** (Biology – cDNA cloning)
  - Elsevier journal: Parasitology Today etc

- **Christos Papadimitriou** (Computer Science – comp. complexity theory)
  - Elsevier Journal: Theoretical Computer Science etc

- **Athanasios S Fokas** (Mathematics)
  - Elsevier Journal: Journal of Computational and Applied Mathematics etc

- **Nicholas Negroponte** (founder and Chairman Emeritus of [Massachusetts Institute of Technology](https://mit.edu)’s [Media Lab](https://mitmedialab.mit.edu))
  - Elsevier Journal: Computers & Graphics etc

- **John Iliopoulos** (Physics - [charm quark](https://en.wikipedia.org/wiki/Charmed_quark))
  - Elsevier journal: Nuclear Physics B etc

- **Panayotis Zavos** (Genetics)
  - Elsevier Journal: Theriogenology etc

- **Stavros A Koubias** (engineering / computer science)
Innovation @ Core of STM Strategy

**Traditional**

- “Simple needs”
- Publisher empowered

**Content**

- Weekly/monthly/annual
- Print
- Pushed

**Transaction**

- Subscription
- Advertising

**Value Proposition**

**Distribution**

**Pricing Models**

- Licence/User
- Bundled / Atomised
- Pay for Performance
- Free!

**Increasingly**

- “Complex needs”
- High expectations
- User empowered

**Solutions**

**Continuous**

- Electronic
- Multi-directional

**Innovation**

- Customer Marketing
- Technology

**Key Skills for Success**

**Innovation @ Core of STM Strategy**

18th Panhellenic Conference of Academic Libraries
Library and Information Center, University of Patras
November 4-6, 2009
Findings (1): workflow framework
Workflow framework for academic researcher and (exhaustive) activity map

Tasks
- Grant Proposals
- Experiments
- Find funding agency, search literature, read, build alliances, discuss, prepare proposals
- Plan, search info, set up experiment, run exp., analyze, validate findings, store data

Activities

Roles
1. Core Research (40% of time spent)
- Check new literature
- Write, edit, review, submit
- Format references, collaborate
- Set up alerts, search literature across relevant sources
- Read articles, discuss

Findings (2): key insights for each task

Roles
1. Core Research (40% of time spent)
- Time pressure
- Information overload
- Many different tools
- Organizing information
- Storing/sharing datasets
- Hard and time consuming to secure funding

Problems
- Research becomes more interdisciplinary
- Increased accessibility to electronic content
- Growing number of sources
- New technologies (RSS, blogs)
- More tools for author workflow support

Trends

Findings (3): key insights across roles
Common problems and product suggestions, based on end-user research

Roles

Findings (3): key insights across roles
Common problems and product suggestions, based on end-user research

Inefficiency of search
- Information overload
- Need to repeat search over time in different tools
- Uncertainty about finding all relevant info
- Inefficient search strategies
- Lack of common terminology

Information Management
- Multitude of tools
- Lack of time/discipline

Evaluation:
- Lack of standardized measures
- Criticism of impact factor
- Differences across disciplines, countries, institutes, departments

Collaboration
- Document/version management
- Differences in tools
- Lack of time/discipline/computer skills

Time management
- Balancing research and other tasks
- Peaks in workload
- Bureaucracy

Product suggestions by end-users
- ‘Use and add metadata as much as possible’
- ‘Support design of library sites’
- ‘Enable one-stop-shop searching, including info other than peer-reviewed’
- ‘Offer better search suggestions: alternative search terms, spelling corrections, mining search history’
- ‘Integrate with online dictionaries and encyclopaedia’
- ‘Minimize registration and login barriers’
- ‘Enable quick sense making of single doc & collection of docs’
- ‘Link articles to associated data sets’
- ‘Support search in protocols and methods’
- ‘Develop grant broker’
- ‘Integrate with online dictionaries and encyclopaedia’
- ‘Build forum for exchanging experiences about protocols, methods, suppliers’
- ‘Support team access to common materials, shared annotations, discussions’
- ‘Support finding collaboration opportunities’
- ‘Support author homepages: automatically update content’
- ‘Support finding examples, images, etc. for learning’
1998

Elsevier Activity
Range

electronic full
text services

full text html | PDF
Innovation: going digital!
In Greece thanks to HEAL Link....
Going electronic: secure all our content in digital format and address long-term preservation: true partnership between library & academic community and the publishers

Elsevier’s Digitized Backfiles / E-journals
e.g. Lancet – volume 1, number 1, from 1823

Elsevier led the establishment of an online, official, trusted third party archive at the Royal Library of the Netherlands.

Developed similar arrangements with other organizations

- Koninklijke Bibliotheek (1st official archive)
- Portico
- CLOCKSS (3rd official archive)
E-publishing: expanded content & growing usage

- Add remaining backfiles, books, major reference works and primary research data
  - eBooks, lab data and visuals on ScienceDirect
- Launch new journals, expanded newsletters
  - 24 new journals per year, 2006-2008; SciTopics.
- Increase volume with research and development growth
  - 3-4% article growth per year
University College London study confirms strong correlation between e-journal usage, research output and funding

“Doubling in downloads, from 1 to 2 million, is statistically associated with dramatic - but not necessarily causal - increases in research productivity”

- Papers up 207%
- PhD awards up 168%
- Research grants and contract income up 324%

Even stronger as downloads increase further

“Electronic Journals: Their use value and impact. Research Information Network Report”
Changes in the Access Landscape: “Open Access”, “Universal Access”, “Sustainable Access” etc. etc.

1. **Author pays journals**
   - Author fee per article published unless waived
   - Subsidies, grants

2. **Sponsored articles**
   - Option to pay article fee after decision to publish
   - Subscriptions prevail

3. **Free access to recent archive (Delayed Access)**
   - Subscription journals making articles free online after time delay

4. **Open archiving**
   - Posted manuscripts, or pre-prints
   - On websites and repositories

5. **Patient information Access for developing nations**
   - Scientific and medical articles used by public in medical need

6. **Search**
   - Tools that point to content located on the internet

### Definition
- Author pays journals
- Sponsored articles
- Free access to recent archive (Delayed Access)
- Open archiving
- Patient information Access for developing nations
- Search

### Examples
- BioMedCentral
- Public Library of Science (PLoS)
- Open Choice (Springer)
- Online Open (Blackwell)
- Elsevier sponsored option & Wellcome Trust agreement
- Cell (12 months)
- IJSS (24 months)
- HighWire Press
- Author-posted
- Funding body policies: NIH, RCUK, Wellcome Trust
- Elsevier walk-in policy for ScienceDirect
- Patient INFORM, Patient Research
- Research4Life
- Google, Google Scholar
- Microsoft
- Yahoo!
Elsevier funding body agreements and policies

Terms

National Institute of Health (NIH)
• Accepted author manuscript deposited to PubMedCentral (PMC) to appear 12 months after final publication

Wellcome Trust
• Article made freely available on ScienceDirect/Phoenix
• Typically US$3,000 per article (Cell, Lancet higher)

Howard Hughes Medical Institute (HHMI)
• Article made freely available on ScienceDirect/Phoenix
• Elsevier bills HHMI

Uptake of sponsorship has been slow but is growing.
### Market Perception: Elsevier’s author posting policies

<table>
<thead>
<tr>
<th>Publisher: Elsevier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-print: ✓ subject to Restrictions below, author can archive pre-print (i.e., pre-refereeing)</td>
</tr>
<tr>
<td>Restrictions:</td>
</tr>
<tr>
<td>✓ This does not include Cell Press</td>
</tr>
<tr>
<td>Post-print: ✓ author can archive post-print (i.e., final draft post-refereeing)</td>
</tr>
<tr>
<td>Conditions:</td>
</tr>
<tr>
<td>✓ On authors personal or authors institutions server</td>
</tr>
<tr>
<td>✓ Published source must be acknowledged</td>
</tr>
<tr>
<td>✓ Must link to journal home page</td>
</tr>
<tr>
<td>✓ Publishers version/PDF cannot be used</td>
</tr>
<tr>
<td>✓ Articles in some journals can be made Open Access on payment of additional charge</td>
</tr>
<tr>
<td>✓ NIH Authors articles will be submitted to PMC after 12 months.</td>
</tr>
<tr>
<td>Mandated OA:</td>
</tr>
<tr>
<td>✓ ANR (Compliant—see conditions); ✓ arc (Paid OA option); ✓ ARC (Paid OA option); ✓ BBSRC (Compliant—see conditions); ✓ Cancer Research UK (Paid OA option); ✓ CSD (Paid OA option); ✓ DoH (Paid OA option); ✓ CERN (Compliant—see conditions); ✓ ERC (Compliant); ✓ FWC (Compliant); ✓ FWF (Compliant); ✓ HHHR (Paid OA option); ✓ International HR (Paid OA option); ✓ IRCSET (Compliant—see conditions); ✓ MRC (Paid OA option); ✓ NHMRC (Compliant—see conditions); ✓ NIH (Compliant); ✓ NERC (Compliant); ✓ PPARC (Compliant); ✓ SNF (Compliant); ✓ STFC (Compliant); ✓ Wellcome Trust (Paid OA option)</td>
</tr>
<tr>
<td>Paid access: Sponsorship Option</td>
</tr>
<tr>
<td>Copyright: view policy</td>
</tr>
<tr>
<td>RoMEO: This is a ROMEO green publisher</td>
</tr>
<tr>
<td>Updated: 22-Aug-2007. Suggest an update for this record</td>
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</tbody>
</table>

“'I, for one, am prepared to stoutly defend Elsevier on all these counts, and to say that one could not have asked for more, and that the full benefits of OA require not one bit more — from the publisher.”

- Stevan Harnad, AmSci Forum listserv 2004

Elsevier is viewed favorably as a “green publisher” and for establishing policies and agreements that allow authors to comply with funding body policies.

Source: [http://www.sherpa.ac.uk/romeo.php?all=yes](http://www.sherpa.ac.uk/romeo.php?all=yes)
Elsevier patient access initiative: Patient Research

**Description:**

Patient Research is an initiative to give patients, family members and caregivers access to medical articles that might help them better understand their health issues.

- A patient, family member or caregiver searches the internet on topics relevant to a patient’s condition.
- Search results link to articles in participating Elsevier medical journals.
- The individual may register to request email delivery of the article for a minimal processing fee.

The program began in October 2006 with 30 journals and was expanded to 100 journals in June 2008.

**Uptake:**

![Downloads per month graph showing an increase in downloads from October 2006 to July 2008, with a peak in June 2008.](image-url)
OncologySTAT.com is a cancer portal containing 100+ Elsevier clinical research and review journals that provide content related to the topic of cancer, including top impact factor titles such as The Lancet and Lancet Oncology.
**Research4Life:** Access for developing countries through collaboration with the UN, Yale, Cornell, Microsoft and other STM publishers.

WHO initiative provides access to the major journals in biomedical and related social sciences.

FAO initiative provides access to journals in the agriculture, biological, and social sciences.

UNEP initiative provides access to major journals in the environmental sciences.

Elsevier provides access to more than 1,500 of its journals to public institutions in over 100 developing countries. Participating countries increased research output by almost 200% over the last 5 years!
Innovation for Researchers
Added value to article content: identifying key entities – domain specific solution

The cytostatic activity of pyrimidine nucleosides is strongly modulated by Mycoplasma hyorhinis infection: Implications for cancer therapy

Slade Jr., G.W. a 1, Miller, K.D. a 2
Indiana University School of Medicine, Indianapolis, IN 46202, USA

Smart linking authors and affiliations in Scopus

Integrate domain specific solutions, from both Elsevier and 3rd parties
Web 2.0 application: The Research Collaboration Tool

Add new resources to share with your research group

Discover new resources based on popular user-defined keywords

Collaborate with others in your field

Elsevier’s 2collab was listed by Information Age among Top 10 Web 2.0 business success stories
Web 3.0 application: Illumin8 based on semantic searching

“The company... has signed up a long list of major innovators, including 3M, Proctor & Gamble, General Mills and a couple of dozen other Fortune 500 companies. By all accounts, Illumin8 is set to become the Google of the innovation space...”

The Economist - March 2008

- Semantically “Reads” sentences
- Extracts relevant Organizations, People, Products, Benefits, etc.
- Include Billions of pages from Web, Journals, Abstracts, Patents
- Presents “Answers”, not “Documents”

《Carrier’s Infinity™ Air Purifier》uses ultraviolet light to eliminate germs such as viruses, molds, bacteria, mildew and mold spores from the indoor air of homes and offices, ensuring a higher indoor air quality.
Some Future Thinking on Innovation: Exploring New Services for Decision Makers – Based on Scopus
Researchers and Decision Makers Face New Challenges

Global Market Research: 1,800+ Respondents

FINDINGS:

Research landscape is changing
- Research funding is increasingly competitive.
- Research is becoming more and more multidisciplinary.
- Interdisciplinary collaboration grows in importance.
- Governments launch initiatives to quantify scientific output.

Challenges to meet your goals
- Insights into institutional strengths and weaknesses
- Insights into new research trends and collaborations
- Identifying the flow of funding and funding opportunities
- Availability of adequate tools to help deal with these challenges

Institutional and individual goals
- Establish, maintain and develop institutional and personal research leadership
- Acquire appropriate funding to secure research projects.
- Increase research efficiencies
SciVal Spotlight: Visualizing Existing & New Research Clusters

Step 1: Articles are clustered using co-citation analysis

Step 2: Articles from past 5 years assigned to the clusters based on references

Step 3: Each cluster is assigned to a discipline and subject area

Step 4: All clusters are placed on the wheel for visualization purposes
SciVal Spotlight: a Complete Picture of your Institution’s Research Strengths

Each bubble represents a group of clusters wherein your institution has a distinctive competency.

Size of the bubble reflects the size of the output in each cluster.

Position within the circle indicates the interdisciplinary mix.

Legend:
- The large circle represents the scientific world and the colors refer to different subject areas. Each circle on the map represents a distinctive competency. These distinctive competencies are defined by clusters of articles:
  - The larger the circle, the more publications exist in this competency.
  - Circles closer to the center of the map are more interdisciplinary.

List of subject areas:
- Math & Physics
- Chemistry
- Engineering
- Earth Sciences
- Biology
- Biotechnology
- Infectious Disease
- Medical Specialties
- Health Sciences
- Brain Research
- Humanities
- Social Sciences
- Computer Science
SciVal Spotlight: Identifying Top Researchers In Growing Disciplines

Distinctive Competency #44:

Disciplines: Urology (75.3%)
Main keywords: radical prostatectomy; urinary incontinence; artificial urinary
Cited: 1537
Articles: View articles in Scopus

<table>
<thead>
<tr>
<th>Market Size (Global)</th>
<th>Your institution</th>
<th>Relative Market Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publications</td>
<td>298.6</td>
<td>5.3</td>
</tr>
<tr>
<td>Growth</td>
<td>20.1%</td>
<td>0.75</td>
</tr>
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</table>

Top authors:
1. Single A. Wayne State University
2. Webster G.D. Duke University Medical Center
3. Gruj K. First University
4. Conlin K.V. University of Arizona
5. Stolzenburg J.U. University of Leipzig
6. Baes G.T. University of Chicago
7. Peterson A.C. Duke University Medical Center
8. Stone A.R. University of California at Davis
9. Elliott D.S. Mayo Clinic Rochester MN
10. Raj G.V. Duke University Medical Center

Top researchers within this discipline who can strengthen your relative position
US Funding opportunities integrated with award information and publication data

SciVal Funding delivers quick and comprehensive access to current funding opportunities and award information. The tool is designed to support research administrators and researchers in the pre-award stage of funding and increases the effectiveness and increases grant submission success rates.

Use SciVal Funding to find opportunities, awarded grants and recommendations:

1. Find opportunities:
   - Search for current funding opportunities.
   - Example: "heart attack" AND aspirin
   - Search for opportunities

2. Find awarded grants:
   - Search for previously awarded grants.
   - Example: "energy" AND "Smith, John"
   - Search for awards

3. Personal recommendations:
   - These opportunities were selected for you based on your personal profile.
   - Advanced Training Elective in Translational Diagnostics
   - Rasa Gorbachev Memorial fellowships
   - Indoor Environment
   - Allergic Diseases
   - Edward H. Kass Medical Research Award
   - 5 of 300 recommendations: See all

A singly source of high quality funding opportunity information
Seeing what research was funded in the past can influence future success
Targeted recommendations provide guidance on where to apply to
In conclusion...

- STM publishing is a highly innovative, efficient sector
  - Innovation can only succeed if it is customer driven.
  - Going digital has resulted in content and usage surge with positive impact on research output
  - Access addressed in various ways: ‘Open Access’, access for health professionals, patients, researchers in developing nations.

- Innovation for scientists:
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- Innovation for decision makers: Spotlight, supporting strategists in academe: services built on top of the world class content to address
  - benchmarking,
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  - funding