STM Report 2018: A Taster

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The STM Report
An overview of scientific and scholarly publishing

1968-2018
Celebrating the 50th Anniversary of STM

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Fifth edition, October 2018

Available at: https://www.stm-assoc.org/
The development of the STM Report

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STM Market Characteristics

**Annual STM English-language journal revenues about US$10 billion (2017)**
- CAGR 2.1% (2013 US$9.1 billion)

**Broader STM market about US$25.7 billion (2018)**
- STM Books worth ~US$3.3 billion annually; e books ~1/3rd (2016) and growing at a faster rate than the market as a whole

**STM revenues by geography:**
- 41% US; 27% Europe/Middle East; 26% Asia/Pacific; 6% Rest of World

**STM workforce:**
- Estimated at 110,000 globally, 40% employed in the EU
STM Journal Market

- 33,100 active scholarly peer reviewed English-language journals (mid-2018)
  - Growing at around 5% pa

- 3 million articles published per year
  - Growing at 4% pa

- The number of researchers is currently ~ 7/8 million
  - Researcher numbers are rising, but only about 20% are repeat authors
A shifting global landscape

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>% of global outputs (2016)</th>
<th>Ranking change since 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>18.6</td>
<td>↑1</td>
</tr>
<tr>
<td>2</td>
<td>US</td>
<td>17.8</td>
<td>↓1</td>
</tr>
<tr>
<td>3</td>
<td>India</td>
<td>4.8</td>
<td>↑7</td>
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<tr>
<td>4</td>
<td>Germany</td>
<td>4.5</td>
<td>–</td>
</tr>
<tr>
<td>5</td>
<td>UK</td>
<td>4.3</td>
<td>↓1</td>
</tr>
<tr>
<td>6</td>
<td>Japan</td>
<td>4.2</td>
<td>↓3</td>
</tr>
</tbody>
</table>

Global shares of article outputs 2006-16

Articles indexed from academic & scientific journals 1975-2018

Courtesy of Eric Archambault (Science-Metrix)
Researchers

• Researcher core motivations for publishing unchanged

• Reading patterns appear to have stabilised
  – Reading 250 articles p.a. (disciplinary variation)
  – Search dominates over browse (disciplinary variation)
  – Very little time spent on publisher web sites

• Continuing innovation in peer review
  – Much experimentation but still limited support for post publication review
Technology

• **Data, data, data!**
  – Policies for deposit and sharing (RDA)
  – Data citation (DataCite & Scholix)

• **Growth in web-scale discovery tools**
  – Offer new perspectives on content and relationships

• **AI is now a viable tool with real applications**
  – Largely helped by the large amount of data available, the low price of software and improvements in self-learning algorithms

• **Growing use of preprint servers**
  – 20% of preprints on arXiv never published in journals, growing development of preprint culture in other disciplines
Business Models

• Aggregation remains the norm
  – The bundle model under pressure from librarians
  – “Big Deal” remains important, but increasingly tied to OA

• Access to STM content at an historic high
  – Annual downloads greater than 2.5 billion

• The most commonly cited barriers to access are cost and pricing related

• Research4Life provides free or very low cost access for 8,500 institutions in 118 developing nations to nearly 20,000 journals
Open Access

- Degree of penetration of various OA models is complex
- DOAJ lists 11,811 (9,172 in English) OA journals
- Overall OA article penetration is approximately 1/3\textsuperscript{rd}
  - 15-20\% (Gold or articles in OA journals)
  - 10-15\% (Delayed access on publisher websites or self-archived copies)
- OA only c.5\% of total market revenues
Changes in publishing models

Trends Since 2015 Report

The megajournal is established but by no means the dominant form

- Increase in number of megajournals linked to increase in research output, rather than displacing existing journals

From open access to open science

- Increasing tendency for (some) funders to intervene in the scholarly communications process

Impact of social networks is growing

- However it continues to lag well behind trends in consumer media

Publishers as workflow and analytics businesses

- Serving other parts of the research workflow via acquisition and new product development
Future Prospects?

- **Some constants** in fast changing world
  - Oldenburgian functions remain fixed (registration, dissemination, certification and archive)
  - Author motivations remarkably constant

- Continued focus on **trust and transparency**

- **Shifting centre of gravity** towards the East - peer-reviewers, editors, publishers

- Increased emphasis on **data and open science**

- **Open access transition** will continue
  - Further downward pressure on per article costs is inevitable
  - Momentum for uptake growing, especially in Europe, but may lead to fragmentation
  - Top (high rejection rate) journals remain subscription-based?
  - OA in books and educational resources

- **Accelerating pace of market and technology innovation**
  - Set in part by leading consumer brands
"Everyone's always asking me when Apple will come out with a cell phone. My answer is, 'Probably never.'" — David Pogue, Tech writer at The New York Times, 2006.