
STM

JST – STM 3rd joint seminar

The transformation in scholarly publishing: Research data
Trends in the international STM publishing industry and the importance of research data

Tuesday, 27 October, 2020

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Introduction to STM

- STM is the leading global trade association for academic and professional publishers.
- > 140 members in over 20 countries
- collectively publish more than 66% of all journal articles and tens of thousands of monographs and reference works
- comprise the bulk of a $25 billion publishing industry that contributes significantly to global knowledge and the advancement and communication of research

Introduction to STM

STM's vision:

The publishing partner in shaping the research communication system of the future

Our work:

Public policy – lobbying and informing

Intellectual property – rules & enforcement

Technology – standards & innovation

Communication – advocacy of the publisher role

Networking – member events and seminars

Education – courses for publishers

Outreach – Research4Life and library releations

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Publishing industry in numbers

Outsell estimates size of publishing industry as $25.7 billion in its 2018 report

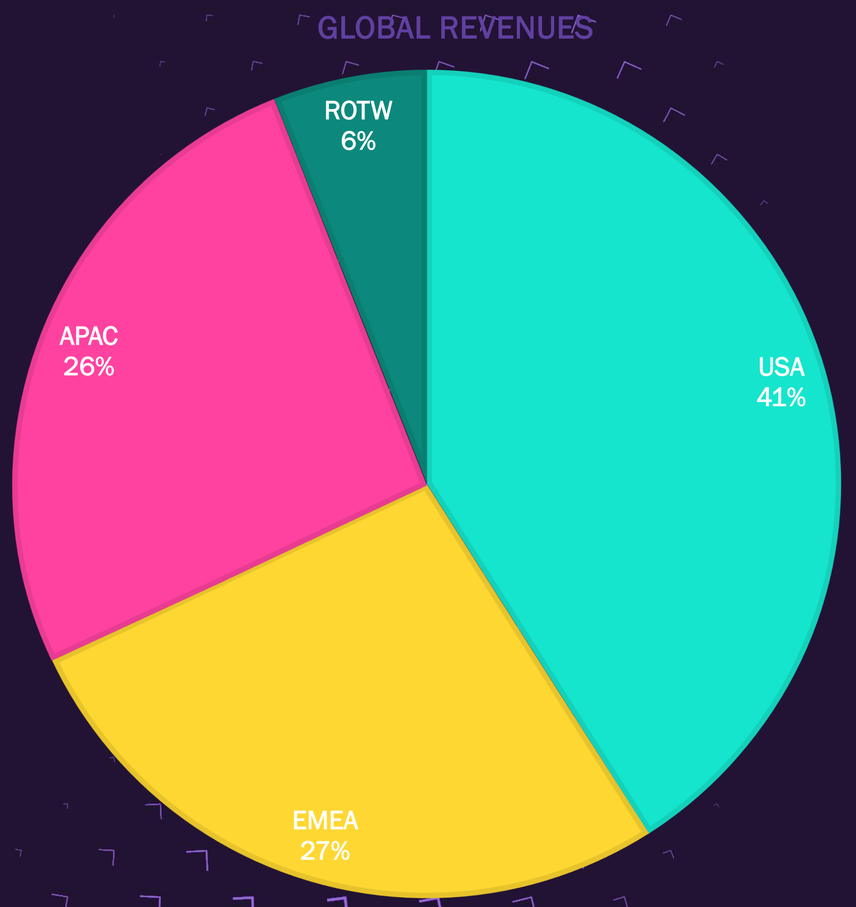
China growing at remarkable speed

The number of scholarly peer-reviewed journals now close to 60,000

Rate of journal growth 3.5% per annum

Over 100m items of research – 70m peer reviewed articles

Largest subject biomedical with 30% of total



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Role of Japan

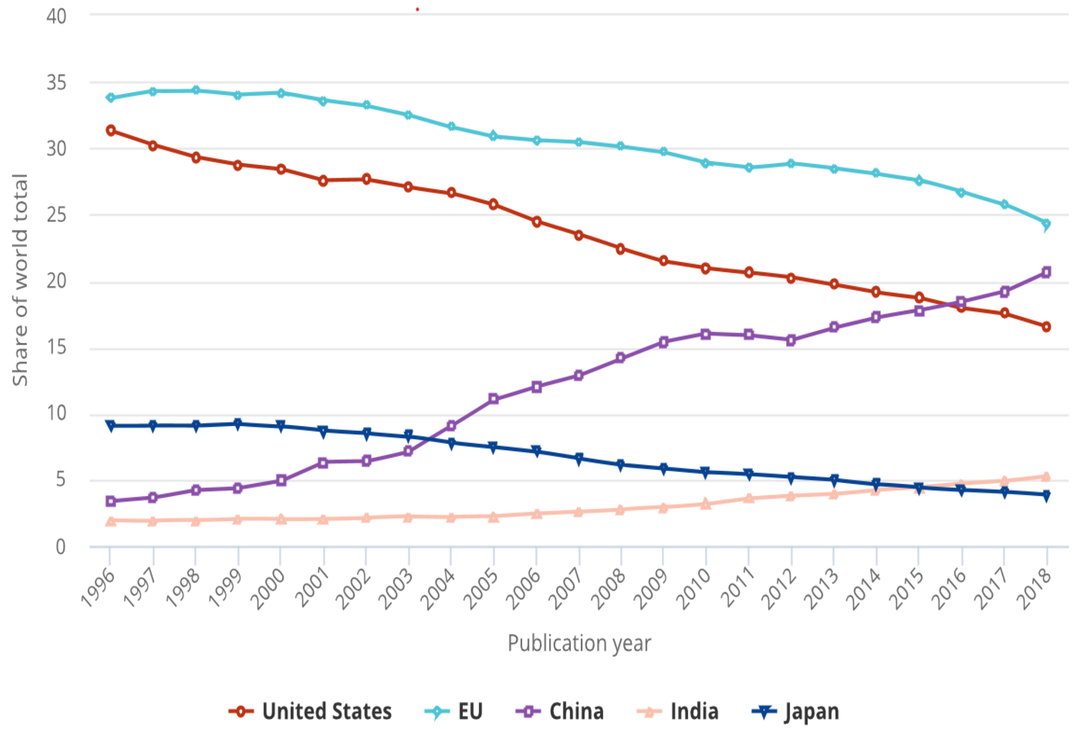
S&E articles in all fields, for 15 largest producing regions, countries, or economies: 2008 and 2018 (Number)

Rank	Region, country, or economy	2008	2018	Average annual growth rate 2008–18 (%)	2018 world total (%)	2018 cumulative total (%)
-	World	1.755.850	2.555.959	3,83	-	-
1	China	249.049	528.263	7,81	20,67	20,67
2	United States	393.979	422.808	0,71	16,54	37,21
3	India	48.998	135.788	10,73	5,31	42,52
4	Germany	91.904	104.396	1,28	4,08	46,61
5	Japan	108.241	98.793	-0,91	3,87	50,47
6	United Kingdom	91.358	97.681	0,67	3,82	54,29
7	Russia	31.798	81.579	9,88	3,19	57,49
8	Italy	56.157	71.240	2,41	2,79	60,27
9	South Korea	44.094	66.376	4,17	2,60	62,87
10	France	66.460	66.352	-0,02	2,60	65,47
11	Brazil	35.490	60.148	5,42	2,35	67,82
12	Canada	53.296	59.968	1,19	2,35	70,17
13	Spain	44.191	54.537	2,13	2,13	72,30
14	Australia	37.174	53.610	3,73	2,10	74,40
15	Iran	17.034	48.306	10,99	1,89	76,29
-	EU	528.938	622.125	1,64	24,34	

National Science Board | *Science & Engineering Indicators* | NSB-2020-6

FIGURE 5A-3

S&E articles, by global share of selected region, country, or economy: 1996–2018



EU = European Union.

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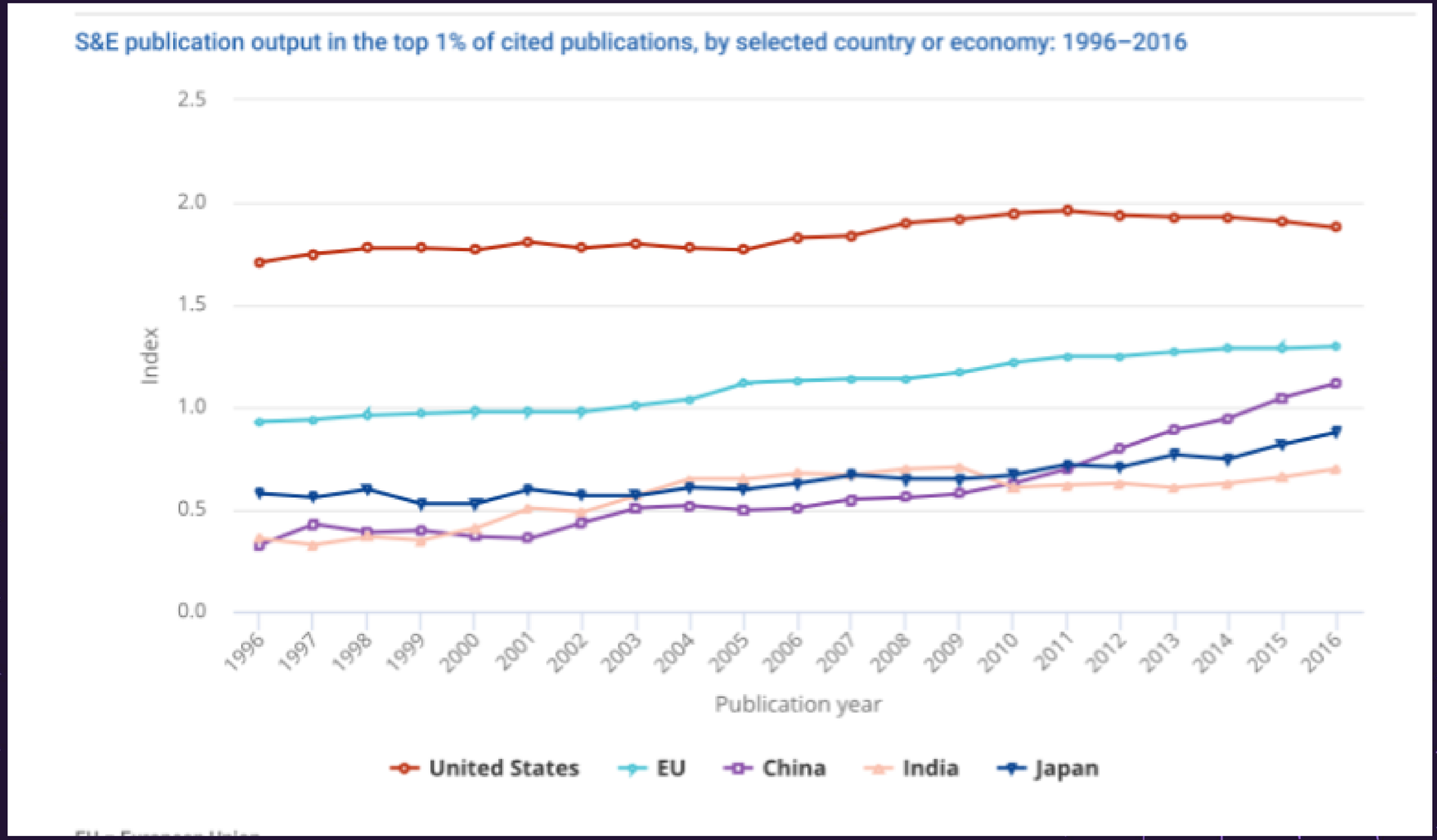
Impact of Japanese publications



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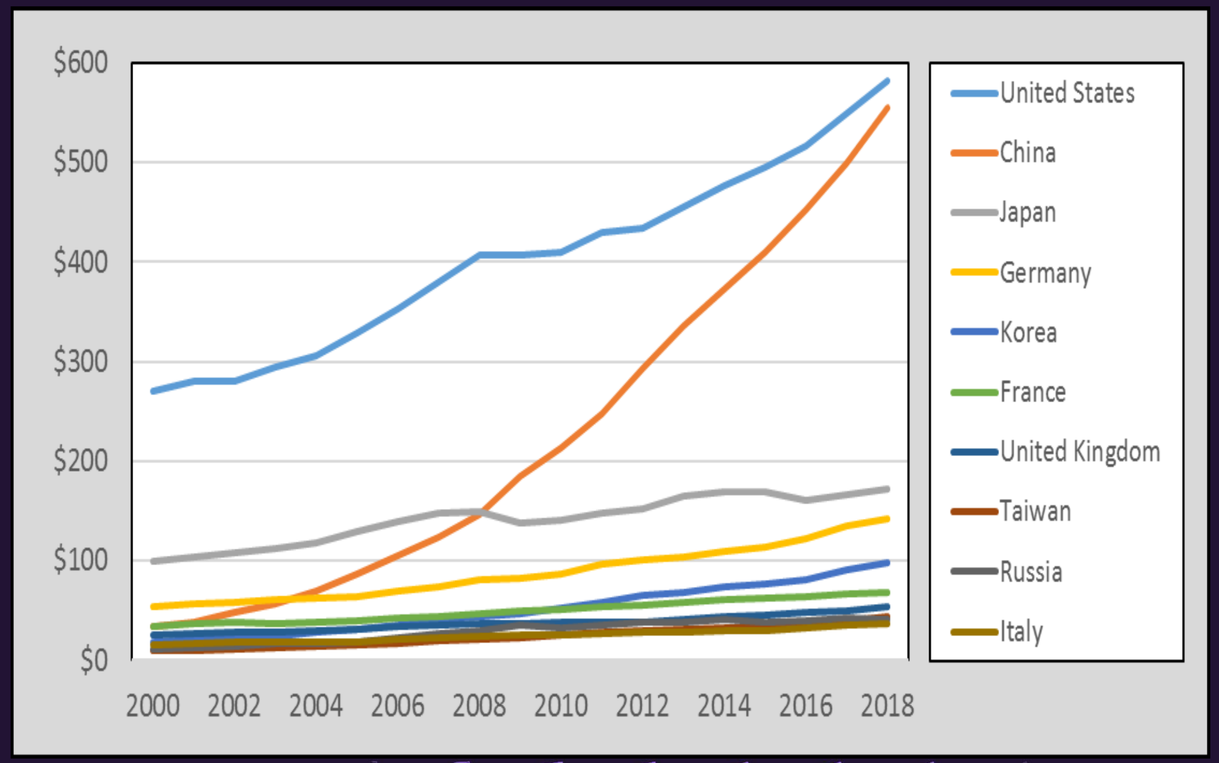
Research and innovation

Countries with Highest Expenditure on R&D 2018 (PPP)

Rank	Country	Amount	Rank	Country	Amount
1	United States	$581.6	11	Canada	29.0
2	China	554.3	12	Spain	23.6
3	Japan	171.3	13	Australia	22.6
4	Germany	141.4	14	Turkey	21.7
5	South Korea	98.5	15	Netherlands	21.5
6	France	$68.4	16	Switzerland	19.1
7	United Kingdom	53.1	17	Sweden	18.1
8	Taiwan	43.3	18	Israel	17.7
9	Russia	41.5	19	Belgium	16.5
10	Italy	36.0	20	Austria	16.0

R&D selected countries 2018 (PPP)



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Source – CRS/OECD

Research and innovation

International patent applications by origin

Origin	2018	2019 Estimate
Total	252,775	265,800
China	53,349	58,990
United States of America	56,252	57,840
Japan	49,706	52,660
Germany	19,742	19,353
Republic of Korea	16,917	19,085
France	7,918	7,934
United Kingdom	5,634	5,786
Switzerland	4,576	4,610
Sweden	4,168	4,185
Netherlands	4,134	4,011

International patent applications by institution

Applicant's Name	Origin	2018	2019
UNIVERSITY OF CALIFORNIA	U.S.	501	470
TSINGHUA UNIVERSITY	China	137	265
SHENZHEN UNIVERSITY	China	201	247
MASSACHUSETTS INSTITUTE OF TECHNOLOGY	U.S.	216	230
SOUTH CHINA UNIVERSITY OF TECHNOLOGY	China	170	164
BOARD OF REGENTS,THE UNIVERSITY OF TEXAS SYSTEM	U.S.	158	161
DALIAN UNIVERSITY OF TECHNOLOGY	China	53	141
HARVARD UNIVERSITY	U.S.	169	140
SEOUL NATIONAL UNIVERSITY	Republic of Korea	113	136
LELAND STANFORD JUNIOR UNIVERSITY	U.S.	121	132
KING ABDULLAH UNIVERSITY OF SCIENCE AND TECHNOLOGY	Saudi Arabia	78	123
UNIVERSITY OF TOKYO	Japan	92	119
JIANGNAN UNIVERSITY	China	74	118
HANYANG UNIVERSITY	Republic of Korea	89	113
UNIVERSITY OF MICHIGAN	U.S.	81	107
OSAKA UNIVERSITY	Japan	105	105
CHINA UNIVERSITY OF MINING AND TECHNOLOGY	China	114	100
NORTHWESTERN UNIVERSITY	U.S.	70	98
KOREA ADVANCED INSTITUTE OF SCIENCE AND TECHNOLOGY	Republic of Korea	94	97
OXFORD UNIVERSITY INNOVATION LIMITED	U.K.	79	96

Source – WIPO

The role of scholarly publishers

Publishing is part of the research system:

- It **creates and supports infrastructure**
- It **identifies and executes business models**
- It **maintains standards and ethics**
- it **communicates research**

STM helps its members collaborate to achieve the shared, sustainable, objectives of trust in the published literature, reproducibility of research and open access.

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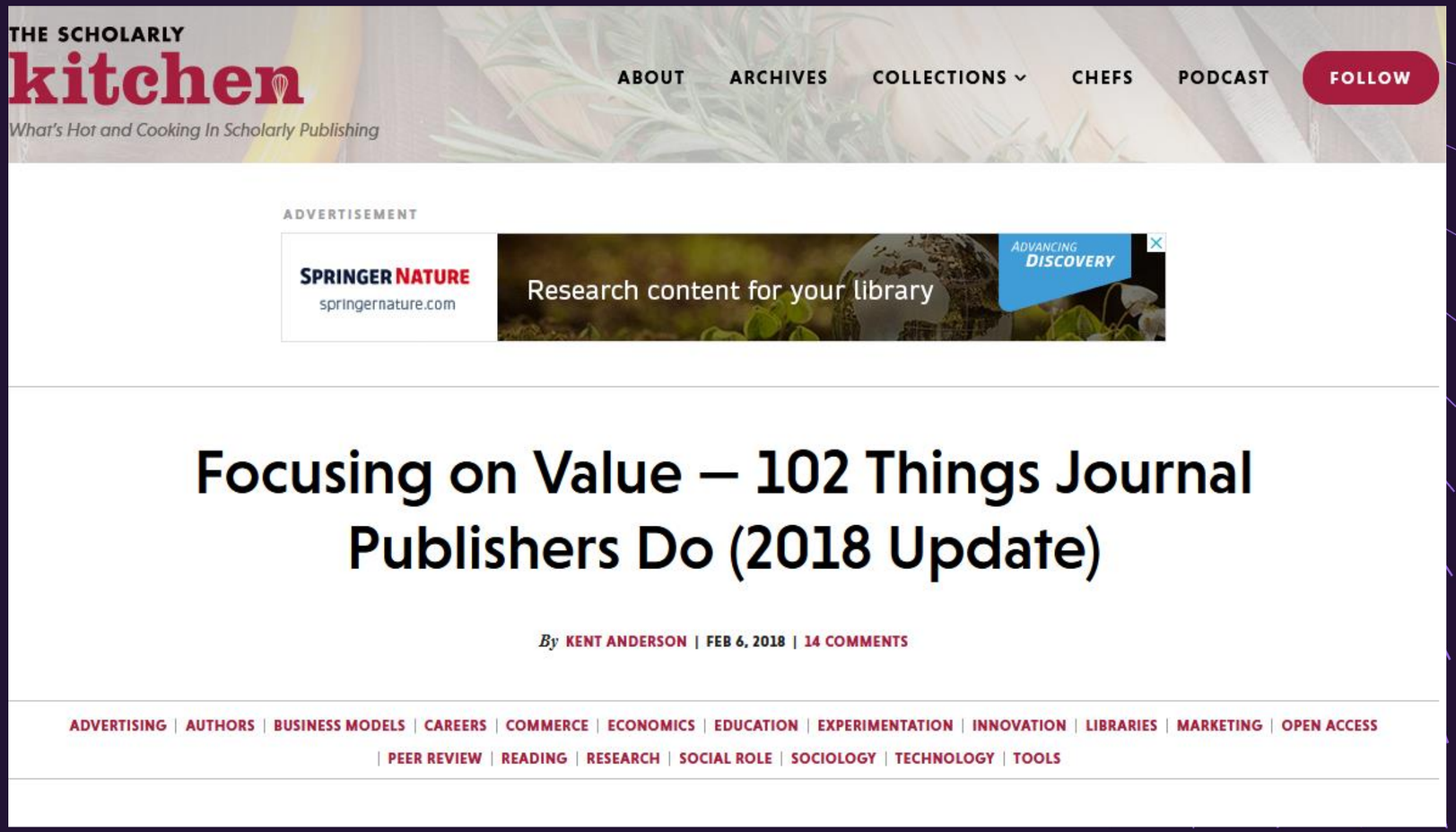
102 things publishers do



THE SCHOLARLY kitchen

What's Hot and Cooking In Scholarly Publishing

ABOUT ARCHIVES COLLECTIONS CHEFS PODCAST FOLLOW

Focusing on Value — 102 Things Journal Publishers Do (2018 Update)

By KENT ANDERSON | FEB 6, 2018 | 14 COMMENTS

ADVERTISING | AUTHORS | BUSINESS MODELS | CAREERS | COMMERCE | ECONOMICS | EDUCATION | EXPERIMENTATION | INNOVATION | LIBRARIES | MARKETING | OPEN ACCESS | PEER REVIEW | READING | RESEARCH | SOCIAL ROLE | SOCIOLOGY | TECHNOLOGY | TOOLS

Permanent change

Publishing has always evolved, in the current climate:

- new business models have developed (Open Access);
- new sales models (transformative deals and consortia licensing);
- globalisation and the growth of new centres of publishing; and
- development of Open Science

Open Science and research data

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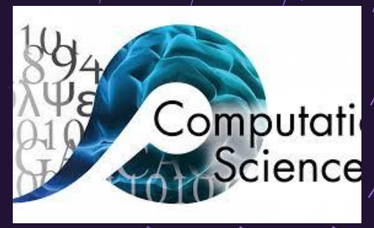
Research data

- Data are the ‚new‘ currency in science
- Research data should be FAIR
  - Findable
  - Accessible
  - Interoperable and
  - Re-usable

In Science the data era had already begun



Early times:	**Observational** science
17th – 18th Century:	**Empirical** Science
19th Century:	**Theoretical** Science
20th Century:	**Computational** Science
Start 21st Century:	**Data** Science
Next: Data + AI =	**Smart** Science

STM and research data – some history

- Publishers founded crucial infrastructures like CrossRef
- 2007 STM issued the Brussel declaration
- 2012 DataCite and STM published a joint statement on linkability and citability of research data
- STM supports SCHOLIX, an easy and universal linking mechanism between scholarly publications and research data
- STM is active in the Research Data Alliance and is since early 2020 a FAIRsFAIR champion
- June 2020 STM signed a joint declaration with RDA deepening the cooperation

Why data matters and what publishers can do to support

>50%

Researchers cannot reproduce their own work

Up to 50%

Citation AND productivity advantage associated with making data open

€10 billion a year

Estimated cost to the EU of not making data FAIR

€30 billion 50,000 jobs

Potential impacts by 2030 of the European Open Science Cloud, including the Copernicus earth observation data

1. Clear policy

2. Better credit

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What would motivate researchers to share?

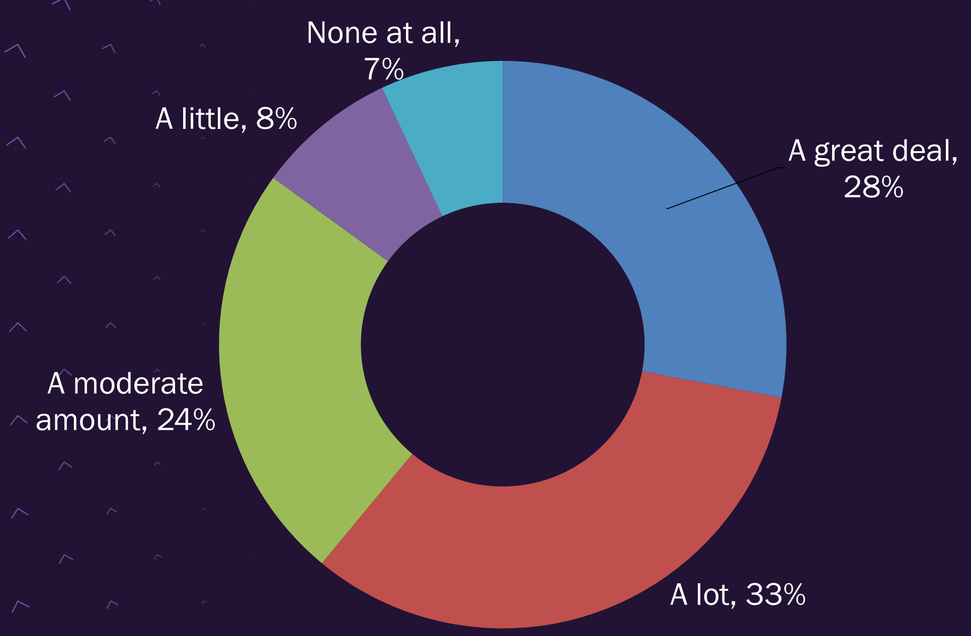
	2019 RANK	2019	COUNT	2018 RANK
Increased impact and visibility of my research	1	62%	3659	1
Public benefit	2	60%	3522	2
Getting proper credit for sharing data	3	54%	3172	4
Journal/publisher requirement	4	51%	3009	5
Transparency and re-use	5	48%	2817	3
Funder requirement	6	47%	2767	9
Institution/organisation requirement	7	44%	2592	7
Trust the person requesting my data	8	43%	2510	6
It was made easy and simple to do so	9	36%	2102	8
Freedom of information request	10	30%	1789	10
It was a field/industry expectation	11	22%	1272	n/a
Other (please specify)	12	3%	191	11
I would never share my data	13	2%	94	12

Q - Which circumstances would motivate you to share your data? (select all that apply)

n = 5886; From the State of Open Data 2019. https://doi.org/10.6084/m9.figshare.9980783, Total respondents: 7929

Citations are a motivator

How much would getting data citations motivate you to make your data openly available to others?



Total respondents: 7876

From the State of Open Data 2019.

https://doi.org/10.6084/m9.figshare.9980783 /

STM launches the 2020 Research Data Year

Our campaign: SHARE – LINK – CITE Research Data

- Research Data plays vital role ensuring **transparency, reproducibility** and the ongoing development of Open **Science**

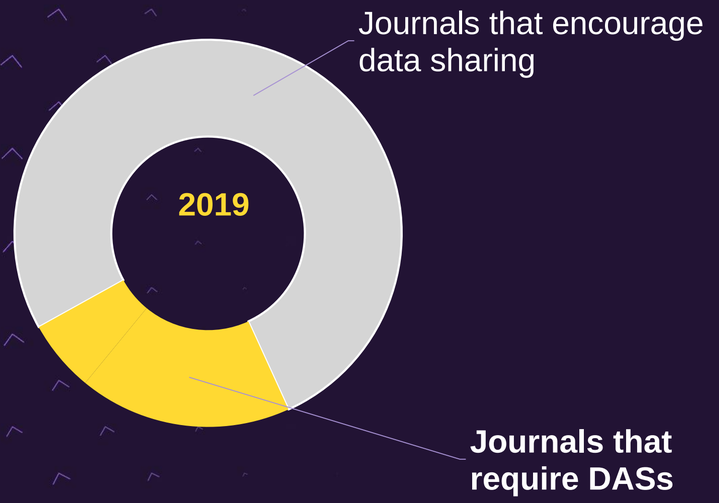
- Based on the success of early implementors, STM launched a **dedicated action plan** to

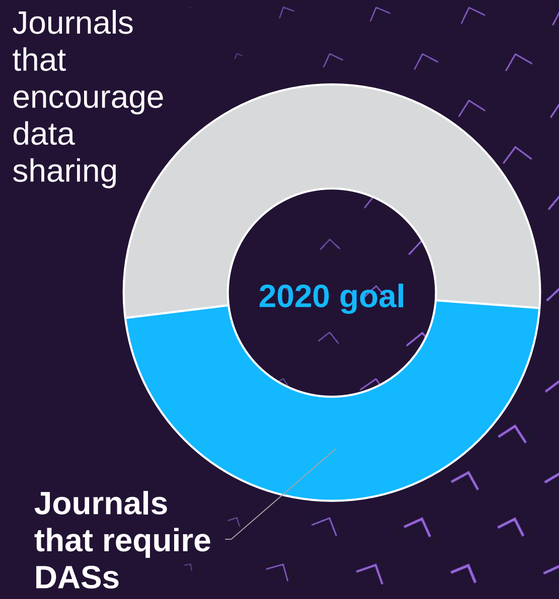
    - Increase the number of journals with data policies (SHARE)
    - Expand the number of journals depositing data links (LINK)
    - Grow the volume of citations to database (CITE)

- A dashboard tracking progress is published on www.stm-researchdata.org

STM Research Data

2020 goal: requiring data availability statements





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COVID-19 impact; what STM can do to help

Research Data Alliance (RDA) leads a global initiative for immediate sharing of COVID-19 related research data

EU supports the project financially

Over 400 researchers participate in subject-specific working groups to come to recommendations by end of April

As soon as available EU wishes to endorse recommendations and guidelines quickly to accelerate the research that can help create a way out of the current crisis

STM as EU Data Champion invited to help as well, for example by means of:

A Joint RDA-STM declaration to endorse the data sharing principles and invite STM member-publishers to join the initiative as signatories

Working together

Explore new solutions:

- pre-registration of research;
- investing in existing and new forms of peer review and infrastructure;
- developing automated checks for research misconduct (e.g. image manipulation, plagiarism, etc);
- Seamlessaccess and GetFTR;
- Video/interactive; Machine learning

China and Japan

STM is organised into regional chapters

- **Japan Chapter** has a number of very active members;
- Chair **Antoine Bocquet of SpringerNaure, and co-chair Andrew Karlsson of Elsevier;**
- **Seminar series with Japan Science and Technology Agency**
- **regular visits** to Japan

We welcome publishers in Japan to attend our conferences, join in our webinars, benefit from our training sessions and to join as full members to get the full range of service from STM.

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Thank you

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