Open Science – what does it take to get there?

EPFL 50th anniversary Lausanne, October 2019

Maria Leptin, EMBO Director



Quality Open Science

- Quality data: findable, curated

- Quality publishing: does not come for free



SOURCEDATA

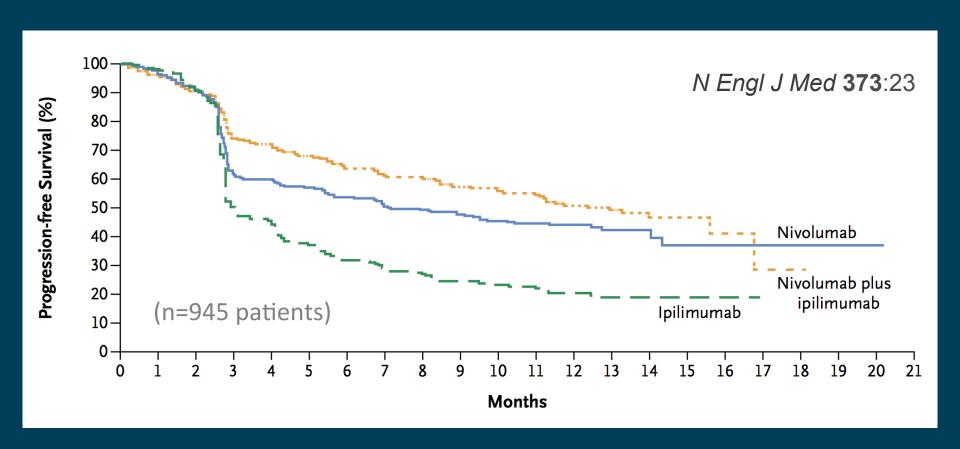
(Big) data in the life sciences is the sum of very many small data

- Make published data discoverable
- Integrating open science in publishing

Thomas Lemberger
Editor in Chief, Molecular Systems Biology
Deputy Head of Publishing, EMBO Press



The issue







What is a Figure?

Scientific data converted into a collection of pixels...







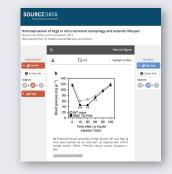




Data curation workflow

Figures 3lood glucose (mg gl⁻¹) 80 15 30 60 90 120 injection (min) SOURCEDATA Source data Curation files

SmartFigures



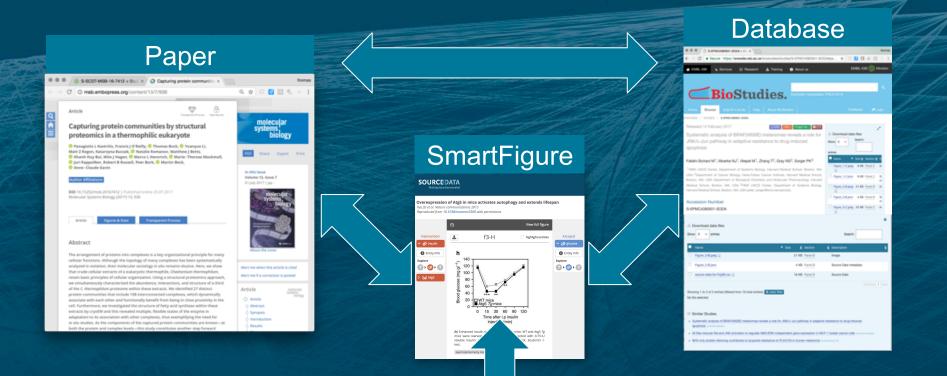
Source data files





Liechti, et al (2017) Nature Methods

SOURCEDATA







Quality Open Science

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Survey of EMBO community

Framework: feedback on Plan S implementation

Total responses	162
EMBO Young Investigators	30
EMBO Members	132



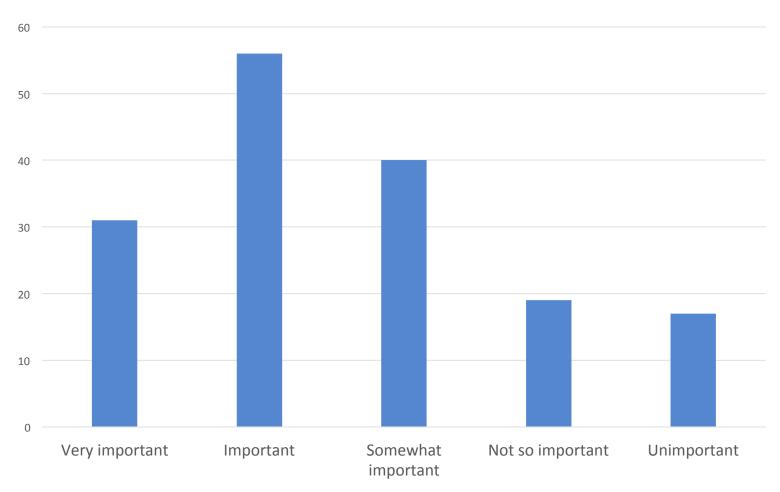
Survey of EMBO community

Views of the community on:

- Importance of OA
- Value of selective journals
- Engagement in editorial and publishing activities
- Appreciation/judgement of publishing costs
- Use of profit from publishing



IMPORTANCE OF OPEN ACCESS PUBLISHING





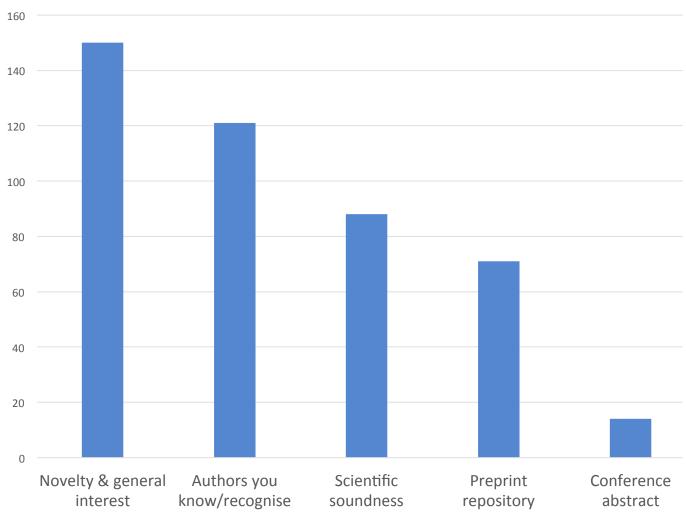
IDENTIFYING PAPERS WORTH READING

Suppose a PubMed or Google search brings up an interesting sounding title of a research paper outside of your immediate area of expertise. Would you be likely to click to follow up if it was... (check any that apply)

- 1. published in a journal you recognize as selecting for novelty and general interest?
- 2. published in a journal you recognize as **selecting only for scientific soundness**, without consideration for novelty or general interest (such as PLOS One or Scientific Reports)?
- 3. published in a non-peer reviewed **preprint** repository (such as bioRxiv)?
- 4. published as a conference **abstract**?
- 5. published by **authors you know** or whose names you recognize?



IDENTIFYING PAPERS WORTH READING





EDITORIAL ACTIVITIES

If you have any editorial roles, or review manuscripts: How many hours on average do you spend on the following activities per week?

- 1. acting as an **editor-in-chief**, responsible for the editorial content of an entire journal
- 2. acting as an **editor of a journal (section)** with responsibility for final decisions on manuscripts
- 3. acting as regular advisor or member of an editorial board
- 4. serving as an ad-hoc **peer reviewer** (referee)
- 5. fulfilling other journal-related functions (please specify)



EDITORIAL ACTIVITIES

	n	Σ h/week
editor-in-chief	10	76
editorial function	83	322
advisor/board	106	274
peer review	157	618
other	11	26
	357	1316

8h per person per week



CRITERIA FOR THE ACCEPTANCE OF MANUSCRIPTS

Highly selective journals may reject papers not only because of incomplete or flawed data, but also because the paper is not the right 'fit' for the journal.

acceptance by selective journals

In selecting papers, how much weight do you believe those journals put on the following qualities?

by yourself

If you were the editor of a high-quality journal, what would you select for?



CRITERIA FOR THE ACCEPTANCE OF MANUSCRIPTS

- 1. scientific rigor
- 2. depth and breadth of analysis
- 3. conceptual advance
- 4. importance for the research field
- 5. importance *of* the research field
- 6. interest to a wide scientific community
- 7. newsworthiness for the general public
- 8. provocative conclusions
- 9. anticipated impact through citations
- 10. prestige of authors

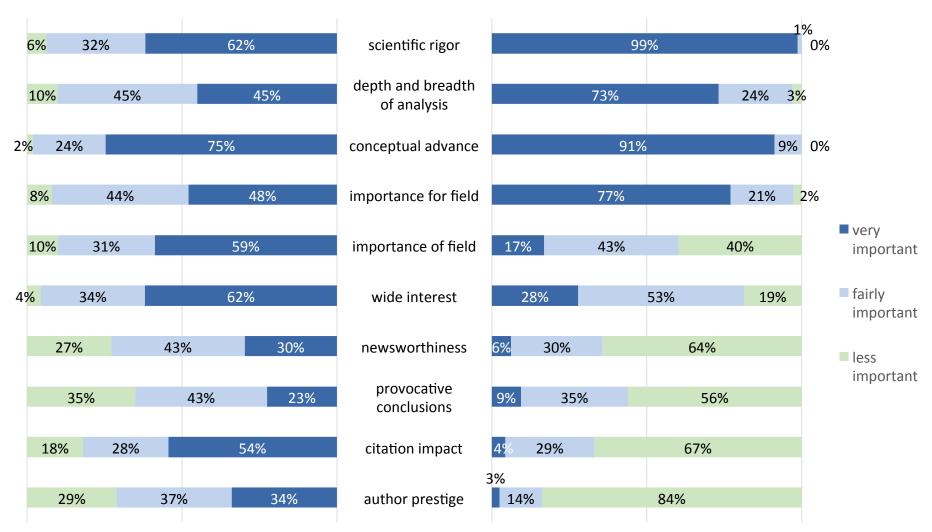
very important

fairly important

less important

CRITERIA FOR THE ACCEPTANCE OF MANUSCRIPTS

selective journals yourself



JOURNAL SERVICES AND ATTRIBUTES

Different journals offer different services to authors, many of which can be expensive.

This affects the cost of publishing and therefore the article processing charges. Consider an Open Access journal exclusively supported by article processing charges.

What services and attributes would you expect at article processing charges of the following levels?

€ 1000

€ 2000

€ 4000

€ 8000



JOURNAL SERVICES AND ATTRIBUTES

- Transparent and fair peer review, and detailed decisions
- Approachable and responsive editors
- Rapid review and decisions
- Rigorous editorial process
- Professional checking of data presentation, image integrity, text duplication, statistics, etc.
- Data deposition and curation services
- Language editing
- Professional graphics support and high-quality presentation
- Magazine-style front section
- Reviews and 'news and views' articles
- Highlighting of articles (summary, synopsis, press releases, special issues...)

JOURNAL SERVICES AND ATTRIBUTES

	€ 1k	€ 2k	€ 4k	€ 8k	?
Transparent & fair peer review, detailed decisions	52%	18%	18%	3%	8%
Approachable and responsive editors	38%	28%	22%	4%	8%
Rapid review & decisions	34%	31%	24%	3%	8%
Rigorous editorial process	39%	28%	22%	4%	8%
Professional checking of data presentation, image integrity, text duplication, statistics, etc.	10%	27%	28%	11%	14%
Data deposition & curation	11%	22%	27%	15%	15%
Highlighting of articles	7%	17%	39%	21%	16%
Reviews and 'news & views' articles	9%	14%	39%	23%	16%
Language editing	3%	16%	36%	28%	17%
Professional graphics support & high-quality presentation	3%	12%	37%	33%	16%
Magazine-style front section	5%	12%	34%	27%	23%

USE OF JOURNAL INCOME

Some learned societies use the income from publishing journals to support their activities and services to the community, such as funding for meetings, travel grants, fellowships, etc.

Do you approve of this in principle?

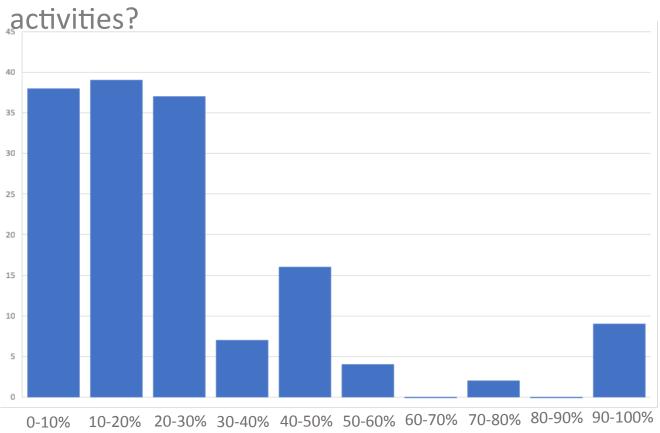
Yes 130

No 31



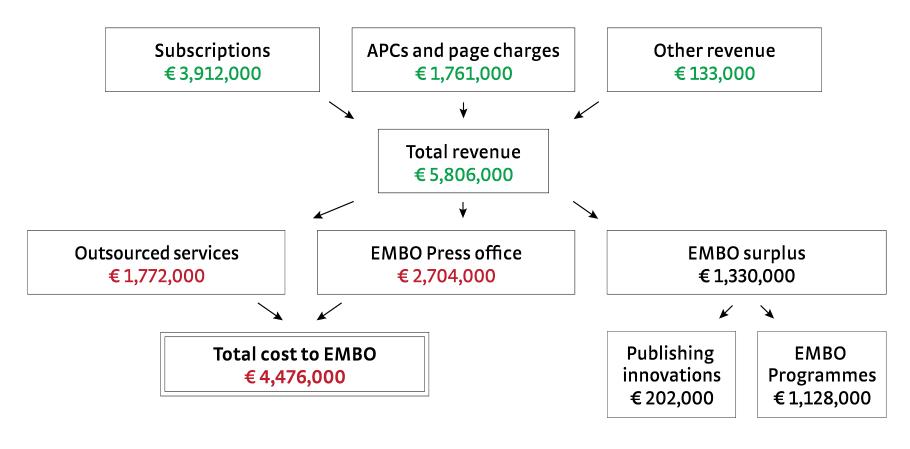
USE OF JOURNAL INCOME

By what percentage do you feel a society should be allowed to increase the APC above the actual cost of publishing, to allow them to fund their other



JOURNAL REVENUE AND COSTS PER PAPER

At EMBO Press in 2017

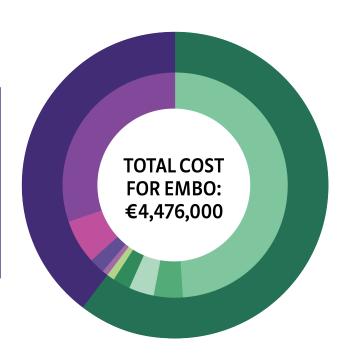




JOURNAL REVENUE AND COSTS PER PAPER

At EMBO Press in 2017

OUTSOURCED SERVICES €	1,772,000
Wiley publishing services (incl. production, sales and marketing)	€1,345,000
Digital platforms	€ 290,000
Production and service charges	€ 95,000
Journal promotion	€ 42,000



EMBO PRESS OFFICE	€ 2,704,000
Staff (including pension, health insurance etc.)	€ 2,200,000
Office and administration	€ 184,000
Contractual back payment	€160,000
Conference fees and travel	€116,000
Academic editors and freelance	writers € 44,000

NUMBER OF PAPERS PUBLISHED IN 2017

TOTAL	706
Opinions, editorials, News & Views	182
Reviews	29
Primary research papers	495

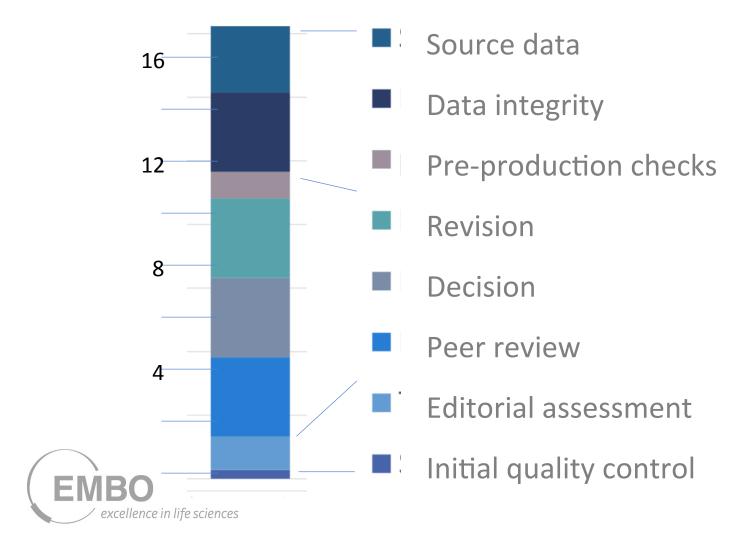


Figure and full statement available at:

https://www.embo.org/news/articles/2019/the-publishing-costs-at-embo

EDITORIAL WORK LOAD

Hours per *published* paper





What will it take to get there?

