Everything You Need to Know about

Open Access

Dear Reader,

Since the 1970s, the open access (OA) movement has continuously evolved and changed the dynamics of the traditional publishing models and enabled easy dissemination of information to the academic community. In its traditional form, OA publishing has not only helped increase the visibility and impact of research but also facilitated quicker dissemination of knowledge to the academic community. Through this e-book, we intend to educate early-stage researchers and students about the benefits of open access publishing and the how the landscape of academic publishing has evolved in the last two decades for researchers. We have attempted to compile some of the essential information related to the milestones of the open access movement and its benefits; an overview of the OA publishing market; a brief introduction to open data, repositories, and journals; and copyright licensing for OA publications.

Towards the end, you will also find a list of authentic e-resources. It would be our pleasure to help you with your publishing requirements. Please make it a point to visit enago.com/academy for further help. We have posted 900+ original articles on this knowledge e-platform.

Happy Reading!

Regards,

The Enago Academy Team

Website: https://www.enago.com/academy/

Mobile App: https://www.enago.com/academy/mobile-app/

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OPEN ACCESS

An Introduction to Open Access

To advance innovations and collaborations in research, it is imperative that information and ideas are exchanged across all levels within the industry and academic community. With the advent of internet and emergence of digital storage, the access to the information has significantly improved.

Open access (OA) refers to the digital online content (journal articles, reviews, conference proceedings, or monographs) that is free from paywall (subscription and/or licensing fees) and permission (copyright and/or licensing agreements) barriers. Since 1970s, OA movement has been instrumental in quick and easy dissemination of the scholarly information.

The increasing relevance of open access journals is related to the steep rise in the cost of traditional journals, developments in technology and the desire for easier access and a wider audience for the scholarly work. According to the Association of Research Libraries (ARL), this "serials pricing crisis" led to an average price increase of 315% from 1989 to 2003. While technological advances facilitated the 'access' component of OA, much of the momentum in the mid-2000's came from a period of punitively high increases in subscription fees – Increases that far outpaced the budgets for the libraries purchasing those subscriptions [1]. The OA approach is complementary to traditional publishing. It utilizes both new technological developments and their wide proliferation to ease the publication process for authors, and the availability of research material to society in general.

Various initiatives and policies from research organizations, government bodies and funding associations have been the key drivers of this movement. Below are few milestones that have shaped the current OA landscape [2,3].

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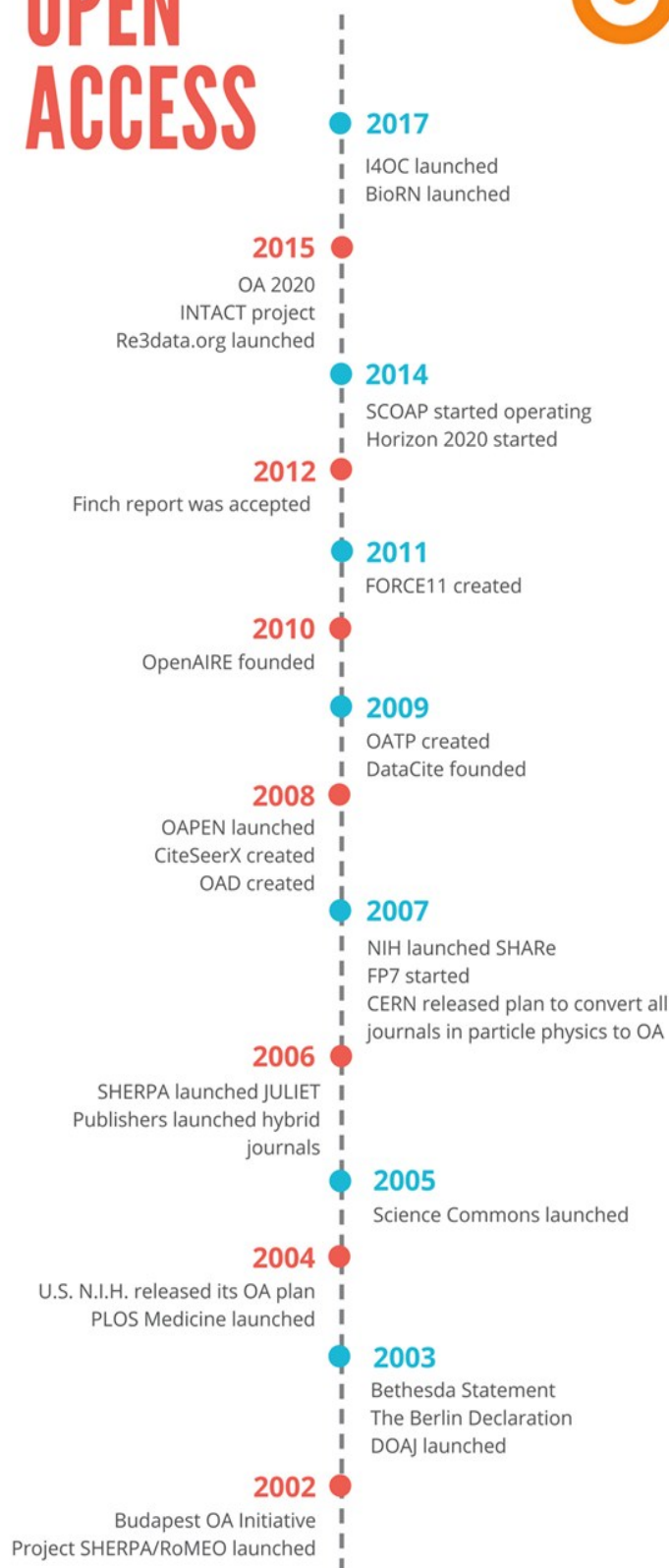
A BRIEF HISTORY OF
OPEN ACCESS

2017
I4OC launched
BioRN launched

2015
OA 2020
INTACT project
Re3data.org launched

2014
SCOAP started operating
Horizon 2020 started

2012
Finch report was accepted

2011
FORCE11 created

2010
OpenAIRE founded

2009
OATP created
DataCite founded

2008
OAPEN launched
CiteSeerX created
OAD created

2007
NIH launched SHARe
FP7 started
CERN released plan to convert all
journals in particle physics to OA

2006
SHERPA launched JULIET
Publishers launched hybrid
journals

2005
Science Commons launched

2004
U.S. N.I.H. released its OA plan
PLOS Medicine launched

2003
Bethesda Statement
The Berlin Declaration
DOAJ launched

2002
Budapest OA Initiative
Project SHERPA/RoMEO launched

Open access movement dates back to 1971, when Michael Hart launched Project Gutenberg. Soon after, free online peer-review journals, *Electronic Journal of Communication and Bryn Mawr Classical Review* were launched in 1990.

In the following year, arXiv, an electronic pre-prints repository came into existence. Additionally, launch of SciELO and CiteSeer in 1997 further supported the growth of OA.

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Learn. Share. Discuss. Publish.

WHAT ARE THE DIFFERENT TYPES OF OA?

Open Access Types

There are mainly two types of OA models-'Green' and 'Gold'. However, variants exist in these two categories depending on how and when they content is made open for public dissemination.

GOLD

OUTLET

Final publisher version of the articles is made open

FEES

APC may apply

ACCESSIBILITY

Article becomes OA without any embargo period

VARIANTS

Hybrid: Final publisher version of the articles in a subscription-based journal are made OA immediately after APC or off-setting agreement

APC: Final publisher version of the articles are made OA after APC; no subscription model

No-APC: Final version of the articles published in fully open-access journals which do not charge an APC

GREEN

OUTLET

Authors self-archive articles (not final version) in an institutional or subject repository

FEES

No fees/charges are applicable

ACCESSIBILITY

Article can be subject to embargo period by publisher

VARIANTS

Pre-print: Author's copy of the article before peer-review

Post-print: Author's copy of the article after peer-review and before formatting by publisher

Apart from the variants discussed in the above table, OA can be

1. Short-term (contents are freely available for a certain time period, six months to a year and after that period, it is accessible only to the subscribers)

2. Selected (selected content is made freely accessible and full content is accessible only to the subscribers)

3. Partial (content is selectively available for few sections only e.g. research article and not review paper) [4]

Additionally, publishers can apply Creative Commons (CC) licenses in gold or hybrid OA models
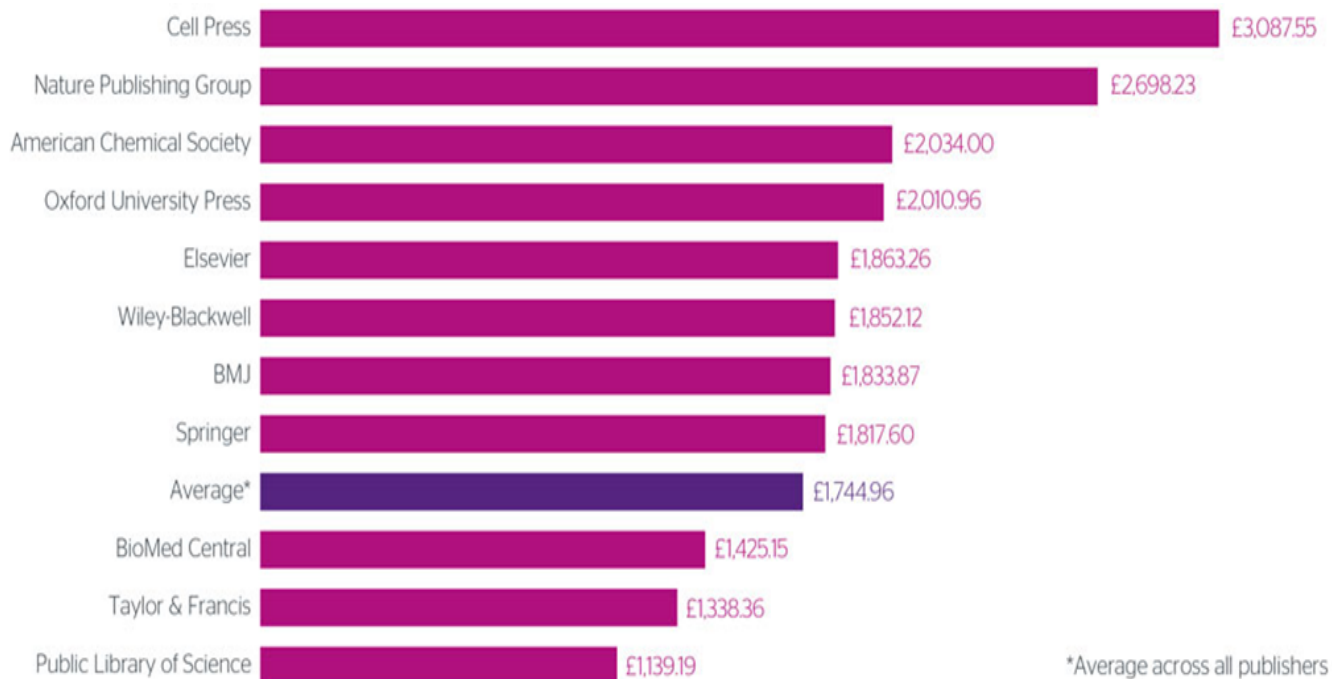
WHAT ARE OA PUBLISHING BUSINESS MODELS?

Article Processing Charges

OA switches the revenue source from subscribers to the authors, who are willing to pay article processing fees (APFs) or article processing charges (APCs) to make their research freely accessible (OA). APC covers costs for following aspects:

- Editorial

- Technical

- Production

- Customer services

- Marketing (e.g. conference attendance)

Open access APCs

$1,000-$5,000
Full articles or reviews

$400-$1,000
Case report or short communication

As the stability of the OA model has grown, institutions have started to fund the APCs from a general budget line rather than expecting individual researchers to pick up the tab from individual project or even personal budgets. The actual amount of these fees varies considerably between journals from

Publisher	APC
Cell Press	£3,087.55
Nature Publishing Group	£2,698.23
American Chemical Society	£2,034.00
Oxford University Press	£2,010.96
Elsevier	£1,863.26
Wiley-Blackwell	£1,852.12
BMJ	£1,833.87
Springer	£1,817.60
Average*	£1,744.96
BioMed Central	£1,425.15
Taylor & Francis	£1,338.36
Public Library of Science	£1,139.19

*Average across all publishers

Average APCs of Major Publishers (Shamash K. Article processing charges (APCs) and subscriptions [Internet]. 2016 [cited 20 July 2017]. Available from: https://www.jisc.ac.uk/reports/apcs-and-subscriptions)

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Business models in OA can be of following types:

1. Open access journals

2. Open access repositories or archives-e.g. arXiv, PubMed Central, and SSRN

3. Open access theses and dissertations-e.g. Networked Digital Library of Theses and Dissertations (NDLTD)

4. Open monographs-e.g. Directory of Open Access Books (DOAB)

5. Open conferences-e.g. PKP Open Conference Systems [4]
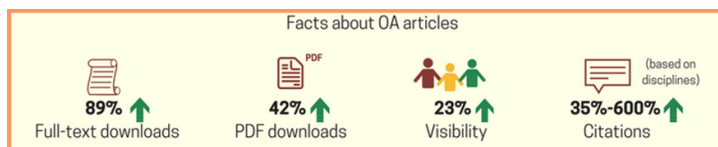
BENEFITS OF OA

Impact and Visibility

Access

Most journals and repositories do not impose access costs on the reader. Thus, price barriers are substantially lowered or removed entirely. The reach of the articles or materials increases.

Immediacy

The research results can be made immediately available to not just others within the academic community.

Impact and Citations

Articles tend to have a much bigger impact in the short-term compared to "subscription-only" work. The long-term impact has been found to be similar, with some studies showing a larger impact of open-access articles [5].

Facts about OA articles

89% Full-text downloads • 42% PDF downloads • 23% Visibility • 35%-600% Citations (based on disciplines)

Search Options

An article can typically be more easily located if it is in the open-access domain. In particular, OA facilitates searching within the article or recommending and sharing it with others.

Author and Institution Visibility

Open access journals increases authors visibility as opposed to subscription-only journals. Institutions can enhance their profile by participating in or hosting open-access publishing.

Publishing Costs

Since open-access publications are usually less expensive to produce and disseminate, both journals and publishers can benefit [5].

Publishing cost/article

$1,350-$2,250 OA (BMC or PLOS) $3,500-$4,000 Traditional (Non-OA)

Modes of Availability

In the open-access model, research material need not be restricted to articles only, unlike traditional publishing. Any kind of digital content, including text, images, raw and processed data, audio/video and software can be part of a digital archive.

How to Find Predatory Journals? Look for 🚩

- Check if the title is in Beall's (have been taken down for now)/ Cabell's list of predatory journals
- Unprofessional website with many errors
- Unclear or touched-up images
- Website home page that speaks directly to authors
- Uses Index Copernicus as index factor
- No description of the publishing process
- Asks for manuscripts to be submitted via email
- Promises quick turnaround and publication
- No retraction policy
- No information on how content will be preserved
- Unusually low or high APC
- Lack of copyright clarity
- Publisher/journal email is generic (e.g., Gmail)

Market Value and Projected Growth

Although market value for scholarly journals stands at $10 billion, open access market accounts for $500 million [6]. In addition, 50% of the articles published in the year 2013 were from top five publishers. The growth rate of OA market was estimated between 10% to 15% per annum in 2016 [6].

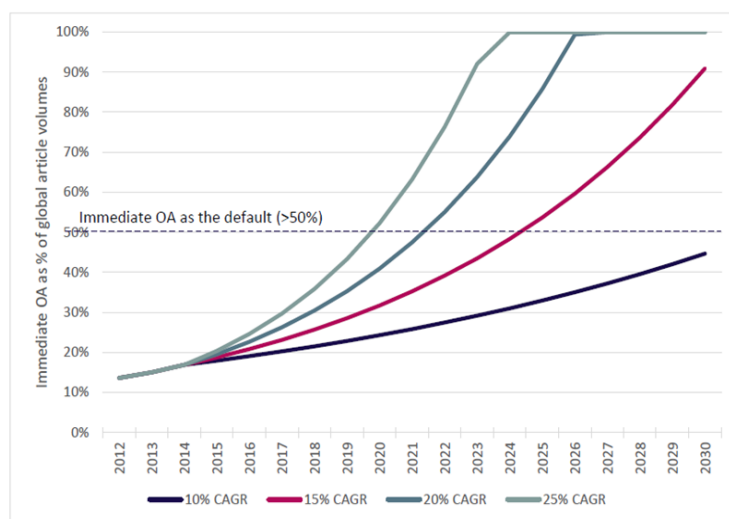In terms of global share of number of articles, gold-APC, no-APC and hybrid account for 9.6%, 4.6%, and 2.4% respectively. Gold-APC journals compete in a market that is not only small but also driven by the buyer preferences [6]. However, in subscription journal market, the situation almost remains unaffected by the prices and commercial publishers dominate the landscape. In addition, 'flipping' of traditional journals to full OA remains low. This is substantiated by the fact that profit margins for some commercial publishers remain as high as 30% [6].

The growth of OA market faces challenges due to following reasons:

1. Perceived low quality of OA journals: Rise in predatory journals and often low quality/high acceptance rate of low-threshold journals, affect the author's decision [7].

2. Variable APCs: The APC market was valued at $182 million in 2012 and was estimated to grow at 34%. Average APCs for gold- APC, no-APC and hybrid were estimated at $1418, $2097, and $2727 respectively [8].

3. Academic bias: Often academic bias against OA journals due to perceived reputation of traditional journals becomes a roadblock.

4. Double Dipping: Often hybrid journals charge not only subscription fee but also publication fee. This has resulted in usage of funds for APCs
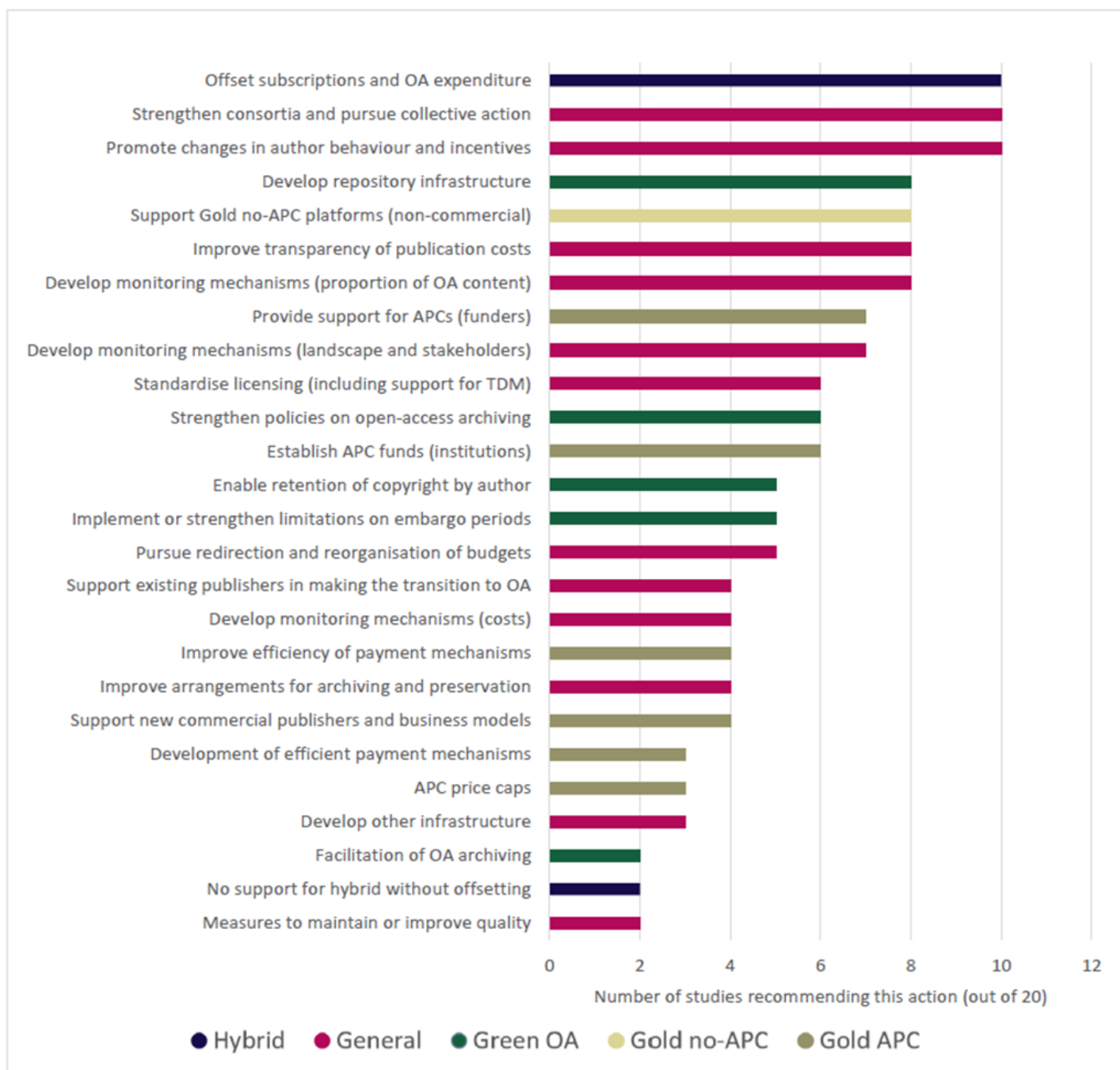

of full OA journals or offsetting agreements.

Growth in immediate OA content (Johnson R, Fosci M, Chiarelli A, Jubb M, Pinfield S. Towards a Competitive and Sustainable OA Market in Europe - A Study of the Open Access Market and Policy Environment [Internet]. 2017 [cited 20 July 2017]. Available from: https://blogs.openaire.eu/wp-content/uploads/2017/03/OA-market-report-28Final-13-March-201729-1.pdf
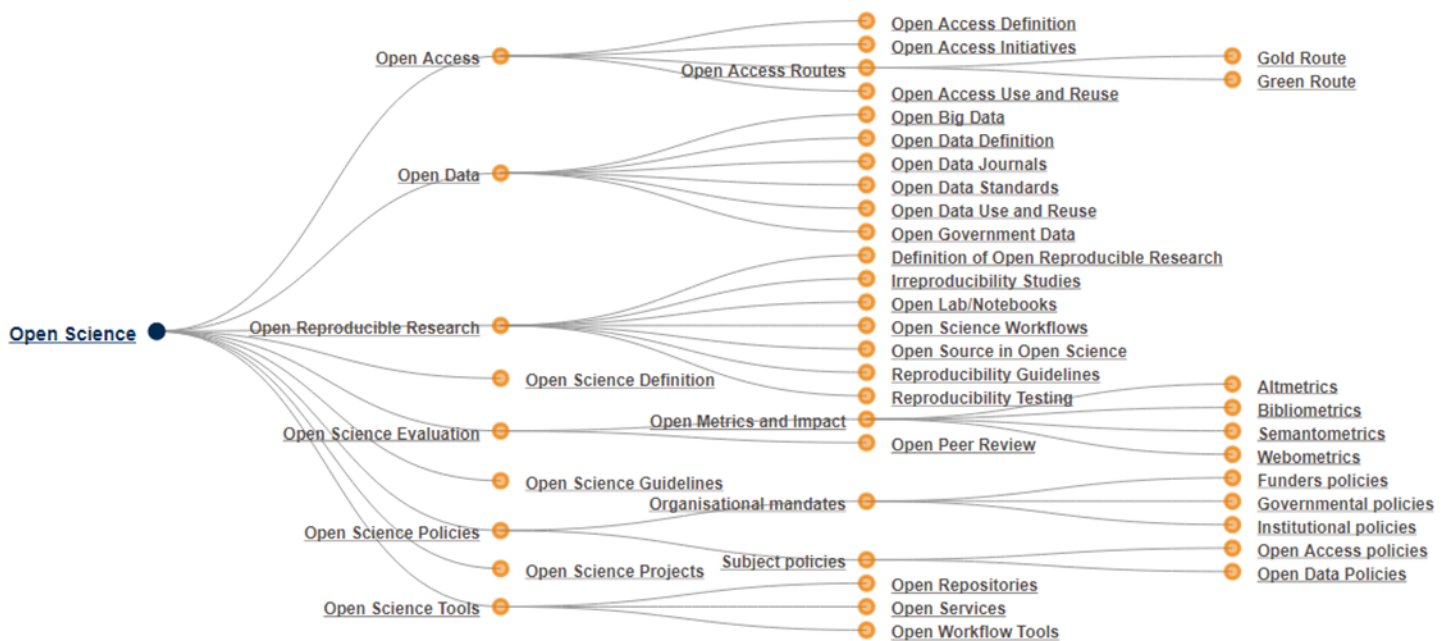
Suggestions by OpenAIRE

Recommendations to promote growth of OA (Johnson R, Fosci M, Chiarelli A, Jubb M, Pinfield S. Towards a Competitive and Sustainable OA Market in Europe - A Study of the Open Access Market and Policy Environment [Internet]. 2017 [cited 20 July 2017]. Available from: https://blogs.openaire.eu/wp-content/uploads/2017/03/OA-market-report-28Final-13-March-201729-1.pdf)

OPEN SCIENCE

Making Information Available to All

Open science movement supports accessibility to research, data, and dissemination. It assists researchers with tools and framework to maintain transparency while transferring, reproducing and disseminating research information [9].

Facilitate Open Science Training for European Research (FOSTER), a platform that provides resources and training on open science to researchers, librarians, administrators and students, gives a comprehensive taxonomy tree defining various aspects of open science [9].

Open Science: Taxonomy Tree (Open Science [Internet]. [cited 20 July 2017]. Available from: https://www.fosteropenscience.eu/foster-taxonomy/open-science)

Many other notable organizations support open access movement and provide resources and information to the society and stakeholders.

- Open Access Scholarly Publishers Association (OASPA): It represents OA book and journal publishers and assists in business models, tools, and guidelines that encourage open access publishing.

- The Scholarly Publishing and Academic Resources Coalition (SPARC): It supports and advances policies that empower open research and education by providing resources and information.

- Author Alliance: It supports authorship to assist authors in public dissemination of information and knowledge.

Understanding Identifiers

Open Researcher and Contributors ID repository (ORCID): 16-digit persistent identifier for authors that distinguish them from others and helps to link professional activities, ensuring that researcher's work gets proper recognition. ORCID ID is used on researcher's webpages, when making submissions, or applying for grants.

isni International Standard Name Identifier (ISNI): It was created as an ISO-certified global standard repository for a broader audience of creative artists, including producers, performers, writers, artists, and researchers.
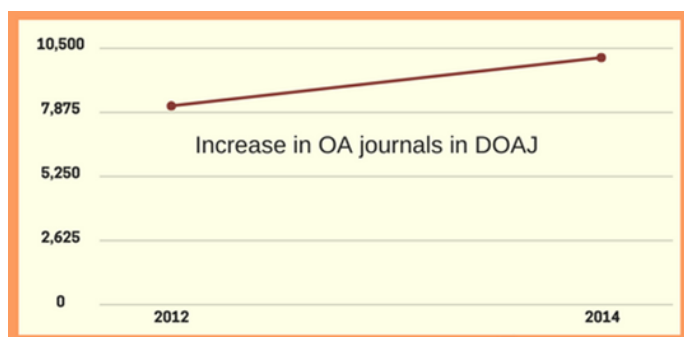
fundref Funding agencies track the published work of the research projects they sponsored. Authors when sharing their funding resources while submitting manuscript can provide funder's name, funder ID, and grant ID.
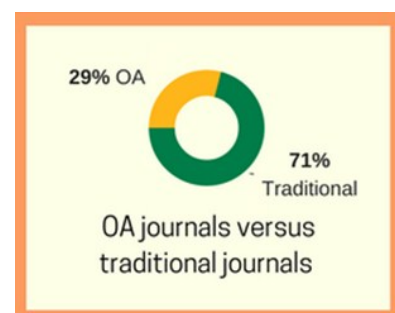
OA JOURNALS

Types of OA Journals

In 2014, English language peer-reviewed journals and non-English language peer-reviewed journals accounted for 28,100 and 6450 respectively [10]. The growth rate has been consistent in the number of journals at 3.5% per year [10]. The number of open access journals has significantly increased in Directory of Open Access Journals (DOAJ), an online directory that houses indexed, open access, and peer-reviewed journals. However, not all journals are peer-reviewed in DOAJ. Scopus had 4,200 OA journals (19.5%) as of January 2016 and Web of Science had 1,234 (9.9%) OA journals as of October 2015.

wherein content is made available typically after an embargo period of six to twelve months. As of 2012,

29% OA
71% Traditional
OA journals versus traditional journals

492 journals were delayed access. Interestingly, it was observed that delayed OA journals had twice as high citation rates as subscription journals [10].
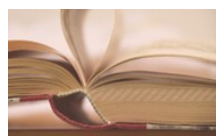

Increase in OA journals in DOAJ

Mega journals, pioneered by PLOS ONE are the most rapidly growing segment of the OA journals. Many journals have tried to implement the same model of these mega journals, keeping the traditional peer-review process [10]. In addition, increasing number of journals in biomedical and life sciences fields are opting for delayed open access,

OA JOURNAL TYPES

MEGA JOURNALS — These are broad scope journals with objective peer-review. These are generally low-cost and high-volume. (PLOS ONE; BMJ Open; SAGE Open)

FLIPPED JOURNALS — These are the journals that converted from subscription to OA. (Nucleic Acids Research; Nature Communications; Stem Cell Research)

CASCADE JOURNALS — These journals are used as tests for OA strategy while protecting the main journals. (J Nutrition Science; Physiological Reports (Wiley/APS))

HYBRID JOURNALS — These subscription journals that can offer OA on article basis after payments of APCs. Major biomedicine journals published by main publishers fall in this category.

BROAD-SCOPE SELECTIVE JOURNALS — These are similar to megajournals, but use a traditional peer-review process for selecting articles. (Open Biology; Open Library of the Humanities)

OA JOURNALS

Publishing in OA Journals

Several new technologies are driving OA journal publishing. Key sectors where these technologies can help include, transforming from PDFs to HTMLs, using web hosting service, utilizing services such as DOIs, indexes, and organizing content production in terms of metadata and layout.

How Can You Publish in OA Journals?

- Find appropriate journal by consulting your peers or by browsing through the DOAJ, or similar listings.
- Open Access does not imply that there are no publication charges for the author, though this is true in some cases. Check for APC/other charges. Even when journals charge for publishing, you could request the charges to be waived citing special circumstances.
- Once the journal is selected, prepare the article in the format suitable for the journal.
- Keep in mind that peer review will be conducted at some point in the future.
- There are new models of open access journals like overlay journals which accept pre-prints from archives, and interdisciplinary or multidisciplinary journals which venture into areas at the interface of more than one subject area.
- Usually, you will be able to retain copyright on your article. Read copyright policies of the publisher beforehand.

ALTERNATIVES TO OPEN ACCESS

Self-Archiving

Green OA or self-archiving can be an alternative to OA journals. Researchers can archive at university/ institutional repositories, subject specific repositories, or self-publish at their homepage/website. Universities and funding agencies are mandating that publishers grant them rights for open access self-archiving (OASA) of articles they sponsor.

RoMEO has described archiving policy of the publishers based on the colour scheme [11].

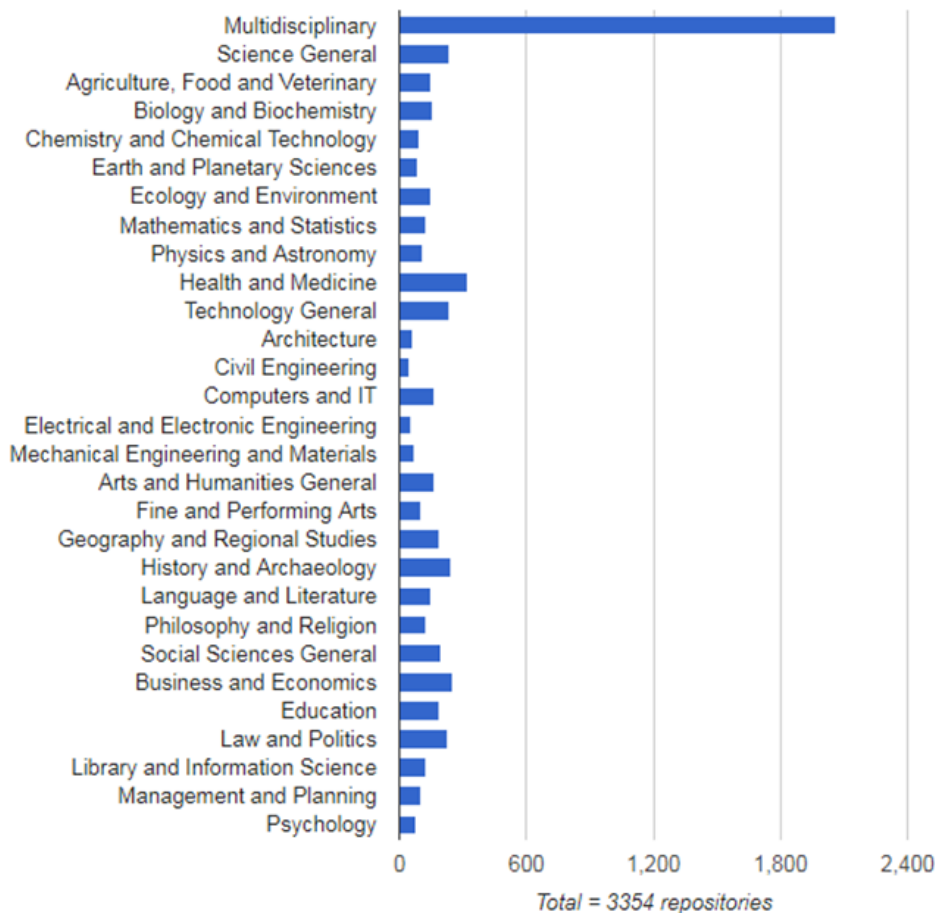| RoMEO Colour	Policy	% of publishers
Green	Archive pre-print and post-print	41 (987)
Blue	Archive post-print (final draft post-reviewing)	33 (776)
Yellow	Archive pre-print (pre-reviewing)	6 (151)
White	Archiving not formally supported	20 (471)

One of the studies observed that homepages/websites accounted for 27%-49% of self-archived articles. In addition, institutional and subject repositories accounted for 19%-44% and 29%–43% respectively [10].

OA REPOSITORIES

Subject/Disciplinary Repositories

Open access repositories or archives are intended for researchers to contribute to the results of their research. Repositories or archives are organized by subject area or certain institutions maintain archives that cut across different disciplines. These repositories can house different types of content, namely articles, books, monographs, data, multimedia files (audio/video), conference proceedings, and more.

OpenDOAR - 19-Jul-2017

Usually, arXiv, bioRxiv, SSRN, RePEC, and PubMed Central are considered subject repositories. However, because of the development of effective search engines, changing publisher's OA policy landscape, and emergence of institutional repositories have resulted in the slow growth of these subject repositories [10]. SciELO and Redalyc are not conventional repositories, but a database of bibliographies and digital library for OA journals

Subjects represented in OpenDOAR: Global Outlook (OpenDOAR Charts - Worldwide [Internet]. 2017 [cited 20 July 2017]. Available from: http://www.opendoar.org/find.php?format=charts)

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