



# Making Research Count! The Transition to Open Science

Arend Küster, Director Academic Affairs  
5 June 2023



# TRUST



**1. intransitive.** To have faith or confidence in a person, quality, or thing; to rely on.

**2. transitive.** To believe (a statement, story, etc.); to rely on the truthfulness or evidence of (a person, his or her senses, etc.).

**3. transitive.** To commit the safety or safekeeping of (a person or thing) *with* a person or *to* (also *†till*) a person, thing, place, etc.; to entrust.

**4. transitive.** To have faith or confidence in (a person or thing); to rely or depend on.

Source: Oxford English Dictionary





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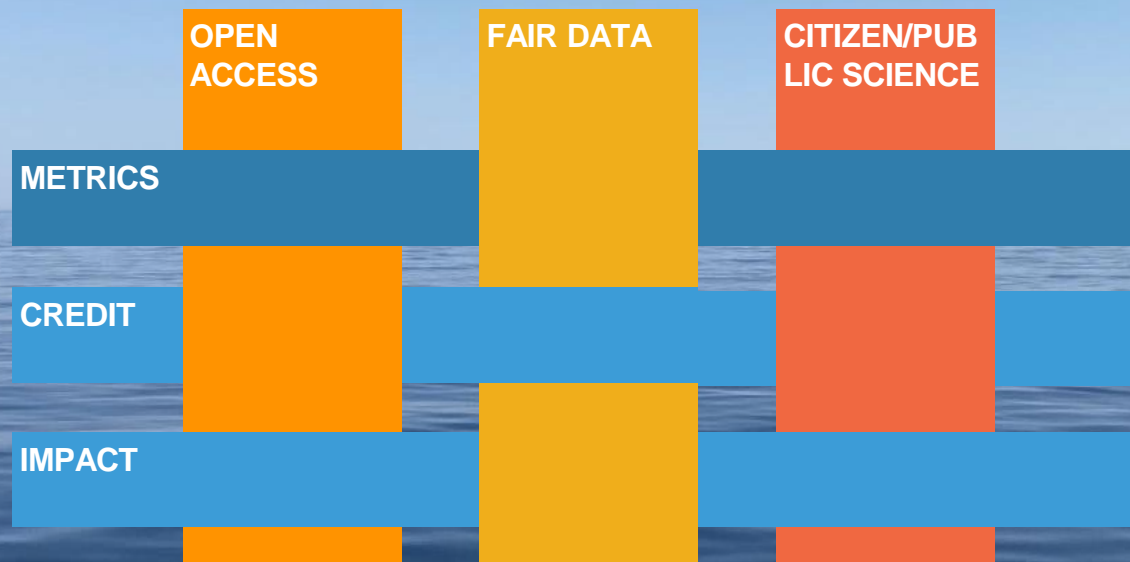
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# 1. Why Open Access Matters




# The Open Science Conversation:





# OPEN RESEARCH IS THE WAY FORWARD.



Public Access to data and published research allows more voices to join the scientific conversation.

SHARING PROTOCOLS

COMMUNICATING POSITIVE + NEGATIVE RESULTS


MAKING UNDERLYING DATA AVAILABLE + REUSABLE



## THE GLOBAL RESEARCH AND PUBLISHING COMMUNITIES ARE BECOMING MORE AND MORE OPEN EVERYDAY

- **Organizations:** a milestone event has been the **UNESCO Recommendation draft on Open Science**
- **Governments and regions:** such as European Commission launched [European Open Science Cloud](#) for hosting and processing research data to support EU science, aiming to facilitate higher research productivity, new insights and innovations, as well as improved reproducibility and trust in science; another example would be Germany and 10+ other nations signed Transformative Agreements with Springer Nature to fund their country's researchers to publish in Gold Open Access (OA)
- **Funders:** such as cOAlition S (an international consortium of research funders and performing orgs), launched **Plan S** that mandate their funded research publications to be made full and immediate OA
- **United States:** OSTP Issues Guidance to make federally funded research freely available without delay (<https://www.whitehouse.gov/ostp/news-updates/2022/08/25/ostp-issues-guidance-to-make-federally-funded-research-freely-available-without-delay/>)
- **Research institutions:** Max Planck Society is one of the leading roles in advocating OA, and [reached](#) the world's largest transformative agreement with Springer Nature on behalf of Projekt DEAL to provide OA publishing services to authors at 700+ German research institutions.
- **Universities:** such as University of California (UC) and Springer Nature [signed](#) a MoU for a transformative agreement to fund their researchers to publish in Gold OA
- **Publishers:** the majority of publishers and journals in the world are dedicated to provide OPEN choice for author





## 2. Opening the Black Box: Understanding the Publishing Process

# Why journals matter and what they do for you

Journals connect your research into the global research environment, advancing discovery

## Validation & Verification



- Have your research evaluated by specialists in your field
- Claim and record your results and connect to others

## Filtering & Selection



- We read the submissions and manage peer review
- We select relevant and scientifically sound papers
- Journal signals relevance to the reader

## Distribution & Amplification



- Get your research read, noted and distributed globally
- Find out what others are doing and stay on top of developments

## Curation, preservation



- Maintain and defend the version of record
- Ensure high levels of research integrity



**SPRINGER NATURE**



# Some Questions to reflect on...



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PRE-LECTURE CHECK-IN

# How many articles have been submitted to Springer Nature in 2021?

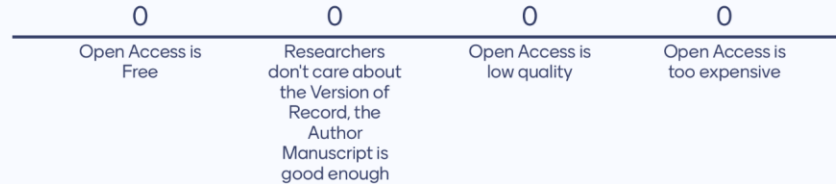


0	0	0
10,000	about 100,000	over 1 million



PRE-LECTURE CHECK-IN

# What do you think is the most common misconception about Open Access

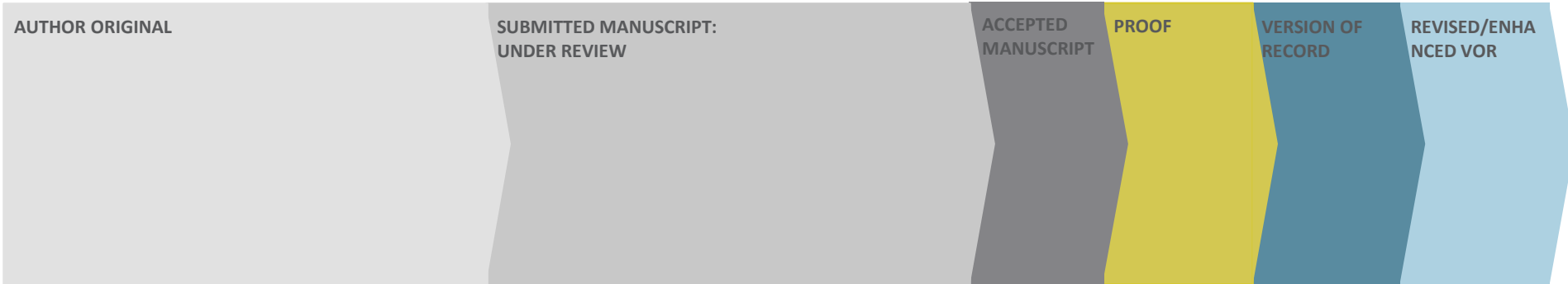


MENTIMETER PRESENTS

## VALUES ADDED DURING PUBLISHING PROCESS - OA and Non-OA

Publishing is more than producing pdf:

Publishers filter, curate, certify, amplify and distribute reliable research

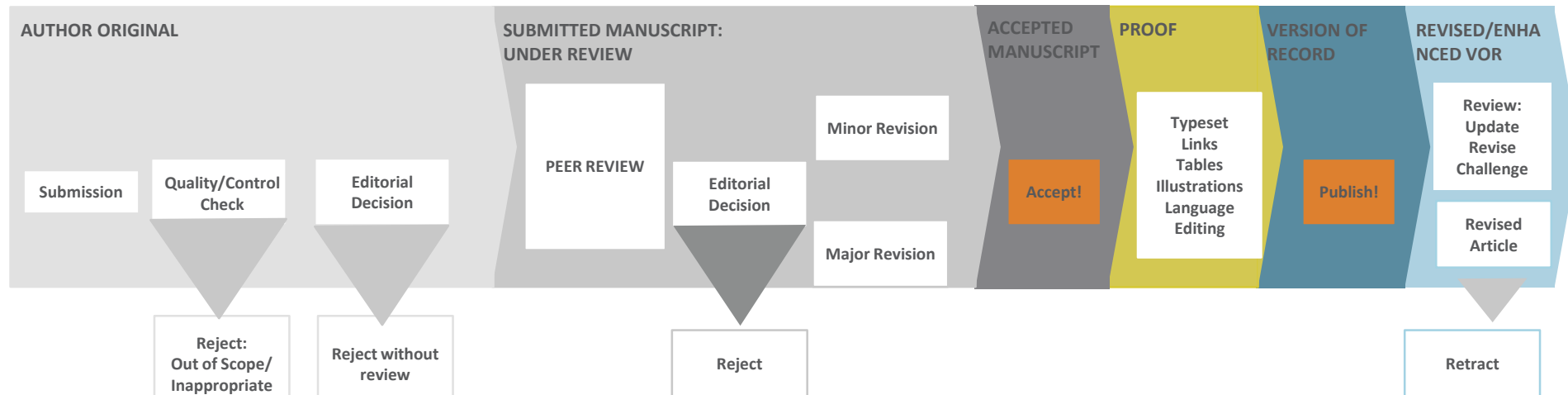




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# MANY RESOURCES (= PEOPLE) INVOLVED IN THE PUBLICATION

Different roles are working hand in hand to produce a Version of Record that can be trusted

Supported by Research Integrity and Policies

Editors/Editorial Assistants

Editors, Publishing Assistants: Assign,  
Chase, Check  
Peer Reviewers

Editor/  
EiC

Production  
Production  
Editors

Editor/EiC

EiC, Legal,  
Research  
Integrity

AUTHOR ORIGINAL

SUBMITTED MANUSCRIPT:  
UNDER REVIEW

ACCEPTED  
MANUSCRIPT

PROOF

VERSION OF  
RECORD

REVISED/ENHANCED  
VERSION

Submission

Quality/Control  
Check

Editorial  
Decision

PEER REVIEW

Editorial  
Decision

Minor Revision

Major Revision

Accept!

Typeset  
Links  
Tables  
Illustrations  
Language  
Editing

Publish!

Review:  
Update  
Revise  
Challenge

Revised  
Article

Reject:  
Out of Scope/  
Inappropriate

Reject without  
review

Reject

Retract



# THE PUBLISHING PROCESS IS SUPPORTED AND INFORMED BY OTHER FUNCTION

Many resources and people are invested to support the publishing process

## Editorial / Publishing

SELECT ARTICLES  
MANAGE THE REVIEW PROCESS  
COMMISSION ARTICLES  
EDIT ARTICLES  
CERTIFY RESEARCH  
MANAGE THE VERSION OF RECORD

## Production

PRODUCE AND ENHANCE

## Technology

ACHIEVE GLOBAL DISTRIBUTION AND REACH

## Marketing

AMPLIFY RESEARCH

## Sales & Support Business Development

ACHIEVE GLOBAL READERSHIP  
DEVELOP NEW MODELS

## Group/Management Function

FINANCIAL, LEGAL AND HR SUPPORT

## HOW LONG DOES THIS TAKE?

- **We read and process every submitted article**
- **We separate commercial and editorial interest.**

**The Answer is:**

**AS FAST AS POSSIBLE BUT WITHOUT  
RISKING SCIENTIFIC INTEGRITY AND  
ROBUST PROCESSES!**



# WE ENCOURAGE POSTING ON PREPRINT SERVERS...

and support citation and open licensing on preprints

- Preprints are versions of an article shared prior to peer review and publication review
- They are made available to speed up review, speed up the academic progress
- However, they are NOT version of records and can be withdrawn and adapted
- We expect that authors will respect our policies on **preprints in** communications with the media

A recent study confirmed:

- More than half (59%) of retracted Covid-19 articles (27/46) remained available as original unmarked electronic documents after retraction (33% as full text and 26% as an abstract only).  
(<https://dx.plos.org/10.1371/journal.pone.0258935>)



**jc burgelman** @BurgelmanJean · Apr 12

peer review is the essence of science. we should never give that up. even under pressure



**Retraction Watch** @RetractionWatch · Apr 11

"Belgian researchers chose to bypass all standard science publishing protocols to publish research that has been overhyped and isn't well understood." [vice.com/en\\_us/article/...](https://www.vice.com/en_us/article/...)



# What do research prefer using?

## Research prefer working and citing the Version of Record (VOR)

Our research shows:

- 83% of researchers preferred working with the VoR for citing content in their own work
- 9% preferring accepted manuscripts (AMs)
- 2% preferring preprints (see Springer Nature <https://doi.org/10.6084/m9.figshare.13834532.v1>)
- a clear desire for users outside academia (for example: government agencies, industry, education and the general public) to access more primary research material to better serve their missions in delivering economic impact, drive policy change and improve clinical decision making.



**SPRINGER NATURE**





# dealing with difficult decisions: research ethics and integrity

- Articles are **curated and managed**, they should not be the end point of research, it lives on so research can be build upon other result
- Defending the version of records
- **Upholding academic standards and defending authors and their copyright**
- Ensure that the **processes are not biased**
- Dealing with **amendments, retractions and having clear processes for both**
- **Encourage Data mandates and data sharing**

# Open Science Supports Research Integrity:



EXECUTIVE OFFICE OF THE PRESIDENT  
OFFICE OF SCIENCE AND TECHNOLOGY POLICY  
WASHINGTON, D.C. 20502

## G7 Science and Technology Ministers' Communiqué

Sendai, May 12-14, 2023

Washington DC, August 2022

### 2. Promotion of trustworthy scientific research through research security and research integrity measures

We believe that openness is fundamental, security is essential, and freedom and integrity are crucial. The G7 reaffirms the importance of common values and principles for global research security and research integrity and their dissemination.

### 4. Ensuring Scientific and Research Integrity in Agency Public Access Policies

*...Federal agencies should take steps to ensure that public access policies support scientific and research integrity by transparently communicating to the public critical information, including that which is related to the authorship, funding, affiliations, and development status of federally funded research..*

#### - To support the drive to open science Springer Nature aims to:

- Develop and implement **policies** which promote open science and transparency
- Have the right **processes and products** in place to make implementing open science methods as easy as possible for authors
- Create **partnerships** in the research community to drive forward industry-wide solutions



### 3. Mapping the Open Science Landscape

# The APC Funding Landscape is complex

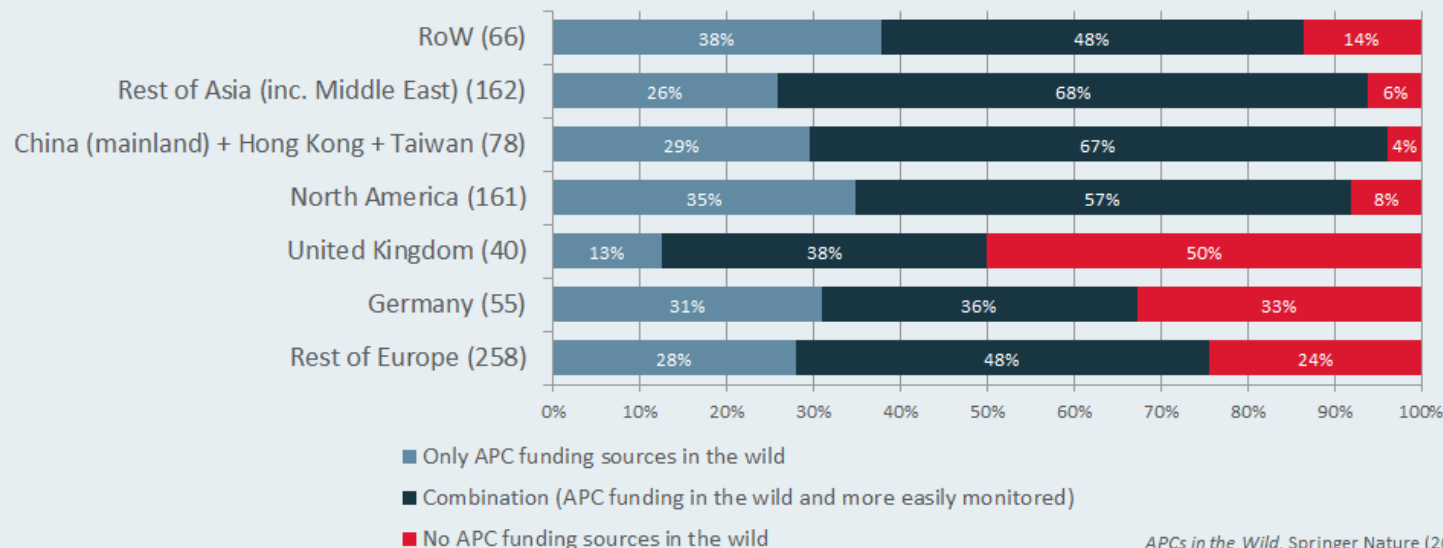
Authors are using a wide range of funding sources, often in combination



## The OA funding landscape varies regionally

### Some regions show much higher levels of 'wild' funding

Levels of APC funding 'wildness' - fully OA by region



APCs in the Wild, Springer Nature (2020)  
<https://doi.org/10.6084/m9.figshare.11988123.v4>



# STAKEHOLDERS IN EUROPE WANT AN ACCELERATED TRANSITION TO OA



# MIXED MODELS FOR PUBLISHING RECOGNISES THE COMPLEX FUNDING AND POLICY LANDSCAPE

Many funders and institutions now require articles to be published OA as part of the **conditions of funding**.

**Publisher are responding** to the demand and offer OA options for all primary research to **enable our authors to meet these requirements**, this includes Plan S.

However, **many academic fields do not have the funding necessary for OA**; funders and governments in many parts of the world are **not able to prioritise Gold OA**.

For the foreseeable future, we need to offer **a variety of publishing models to ensure that all authors**, no matter what or where they are studying, are able to publish their research.

**Predatory Journals are trying  
to exploit the researcher's  
need to get published**





# RELATIONSHIP: QUANTITY AND QUALITY

More content is not necessarily better

Predatory journals exist, because in the short term, they benefit from volume only



Choose the right journal for your research

In the long term, low quality will have negative effects (for every publisher):

- Attractiveness for good authors will be reduced
- Usage, citations will drop
- Good authors will publish with other publishers
- Trust in the publishing system is eroding
- Need for publishers to build trust that they will keep up good quality and resist the temptation to publish everything



# Open Infrastructure $\neq$ Free Infrastructure



A photograph of a wooden staircase with railings, set in a lush, tropical forest. The stairs are made of weathered wood and lead upwards through dense vegetation. The railings are made of dark wood. The background is filled with various tropical plants and trees.

## 4. Key Challenges: Research Assessment and Equity



# EQUITY AND INCLUSION: MORE THAN ACCESS TO INFORMATION AND APC FUNDS

**SPRINGER NATURE GROUP**

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**All Press Releases**

**Nature announces support for authors from over 70 countries to publish open access**

Authors from low income and lower-middle income countries to be able to publish for free in Nature and the Nature research journals

London | Berlin | New York, 9 January 2023  
Updated 28th January 2023

From today, primary research from authors from over 70 countries classified by the World Bank as low-income (LIC) or lower-middle income economies (LMICs) accepted for publication in either Nature or one of the Nature research journals (e.g. Nature Chemistry, Nature Sustainability) can now be published Gold open access at no cost\*. This move recognises that local funding is rarely available for publishing OA in specialist journals like Nature, whose characteristics such as in-house editorial teams and low acceptance rates make it difficult for authors from these countries who are less well-funded.

nature > nature geoscience > editorials > article

Editorial | Published: 04 August 2022

**Tackling helicopter research**

Nature Geoscience 16, 597 (2022) | Cite this article

2181 Accesses | 67 Altmetric | Metrics

**A new ethics framework urges researchers to promote greater equity in global collaborations.**

Geoscience is a global exercise, from sampling and fieldwork in remote locations to international collaborations. Helicopter research – also referred to as ‘parachute science’ – is when researchers from higher-income or more privileged settings carry out research in resource-poor settings with limited to no involvement of local communities or researchers. It can occur at any point from the conceptualization of a project to its eventual publication. Such practices perpetuate historical imbalances of power, can be exploitative, and are bad for science.

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ARTICLES

<https://doi.org/10.1038/s41559-021-01608-8>

Check for updates

**Colonial history and global economics distort our understanding of deep-time biodiversity**

Nussaibah B. Raja<sup>1,8,9,10</sup>, Emma M. Dunne<sup>1,8</sup>, Aviwe Matiwane<sup>1,14</sup>, Tasnuva Ming Khan<sup>1,7</sup>, Paulina S. Nätscher<sup>1</sup>, Aline M. Ghilardi<sup>15</sup> and Devapriya Chattopadhyay<sup>16</sup>

Sampling biases in the fossil record distort estimates of past biodiversity. However, these biases not only reflect the geological and spatial aspects of the fossil record, but also the historical and current collation of fossil data. We demonstrate how the legacy of colonialism and socioeconomic factors, such as wealth, education and political stability, impact the global distribution of fossil data over the past 30 years. We find that a global power imbalance persists in palaeontology, with researchers in high- or upper-middle-income countries holding a monopoly over palaeontological knowledge production by contributing to 97% of fossil data. As a result, some countries or regions tend to be better sampled than others, ultimately leading to heterogeneous spatial sampling across the globe. This illustrates how efforts to mitigate sampling biases to obtain a truly representative view of past biodiversity are not disconnected from the aim of diversifying and decolonizing our discipline.



# REDEFINING RESEARCH ASSESSMENT AND IN AN OPEN SCIENCE CONTEXT

- **Research Articles** will continue to play a major role in **Research Assessment**, as they verify, validate and disseminate research.
- Giving **credit** to open data, data sharing and peer review requires metrics and metadata, which publishers provide.
- We support the **move away from an assessment of researchers by Impact Factor**
- We have **convened research leaders** from Europe, US and China on roundtables to discuss these issues
- We discuss this issue with funders, our Research Advisory Council and **cross stakeholder, and global dialogue**



nature

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EDITORIAL | 27 July 2022

## Support Europe's bold vision for responsible research assessment

There have been many initiatives to combat the distorting effect of research assessment exercises. The latest looks like it might work



# HOW TO DEFINE IMPACT?

- **Public engagement in science:**  
*Inspire and engage new audiences*
- **Influence policy makers:**  
*research that drives national and international policy.*
- **Media attention:**  
*interest from a community beyond active scientists.*
- **Clinical/translational research:**  
*Demonstrate a treatment can be used on humans.*
- **Commercial success:**  
*proving viability of new technologies, spin-off companies, working with industry*
- **Discoveries with local impact:**  
*for example, air pollution, food and water security.*
- And many more.....



# Mapping Impact: Relating Research to the UN Sustainable Development Goals



# We want to make sure that SDG-related research gets attention

*"The themes of the UN Sustainable Development Goals are inspirational to us at Springer Nature. Across our publishing and services and across the disciplines, we are focusing on helping researchers make the world a better place for future generations."*

— Sir Philip Campbell, Editor-in-Chief of Springer Nature



<https://www.springernature.com/gp/researchers/sdg-programme>





# How is Springer Nature delivering against the SDGs?

## Supporting and amplifying the SDGs

We are a leading publisher of SDG-related content, encouraging new research contributions to address grand challenges.



## Innovating to support the SDGs

We use our knowledge, convening power and communications capabilities to bring research-based solutions to the attention of the practitioners who need it.

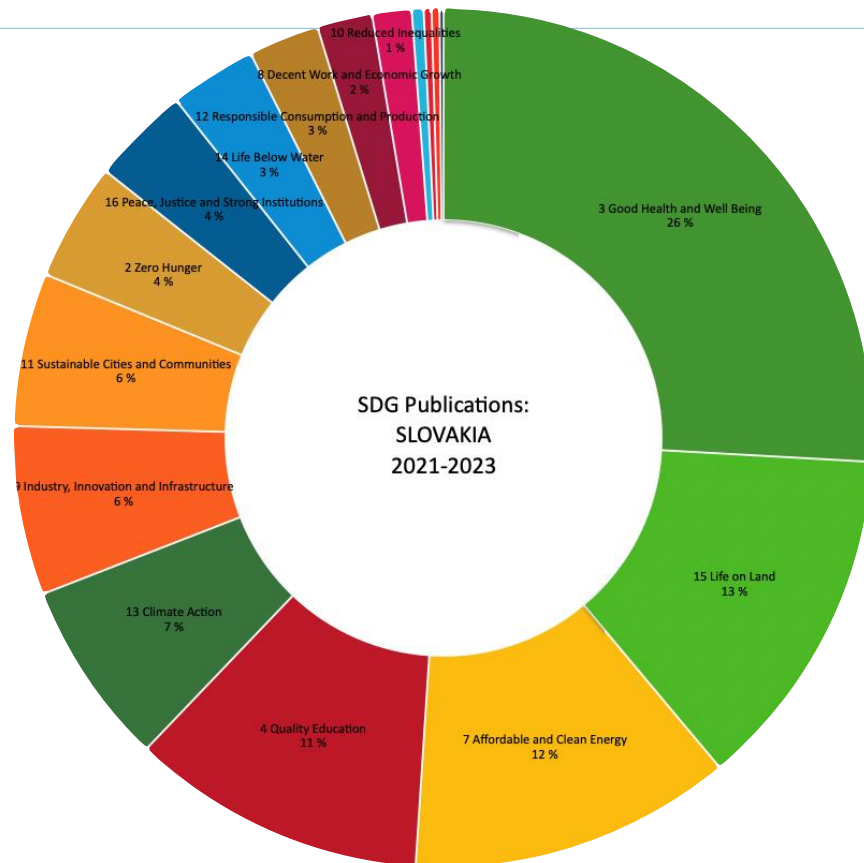


## Acting as a sustainable business

We address the environmental and social impacts of our business, setting and reporting against targets, and sharing evidence of progress.



## Article Publications assigned to Sustainable Development Goals (SDGs)



A close-up photograph of a pomegranate fruit and a red flower. A syringe needle is inserted into the side of the pomegranate fruit. The background is filled with green leaves and other pomegranate flowers.

## 5. Five Misconceptions about Open Access



## Misconception 1: OA is just a publishing trend

- **20 years of Open Access** means that the advantages of making research OA are overwhelming
- Springer Nature published now **over 1 million OA articles** - 36% of all articles published in 2021
- In 2020, each OA Springer Nature Article is **cited on average 7.39 times**

However:

- Take up by the research community has been slow: **Researchers are poorly informed** on the benefits of OA and still reliant on IF, despite widespread support of DORA
- **Europe publishes the most OA content (40%)**, while Asia is the biggest user of content (34% of article download)
- Developing **equitable and sustainable open access option** remains a major challenge





## Misconception 2: Open Access is expensive and the fees are too high

- The real cost in Open Access in **rejecting articles**: we have to process all submissions, which is timely and staff intensive

For example:

- For Nature Portfolio of journals **we employ 280+ in-house PHD level educated** independent editors
- For other journals peer review is done externally and **managed by degree level educated staff** (eg 70+ for Scientific Reports)
- This is to ensure that our quality is met, and that **we never compromise our editorial/ethical standards**



### Misconception 3: Open Access means author pays

- Reputable Open Access publishers ensure that **articles are only accepted on editorial and research merit** according to the aims and scope of the journal.
- Whilst the author is responsible for paying an Article Processing charge, this in most cases is covered and paid by **Open Access Funds set up by the institution - or via transformative agreements**
- In areas with transformative agreements, over **70% of our corresponding authors publish Open Access**
- We have **help available** for authors who can't pay and offer waivers to **authors from developing countries: €18.4 million+ waived in fees for authors in financial need, including €6.6 million for fully OA articles** with corresponding authors based in countries or regions on the World Bank's list of low- and lower middle-income countries.



## Misconception 4: Open Access means “free articles”

- **Free to read is not Open Access - the publishing license (CC-BY) is key** to enable widespread sharing and building on the Version of Record
- Open Access Journals have **the same rigorous quality checks** than any other journal
- Cost of **managing the review process, certifying, enhancing, amplifying research is real**
- Evolving technology and continuous investment:  
**we have to work together to maintain high standards** in the Open Access Community



## Misconception 5: Green open access provides a path to open access

- Researchers want to **access the most reliable and credible final published version** of article (VOR)
- **Green Open Access is not free** - it is **financed by the subscription**.
- We have committed our journals, including Nature, to the Transformative Journals route: to flip to full Open Access **75% of the research content needs to be published open access**.
- Investigation is needed into the **cost/benefits of the Green OA approach** given the significant investment in institutional repository (IR) infrastructure, the extent to which redundant reproduction and sharing adds value to the research ecosystem as a whole.
- A **lack of standardised metadata and tagging makes Green OA content less findable** and decreases global reach and citation beyond the repository's institution.
- The Rights Retention Strategy (RRS) by cOAlitionS **slows down this path towards OA without providing a sustainable route for the VOR**.

# STAKEHOLDERS ARE MOVING TOWARDS OPEN SCIENCE AND BEYOND THE PAPER

## FUNDERS

- Public access provides stakeholder engagement
- Impact locally and globally
- Use the grant agreement to encourage Open Science
- Give credit for openness to increase impact

## INSTITUTIONS

- Provide the best research environment to their constituencies
- Attract talent and partnerships
- Advance research
- Comply with funder mandates (Data/OA)

## RESEARCHERS

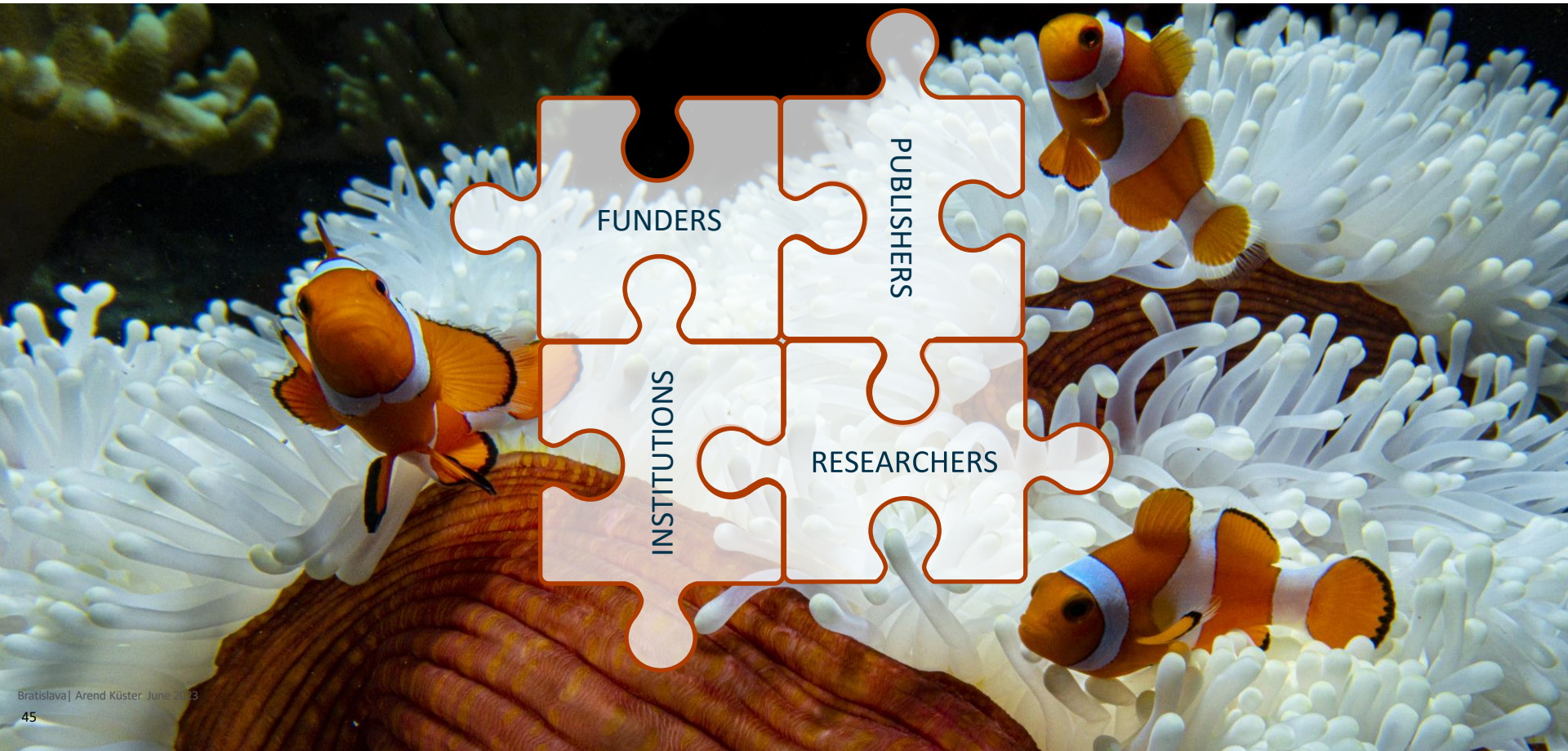
- Research and advance science
- Publish in the journal of the choice
- Get recognition, promotion and increased funding
- Comply with funder mandates (Data/OA)

## PUBLISHERS

- Validation and verification
- Select and filter
- Manage and curate Version of Record
- Manage and deliver Peer review
- Integrity and neutrality
- Comply with funder mandates



# TO REACH AN OPEN SCIENCE FUTURE, WE NEED COOPERATION BETWEEN ALL STAKEHOLDERS







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## THANK YOU Thank you

If you'd like to get in touch and discuss any of these points in a meeting, either over a virtual or real tea or coffee, please let me know!

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