

# International Science Council

The global voice for science

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Mobilizing global action towards reforming scientific publishing: preprints as a pathway



## WHY IS THIS SUCH A BURNING ISSUE?

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- ❑ Broadening access to publicly-funded research
- ❑ Increasingly unaffordable access
- ❑ Deep national and global inequities
- ❑ Research integrity
- ❑ Transparent reproducibility of research

Opening the Record of Science

Returning scholarly publishing to ownership of  
scholarly community

# PROJECT BACKGROUND

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- ❑ Explores role of scholarly publishing in maximizing benefit to global science and to wider audiences
- ❑ Scholarly publishing is indispensable to the advancement of science
- ❑ Corporatization of scholarly publishing builds multiply-dimensional walls around scholarly outputs

Contemporary publishing systems are in urgent need of reform

# THESE ARE COMPLEX TIMES

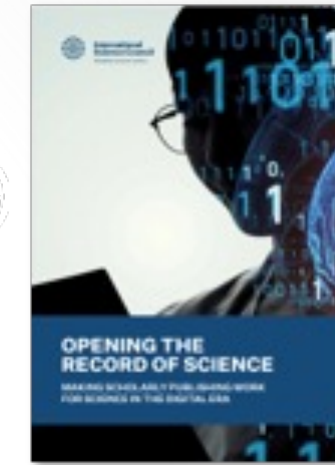
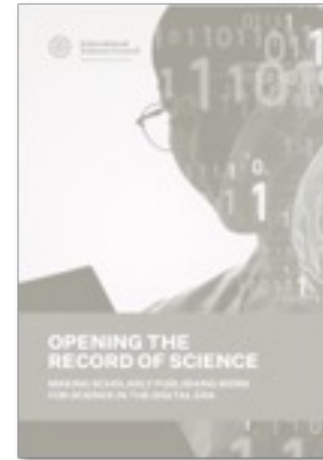
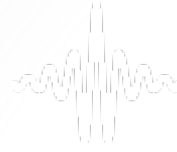
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- ❑ Grand challenges are intensely local and global
- ❑ Boundary conditions of truth are shifting with rising anti-intellectualism, loss of trust in experts
- ❑ Shifts in geopolitics and geopolitics of knowledge
- ❑ Rising opportunities (and threats) of the technology moment we are in

**IMPERATIVE THAT WE BUILD A GLOBAL COMMONS  
OF SCHOLARS AND SCHOLARSHIP**

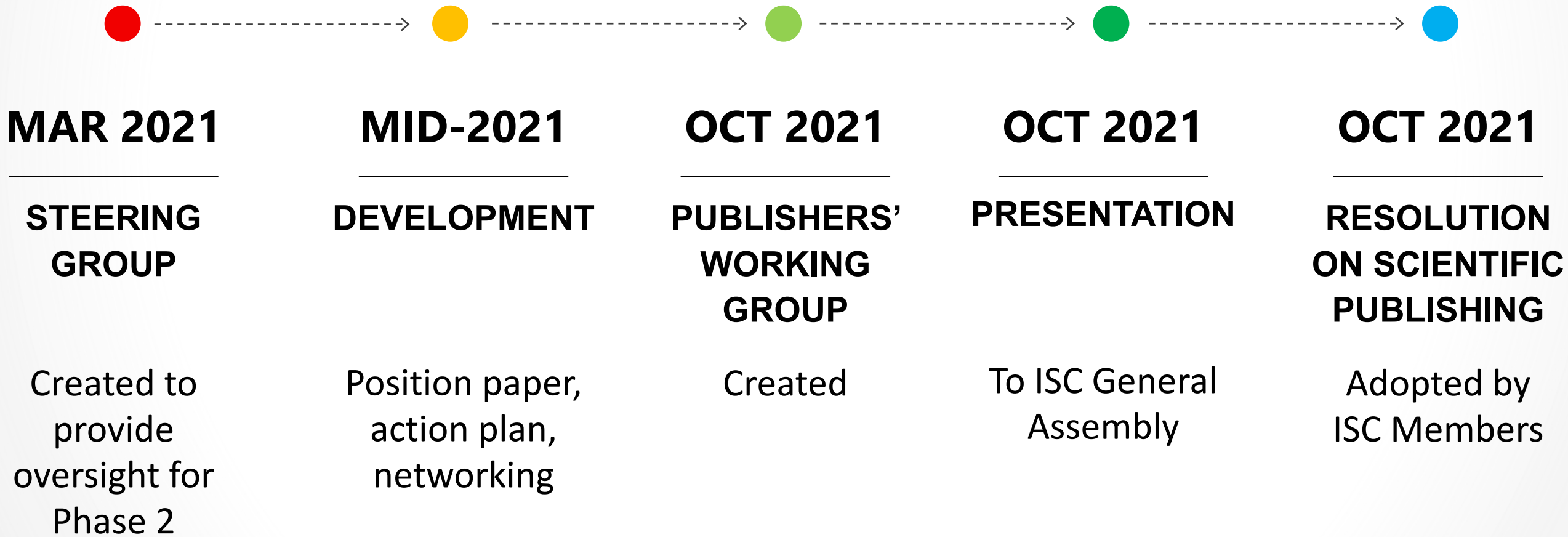
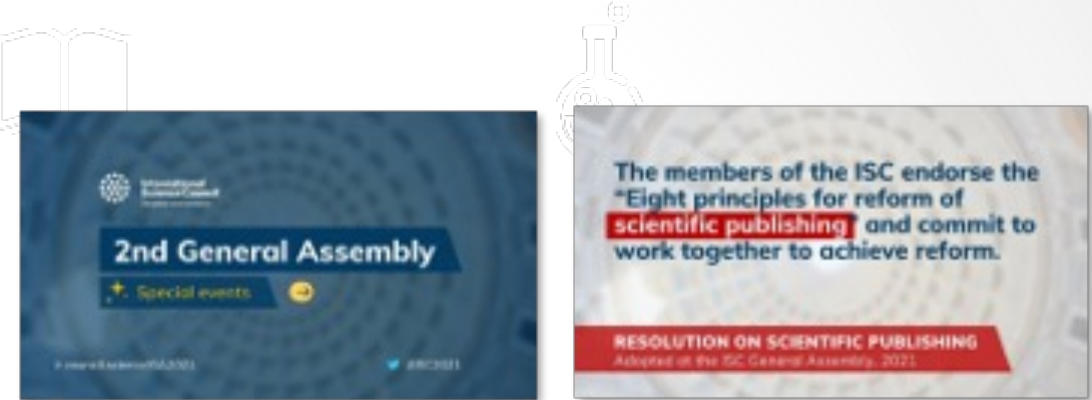
# TIMELINE

Phase 1: Analysis,  
Assessing Consensus



# TIMELINE

## Phase 2: Action for Reform

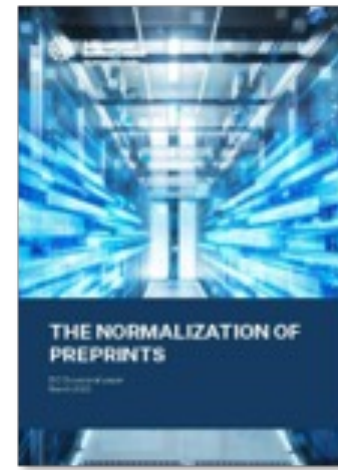


# PRINCIPLES FOR SCIENTIFIC PUBLISHING

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## POLL OF ISC MEMBERS

1. Affordable, universal open access
2. Open licensing of the record of science
3. Rigorous, efficient, timely peer review
4. Concurrent publication of data and evidence (FAIR)
5. Maintaining the record of science
6. Respecting the needs of disciplines and regions
7. Adaptability to new opportunities
8. Accountability to the scientific community



**NOV 2021**  
**PUBLICATION**

*Strengthening  
research integrity*

**MAR 2022**  
**PUBLICATION**

*The normalization  
of pre-prints*

**MID 2022**  
**FINALISATION**

Of campaign plans

**2024**  
**SUSTAINABLE  
CHANGE**



# OPTIONS FOR REFORM

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## NORMALIZE

- Rapid communication to disciplinary peers through preprint servers.
- Overlay processes
- Innovative approaches to peer review and quality control
- Rights retention strategies and open licences
- Concurrent deposition of relevant data/evidence in line with FAIR principles as a condition of publication.

## DEVELOP AND IMPLEMENT

- Business models that support 8 principles and diverse publication modes
- A sustainable business model for learned society open access publication
- Reform peer review
- Platform-agnostic discovery services
- Global curation infrastructures for the Record of Science
- A record of versions, not a version of record
- Reform incentives away from bibliometrics

## GOVERNANCE

- International organizations as custodians of the scientific interest
- Compliance and audit of agreed standards (8 principles)
- Adhere to UNESCO open science values
- Foreground academic institutions
- Build on robust, distributed, community controlled infrastructures

# THE ESSENTIAL ATTRIBUTES OF SCIENTIFIC PUBLISHING

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## SCIENTIFIC FUNDAMENTALS AND RESPONSIBILITIES:

- Sharing and communicating the results of research with peers and with the public. Circulating ideas efficiently to maximize their availability to all who may wish or need to access them.
- Maintaining rigour by making concepts and evidence openly available to be evaluated for accuracy and relevance (peer review).
- To be globally inclusive, with none left behind, a voice for all, and sensitive to diverse perspectives.

## ADAPTING TO CHANGE:

- Adding metadata to facilitate searches and long-term curation; archiving.
- Preservation for future generations.

**These roles are currently done badly by the traditional ‘scientific journals’ which developed in response to the constraints of printing on paper.**

# PREPRINTS AS A PATHWAY TO UNIVERSAL OPEN ACCESS

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## A STEP TOWARDS:

- Quickly making the results of scientific research public and openly accessible
- Sharing more, and sharing earlier in the research process
- Contributing to advancing the progress of science, and finding solutions to urgent issues such as pandemic response or climate change

## A PRACTICAL STEP TOWARDS QUALITY OPEN SCIENCE

- Already the primary source of information in many fields (astronomy, theoretical physics etc)

# PREPRINTS AS A PATHWAY TO UNIVERSAL OPEN ACCESS

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## **NOVEL FORMS OF OPEN PEER REVIEW:**

The current peer review system is under pressure, with high-profile failings  
Innovative systems using online platforms improve on this system.

## **MAKING RESEARCH MORE FINDABLE**

Literature searches now depend on discovery and recommendation engines using text  
and data mining.

# CHALLENGES TO GREATER UPTAKE

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- Not formally recognized as peer reviewed, even though there is usually some level of vetting (and journal peer review has disadvantages).
- Not recognized in research assessments.
- Uneven take-up (almost 100% in astronomy; less than 5% across all disciplines).
- Need for continuity in support for preprint infrastructure – funding servers.

# PREPRINTS AS A PATHWAY TO UNIVERSAL OPEN ACCESS

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Preprints alone will not revolutionize scientific publishing. But combined with open peer review systems, greater recognition in research assessment processes, and sustained support for community-led infrastructure, they are an important step towards universal open access.

**CONNECT WITH THE ISC TO FIND OUT MORE AND GET INVOLVED!**

## **FOR MORE DISCUSSION**

See the occasional paper published by the ISC on **The normalization of preprints**, available for open access download.



## **THE NORMALIZATION OF PREPRINTS**

ISC Occasional paper  
March 2022

# CONNECT WITH US

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## A COALITION OF COMMON PURPOSE WITH:

- Critical Mass
- Critical diversity

## TWO KEY DIMENSIONS:

- Disciplinary spectrum
- Geographic distribution

## BUILDING A NETWORK:

- ISC Members and their members
- Other international science bodies (IAP, GYA, TWAS)
- Science funding bodies and their networks
- Universities/Institutes and their networks
- Libraries
- Coalition S
- Open Access networks
- UNESCO
- Repositories & data bodies (CODATA, WDS, RDA etc)

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# THANK YOU

We look forward to the next steps.

For any questions, email the project manager at the ISC:

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