IBEC

Institute for Bioengineering of Catalonia

Open Science Workshops

OSW1 · Open Publishing

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March 2022

Fidel Bellmunt

Engineering solutions for health

Open publishing workshop

Program

1. The Open Science framework
2. Open Access definition, policies, funders current requirements
3. The scientific publication process
4. Finding open access journals and publications
5. Routes to Open Access for authors
6. Licensing: copyright and Creative Commons
7. IBEC Open Access policy, procedures and tools

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1. The Open Science framework

Definitions:

Open Science is science done right. (popular)

Open science refers to a new approach to the scientific process based on cooperative work and new ways of disseminating knowledge, improving accessibility to and re-usability of research outputs by using digital technologies and new collaborative tools. (EC, 2018)

Open Science is transparent and accessible knowledge that is shared and developed through collaborative networks. (Vicente-Saez y Martínez, 2018)

Interesting resources about OS:

- Podcast **Open Science Stories** by Heidi Seibold: https://anchor.fm/opensciencestories
- **Passport for Open Science** – A Practical Guide for PhD Students: https://www.ouvrirlascience.fr/passport-for-open-science-a-practical-guide-for-phd-students/

Open publishing workshop - 1. The Open Science framework

Open science is defined as an inclusive construct that combines various movements and practices aiming to make multilingual scientific knowledge openly available, accessible and reusable for everyone, to increase scientific collaborations and sharing of information for the benefits of science and society, and to open the processes of scientific knowledge creation, evaluation and communication to societal actors beyond the traditional scientific community. It comprises all scientific disciplines and aspects of scholarly practices, including basic and applied sciences, natural and social sciences and the humanities, and it builds on the following key pillars: open scientific knowledge, open science infrastructures, science communication, open engagement of societal actors and open dialogue with other knowledge systems.

UNESCO Recommendation on Open Science, 2021: https://unesdoc.unesco.org/ark:/48223/pf0000379949.locale=en

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Open science can increase (Glinos, EC):

- *Quality & efficiency of R&I, if all the produced results are shared, made reusable, and if collaboration, reproducibility and openness are rewarded*
- *Creativity, through collective intelligence and enabling cross-disciplinary research that does not require laborious data wrangling*
- *Trust in the science system, engaging both researchers & citizens*

A cultural shift to openness, collaboration and responsibility enabled by digital means. Requires:

  - policy and legislative action
  - deploying the supporting infrastructures
  - adoption by research performers as well as funders

- At institutional, national, European and global levels
- Necessary for science to continue deliver to society

Prioritized recommendations for the eight ambitions of Open Science

- Rewards and Incentives
- Research Indicators and Next-Generation Metrics
- Future of Scholarly Communication
- European Open Science Cloud
- FAIR Data
- Research Integrity
- Skills and Education
- Citizen Science

Open Science Policy Platform Recommendations, European Comission, 2018: https://doi.org/10.2777/958647

Open publishing workshop

2. Open Access definition, policies, funders current requirements

Open Access (OA) refers to the practice of providing online access to scientific information that is free of charge to the end-user and reusable. Refers to all academic disciplines peer-reviewed scientific research articles (published in scholarly journals).

BOAI (Budapest Open Access Initiative, 2001) :
https://www.budapestopenaccessinitiative.org/

The Budapest Open Access Initiative arose from a small but lively meeting convened in Budapest by the Open Society Institute (now Open Society Foundations [OSF]) on December 1-2, 2001.

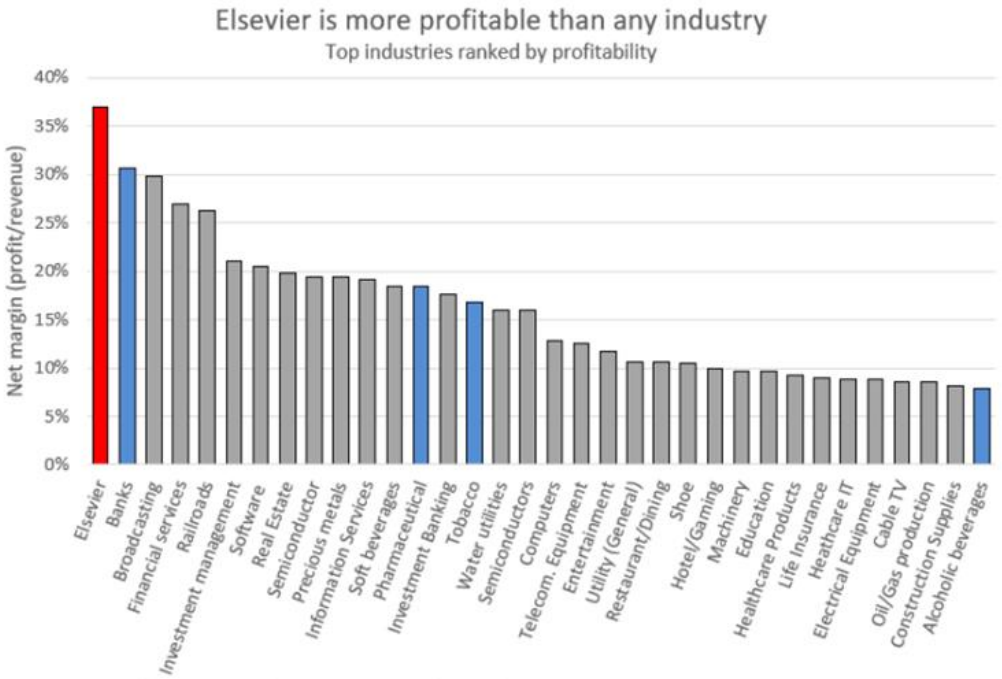
The purpose of the meeting was to accelerate progress in the international effort to make research articles in all academic fields freely available on the internet. The participants represented many points of view, many academic disciplines, and many nations, and had experience with many of the ongoing initiatives that make up the open access movement.

2021 > 20 years: recommendations

Open access is not an end in itself, but a means to further ends. Above all, it is a means to the equity, quality, usability, and sustainability of research.

+ PLoS, Berlin Declaration, Amsterdam Call for Action Plan on OS, etc.

EL MERCADO DE LA INFORMACIÓN CIENTÍFICA



Fuente: https://twitter.com/MatteoCarandini/status/1272141942957182978
https://www.relx.com/investors/annual-reports/2019
http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/margin.html

Movie: Paywall: the business of scholarship: https://paywallthemovie.com/

Trailer: https://www.youtube.com/watch?v=iR08YI4_vQ4

GOBIERNO DE ESPAÑA MINISTERIO DE CIENCIA E INNOVACIÓN FECYT INNOVACIÓN

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Open publishing workshop - 2. Open Access

TRIPLE GASTO PÚBLICO	• Dinero público paga la investigación • Dinero público paga la revisión por pares • Dinero público paga acceso a la información generada con financiación pública
PÉRDIDA DE INFORMACIÓN CIENTÍFICA	• La información que no se publica vía editores privados se pierde • Tesis, datos de investigación, ponencias, revistas científicas no comerciales, etc. suponen gasto público y no se explotan lo suficiente.
INEXISTENCIA DE INFRAESTRUCTURA de INFORMACIÓN CIENTÍFICA	• La información científica no se ofrece como un TODO accesible a toda la comunidad científica • Información DISPERSA y no organizada SISTEMÁTICAMENTE
EXCESIVA DEPENDENCIA PROVEEDORES	• Las instituciones dependen de proveedores privados **para acceder** a la información • Evaluación parcial y sesgada de la producción científica

GOBIERNO DE ESPAÑA MINISTERIO DE CIENCIA E INNOVACIÓN FECYT INNOVACIÓN

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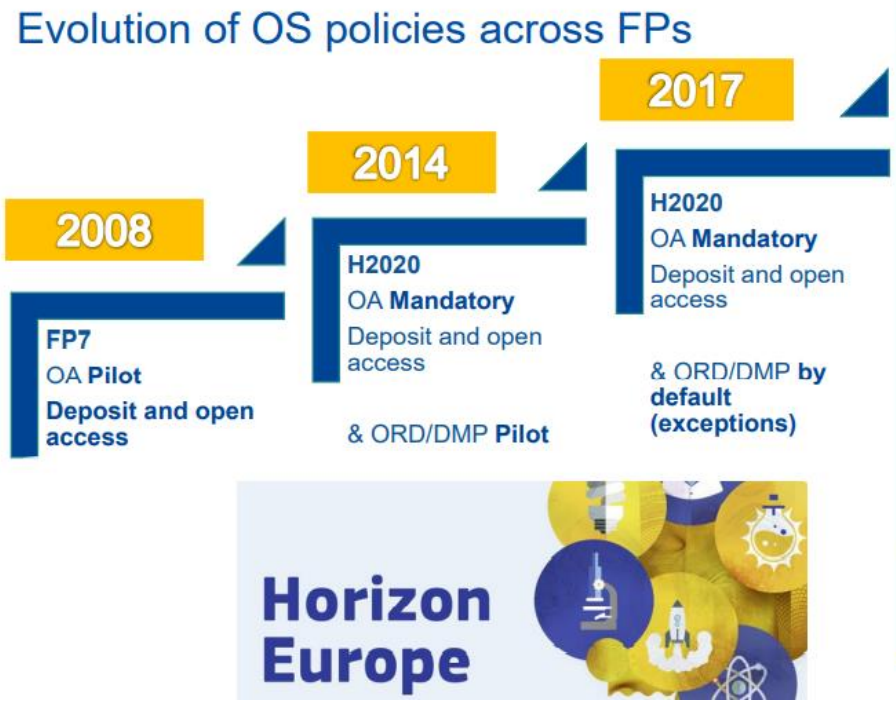
Funders - European context



Under **Horizon Europe (2021)**

- Open Science (OA, RDM, Citizen Engagement, etc.) embedded across the FP
  - **Evaluation** of proposals (excellence –methodology-, quality & efficiency of implementation)
  - **Grant Agreement, guidelines**
  - **Reporting**—during the project's lifetime
  - **Work programmes**
- Strengthening of the obligations with respect to open access and focus on responsible RDM in line with FAIR

Summary of open science practices in Horizon 2020 and Horizon Europe

	HORIZON 2020	HORIZON EUROPE
Open access to peer-reviewed scientific publications relating to their results. - Machine-readable electronic copy of the published version or the final peer-reviewed manuscript accepted for publication at the latest - in a trusted repository for scientific publications	Yes. All open access publication fees are reimbursable	Yes, but unlike Horizon 2020 - trusted repositories. - Publication fees reimbursable only if publishing venue offers full open access (publication fees in hybrids not reimbursed) Recommended for other publications (not peer-reviewed) and for research outputs
Open access to peer-reviewed scientific publications “immediate” and related research data “as soon as possible” (Guide: “at the latest at the time of publication”)		Mandatory, no embargoes allowed
Measures to ensure reproducibility of research outputs - under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights - information about the research outputs, tools and instruments needed to validate the conclusions of scientific publications or to validate/re-use research data		Mandatory
Open access to research data under the principle "as open as possible, as closed as necessary"	Partially: Only for projects which are part of open Research Data Pilot)	Mandatory (but exploitation, protection of IPR, security and privacy rules have a higher priority)

Summary of open science practices in Horizon 2020 and Horizon Europe

	HORIZON 2020	HORIZON EUROPE
Research output management (Data Management Plan, DMP)	Partially: Only for projects which are part of open Research Data Pilot	Mandatory
Responsible management of research data and metadata of all research outputs (publications, data, software, algorithms, protocols, models, workflows …) in line with the FAIR principles	Partially (not in Grant Agreement but in related documentation for DMP under the Open Research Data Pilot)	Mandatory
Digital or physical access to the results needed to validate the conclusions of scientific publications		Additional mandatory practice imposed in the conditions of the call
In cases of public emergency, immediate open access to all research outputs, if requested by the granting authority		Additional mandatory practice imposed in the conditions of the call
Involving all relevant knowledge actors including citizens, civil society and end users in the co-creation of R&I agendas and contents (such as citizen science)		Recommended (sometimes in topic description)
Early and open sharing of research: Preregistration, registered reports, preprints, etc.		Recommended
Participation in open peer-review		Recommended

Funders - Spanish context

Ley 14/2011, de 1 de junio, de la Ciencia, la Tecnología y la Innovación

- "dispone que todos los investigadores cuya actividad haya sido financiada mayoritariamente con los Presupuestos Generales del Estado están obligados a publicar en acceso abierto una versión electrónica de los contenidos aceptados para publicación en publicaciones de investigación. Para su desarrollo, se encomienda a los agentes del Sistema el establecimiento de repositorios institucionales de acceso abierto".

- Artículo 37. Difusión en acceso abierto.

  "tan pronto como resulte posible, pero no más tarde de doce meses después de la fecha oficial de publicación".

- Sobre este artículo descansan las convocatorias nacionales de proyectos de I+D+i, como la Severo Ochoa, etc. que así lo piden ya.

Funders - Catalan context

- Projecte de Llei de la Ciència > Article 78. Informació i transmissió del coneixement

- Pacte Nacional per la Societat del Coneixement (2020) that sets the *Catalan open science strategy*:
  - Open access to scientific publications.
  - The publication of FAIR (findable, accessible, interoperable and reusable) scientific data.
  - The creation of new infrastructures to integrate the resources of the Catalan research system into the European ecosystem of the European Open Science Cloud (EOSC).
  - Responsible research and innovation policies. Increase the value of scientific culture as an essential tool to form a responsible and critical society and strengthen ad hoc training in this respect.

Funders - Catalan context

➔ ”la Caixa” Foundation

As regards scientific publications, beneficiaries should:

- File any peer-reviewed publication resulting from a funded project with an important institutional or digital repository for the discipline immediately after publishing it. The repository must state the identification code1 for the funded project.

- Ensure that the published version of the scientific publication is accessible to the public within a period of no longer than six months counting from the date of publication.

- Verify that the version available to the public is the same as the published version. If this is not possible due to conditions imposed by the corresponding journal or platform, the author’s version will be accepted when it has passed through the peer-review process and before the final typesetting of the publication.

https://fundacionlacaixa.org/en/caixaresearch-management-policy-open-access-research-results

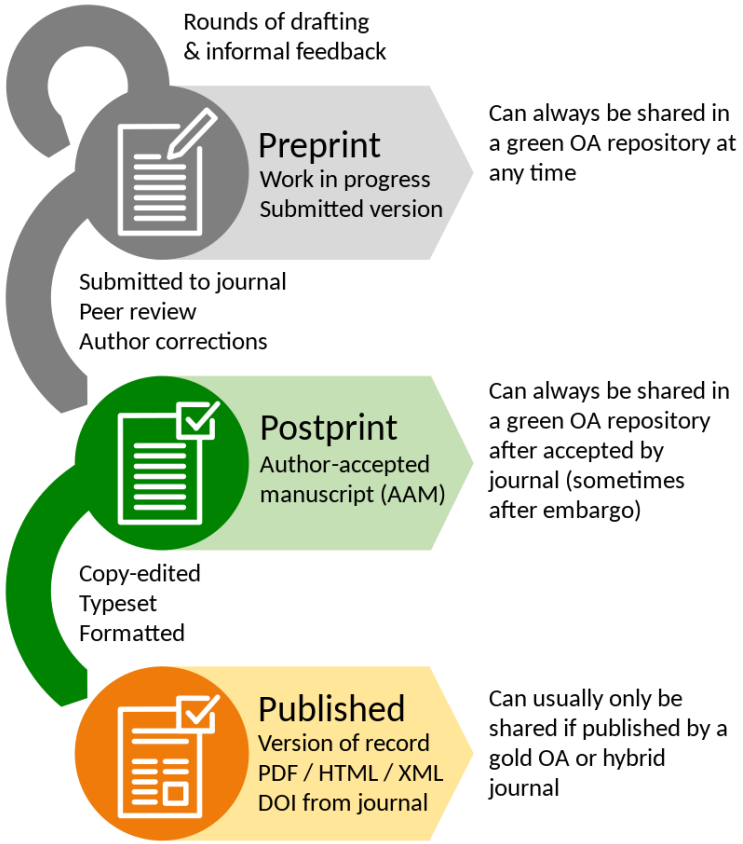
Open publishing workshop

3. The scientific publication process

Publication process:

- Choose journal
- Negotiate conditions
  - OA routes
  - Licensing
- Start the editorial process

Traditional way



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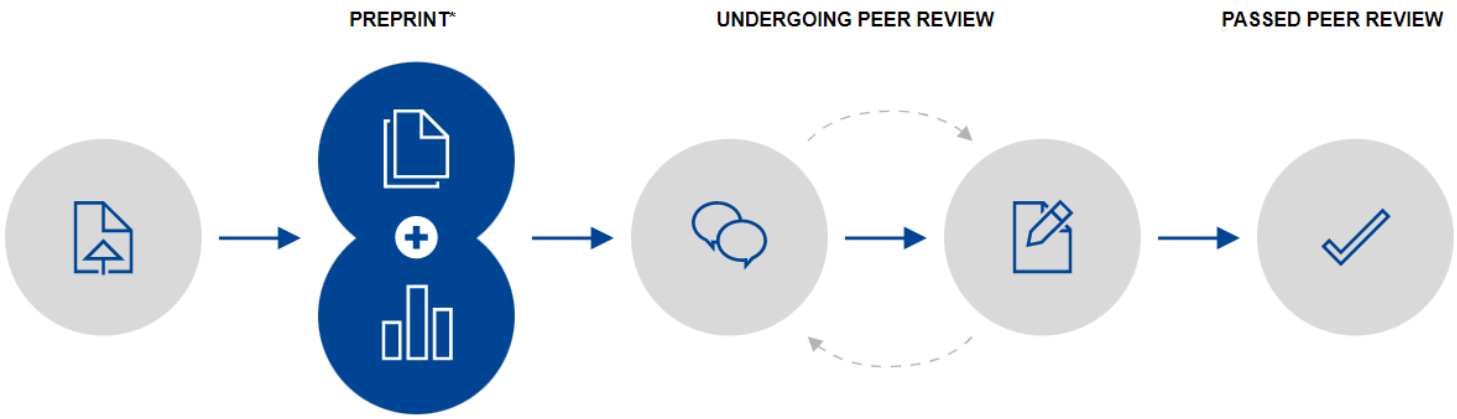
Open publishing workshop - 3. The scientific publication process

Publication process, new models:

Open Research Europe publication process:
https://open-research-europe.ec.europa.eu/



Article Submission

Submission is via a single-page submission system. The in-house editorial team carries out a comprehensive set of prepublication checks to ensure that all policies and ethical guidelines are adhered to.

Publication & Data Deposition

Once the article has passed the prepublication checks, the preprint version is published within 10 days, enabling immediate viewing and citation.

* Unlike other preprints, once the article is published, it cannot be sent to another journal for publication.

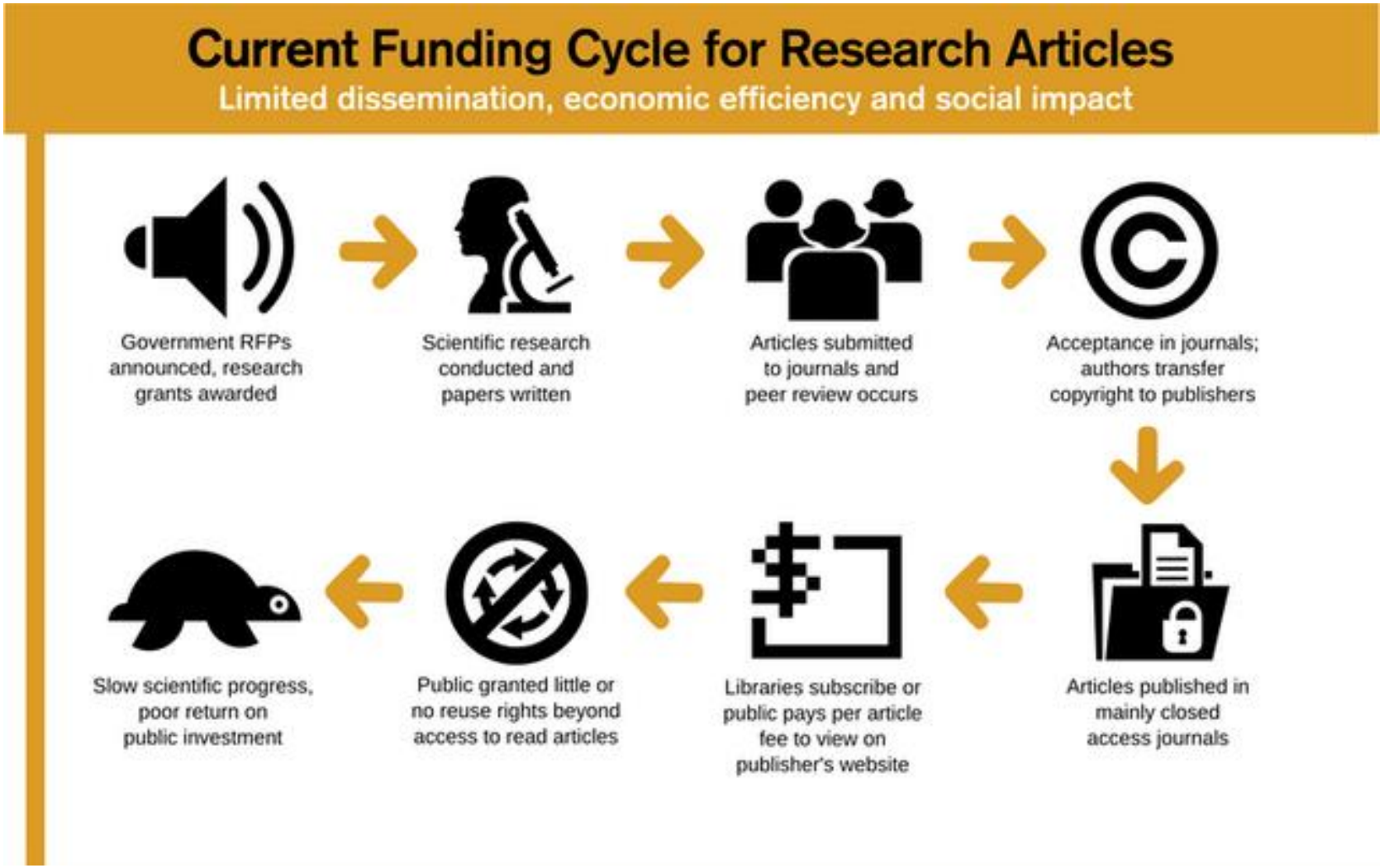
Open Peer Review & Article Revision

Expert reviewers are selected and invited, and their reviews and names are published alongside the article, together with the authors' responses and comments from registered users. Authors are encouraged to publish revised versions of their article. All versions of an article are linked and independently citable.

Send to Indexers & Repositories

Articles that pass peer review are sent to major indexing databases and repositories.

Open publishing workshop - 3. The scientific publication process



https://creativecommons.org/about/program-areas/open-access/

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https://creativecommons.org/about/program-areas/open-access/

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4. Finding open access journals and publications

DOAJ (Directory of Open Access Journals): https://doaj.org/

This independent index contains almost 17 500 peer-reviewed, open access journals covering all areas of science, technology, medicine, social sciences, arts and humanities. Open access journals from all countries and in all languages are accepted for indexing.

Think. Check. Submit. https://thinkchecksubmit.org/

Helps researchers identify trusted journals and publishers for their research. Through a range of tools and practical resources, this international, cross-sector initiative aims to educate researchers, promote integrity, and build trust in credible research and publications (general criteria, not just OA ones).

Sherpa Services: https://v2.sherpa.ac.uk/

Helping authors and institutions make informed and confident decisions in open access publication and compliance.

5. Routes to Open Access for authors

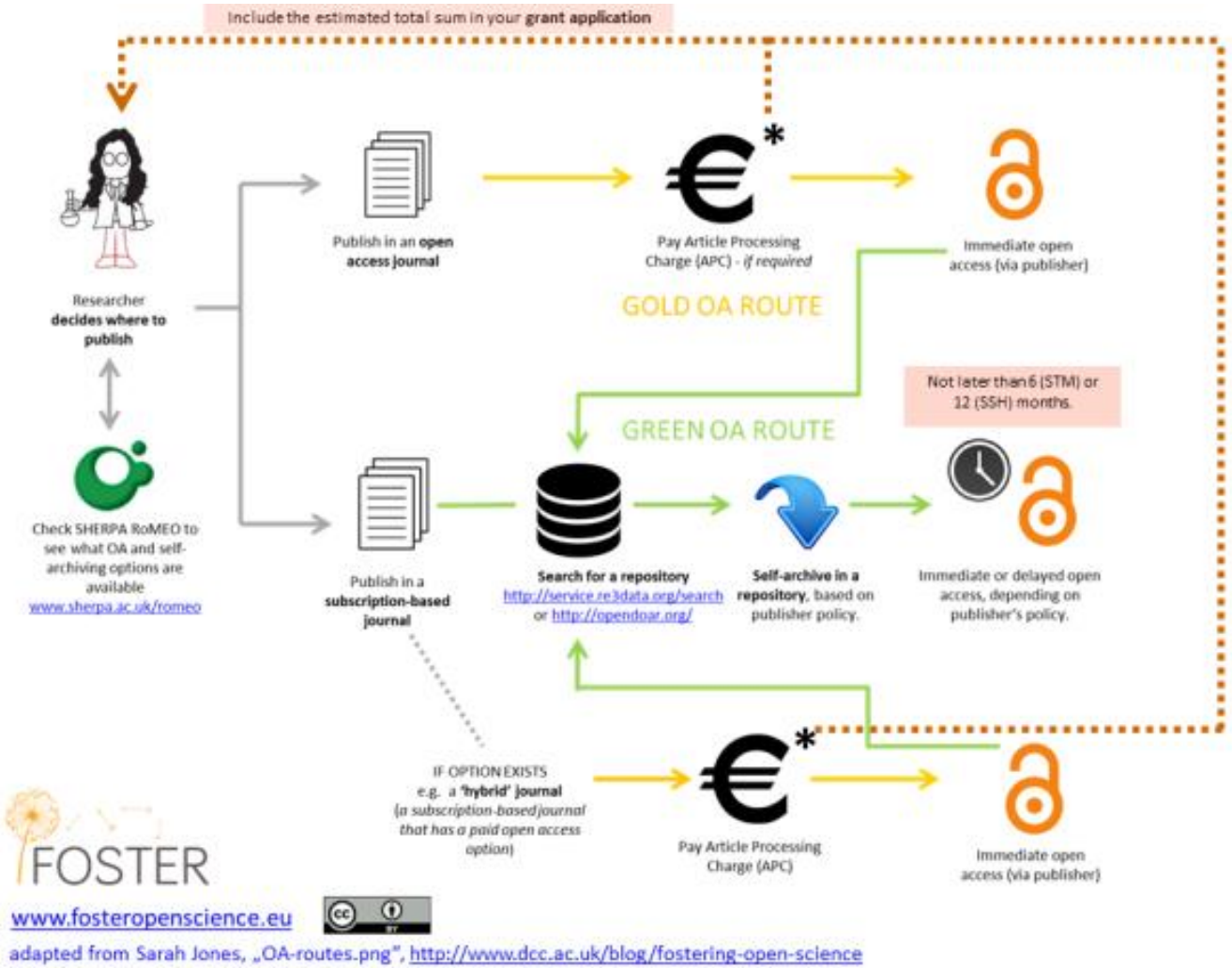
- Self-archiving / **'green' open access**: the author, or a representative, archives (deposits) the published article or the final peer-reviewed manuscript in an online repository before, at the same time as, or after publication. Some publishers request that open access be granted only after an embargo period has elapsed.

- Open access publishing / **'gold' open access** - an article is immediately published in open access mode. In this model, the payment of publication costs is shifted away from subscribing readers.

The most common business model is based on one-off payments by authors. These costs, often referred to as Article Processing Charges (APCs) are usually borne by the researcher's university or research institute or the agency funding the research.
In other cases, the costs of open access publishing are covered by subsidies or other funding models.

Other routes, such as the **Bronze** route refers to articles that are free to read on the editors' pages, but without an explicit open licence that allows their distribution and reuse. The **Diamond** or **Platinum** route refers to journals that publish in open access, and that do not charge either the authors for publishing or the readers for reading. These journals are generally funded either by academic and government institutions, or by scientific societies.

Open publishing workshop - 5. Routes to Open Access for authors



adapted from Sarah Jones, „OA-routes.png", http://www.dcc.ac.uk/blog/fostering-open-science

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6. Licensing: copyright and Creative Commons

A suitable license must be chosen, when uploading the publication to a repository. There are many options, one of the most popular are Creative Commons. The publisher's policy must be checked to determine which version can be uploaded and if an embargo period applies (checked at the Sherpa/Romeo database: https://v2.sherpa.ac.uk/romeo/).

Copyright law gives creators certain kinds of control over their creative work. If people want to use copyrighted work, they often have to ask for permission from the creator. Creative Commons works within copyright law. It allows creators to grant permission to everyone in the world to use their work in certain ways.

Open publishing workshop - 6. Licensing: copyright and Creative Commons

Creative Commons

https://creativecommons.org/about/cclicenses/

What Is Creative Commons?

Creative Commons is a global nonprofit organization dedicated to supporting an open and accessible internet that is enriched with free knowledge and creative resources for people around the world to use, share, and cultivate.

Our easy-to-use licenses provide a simple, standardized way to give the public permission to share and use your creative work — on conditions of your choice. CC licenses let you change your copyright terms from the default of "all rights reserved" to "some rights reserved."

Millions of people use CC licenses on some of the world's most popular platforms for user-generated content. When you use a CC license to share your photos, videos, or blog, your creation joins a globally accessible pool of resources that includes the work of artists, educators, scientists, and governments.

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Step 1: Choose License Features

Publishing under a Creative Commons license is easy. First, choose the conditions that you want to apply to your work.

Attribution
All CC licenses require that others who use your work in any way must give you credit the way you request, but not in a way that suggests you endorse them or their use. If they want to use your work without giving you credit or for endorsement purposes, they must get your permission first.

ShareAlike
You let others copy, distribute, display, perform, and modify your work, as long as they distribute any modified work on the same terms. If they want to distribute modified works under other terms, they must get your permission first.

NoDerivs
You let others copy, distribute, display, and perform only original copies of your work. If they want to modify your work, they must get your permission first.

NonCommercial
You let others copy, distribute, display, perform, and (unless you have chosen NoDerivs) modify and use your work for any purpose other than commercially unless they get your permission first.

Step 2: Get a License

Based on your choices, you will get a license that clearly indicates how other people may use your creative work.

- **Attribution**
  CC BY
- **Attribution — ShareAlike**
  CC BY-SA
- **Attribution — NoDerivs**
  CC BY-ND
- **Attribution — NonCommercial**
  CC BY-NC
- **Attribution — NonCommercial — ShareAlike**
  CC BY-NC-SA
- **Attribution — NonCommercial — NoDerivs**
  CC BY-NC-ND

Open publishing workshop - 6. Licensing: copyright and Creative Commons

(Creative Commons Infographic from: Technology Enhanced Learning Blog)

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7. IBEC Open Access policy, procedures and tools

- IBEC Code of Conduct for Research Integrity: https://ibecbarcelona.eu/wp-content/uploads/2021/06/2021-IBEC-Code-of-conduct-for-research_web.pdf

  Open access

  The global shift towards making research findings available free of charge for readers, so-called 'Open access', has been a core strategy in the European Commission to improve knowledge circulation and thus innovation. It is also covered in the Spanish Law of Science, Technology and Innovation from 2011. IBEC needs to ensure that their publications are available to the whole community either by using open access journals or open version of regular journals or by storing them in public repositories.

- Procedures and guides
- Service: knowledge manager from Strategic Initiatives Unit
- Open Science section at new IBEC website (by the end of April 2022)

Open publishing workshop - 7. IBEC Open Access policy, procedures and tools

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Steps for publishing in Open Access (OA) at IBEC

Step 1
Choose journal

Submit a paper to a journal of your choice (you are not restricted to OA journals but is preferable). Check if the publishing **costs** (APC: article processing charges) are eligible costs and can be reimbursed within the project period (depending on funders' requirements).

Be sure to inform correctly IBECs **affiliation**:
Institute for Bioengineering of Catalonia (IBEC), The Barcelona Institute of Science and Technology, Baldiri Reixac 10-12, 08028 Barcelona Spain

See next page diagram for the possible **OA routes** (or ways).

Step 2
Accepted version

When accepted, communicate it to publications@ibecbarcelona.eu attaching the **post-print** of the article and the DOI (if there's already).

The Knowledge Manager (KM) will deposit either the published manuscript or the final peer-reviewed version in the institutional OA **repository**: Dipòsit Digital de la UB http://diposit.ub.edu/dspace/

The acknowledge project funding metadata will be informed at the deposit. Remember that all our researchers must also include the text *CERCA Programme / Generalitat de Catalunya*, in all the research publications, within the **Funding Acknowledgment** section.

Once at the repository, the KM will inform you back the id link called **handle**.

Step 3
Web posting

The KM will post the new publication reference at IBEC's bibliographic management system: **iMarina**.

From there (once a month), will be updated the IBECs publications section of the **website**, linked to each research group.

Further bibliometric information related to the publication will be collected at this system and linked to each group and researcher through the **ORCID id**. You should create this id if you don't have one (at https://orcid.org/).

This information can be exploited in many ways with reports, listings, linking with other portals (such as Portal de la Recerca de Catalunya), etc.

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Publications Management: iMarina

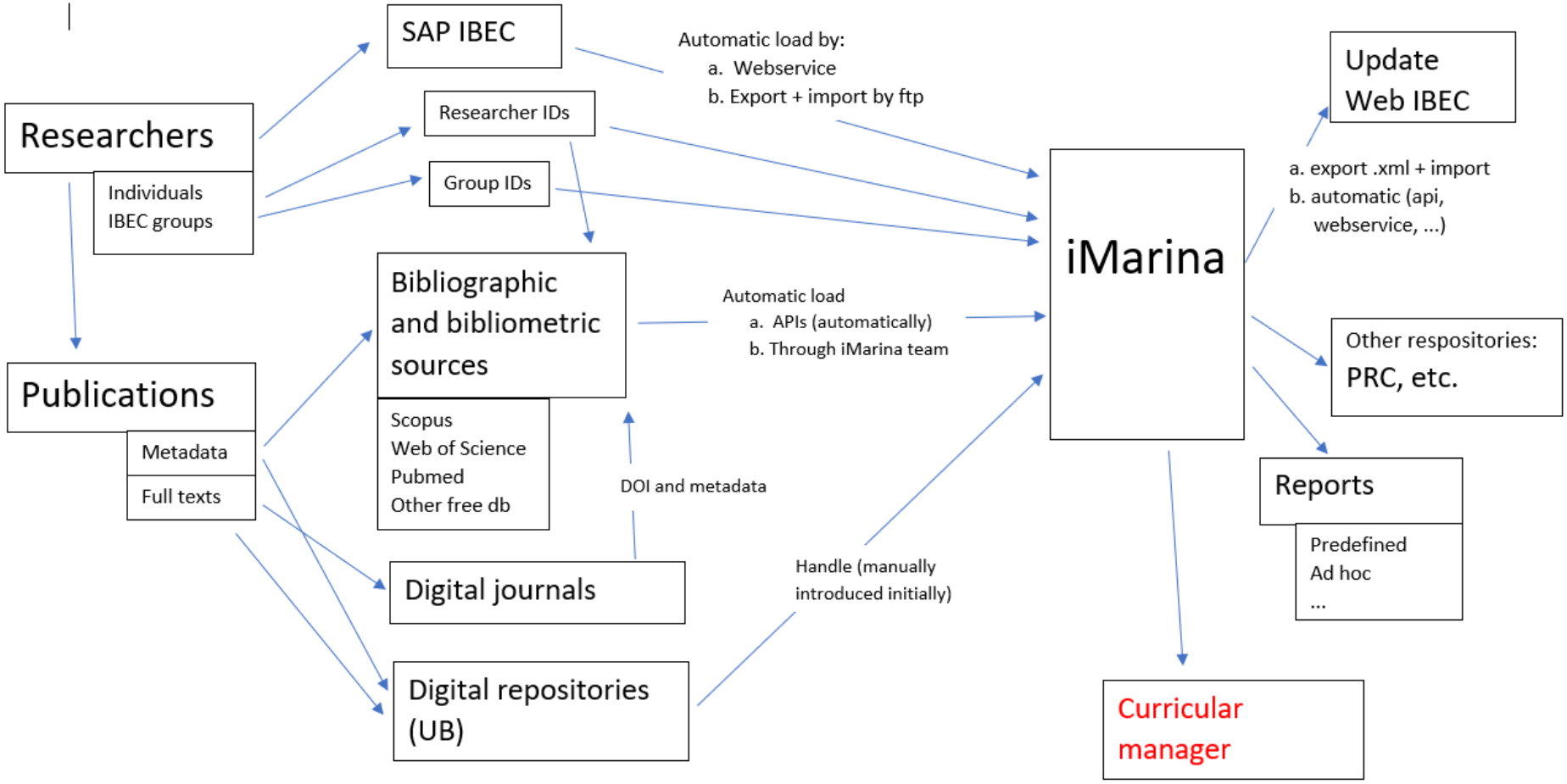
- Publications management: **iMarina** https://ibec.scimarina.org/en/
  - iMarina let us manage automatically the whole process associated with the publications related to IBECs scientific outputs.
  - We can control, publish, export and exploit all the information related to the publications or the publications themselves.
- Institutional repository: **Dipòsit Digital UB** http://diposit.ub.edu/dspace/handle/2445/65293

Useful tools:

- To check open “accessness” of a paper: Unpaywall https://unpaywall.org/

Open publishing workshop - 7. IBEC Open Access policy, procedures and tools

iMarina schema



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