



European IP Helpdesk

Stay ahead of the innovation game.

IP and Open Science

11.04.2024





European IP Helpdesk

- Service initiative of the European Commission
- Addressing **current and potential beneficiaries of EU-funded projects, researchers and EU SMEs**
- Free-of-charge first-line support on intellectual property (IP)
- Hands-on IP and innovation management support
- International pool of IP experts from various thematic fields
- Unique cooperation scheme with the Enterprise Europe Network: 44 ambassadors from 27 EU countries



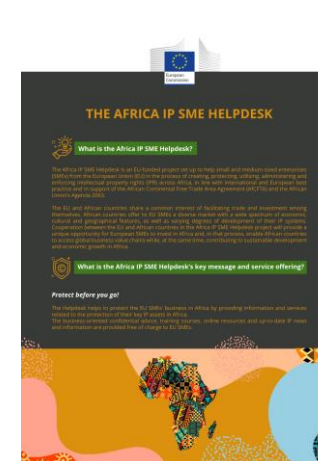
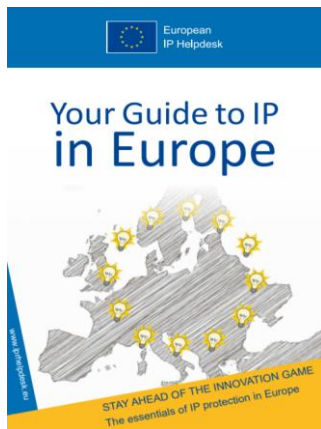


The EC IP Helpdesks





EC IP (SME) Helpdesk Hub – Gateway to Information



- E-learning modules & more
- Guides / Topic, country, sector-specific factsheets / Infographics
- Case studies



European IP Helpdesk Training Calendar

Europa - Upcoming events

- | | | | |
|-----------------------------------|--|-----------------------------------|--|
| <p>09
APR
2024</p> | <p>Training and workshops
EU - Webinar: IP in Horizon Projects (H2020/HEurope)</p> <p>📺 Live streaming available</p> | <p>10
APR
2024</p> | <p>Training and workshops
EU - Webinar EPO Coop: Patent protection for EU funding beneficiaries - Quantum Technology</p> <p>📺 Live streaming available</p> |
| <p>11
APR
2024</p> | <p>Training and workshops
EU - Webinar: IP & Open Science</p> <p>📺 Live streaming available</p> | <p>16
APR
2024</p> | <p>Training and workshops
EU - Webinar: IP for Future and Emerging Technologies</p> <p>📺 Live streaming available</p> |
| <p>17
APR
2024</p> | <p>Training and workshops
EU - Webinar: Consortium Agreements</p> <p>📺 Live streaming available</p> | <p>18
APR
2024</p> | <p>Training and workshops
EU - Webinar & Horizon Results Platform: Artificial Intelligence</p> <p>📺 Live streaming available</p> |
| <p>23
APR
2024</p> | <p>Training and workshops
EU - Webinar: IP and Artificial Intelligence - Advanced</p> <p>📺 Live streaming available</p> | <p>24
APR
2024</p> | <p>Training and workshops
EU - Webinar: IP in EU funded projects with a special focus on MSCA</p> <p>📺 Live streaming available</p> |
| <p>30
APR
2024</p> | <p>Training and workshops
EU - Webinar: IP in Business collaborations for SMEs and Start-ups</p> <p>📺 Live streaming available</p> | <p>07
MAY
2024</p> | <p>Training and workshops
EU - Webinar: Addressing IP impact and innovation in EU projects</p> <p>📺 Live streaming available</p> |



Registration: www.ec.europa.eu/ip-helpdesk



Ambassador Scheme

- **Cooperation scheme** with the Enterprise Europe Network (EEN): 44 ambassadors – 27 countries
- **Building IP capacities** among European SMEs
- **Overcoming language barriers**
- Making the topic **more accessible**
- Exchange and feedback from ambassadors on **needs of SMEs**
- Local **awareness** and **training events**





Thank you!

- www.ec.europa.eu/ip-helpdesk
- helpline@iprhelphdesk.eu
- training@iprhelphdesk.eu
- Twitter [@iprhelphdesk](https://twitter.com/iprhelphdesk)
- LinkedIn [/european-ipr-helpdesk](https://www.linkedin.com/company/european-ipr-helpdesk)





About me

BSc (Physical) Chemistry (*Exon UK*)

PhD Neutron Science (*Exon UK*)

Harwell (UK), Rutherford Appleton (UK), ILL Grenoble (FR)

Royal Society of Chemistry, Institute of Physics,
Science Council (UK)

HM Govt, X-ray, electron, laser beam microanalysis

Looooooooooooooooong time at European Patent Office (NL, AT)

Patent examiner (electron and ion optics) IT manager, internet
services Espacenet et al, manager, research manager

Consultant; bring worlds of STEM and IP together IPHelpdesk,
EUIPO, WIPO

Cambridge University Technology Management teaching and
research (*Cantab UK*)

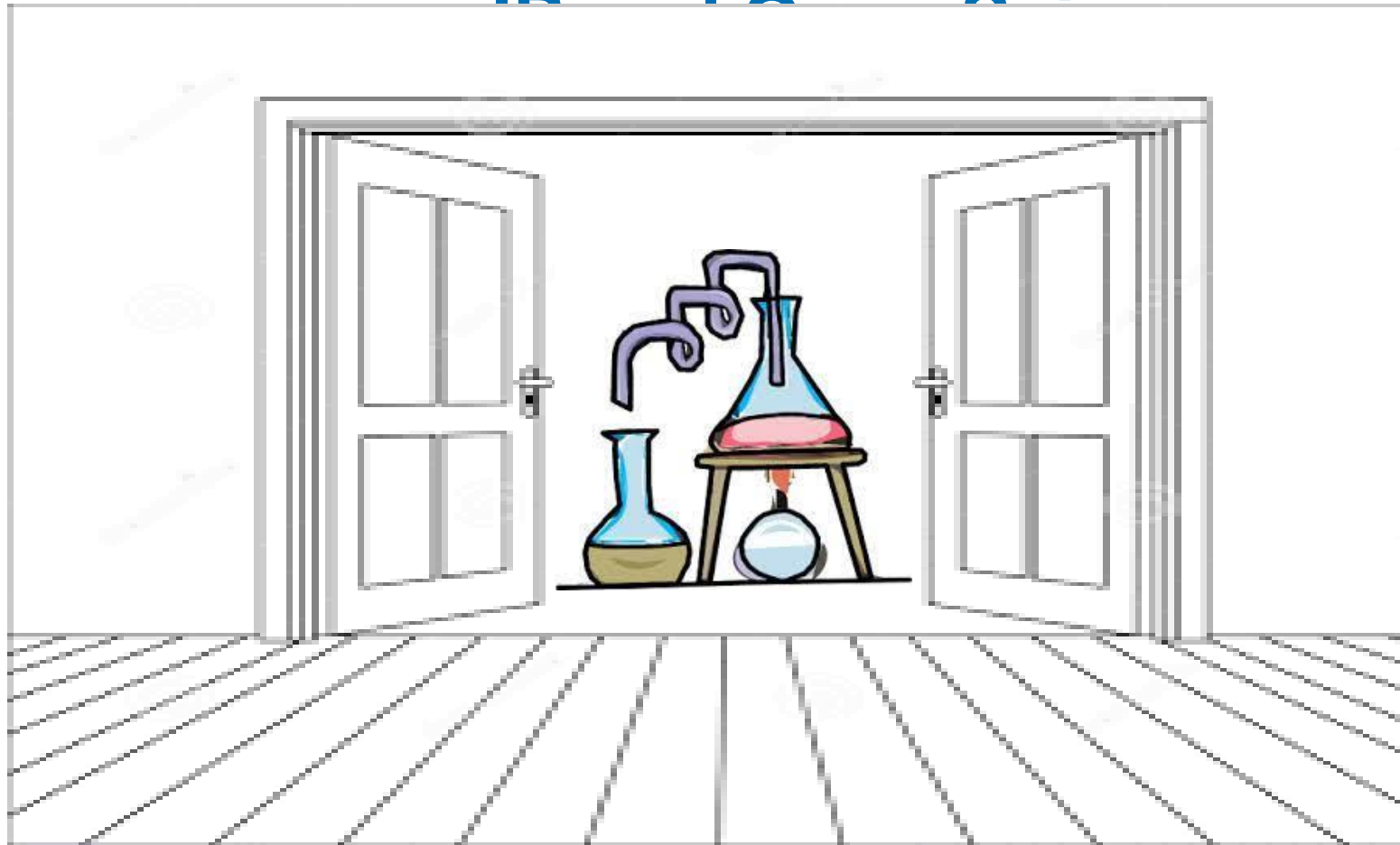




Acknowledgements

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- Torie Eva
 - Elsevier
- Katie Eve
 - Elsevier

Teresa Gomez-Diaz, Tomas Recio. Towards an Open Science definition as a political and legal framework: sharing and dissemination of research outputs. *Polis*, 2020, 19, pp.5-25. [\(hal-03318932\)](#)





IP and Open Science

Capacity Building

Early stage Researchers





- “Openness”
- A ***movement*** (to support and enhance innovation)
- Backed up by ***culture***
- Intellectual Property
- An ***agreed system*** (to reward and encourage innovation)
- Backed up by ***law***



Roadmap

What is IP?

What is Open? Kinds of “openness”

IP *cf* Open Science

Secrecy vs disclosure

IP sharing Closed vs Open

Scholarly publishing





Roadmap

What is IP?

What is Open? Kinds of “openness”

IP *cf* Open Science

Secrecy vs disclosure

IP sharing Closed vs Open

Scholarly publishing





What is Intellectual Property?

- Ideas
- Product of mental creation
- Inventions
- Works of art
- Literature





What are Intellectual Property Rights?

Registrable Rights

- Industrial Property Rights
- Patents
- Trademarks
- Industrial designs
- Utility models
-
-

Non Registrable Rights

- Copyright
- Authors rights, performance rights
- Trade secrets
- Confidential Information
- Know-how
- Show how
- Goodwill



Roadmap

What is IP?

What is Open? Kinds of “openness”

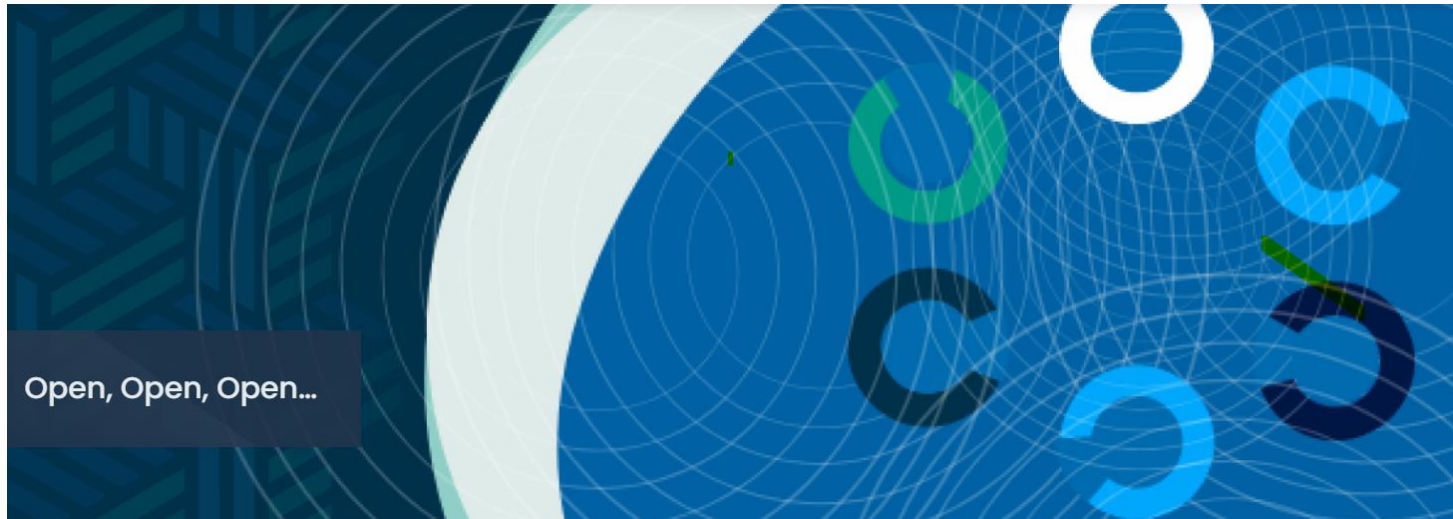
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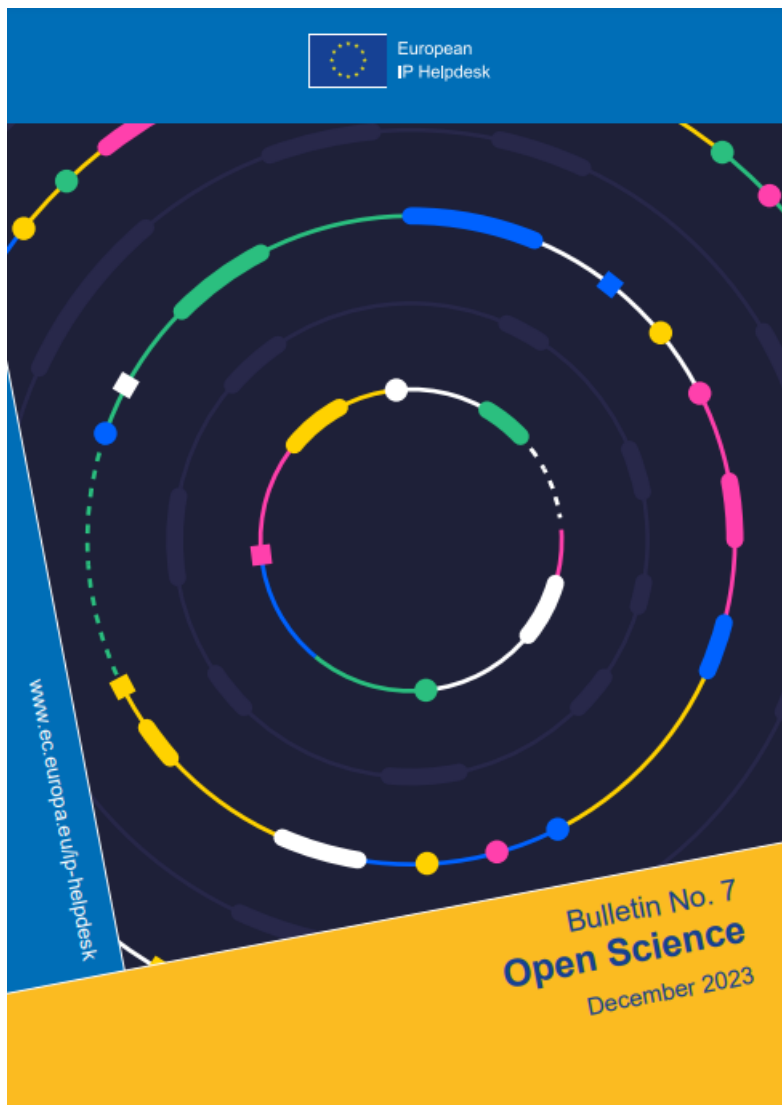
by Eugene Sweeney, Iambic Innovation Ltd

<https://www.astp4kt.eu/about-us/kt-news/open,-open,-open%E2%80%A6.html>



European IP Helpdesk Bulletin / December 2023, Open Science

https://intellectual-property-helpdesk.ec.europa.eu/publications/european-ip-helpdesk-bulletin-december-2023-open-science_en





Open Science and IP

Commercialisation

https://research-and-innovation.ec.europa.eu/system/files/2022-04/ec_rtd_open-science-and-ip-report.pdf



**Providing researchers with the
skills and competencies they
need to practise Open Science**

Open Science Skills Working Group Report

Written by the Working Group on Education and Skills under Open Science
July – 2017



**Monitoring the open access
policy of Horizon 2020**

Final Report



https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/our-digital-future/open-science_en



Open science

- **Open science** is the movement to make scientific research (including publications, data, physical samples, and software) and its dissemination accessible to all levels of society, amateur or professional

https://en.wikipedia.org/wiki/Open_science



Open science

- Open science **practices** include
- early and open sharing of research (for example through preregistration, registered reports, pre-prints, or crowd-sourcing);
- research output management;
- measures to ensure reproducibility of research outputs;
- providing open access to research outputs (such as publications, data, software, models, algorithms, and workflows);
- participation in open peer-review;
- involving all relevant knowledge actors including citizens, civil society and end users

Horizon Europe Programme Guide, Version 2.0, 11 April 2022

https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf



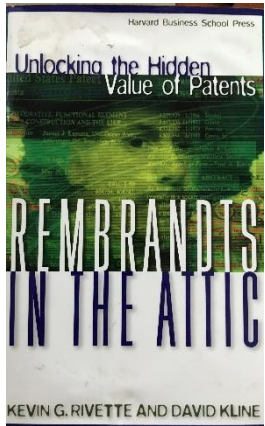
Open Access

Open access (OA) is a set of principles and a range of practices through which research outputs are distributed online, free of access charges or other barriers.^[1] Under some models of open access publishing, barriers to copying or reuse are also reduced or removed by applying an open license for copyright.

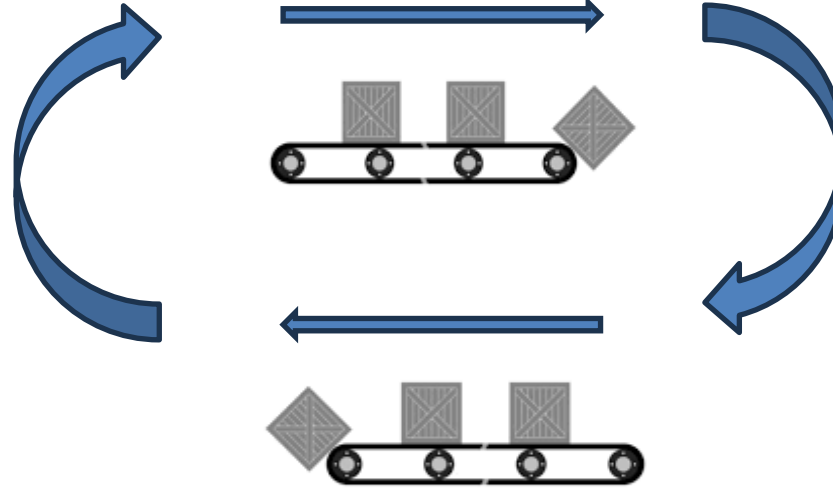
https://en.wikipedia.org/wiki/Open_access



1999



Your results



Others' results

2003



Unused **X**

..but not necessarily for free for commercial use!

X Not invented here



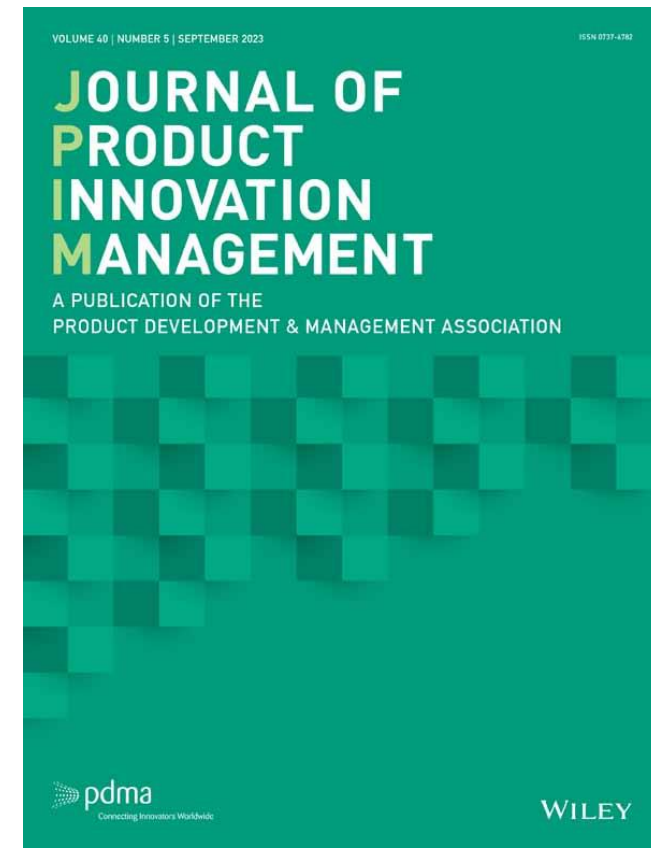
[Open innovation]

Intellectual property and open innovation ... enemies or friends?

[Journal of Product Innovation Management](#)

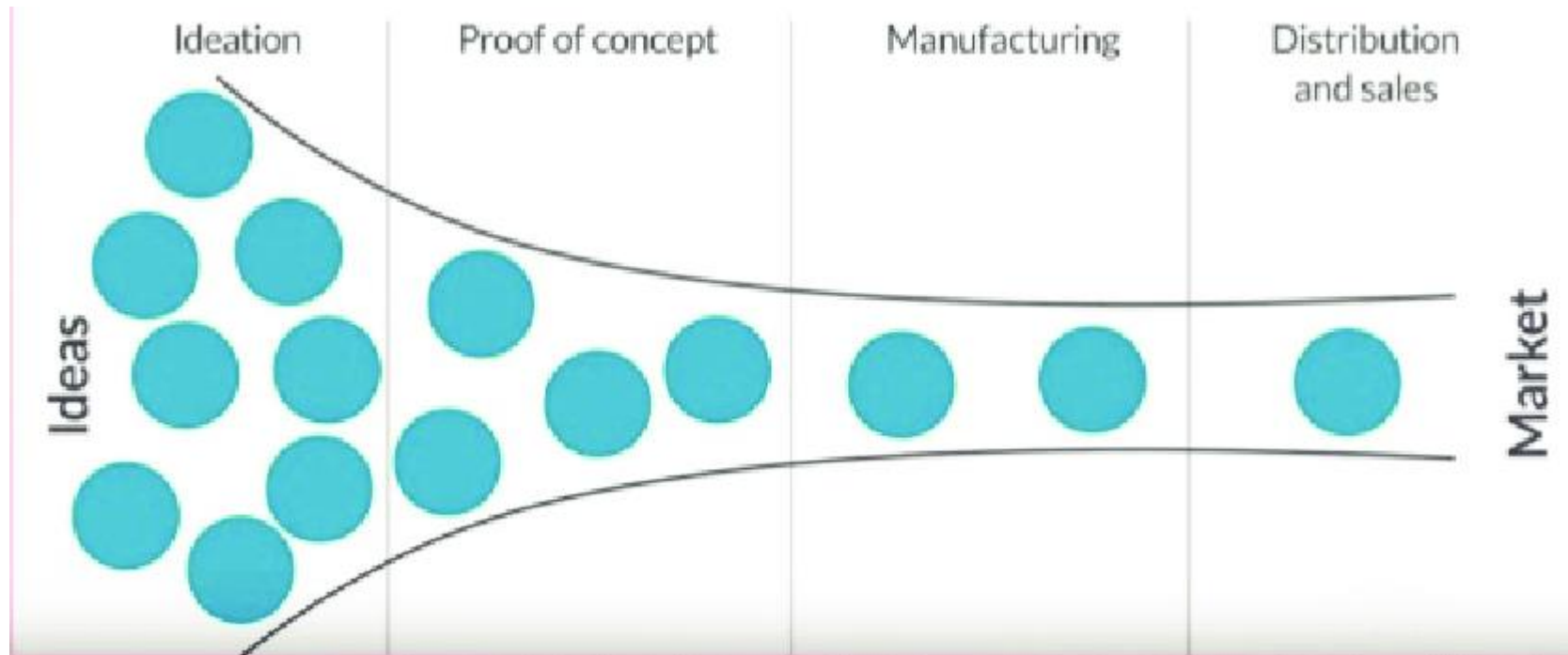
<https://onlinelibrary.wiley.com/doi/10.1111/jpim.12668>

[Anja Tekic](#), [Kelvin W. Willoughby](#), [Johann Füller](#)





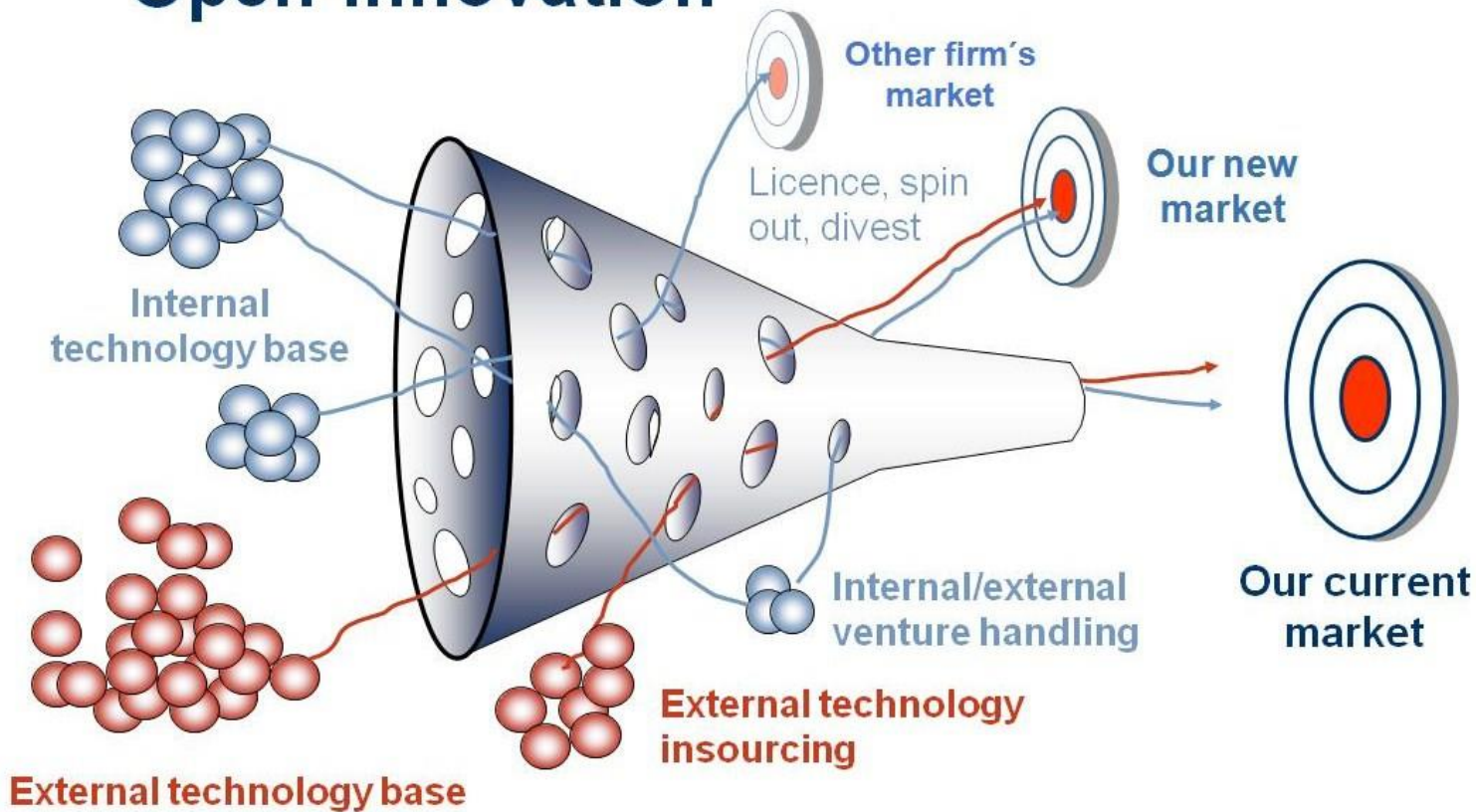
[Innovation]





Open innovation

Open innovation





Open source

Generally, open source refers to software in which the [source code](#) is available to the general public for use or modification from its original design. Code is released under the terms of a [software license](#). Depending on the **license** terms, others may then download, modify, and publish their version (fork) back to the community.

https://en.wikipedia.org/wiki/Open_source





Open standards

An open standard is **a standard that is freely available for adoption, implementation and updates**. A few famous examples of open standards are XML, SQL and HTML. Businesses within an industry share open standards because this allows them to bring huge value to both themselves and to customers.

FRAND

Fair

Reasonable

And

Non-discriminatory



[Standards and IP]

A standard essential patent is a patent that protects technology that is essential to implementing a standard. A standard is an agreed or established technical description. It is also referred to as a 'technical standard' or 'technical interoperability standard'.

SEP

Standard

Essential

Patent

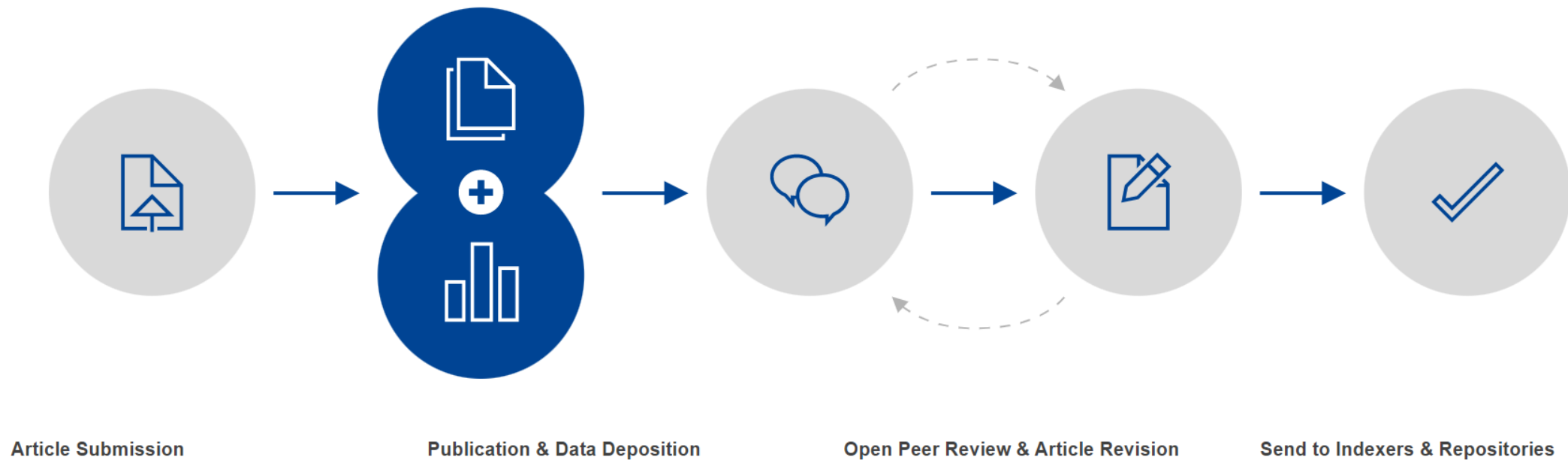


European Openness Initiatives - 1

- Open Research Europe
- **Rapid & Transparent Publishing**
- Fast publication and open peer review for research stemming from Horizon 2020, Horizon Europe and Euratom funding across all subject areas.
- **Browsable web site**
<https://open-research-europe.ec.europa.eu/>



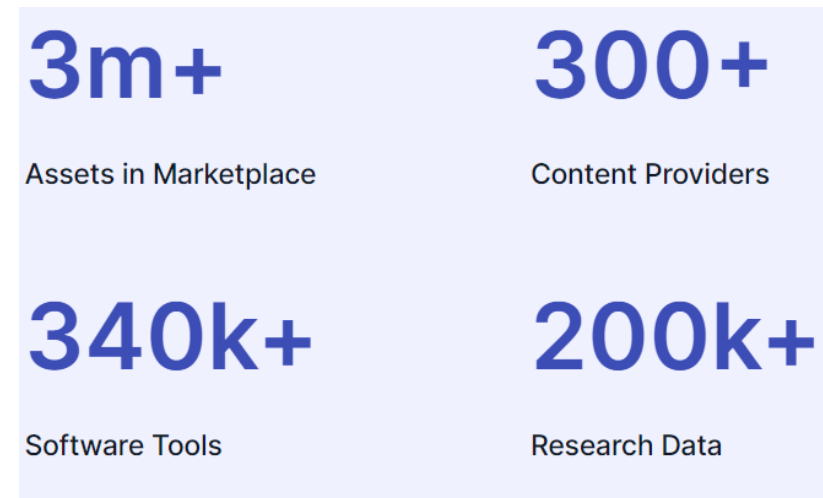
European Openness Initiatives - 2





European Openness Initiatives - 3

- European Open Science Cloud



<https://eosc-portal.eu/>



Open- -Science -Innovation -Access -Data



Open Science is an integral part of Horizon Europe



Open Science in Horizon Europe

Mandatory and Recommended Practices

Mandatory

- **early and open sharing** of research (for example through preregistration, registered reports, pre-prints, or crowd-sourcing)
- **research output management** including research data management
- measures to ensure **reproducibility** of research outputs
- providing **open access** to research outputs (e.g. publications, data, software, models, algorithms, and workflows) through deposition in trusted repositories

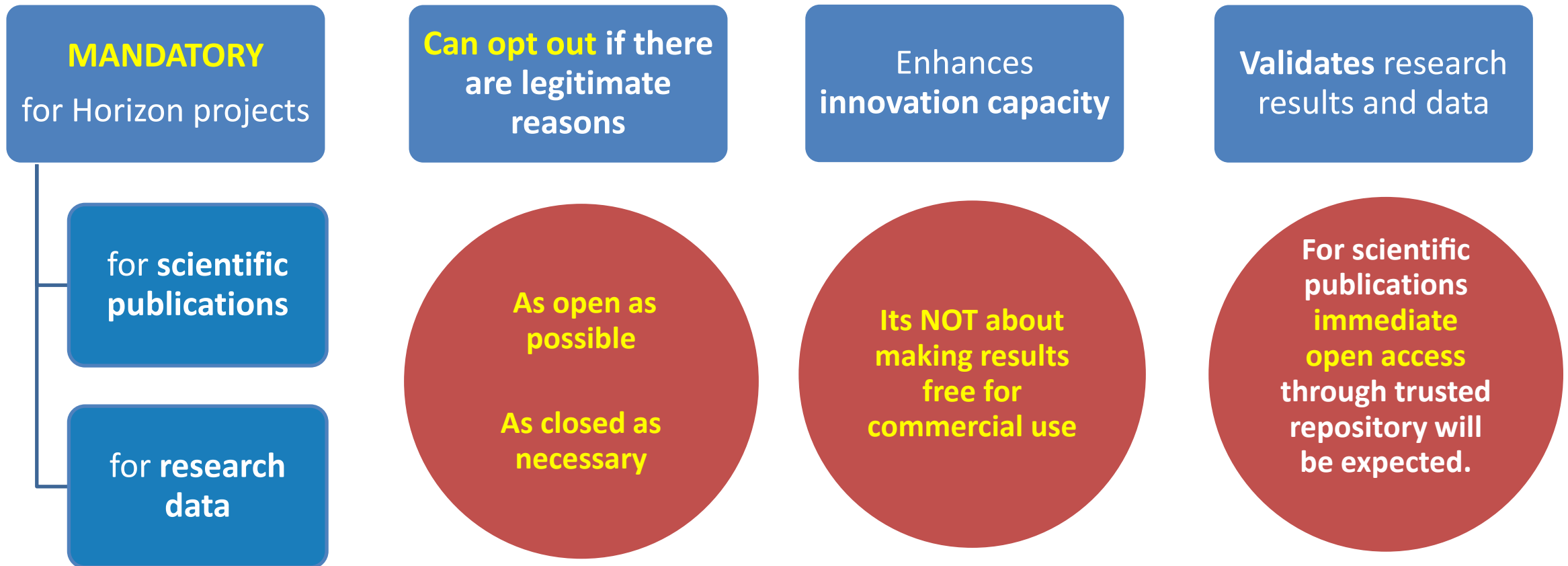
Recommended

- participation in **open peer-review**
- **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)



Open Science

Open Access





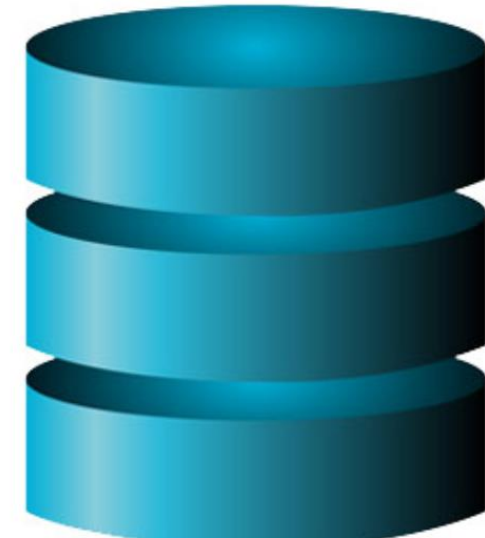
Open ≠ unprotected or no IPR

Copyright protects the scientific publication

Copyright protects (creative) data

Database right protects the collection if there has been a "substantial investment" in obtaining, verifying or presenting the contents of the database

Other protection for other aspects of the creation/invention (IP Rights, secrecy, NDA, contracts, etc)





Open Science

Open Access

Not an obligation to disseminate (publish) or ignore IP rights

The dissemination of results **can be postponed** to allow the appropriate protection of results beforehand

If/when a scientific article, research data, is published, it **will have to be in open access**

At the **latest upon publication**:
deposit the AAM or VoR in a **trusted repository**, and **ensure open access** via the repository **under CC BY licence**, or equivalent

Owners of the copyright must:
retain sufficient intellectual property rights (copyright) to comply with the OA requirements



Works in **open access** are usually protected by **copyright**, other IP rights may protect the underlying content

e.g. a publication **made available as open access**, may also have the method described protected by a **patent** and/or **design rights**, and software code protected by **copyright**



Open Science

Research data management

Digital research data generated must be **managed responsibly**

- In line with the **FAIR** principles and:

Findable
Accessible
Interoperable
Reusable

As soon as possible **deposit the data**

- In a **trusted repository**
- Ensure **open access under CC BY or equivalent**
- Follow principle '**as open as possible as closed as necessary**'

Provide **information** via the repository

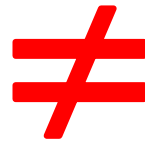
- Any **research output/tools/instruments needed to re-use or validate** the data
- Information about the **licensing terms**

Metadata
must be open

- Under **CC 0 or equivalent** (to the extent legitimate interests or constraints are safeguarded), in line with the FAIR principles



- **Open Science**
- **Open Innovation**
- **Open Source**
- **Open Access**
- **Open Data**



- **“Free” for commercial use**
- **No IPR Issues**



Roadmap

What is IP?

What is Open? Kinds of “openness”

IP of Open Science

Secrecy vs disclosure

IP sharing Closed vs Open

Scholarly publishing



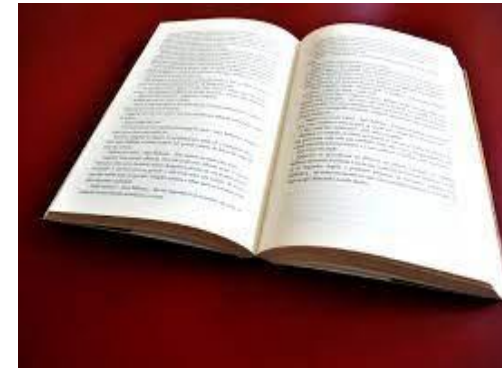


Patent system – probably the origin of open innovation

Open – (Lat. Patere – open)

“it’s patently obvious”

Japanese - Kokai – laid open





Patent system: open innovation

- Inventions having technical effect
 - Ultimately based on scientific principles
- “Deal” inventor/applicant/patent authority
 - Warning, public service, stimulus
- Protection in return for publication



Patent publications

- Enabling disclosure
 - Definitive (clear?), unambiguous, legal certainty
- Technical, legal, commercial, information



Patent publications copyright (1)

- Copyright owned by applicant (not inventor not attorney)
- But copying for purposes of disseminating information
NOT infringement of copyright
- Attribution



Patent publications copyright (2)

- Copyright owned IPO
- IPO waives right to allow free dissemination of information
- Attribution

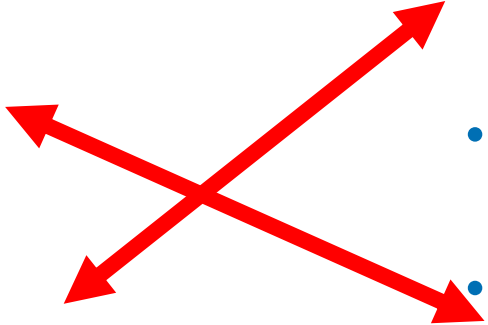


Open Science *cf* IP

- Open Science data
 - FAIR
 - Findable
 - Accessible
 - Interoperable
 - Reusable
- IP (e.g.) EPO data
 - ACTIUS
 - Accurate
 - Complete
 - Timely
 - Useable



Open Science *cf* IP

- Open Science
 - Open as possible
 - Closed as necessary
- 
- Patents
 - Filing, Search examination
 - Patent Application
 - Substantive examination
 - Grant
 - And beyond



IP and Open Science – no conflict





Open culture meets IP law



Paris Convention 1883.....

....[a signatory patent office] shall **publish** an official periodical journal. It shall **publish** regularly: (a) the names of the proprietors of patents granted, with a brief designation of the inventions patented ; (b) the reproductions of registered trademarks.

But not **disseminate**



Example: EPO Patent data/information

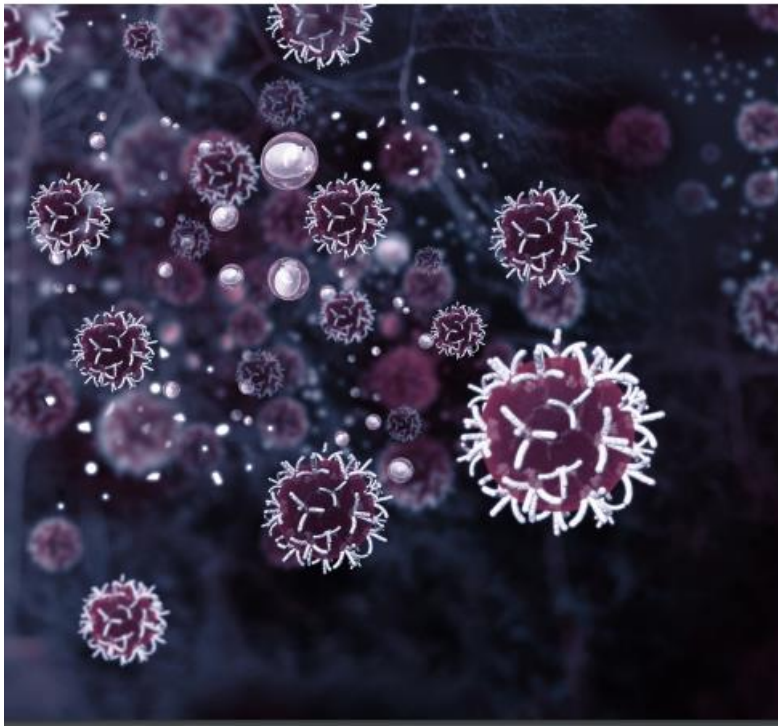
- Espacenet Worldwide patent database
- Publication server EP and EuroPCT published by EPO
- European Patent Register Legal status EP and EuroPCT
 - Global Dossier, Federated Register, ECLI
- Common Citation Document Family member citations

- GPI
- PATSTAT
- OPS
- Raw data products
- IPScore



Landscape study on patent filing

Chimeric Antigen Receptor T-cell Immunotherapy



Landscape study on patent filing

Quantum metrology and sensing



Cosmonautics

The development of space-related technologies
in terms of patent activity



Example: EPO Patent insight reports - metadata

- “supplementary information”
- Search strategy
- Dataset
- Allows third parties to repeat, adapt, improve

<https://www.epo.org/searching-for-patents/business/patent-insight-reports.html>



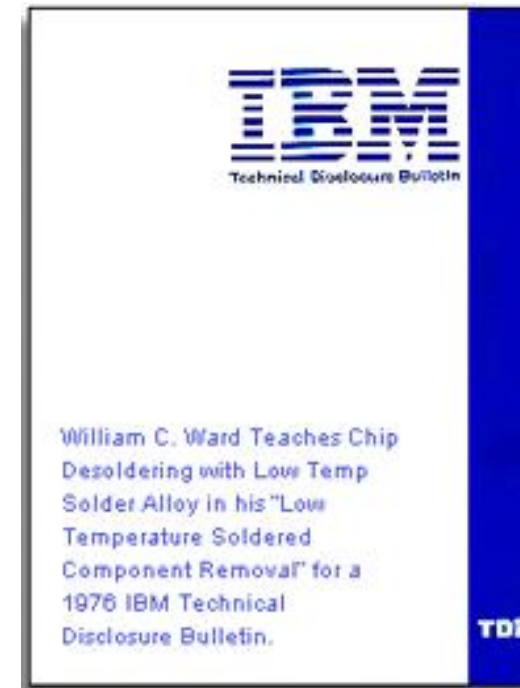
Main class	Scheme	Definition
General:		
G06N10	IPC/CPC	Quantum computers, i.e. computer systems based on quantum-mechanical phenomena
G06N99	IPC/CPC	COMPUTER SYSTEMS BASED ON SPECIFIC COMPUTATIONAL MODELS - Subject matter not provided for in other groups of this subclass
B82Y10	IPC/CPC	Nanotechnology for information processing, storage or transmission, e.g. quantum computing or single electron logic
Superconducting qubits:		
H01L27/18	IPC/CPC	Devices consisting of a plurality of semiconductor or other solid-state components formed in or on a common substrate ...including components exhibiting superconductivity
H01L39	IPC/CPC	Devices using superconductivity; Processes or apparatus peculiar to the manufacture or treatment thereof or of parts thereof
Magnetic spin based devices		
H01L27/22	IPC/CPC	Devices consisting of a plurality of semiconductor or other solid-state components formed in or on a common substrate ...including components using galvano-magnetic effects, e.g. Hall effects; using similar magnetic field effects
H01L43	IPC/CPC	Devices using galvano-magnetic or similar magnetic effects; Processes or apparatus peculiar to the manufacture or treatment thereof or of parts thereof
General semiconductor arrangements exploiting quantum effects		
H01L29/66	IPC/CPC	Semiconductor devices adapted for rectifying, amplifying, oscillating or switching, or capacitors or resistors with at least one potential-jump barrier or surface barrier...Types of semiconductor device
H01L29/66439	CPC	Unipolar field-effect transistors...with a one- or zero-dimensional channel, e.g. quantum wire FET, in-plane gate transistor [IPG], single electron transistor [SET], striped channel transistor, Coulomb blockade transistor
H01L29/76	IPC/CPC	Unipolar devices , e.g. field effect transistors
H01L29/7613	CPC	Unipolar devices , e.g. field effect transistors...Single electron transistors; Coulomb blockade devices
H01L29/12	IPC/CPC	Semiconductor bodies ; Multistep manufacturing processes therefor...characterised by the materials of which they are formed
H01L29/122	CPC	Single quantum well structures
H01L29/125	CPC	Quantum wire structures
H01L29/127	CPC	Quantum box structures
H01L49	IPC/CPC	Solid state devices not provided for in groups
H01L49/006	CPC	Quantum devices, e.g. Quantum Interference Devices, Metal Single Electron Transistor



[Defensive Publication]

Defensive Publication is a method to establish prior art by publishing details of an invention into the public domain, with the purpose to stop others obtaining a patent on the same invention.

The end goal is to ensure the right to practice the published invention.





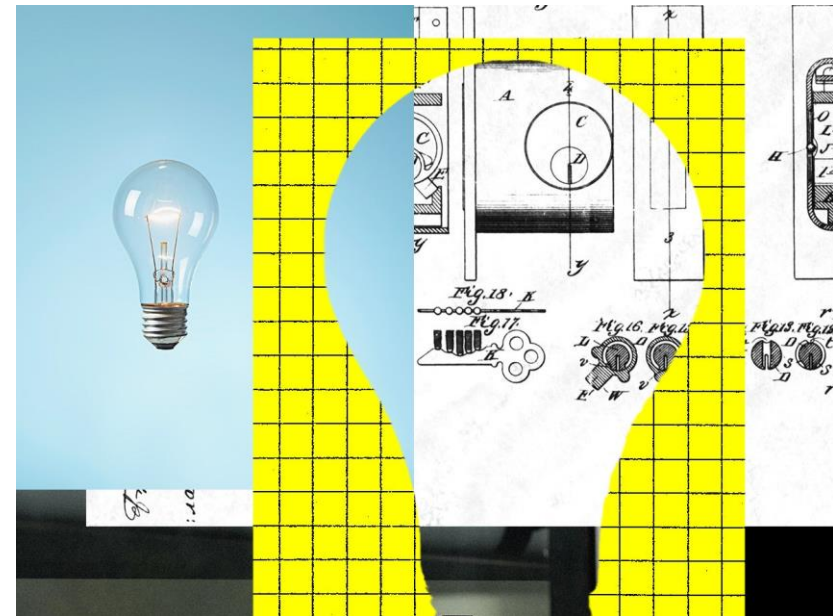
Defensive Publication

Questel



Defensive Publication

introducing the strategy





lapsed





Denis Naughten TD
Referendum
Ireland
Unified Patent Court
Plea for use of lapsed/expired
patents
Developing Countries

<https://denisnaughten.ie/2024/03/14/what-is-the-patent-court-referendum-about/>





Roadmap

What is IP?

What is Open? Kinds of “openness”

IP *cf* Open Science

Secrecy vs disclosure

IP sharing Closed vs Open

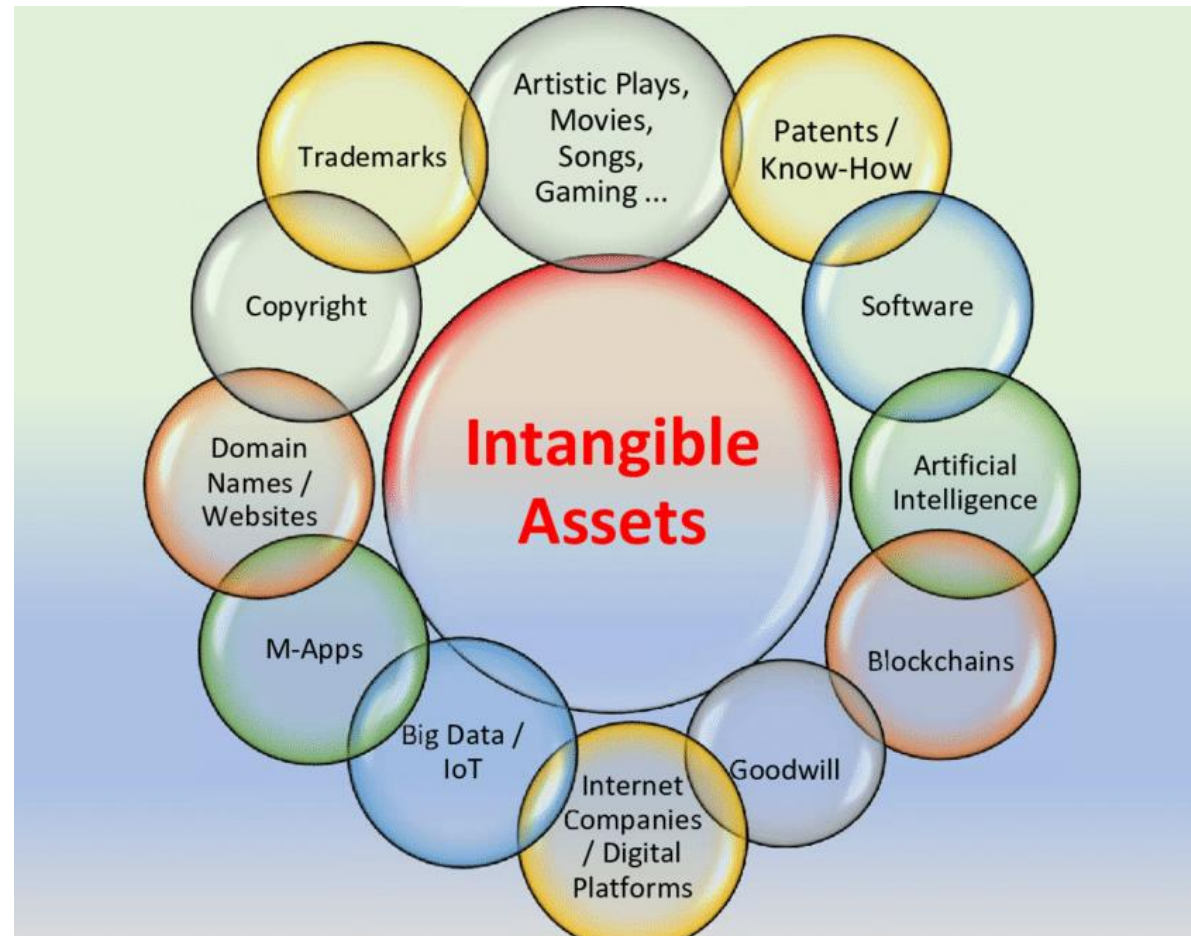
Scholarly publishing





Sharing; secrecy vs disclosure

- Registered IP
- Trade secrets
- Confidential information
- Know-how
- Show-how
- Goodwill
-
-
-
-





Roadmap

What is IP?

What is Open? Kinds of “openness”

IP *cf* Open Science

Secrecy vs disclosure

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Scholarly publishing





Degree of openness				
Type of IP model	Private good IP model	Club good IP model	Common good IP model	Public good IP model
IP ownership right concentration	Ownership is highly concentrated to one or very few actors	Ownership is relatively highly concentrated on few actors	Ownership is concentrated or distributed to several / many owners	No one owns the IP (anymore). IP is in the public domain
Access to IP ¹	Owners strictly prevent others from accessing 'their' IP	Owners allow only members of the club to access 'their' IP. Entry barriers are high for outsider actors.	Owners allow almost anyone to access 'their' IP with or without contributing IP. Entry barriers are relatively low for outsider actors.	Owners allow anyone to access 'their' IP
Commercial usage of IP ²	Owners entirely restrict others from commercial usage of 'their' IP	Owners entitle only members of the club for commercial usage of 'their' IP. Owners prohibit non-members from commercial usage of 'their' IP.	Owners allow almost anyone to use 'their' IP but with some commercial restrictions	Owners cannot/do not restrict anyone from commercial usage of 'their' IP
	Closed	Half closed	Half open	Open

Closed, Semi-Open, or Fully-Open? Towards an Intellectual Property Strategy Typology [Pratheeba Vimalnath](#) [Frank Tietze](#) [Elisabeth Eppinger](#) [Jan Sternkopf](#) [Academy of Management Annual Meeting Proceedings](#) 2020(1):22070

Pratheeba Vimalnath, Frank Tietze, Akriti Jain, Anjula Gurtoo, Elisabeth Eppinger, Maximilian Elsen, **Intellectual property strategies for green innovations - An analysis of the European Inventor Awards**, *Journal of Cleaner Production*, Volume 377, 2022, <https://doi.org/10.1016/j.jclepro.2022.134325>



Sharing; “Closed” IP

Type of IP model	Private IP model
IP ownership right allocation	Ownership is highly concentrated to one or very few actors
Access to IP ¹	Owners strictly prevent others from accessing ‘their’ IP
Commercial usage of IP ²	Owners entirely restrict others from commercial usage of ‘their’ IP

Closed IP model

Trade secrets ↔ Single owner IPR



Herbs mix



³ Edison's light bulb patent



Secret recipe of the cola



DSM Dyneema[®] patent

Firms employing private IP models rigorously protect their IP, disclose as little IP as possible, vigilantly monitor, oppose and litigate others' patent applications to prevent patents by third parties to potentially restrict them in using their IP (Chen et al., 2016).

Variance within the category is due to secrecy

³<https://allthatsinteresting.com/wordpress/wp-content/uploads/2016/03/edison-first-bulb.jpg>



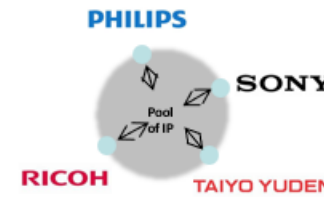
Sharing; “Half closed” IP

Type of IP model	Club IP model
IP ownership right allocation	Ownership is relatively highly concentrated on few actors
Access to IP ¹	Owners allow only members of the club to access ‘their’ IP. Entry barriers are high for outsider actors.
Commercial usage of IP ²	Owners entitle only members of the club for commercial usage of ‘their’ IP. Owners prohibit non-members from commercial usage of ‘their’ IP. Semi-open type 1 IP model

Bilateral IP sharing – unidirectional



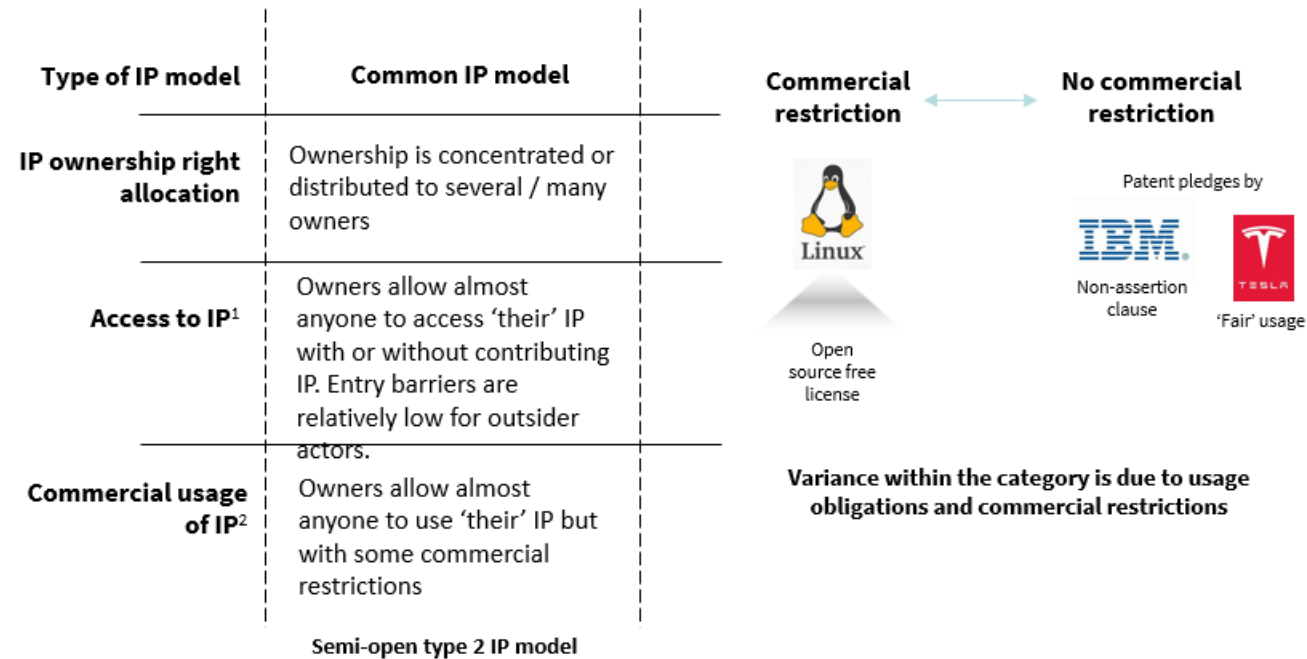
Decentralized IP sharing – Patent Pool model



Patent pool to share IP for their rewriteable audio compact disc patents in the 1990s



Sharing; “Half open” IP





Sharing; “Fully open” IP

Type of IP model	Public IP model
IP ownership right allocation	No one owns the IP (anymore). IP is in the public domain
Access to IP ¹	Owners allow anyone to access ‘their’ IP
Commercial usage of IP ²	Owners cannot/do not restrict anyone from commercial usage of ‘their’ IP

Fully open IP model

Expired/
abandoned
patents



3

Copyright expired
publishing



Variance within the category is due to ease of use of publicly available free IP



Roadmap

What is IP?

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IP vs Open Science

Secrecy vs disclosure

IP sharing Closed vs Open

Scholarly publishing





Scholarly publishing

- Full open access – “gold” 

All articles freely accessible. APC fee payable

- Hybrid 

Authors' choice, subscription or open access

- Green 

All articles freely accessible after self archiving



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