

# **Open Access:**

#### The Key Driver To Address Grand Challenges

#### Ашық қолжетімділік:

үлкен мәселелерді шешуге арналған негізгі драйвер

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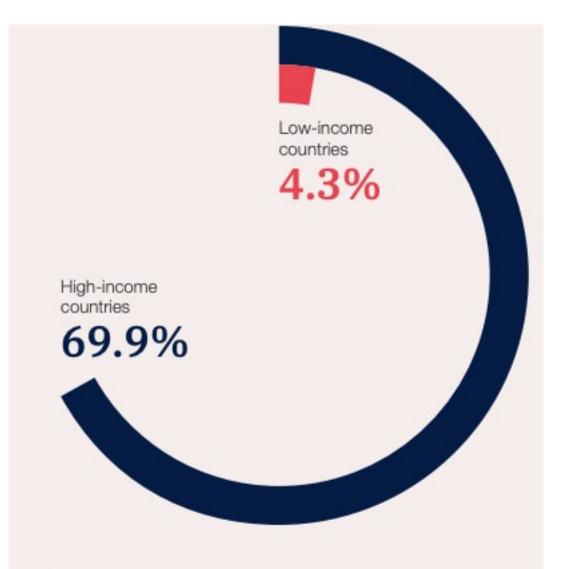
@yasartonta

11th Eurasian Academic Libraries Conference, October 27-28, 2022, Nazarbayev University, Kazakhstan

#### Plan

- Covid 19 Vaccine and Open Access
- Knowledge as a Commons
- Relationship between Science and Property
- Vicious Circle of Affordability, Replication, and Functionality Crises
- The Way Forward: Open Science and Open Access

#### % of the Population Who Are Fully Vaccinated



Source: ONE. 2021. "Data dive: The astoundingly unequal vaccine rollout". January 2022.

Source: The Global Risks Report, 2022, p. 83. https://www3.weforum.org/docs/WEF\_The\_Global\_Risks\_Report\_2022.pdf

### Open Access (OA) Week 2022: Open for Climate Justice

- ...the impacts of the climate crisis are "not be[ing] borne equally or fairly, between rich and poor, women and men, and older and younger generations"
- It affects "communities' abilities to produce, disseminate, and use knowledge around the climate crisis"
- "Openness can create pathways to more equitable knowledge sharing and serve as a means to address the inequities that shape the impacts of climate change and our response to them"



International Open Access Week

Open for Climate Justice Відкритість для кліматичної справедливості

为气候正义开放

Uwazi kwa Machapisho ya Haki ya Tabianchi الانفتاح لأجل عدالة مناخية

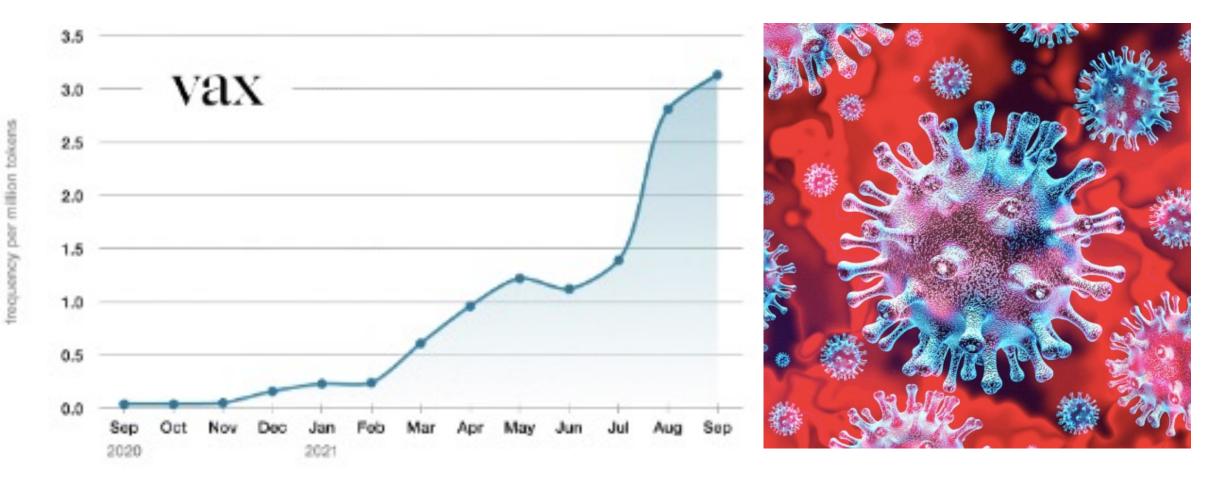
Ouvert pour la justice climatique

気候正義のためのオープンデータ Abierto para la justicia climática

İklim Adaleti için Açıklık

Source:https://ae2022.acikerisim.org/

Word of the Year 2021: "vax"



Source: Shutterstock

#### Time it Took to Develop Vaccines for Diseases

Disease agent	Year identified	Year licensed (FDA)	Time to develop vaccine in year(s)
Smallpox	300 AD	1796	c.2100
Haemophilus influenza	1933	1985	52
Influenza	1933	1945	12
Hepatitis A virus	1973	1992	19
Rotavirus	1973	1998	25
Ebola virus	1976	2019	43
HPV	1983	2006	23
COVID-19	2019	2020	<1

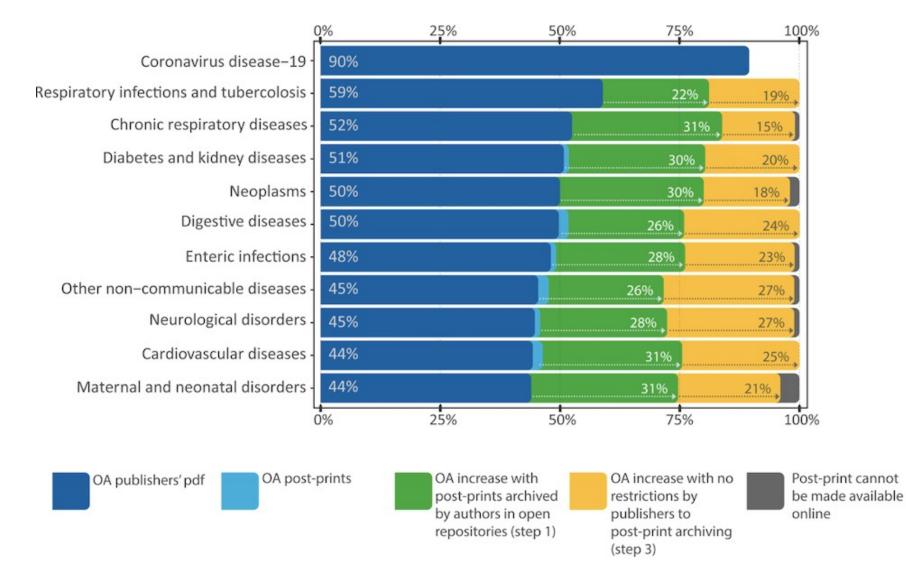
Source: Adapted from Table 1 in: Saleh, A. et al. (2021, July 26). Vaccine Development Throughout History. *Cureus*, 13(7):e16635. doi: 10.7759/cureus.16635.



Open access logo, originally designed by Public Library of Science

Source: https://www.wikiwand.com/en/Open\_access

#### OA Rates for Papers on Covid 19 & Other Diseases



Source: Capocasa, M., et al. (2022). A light in the dark: open access to medical literature and the COVID-19 pandemic. Information Research, 27(2), paper 929. http://InformationR.net/ir/27-2/paper929.html

## Elinor Ostrom (1933-2012)





The Evolution of Institutions for Collective Action 2009 Nobel Prize Winner Understanding Knowledge as a Commons

From Theory to Practice

edited by Charlotte Hess and Elinor Ostrom



Source: http://www.bollier.org/category/tags/commons-theory

#### Knowledge as a "Commons"

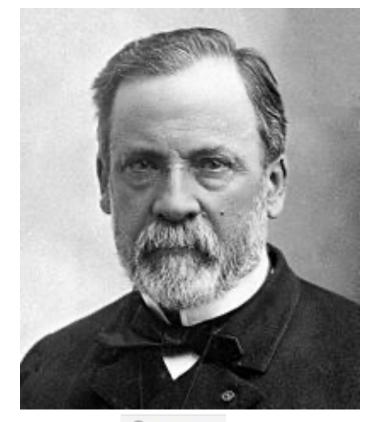
- The amount and value of knowledge is not diminished when shared (non-subtractable, non-rivalrous)
- Exluding a certain person or a group is difficult and costly (non-excludable)

#### Types of Resources

		SUBTRACTABILITY		
		Low	High	
EXCLUDABILITY	Difficult	Commons Useful knowledge	Common-pool resources Irrigation systems	
	Easy	Paid resources Licensed journals	Private resources Personal computers	

#### Louis Pasteur (1822-1895)

"Science knows no bounds, because knowledge belongs to humanity, and it is the torch that illuminates the world."



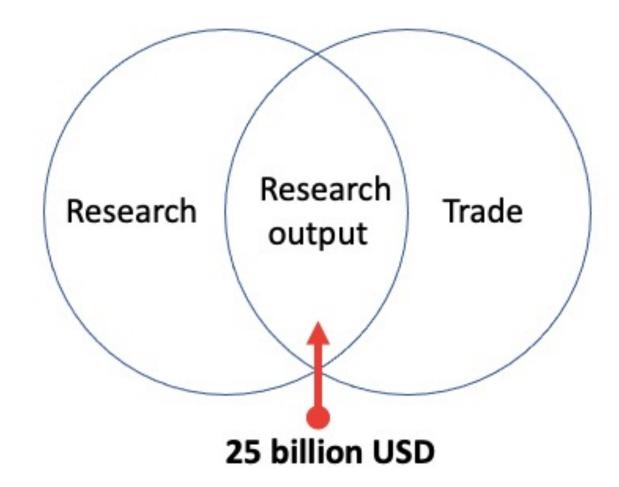


🕲 Kamu Mali

#### Relationship between Science and Trade



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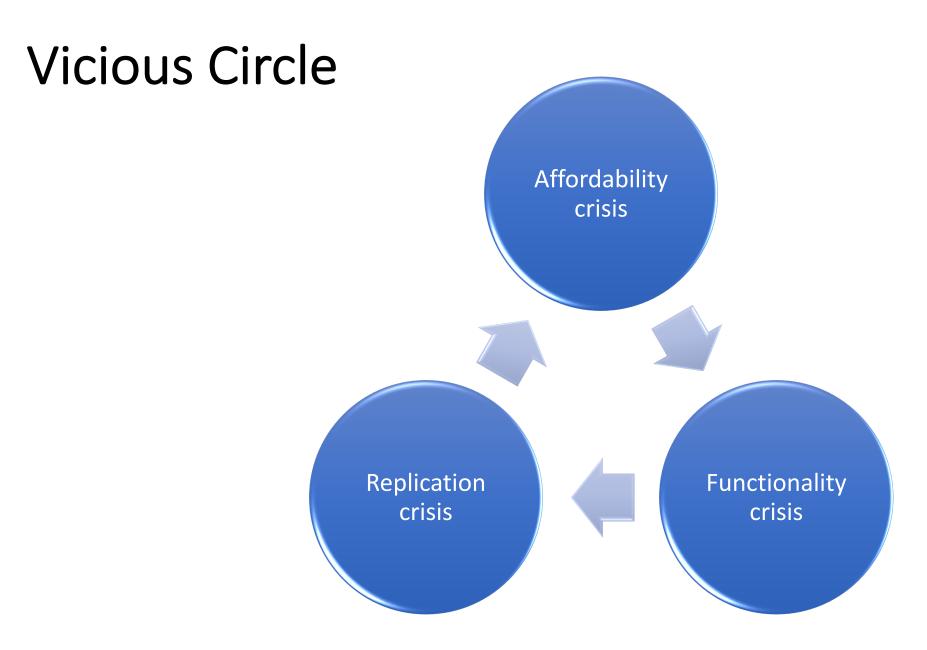


Source: Adapted from: Regazzi, J.J. (2015). *Scholarly communications: A history from content as king to content as kingmaker.* Rowman & Littlefield. p. 1

#### Relationship between Science and Property

- Intellectual property rights (IPR) cause a decrease of 30% in scientific research and product development
- Curtails the knowledge use and innovation creation
- Traditional IPRs based on copying hinder the use of digital information
- How should IPR work for digital commons (scientific knowledge and inventions) that can be shared with others without diminishing their value and are not restricted to use of a particular group?

Source: Williams, H.L. (2013). Intellectual Property Rights and Innovation: Evidence from the Human Genome. *Journal of Political Economy*, 121(1): 1-27; Brown, C. (2009). Ayresian technology, Schumpeterian innovation, and the Bayh-Dole Act. *Journal of Economic Issues*, 43(2): 477-486; Pearce, J.M. (2013). Open-source nanotechnology: Solutions to a modern intellectual property tragedy. *Nano Today*, 8(4): 339-341.



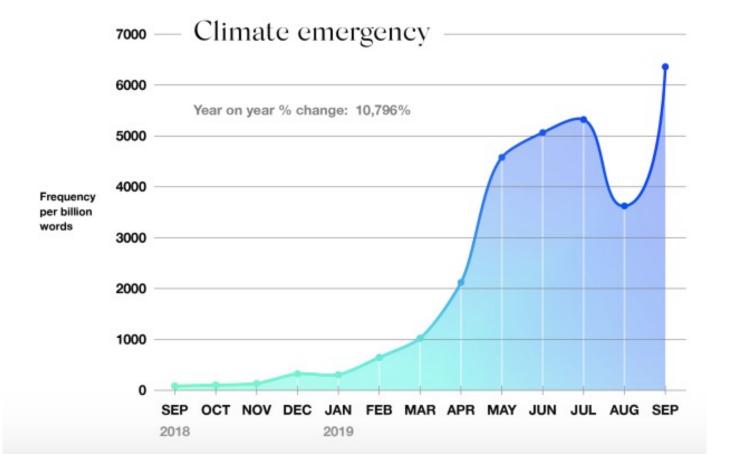
Source: Brembs, B. et al. (2022). Replacing academic journals. https://zenodo.org/record/5793611

#### OA thru Transformative Agreements vs OA Archives

- TAs (Licensed access to journals + OA publishing):
  - "shift costs from authors to institutions"
  - provide additional revenues to publishers
- OA Archives (aka "Green Road")
  - "does not risk increasing the costs that should be paid by institutions to publishers"
  - "does not suffer from the uncertainties and latency of negotiation processes"
  - "poses no equity problem, whereas transformative agreements can be more or less advantageous, depending on the negotiating strength of institutions or their consortia with the publishers"

Source: Capocasa, M., et al. (2022). A light in the dark: open access to medical literature and the COVID-19 pandemic. *Information Research*, 27(2), paper 929. http://InformationR.net/ir/27-2/paper929.html; Butler, L-A. et al. (2022). The Oligopoly's Shift to Open Access. How For-Profit Publishers Benefit from Article Processing Charges (Version v1). Zenodo. https://doi.org/10.5281/zenodo.7057144

#### Word of the Year 2019: "climate emergency"





Source: Shutterstock

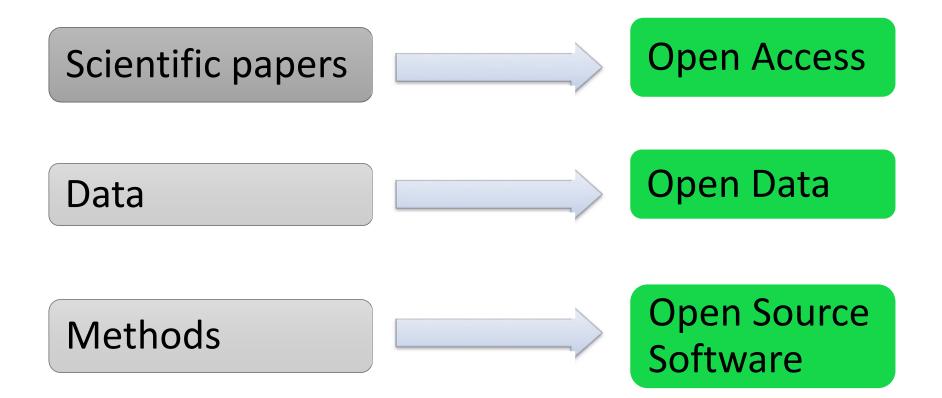
# "Identify the most severe risks on a global scale over the next 10 years"



Source: World Economic Forum Global Risks Perception Survey 2021-2022

Source: The Global Risks Report, 2022, p. 14. https://www3.weforum.org/docs/WEF\_The\_Global\_Risks\_Report\_2022.pdf

#### The Way Forward: Open Science



Source: Open Science by Design, 2018, p. 24



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