



United Nations
Educational, Scientific and
Cultural Organization



DANI OTVORENE NAUKE 5-6 novembar 2020

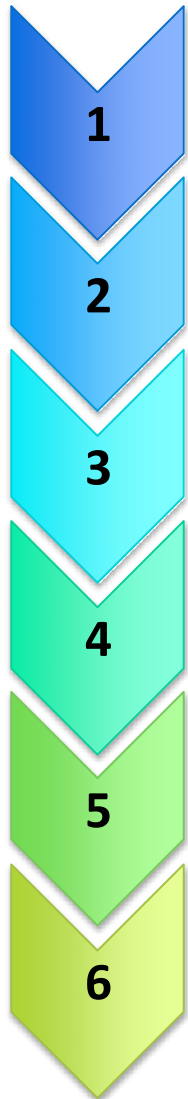
UNESCO preporuke za Otvorenu nauku *Building a Global Consensus on Open Science*

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UNESCO

UNESCO preporuke za Otvorenu nauku



1

Formiranje UNESCO Savetodavnog odbora za Otvorenu nauku

<https://en.unesco.org/science-sustainable-future/open-science/advisory-committee>

2

Glavni cilj UNESCO Preporuka za Otvorenu nauku

3

Definisanje osnovnih principa Otvorene nauke

4

Definisanje područja delovanja Otvorene nauke

5

Definisanje ključnih ciljeva i pisanje preporuka za Otvorenu nauku


6

Praćenje implementacije Otvorene nauke



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UNESCO preporuke za Otvorenu nauku

- 
- Otvorena nauka – hitna potreba za razmenom podataka i informacija i intenzivnom naučnom saradnjom u cilju rešavanje složenih problema sa kojima se čovečanstvo danas suočava
 - **Značaj nauke [tehnologije i inovacija]:**
 - *Zdravlje i opstanak populacije*
 - *Održivost životne sredine*
 - *Socio-ekonomski razvoj*
 - *Digitalizacija, napredovanje u IT tehnologijama*
 - *Demokratija*
 - COVID pandemija & Otvorena nauka – vitalna potreba za razmenom informacija i podataka kako bi se odgovorilo na krizne situacije
 - Značaj razmene pouzdanih podataka i informacija za **potporu sistemima znanja i donošenje odluka**

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Primarni cilj UNESCO preporuka za Otvorenu nauku

Formiranje međunarodne mreže za otvorenu nauku



Definisanje osnovnih principa Otvorene nauke

- 
- Pravičnost
 - Transparentnost
 - Inkluzivnost
 - Poštenje
 - **Odgovornost**
 - Deljenje i reciprocitet
 - Kolektivni benefit
 - Saradnja

FAIR principi (*findable, accessible, interoperable, reusable*)

CARE principi (*collective benefit, authority to control, responsibility, ethics*)

Definisanje područja delovanja Otvorene nauke

1

- **Definicija** Otvorene nauke

2

- **Ključni elementi**

Otvoren pristup, otvoreni (dostupni) podaci, otvoreni (dostupni) izvori, otvorene saradnje, otvorene recenzije, otvorena komunikacija

3

- **Ključni akteri**

Istraživači, univerziteti, međunarodne, regionalne naučne institucije, izdavači, biblioteke, repozitorijumi, donosioci odluka i politika, finansijeri, društvo

4

5

Otvorenosti nauke

Komercijalizacija, ekonomski benefit, privatnost, bezbednost podataka??

6

Definicija „otvorenosti“

„**Otvoreno**“ znači da svako može **slobodno pristupiti, koristiti, menjati i deliti naučnu publikaciju/metodologiju/bazu podataka** u bilo koju svrhu (uz poštovanje privatnosti, otvorenosti i intelektualne svojine)

Znanje je „otvoreno“ ako neko može slobodno da mu **pristupi, koristi ga, menja i deli** - podleže, u najvećoj meri, merama koje čuvaju privatnost i otvorenost



Šta je Otvorena nauka?



Otvorena nauka - neizbežna paradigma u vremenskom okviru nauke

Prethodni napori naučne zajednice u transformaciji nauke u „otvorenu nauku“

Regionalni i nacionalni propisi!

Strakeholders vs. Policy makers!

Šta je Otvorena nauka?

Otvorena nauka je dostupno i nesebično podeljeno znanje

➤ Open Science is Science that is open to scrutiny and challenge, and to the knowledge needs and interests of wider publics. Open science makes the record of science, its evolving stock of knowledge, ideas and possibilities accessible and free to all, irrespective of geography, gender, ethnicity or financial circumstance. It makes the data and evidence of science accessible and reusable by all, subject to constraints of safety, security and privacy. It is open to engagement with other societal actors in the common pursuit of new knowledge, and to support humanity in achieving sustainable and equitable life on planet Earth.

The essential attributes of open science are: open access to the record of science and to the data of science; access to the digital infrastructures that enable widespread engagement and communication; and open engagement between scientists and other societal actors.

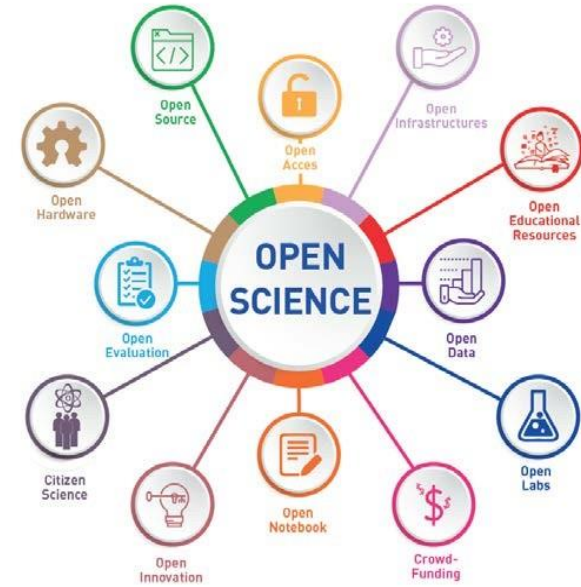
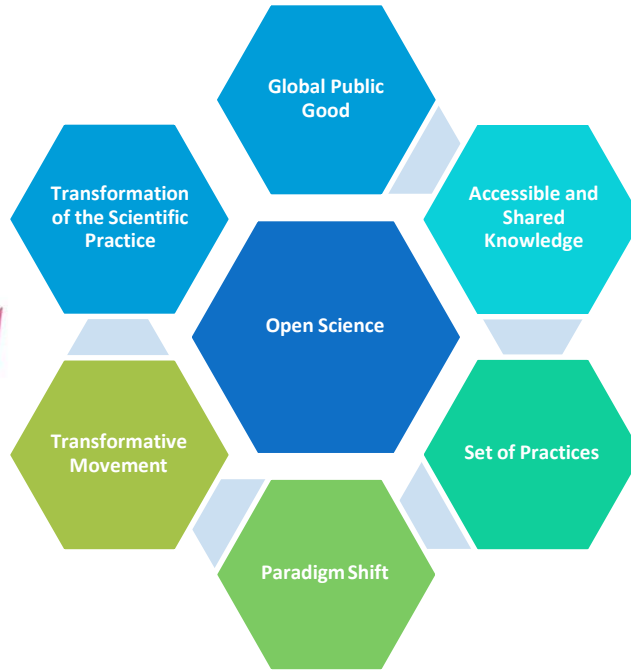
Science is used to refer to the systematic organization of knowledge that can be rationally explained and reliably applied. It encompasses basic, natural, social sciences and humanities. (ISC, 2020)



Šta je Otvorena nauka?

Otvorena nauka je pokret globalne naučne zajednice

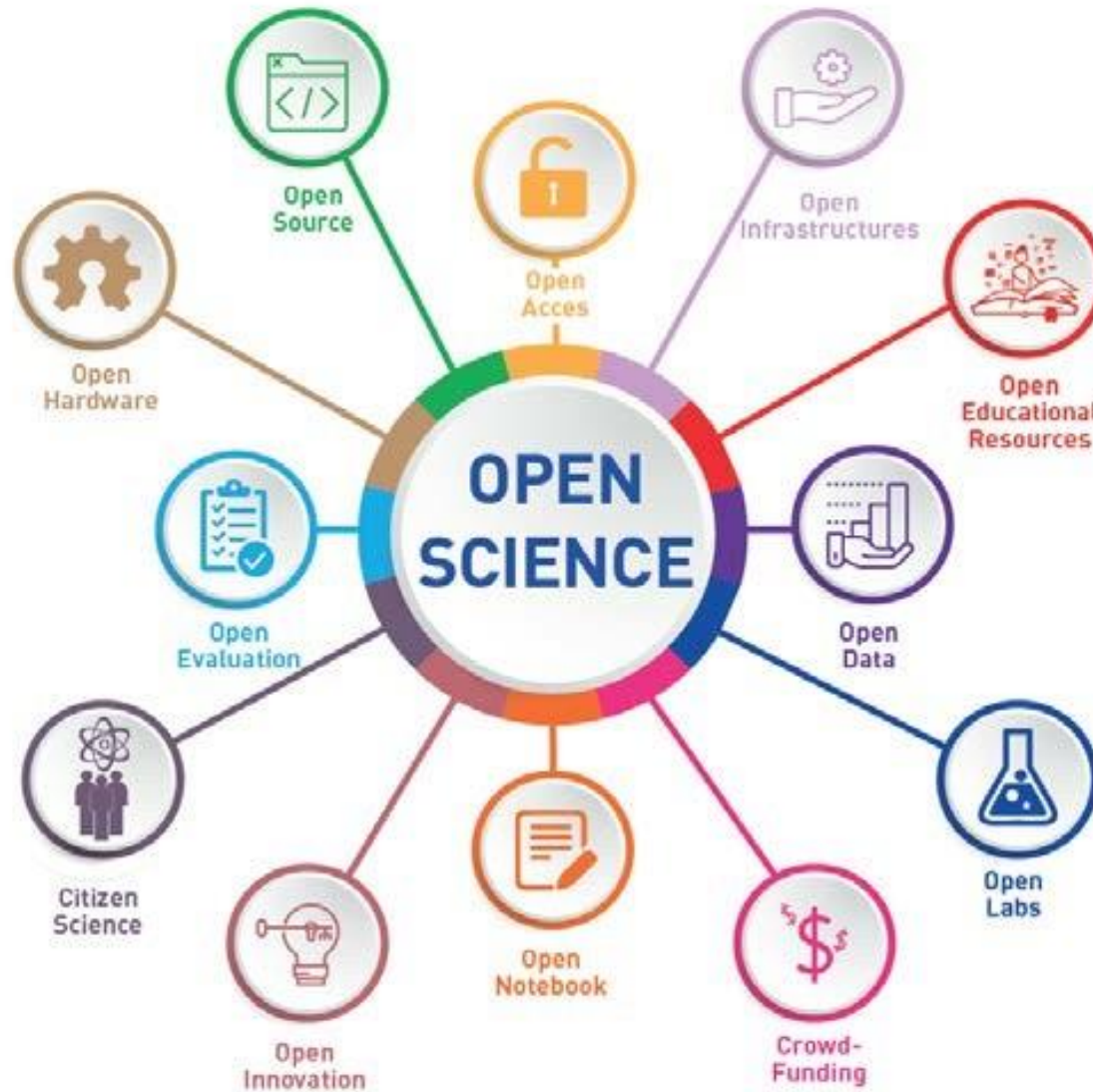
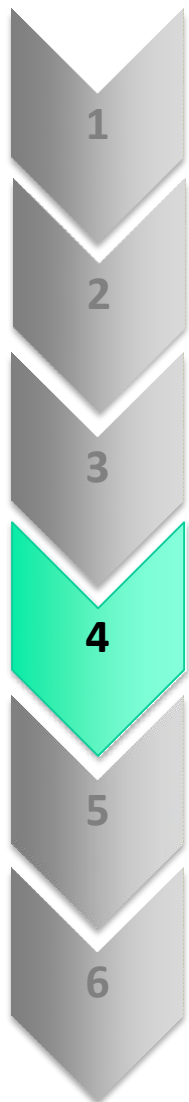
- Open Science as a movement to make scientific research and data accessible to all. It includes practices such as publishing open scientific research, campaigning for open access and generally making it easier to publish and communicate scientific knowledge. It includes other ways to make science more transparent and accessible during the research process. This includes open notebook science, citizen science, and aspects of open source software and crowdfunded research projects. (UNESCO, 2019)
- Open Science is the movement to help make the results of scholarly research more accessible, including code, data, and research papers. It encompasses many different but often related aspects impacting the entire research lifecycle, including open publishing, open data, open source software, open notebook science, open peer review, open dissemination, and open materials. (FOSTER, EU)
- Open science is the movement to make scientific research (including publications, data, physical samples, and software) and its dissemination accessible to all levels of an inquiring society, amateur or professional. It is transparent and accessible knowledge that is shared and developed through collaborative networks. It encompasses practices such as publishing open research, campaigning for open access, encouraging scientists to practice open notebook science, and generally making it easier to publish and communicate scientific knowledge. (Wikipedia)



UNESCO Recommendations on Open Science




Dokument – UNESCO recommendations for Open Science



<https://unesdoc.unesco.org/ark:/48223/pf0000374409.locale=en.page=10>



Ključni ciljevi i preporuke za Otvorenu nauku

- 
- Obezbeđivanje širokog otvorenog pristupa i poboljšanje povezanosti istraživača
 - Izgradnja ljudskih i institucionalnih kapaciteta / veština
 - Promocija postojećih infrastruktura i razvoj novih
 - Revizija sistema vrednovanja naučnih dostignuća i bodovanja za unapređenje karijere
 - Donošenje zakona za zaštitu i promociju intelektualne svojine
 - Finansiranje otvorene nauke od strane države/ministarstava/nadležnih javnih struktura
 - Stvaranje i podsticanje javno-privatnog angažovanja i ulaganje privatnog sektora u Otvorenu nauku
 - Razvijanje povoljnog okruženja u državi za politiku, principe i investiranje u Otvorenu nauku
 - Promovisanje i podsticanje inovativnih pristupa u različitim fazama naučnog procesa
 - *npr. Za dizajniranje studija, implementaciju metoda, sardanju, naučnu komunikaciju, evaluaciju rezultata...*
 - Promovisanje međunarodne saradnje po principima Otvorene nauke



First draft of the UNESCO Recommendation on Open Science

Preamble

The General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO), meeting in Paris XX November 2021,

Recognizing the urgency of addressing complex and interconnected environmental, social and economic challenges for the people and the planet, including poverty, health issues, access to education, rising inequalities and disparities of opportunity, natural resource depletion, loss of biodiversity, land degradation, climate change, natural and human-made disasters, spiralling conflicts and related humanitarian crises;

Acknowledging the vital importance of science, technology and innovation to respond to these challenges by providing solutions to satisfy human needs, improve living standards and human well-being, advance environmental sustainability, foster sustainable social and economic development and promote democracy and peace;

Further acknowledging the opportunities and the potential provided by the expansion of information and communication technologies and the global interconnectedness to accelerate human progress, to bridge the digital divide and to develop knowledge societies;

Noting that the global COVID-19 health crisis has proven worldwide the urgency of access to scientific information, sharing of scientific knowledge, data and information, enhancing scientific collaboration and science- and knowledge-based decision making to respond to global emergencies and increase the resilience of societies;

Committed to leaving no one behind with regard to access to science and benefits from scientific progress by ensuring that, for example, when a safe and effective vaccine or treatment for COVID-19 is developed, it is produced rapidly on scale and the data, scientific knowledge and methods needed to produce it are openly available for all countries;

<https://unesdoc.unesco.org/ark:/48223/pf0000374409.locale=en.page=10>

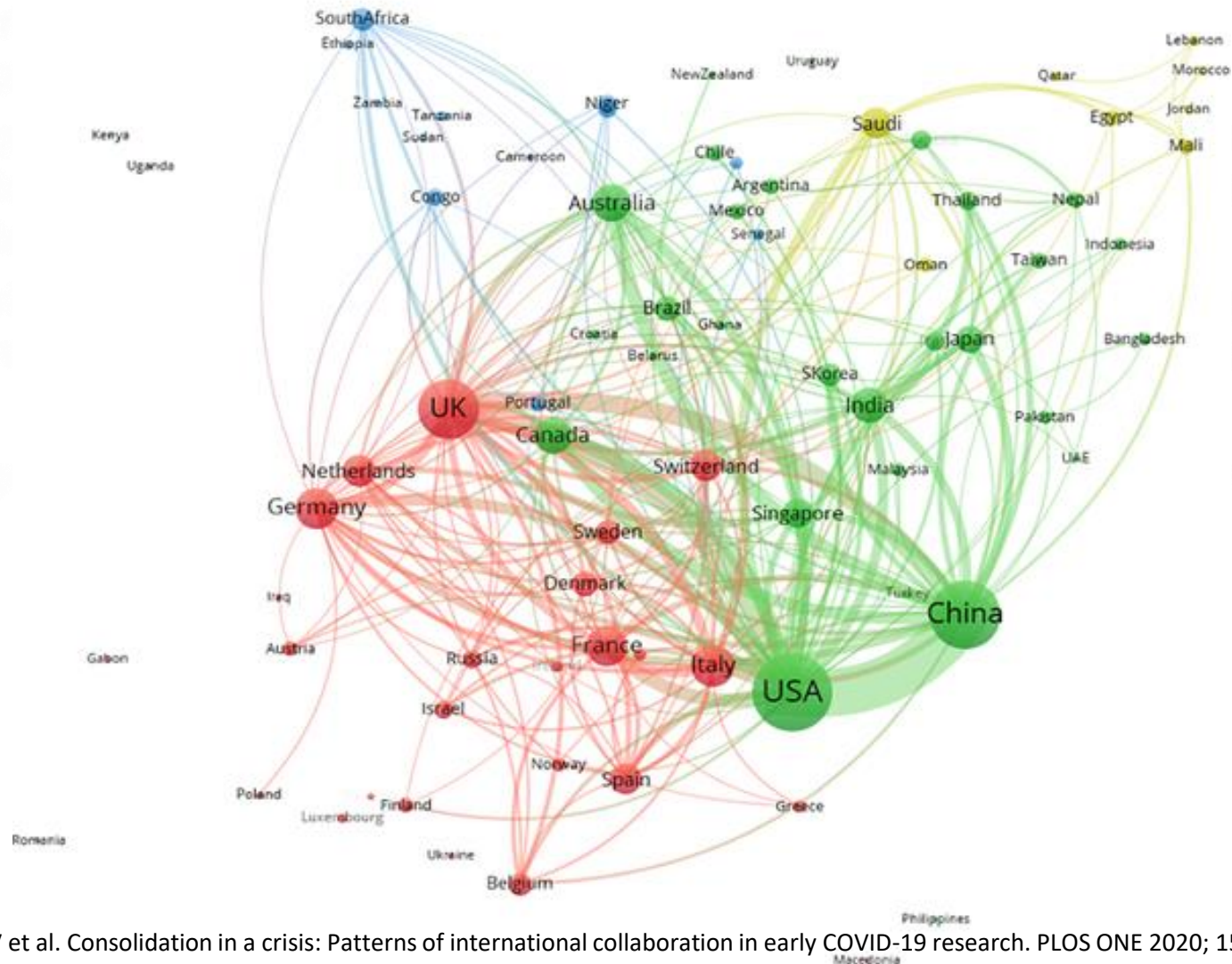
Praćenje implementacije Otvorene nauke



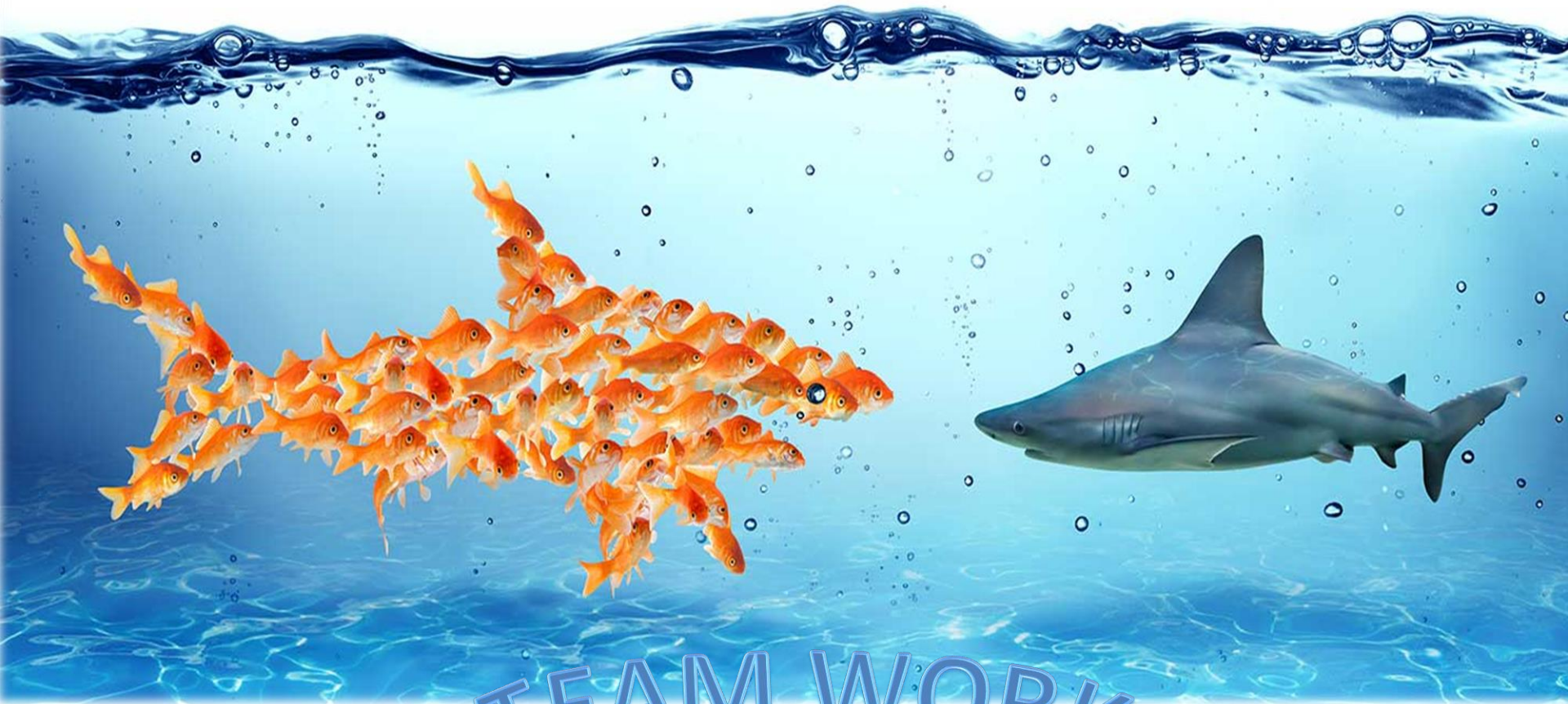
- **Izveštavanje** o politikama i mehanizmima vezanim za otvorenu nauku
- **Prikupljanje, razmena / širenje dobre prakse**, inovacija i izveštavanje o progresiji implementacije Otvorene nauke
- Razvijanje otvorenih i participativnih pristupa za primenu i procenu efikasnosti Otvorene nauke, kroz **učešće svih relevantnih zainteresovanih strana**

Fig. Network of international collaborative relationships during COVID-19 period, 1.1.2020. – 4.8.2020.

COVID Network



Fry CV et al. Consolidation in a crisis: Patterns of international collaboration in early COVID-19 research. PLOS ONE 2020; 15(7): e0236307.



TEAM WORK