



OPENING SCIENCE FOR BUILDING
RESILIENCE IN THE FACE OF COVID-19:

FINDING THE BEST PATH FORWARD

**FIRST, THANK
YOU
UNESCO
AND FELLOW
PANELISTS**

Many research reform actions have been underway long before COVID, as we've heard here today (also, see Annex). These actions have been magnified by our current need to discover faster, not just for COVID but also climate change, food security, water, energy, and more.

OPEN CAN HELP

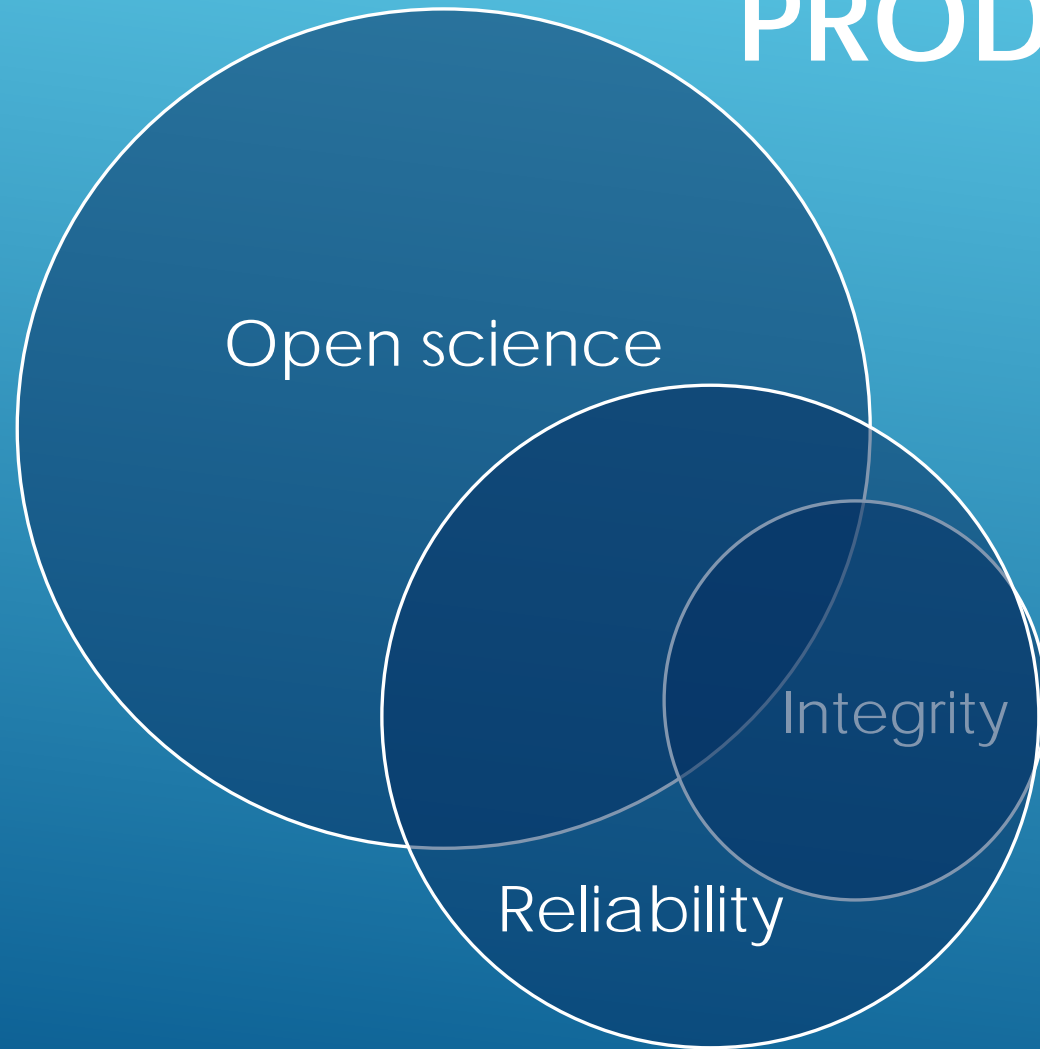
There is no doubt that open science can help address these challenges now and into the future. The vast majority of the 450 global leaders in scholarly communication (from 20 stakeholder groups, 28 countries and 250 institutions) who have contributed to OSI over the past five years are enthusiastic believers in the future of open.

BUT HOW? OUR APPROACH TO OPEN SHOULD BE ASPIRATIONAL BUT GROUNDED

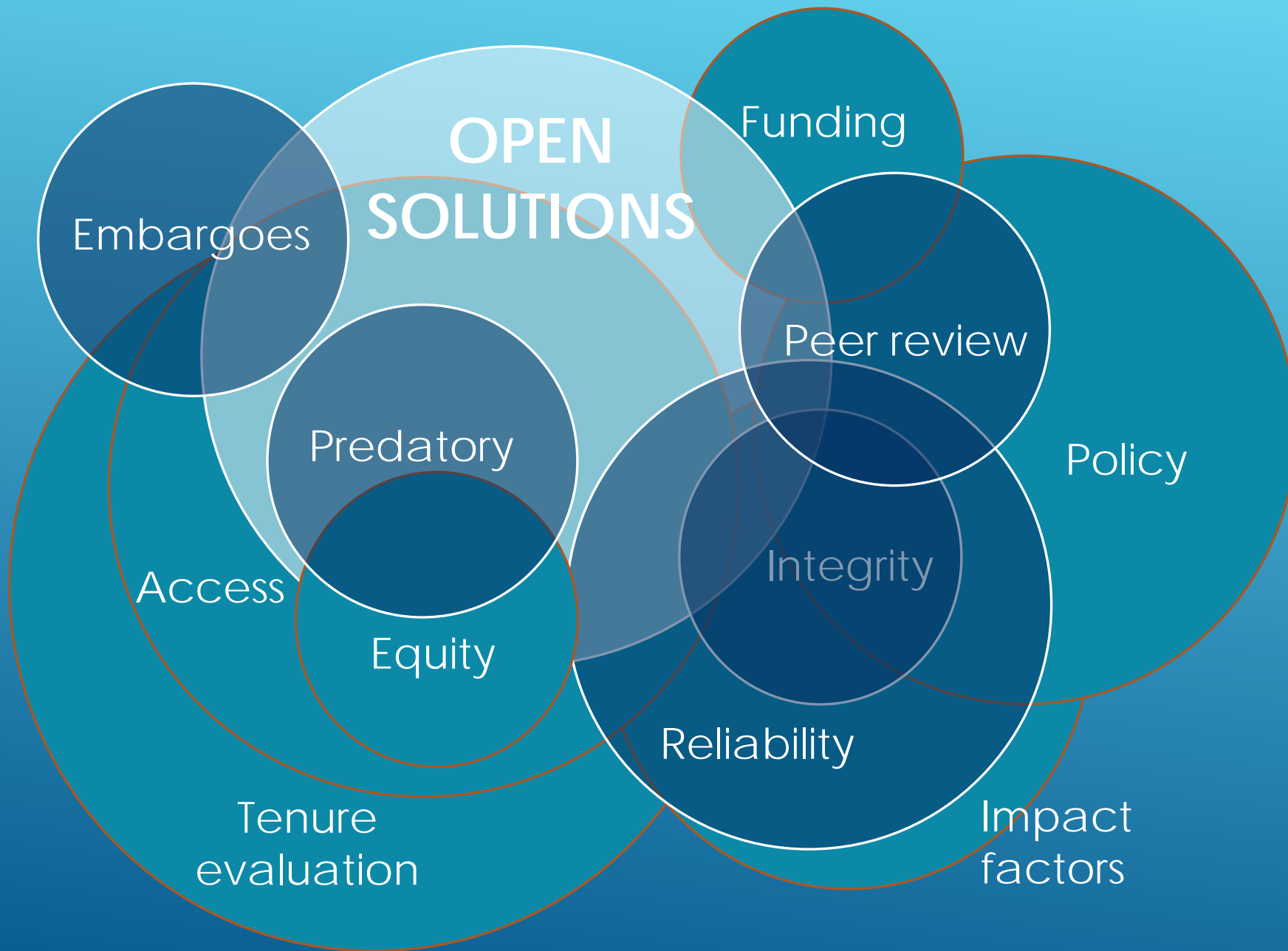
“Research in the COVID era shows that...”	Fact
Discovery can move faster with more information accessible	True. There’s no doubt that quickly sharing information is important. But what happens when we also quickly share a lot of bad science and unfiltered information (the WHO chief has called this current situation an “infodemic”)?
Preprints play an important role in quickly sharing information	True. But preprints are currently only a small fraction of published work (3%-ish). Will this format become the norm (and if it does, what challenges will this present)?
The publishing process can move faster	No doubt. But is this acceleration is sustainable? Attention is being diverted from other issues, costs are high, and traditional peer review is incapable of ensuring quality (even under normal circumstances), etc.

DOES OPEN SCIENCE BY ITSELF PRODUCE BETTER SCIENCE?

NO.



Open science isn't necessarily of high integrity and reliability, and not all reliable and high-integrity science is open. There is overlap, of course, and we can focus on this overlap to help improve science.

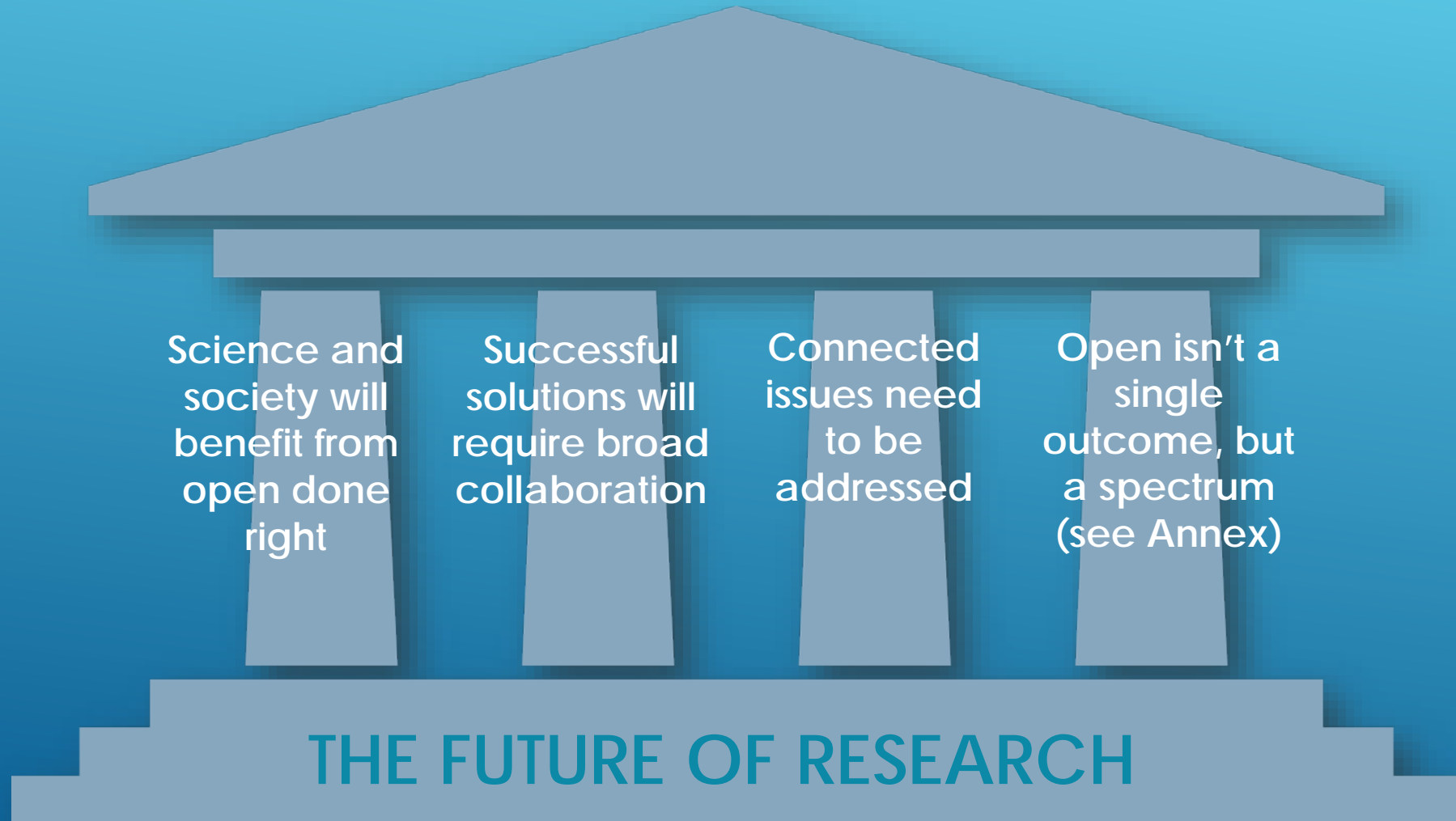


IN FACT, OPEN SOLUTIONS ONLY PARTLY ADDRESS MOST OF THE CHALLENGES IN RESEARCH PUBLISHING

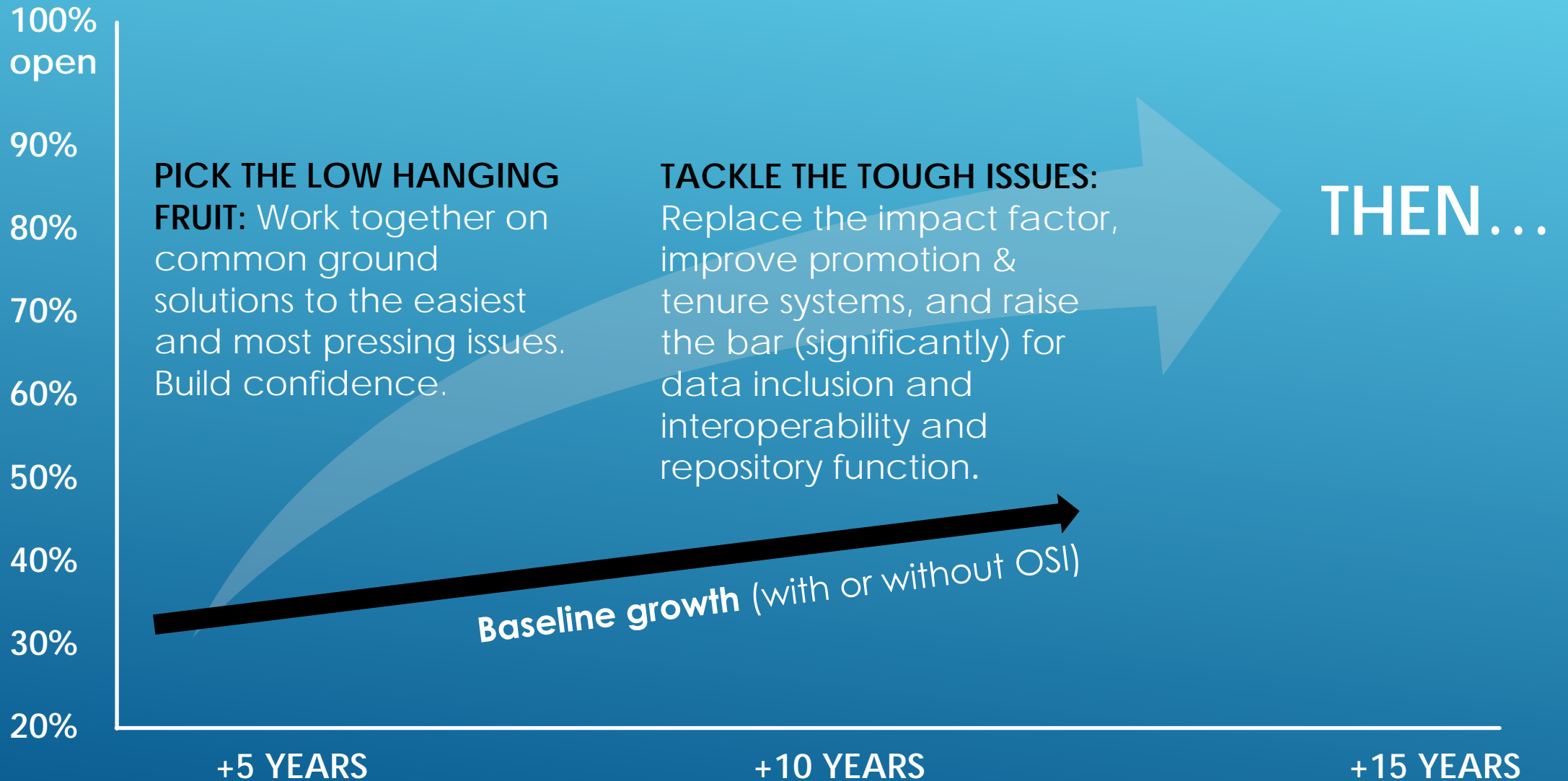
THIS IS WHY IN OSI
WE'RE LOOKING AT
ALL CHALLENGES
RELATED TO OPEN
RESEARCH AND HOW
THEY INTERACT.
TRULY IMPROVING
RESEARCH MEANS
SOLVING THE WHOLE
PUZZLE, NOT ONLY
PART

Open is only a means to an end, not our end goal. Our common end goal is to improve not only science but all kinds of research; not only for the world's most privileged researchers but for all researchers everywhere; not only to help western nations but all nations of the world. If we work on this challenge together and with truly open hearts and minds---and we must work together to reach workable solutions---then and only then can we unlock the vast potential of open to improve science and society.

OPEN IS A CRITICALLY IMPORTANT PIECE OF THIS PUZZLE, AND DEFINES OSI'S COMMON GROUND:

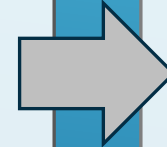


IF WE CAN DREAM BIG BUT ALSO WORK TOGETHER SMARTLY AND PRACTICALLY,



WE REACH AN OPEN RENAISSANCE

- ▶ **Open science is clearly defined and supported**
- ▶ **Open is the standard science output format**
- ▶ **Open solutions are robust**, inclusive, broad, scalable and sustainable
- ▶ **Almost all science information is discoverable**
The global access gap is nonexistent
- ▶ **Solutions for the humanities** are built-in
- ▶ **Connected issues** are resolved
- ▶ **Incentives are aligned** so scholars embrace open because they want to
- ▶ **Open is simple and clear** so scholars know what it means and why they should do it
- ▶ **Predatory publishing is defeated** so it no longer threatens science
- ▶ **Standards and global guidelines** are clear for all journals, which helps the marketplace
- ▶ **The marketplace remains competitive** so open products remain cutting edge
- ▶ **Repositories are integrated**, not just connected
- ▶ **Data standardization** is widespread and robust



- ▶ **Many kinds of improvement happen to science**, including less bias and better transparency
- ▶ **The research ecosystem grows exponentially more powerful** (with more data, more connections, and more apps), which further catalyzes innovation and improvements in science. New fields and directions emerge based on “connecting the dots” (thanks to data and repositories), funding efficiency improves, and discovery accelerates.
- ▶ **The social impacts of science surpass today** (including science literacy, public engagement with science, and science input into public policy)
- ▶ **Most science knowledge becomes a global public good, and society reaps the benefits**

WHAT IS THE BEST PATH FORWARD TO HELP US REACH THIS FUTURE?

IMPROVE OUR UNDERSTANDING

What do researchers want and need? What gatekeeping mechanisms do we need in science? How can we “eliminate” the influence of impact factors, how are predatory journals affecting the landscape, what open outcomes are best and where, and how can we share information more effectively?

THINK STRATEGICALLY

Where are we going with open? What can it solve? What should it solve? Rather than debating how open should evolve, we need to first figure out what research challenges we’re trying to address, and then discuss what tools and approaches are best suited.

WORK COLLABORATIVELY AND BOLDLY

How can we work together as a global community on creating the future of open? Where is our common ground? What actions can we take now (like infrastructure, info clouds and data standards) that can lay the foundation for a future where we’re working boldly together now to address pressing issues?

ANNEX

SOME OF THE COVID-RELATED RESEARCH COMMUNICATION IMPROVEMENTS HAPPENING TODAY

- ▶ Healthy debate over the role of research journals in society (what is their highest, best function, what is the impact and importance, etc.)
- ▶ Different (and evolving) models of sharing and publishing research
- ▶ Different (and evolving) ideas about open, impact, gatekeeping, authorship, data, peer review, and more (it's all connected).
- ▶ Improved screening of preprints (both internally and via social media mechanisms)
- ▶ More efficiencies emerging in peer review processes (as well as more scientists volunteering to help with peer review).
- ▶ Many ad-hoc efforts and collaborations to daylight needed information (OASPA, Elsevier, CZI, others).
- ▶ Continued pressure via transformative agreements and other open science initiatives to make more information freely accessible
- ▶ A leveling off of retractions (EXCEPT with regard to COVID research)
- ▶ An improved understanding of the need to avoid sensationalizing results (although the public is still susceptible to this)
- ▶ An increasing focus on reliability-related reforms, like registered reports, improved transparency, DORA, FAIR data, etc.

SOME OF THE COVID-RELATED RESEARCH COMMUNICATION IMPROVEMENTS STILL NEEDED

- ▶ A better understanding of what we really value and need from gatekeeping and refereeing
- ▶ A hard look at whether COVID-era review speed is sustainable or affordable
- ▶ A look at other gatekeeping ideas (e.g., submission fees?)
- ▶ Systems to help us understand what information to pay attention to
- ▶ Better access to underlying data. Seeing more journal article metadata isn't solving any research problems.
- ▶ A better understanding of the sharing needs that are unique to each discipline. Is speed more important than quality (knowing that a few hurried and bad studies can be very damaging to the broader goals of science)
- ▶ A better understanding of the limits of reliability. Reliability has much more to do with experimental design and statistical analysis than peer review.
- ▶ A reduction of publish or perish pressures in academia. Sensational results mean more attention, which is good for both researchers and universities. But the pressure to produce sensational results can mean hiding negative findings, misinterpreting data, only studying "high profile" topics, etc.
- ▶ Continued focus on understanding the threats to reliability and the best practices researchers can adopt to screen work and improve reliability.

THE DARTS OPEN SPECTRUM

Open has a wide variety of outcomes, definitions, motives, interests and goals, and is used in a wide variety of ways, from open education, to open code, open data, open source, open science, open courses, open society, bronze open, and open access. With regard to outcomes, information artifacts exist on a spectrum (please see the OSI website, osiglobal.org, for more specifics).



THANK YOU AGAIN PANELISTS AND UNESCO

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