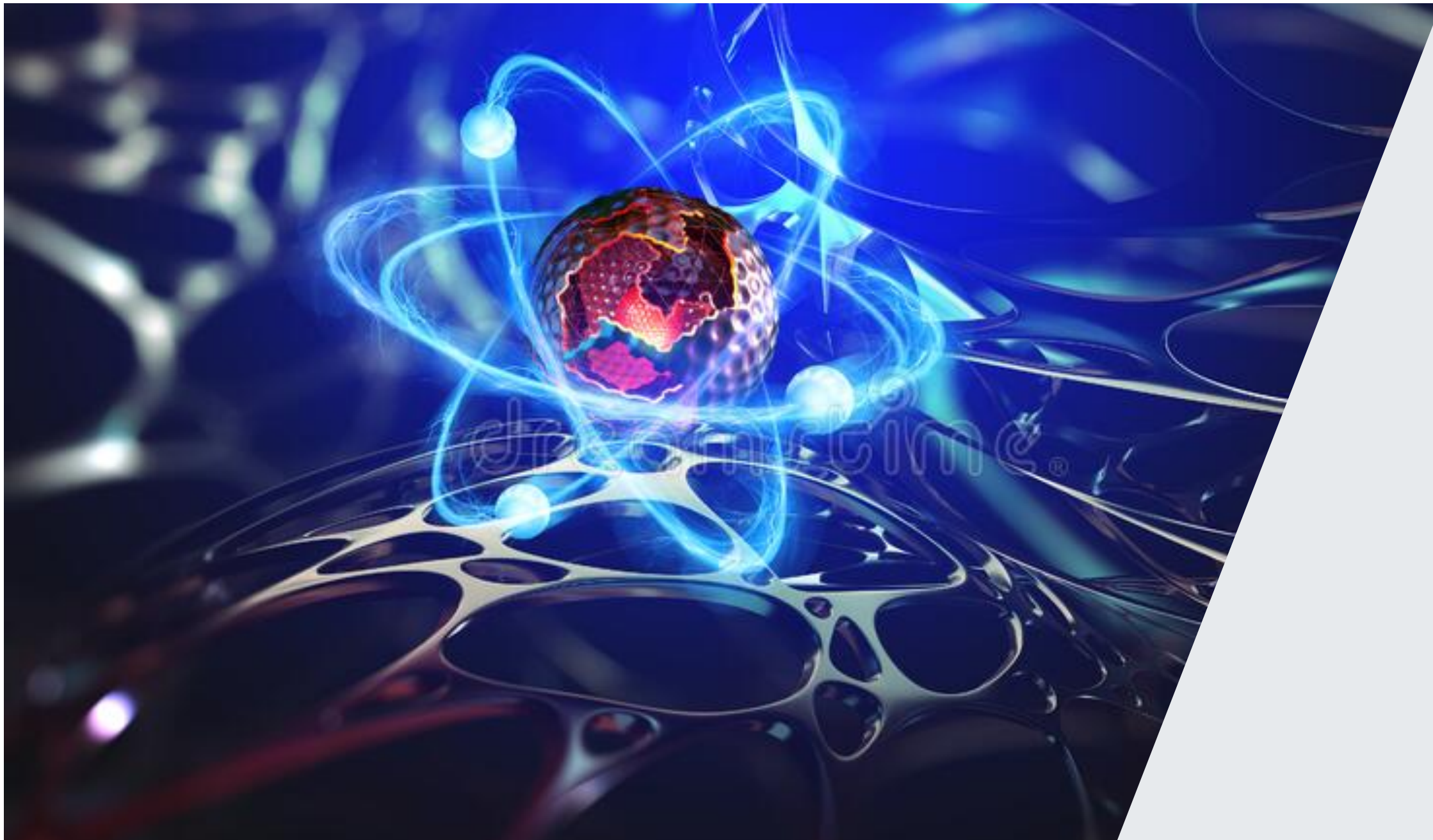




**TIME TO
EVALUATE**



1

Discovery

2

Breakthroughs

3

Assessment and
evaluation

4

Pursuing research
excellence

MY SENSE OF SCOPUS AND SCIVAL





CORE USERS

It's useful to bound our discussion across user communities:

- Universities
- Government and funders
- Rankings agencies
- Corporate R&D



PURSuing RESEARCH EXCELLENCE

- Execute evidence-based research strategy
- Identifying collaborators
- Maximize grants and funding
- Enhance research efficiency
- Improve decision making
- Increase impact and engagement







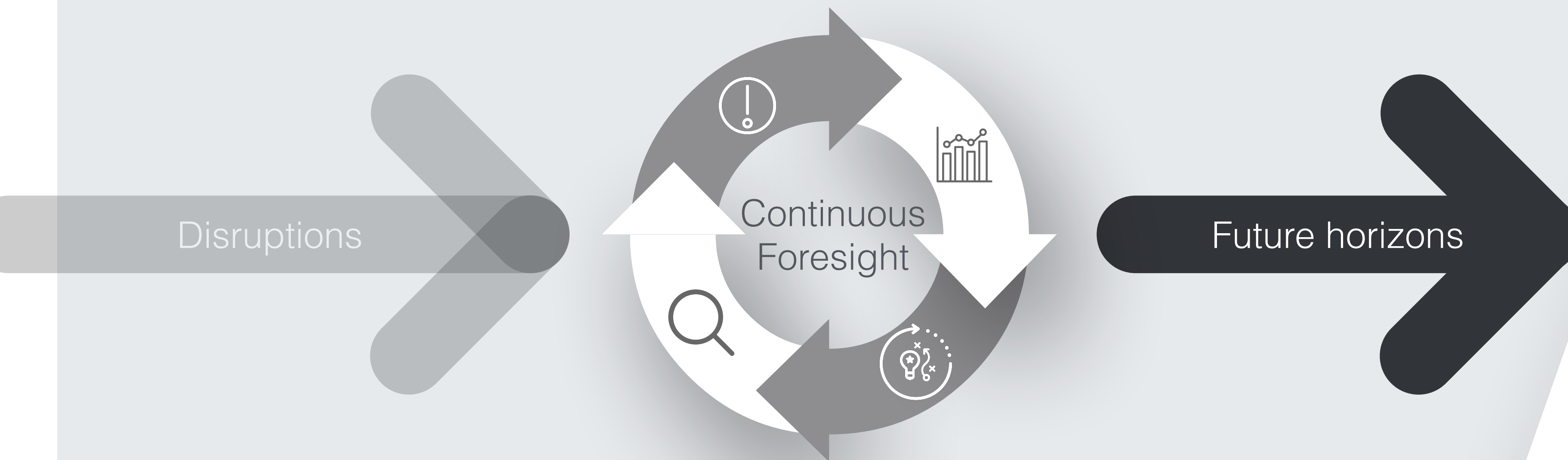
THE SCHOLARLY COMMUNICATIONS RELATIONSHIP

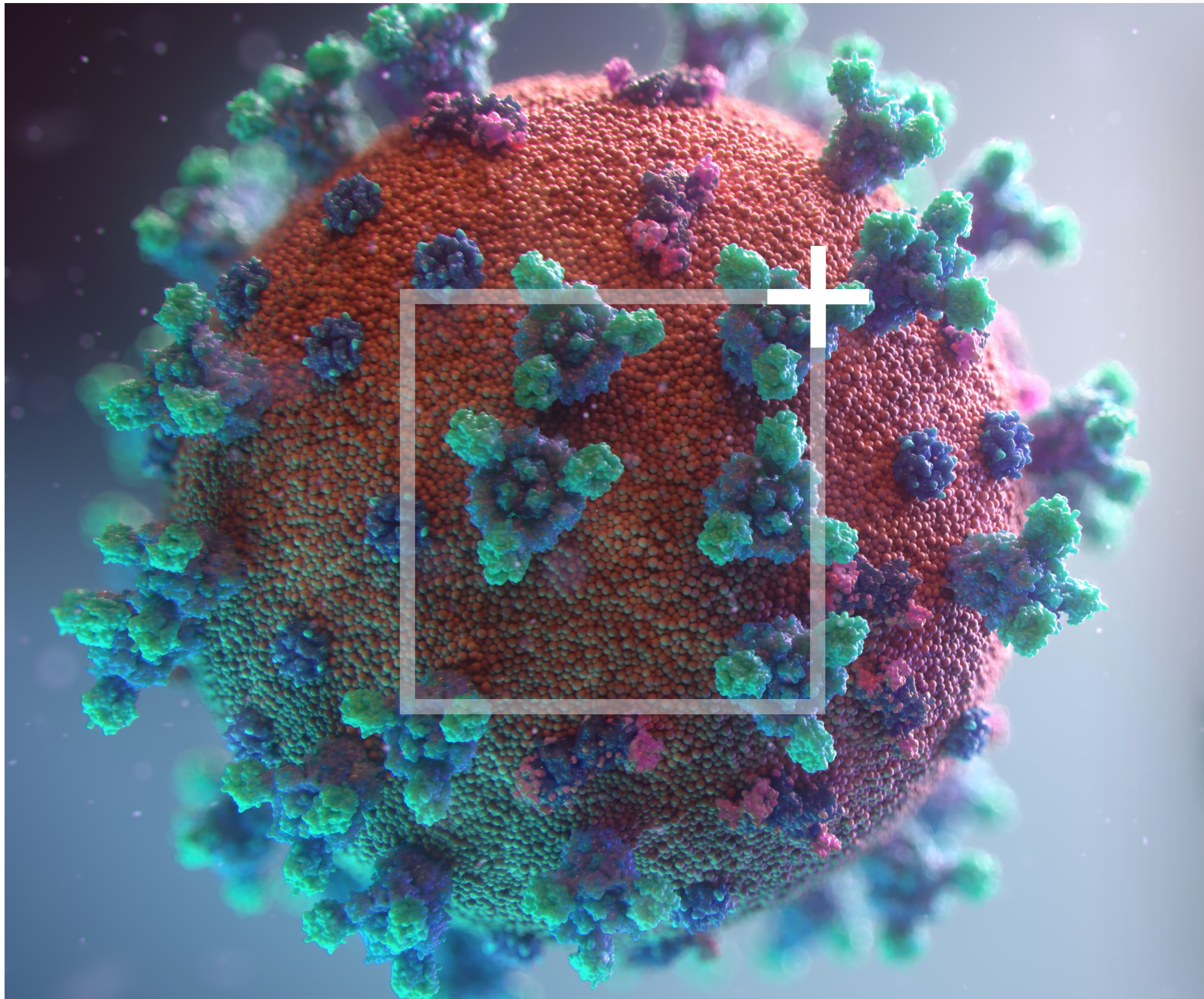
Tools like Scopus and SciVal depend on the underpinning scholarly literature base. As we think about disruptors and trends, we need to understand the forces that might impact these, and the opportunities that might eventuate.



FROM FORESIGHT TO FUTURES

Need to develop a comprehensive way of identifying drivers and signals to thrive in future
We can use this approach to anticipate Elsevier moves and identify opportunities in our own organizations





COVID-19 PANDEMIC

Shift of research funding
Financial pressures on universities
Faculty responsibilities (childcare, health)
Laboratory and campus closures
Loss of conferences



OPEN SCIENCE

The COVID-19 pandemic raises our awareness of the importance of science, both in research and international cooperation. The present crisis also demonstrates the urgency of stepping up information sharing through open science. The time has come for us to commit all together.

–UNESCO Director-General Audrey Azoulay

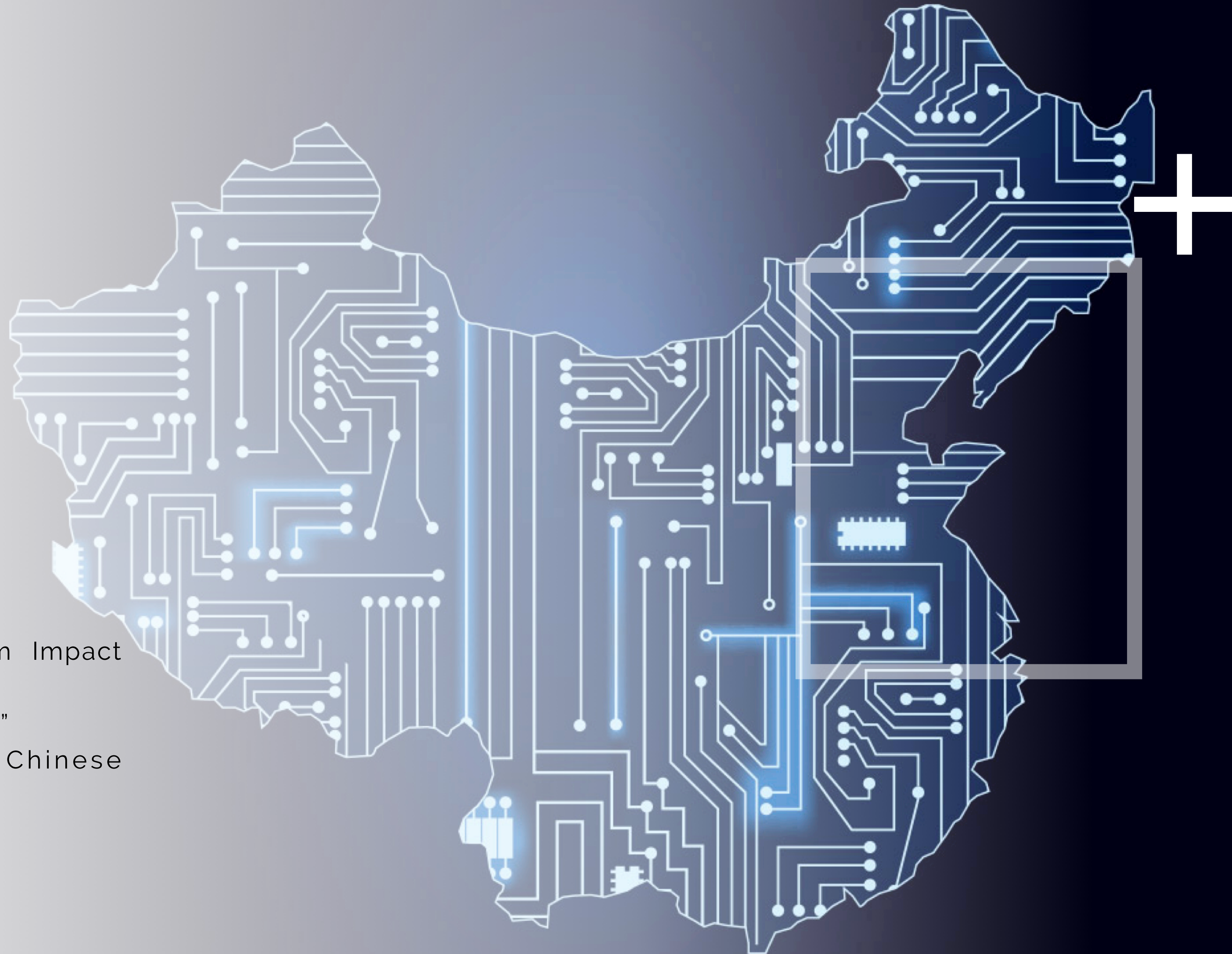
BREXIT

The UK generates ~7% of global scientific output
Uncertainty over science funding
Difficulties in exchanges and collaborations (visas etc)
UK sales into EU/FOREX
Publisher workforce

CHINA

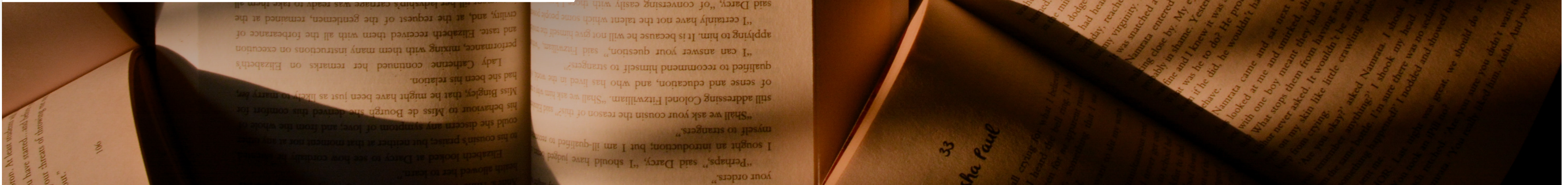
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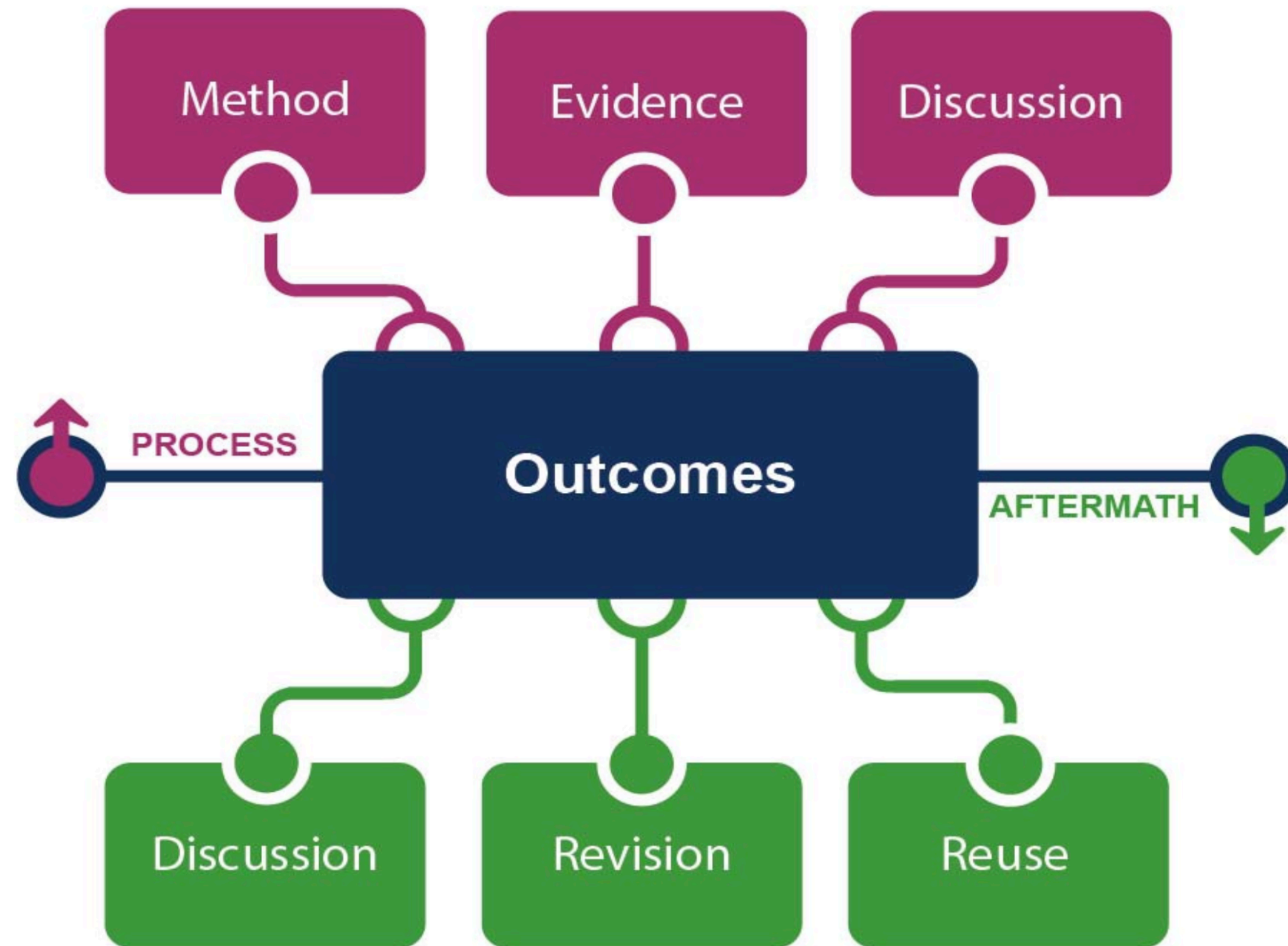
Shift away from Impact
Factor
“Fewer but better”
Publishing in Chinese
journals



PRESSURES IN PUBLISHING

Cost savings and outsourcing already achieved
Credit risks - serials agents and bookstores
Backfile sales exhausted
Corporate sales slowing
Customer pressures/demands for price cuts





EVOLVING SCHOLARLY RECORD

The evolution of the record from formal, general print-based, articles, reports and monographs to an array of digital artifacts such as data, protocols, code

These are important products of research
How do we evaluate them and the impact of their reuse?



OPEN ACCESS

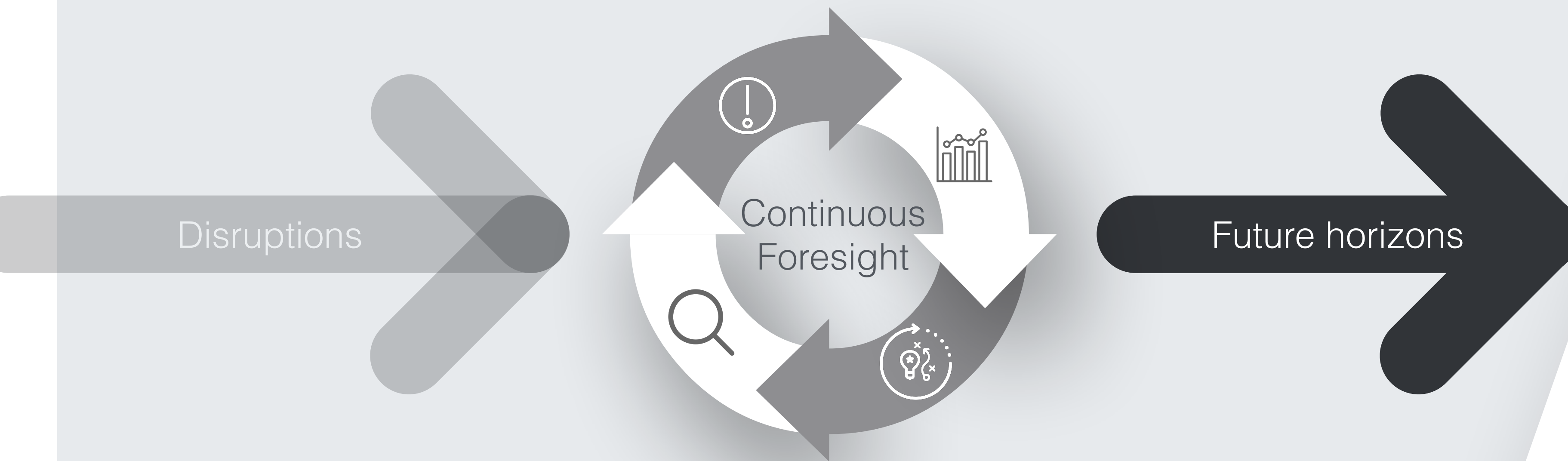
Plan S
Consolidation and M&A
Transformative agreements
Author tourism

AUTOMATED SCIENCE AND DATA DELUGE

Robotic laboratories such as CMU's new cloud lab
Cost savings in research infrastructure
Vast body of scholarly output
Reproducibility

FROM FORESIGHT TO FUTURES

Need to develop a comprehensive way of identifying drivers and signals to thrive in future
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“The greatest danger in times of turbulence is not turbulence itself, but to act with yesterday's logic.”

Peter Drucker

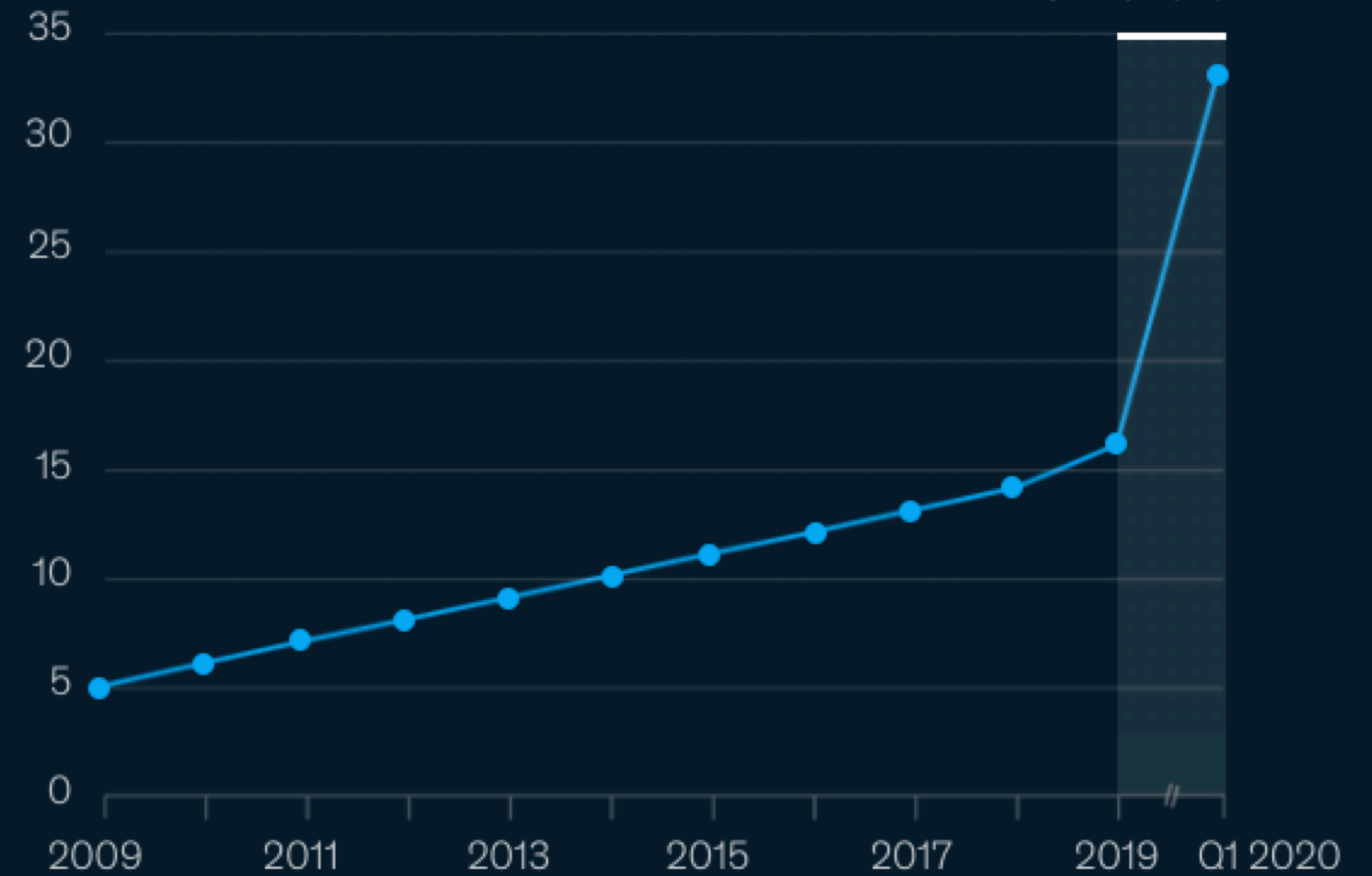
The leap

How fast is the world moving around us? Consider how quickly e-commerce has replaced physical channels in three months.

US e-commerce penetration, %

10 years' growth
in 3 months

20



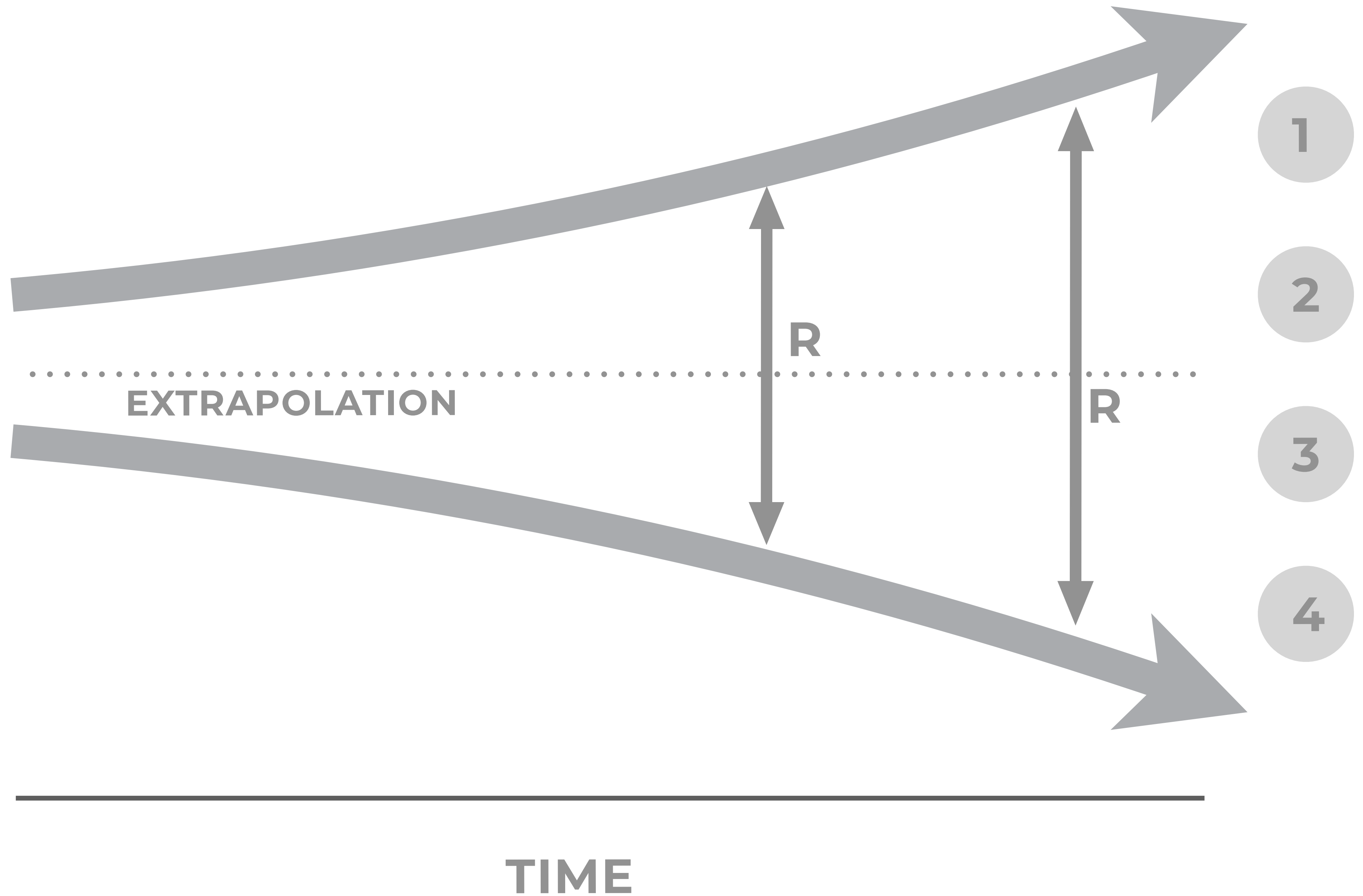
Source: Bank of America; Forrester Analytics; ShawSpring Research; US Department of Commerce; McKinsey analysis

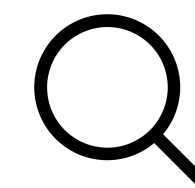
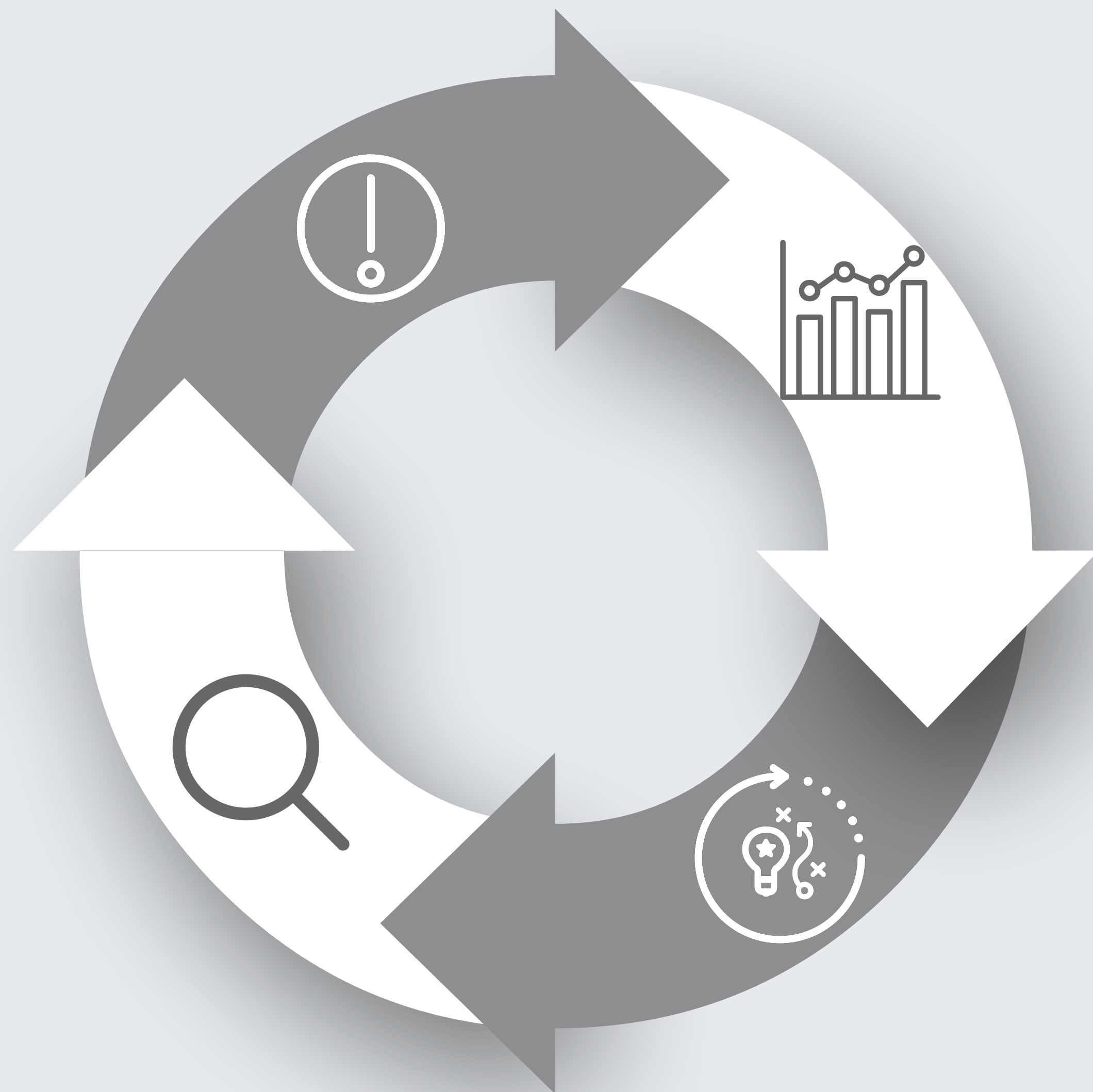
During the early days of the pandemic, rapid growth and acceleration was seen in many areas. Those who had anticipated and invested ahead of time were most able to take advantage.

In all areas of activity, considering trends, drivers, signals can help us prepare to seize opportunities and guard against shocks,

+ SCENARIO CONE

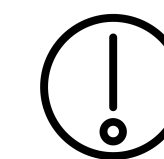
R - RANGE OF POSSIBLE OUTCOMES





ACQUIRE

Acquire trends from multiple sources



SYNTHESIZE

Determine trend impact



ADVOCATE

Communicate findings



PREPARE

Develop plan of action

A blue-tinted photograph of a glass globe on a stand, with a laptop keyboard in the background. The globe is the central focus, showing a world map. The stand is made of clear glass. The laptop keyboard is visible in the background, slightly out of focus. The overall color scheme is blue and white.

MEGATRENDS

CONNECTIVITY AND CONVERGENCE

Big Data
Augmented Reality/ Virtual World
Connected Living
Space Jam
3D/4D Printing

COGNITIVE ERA

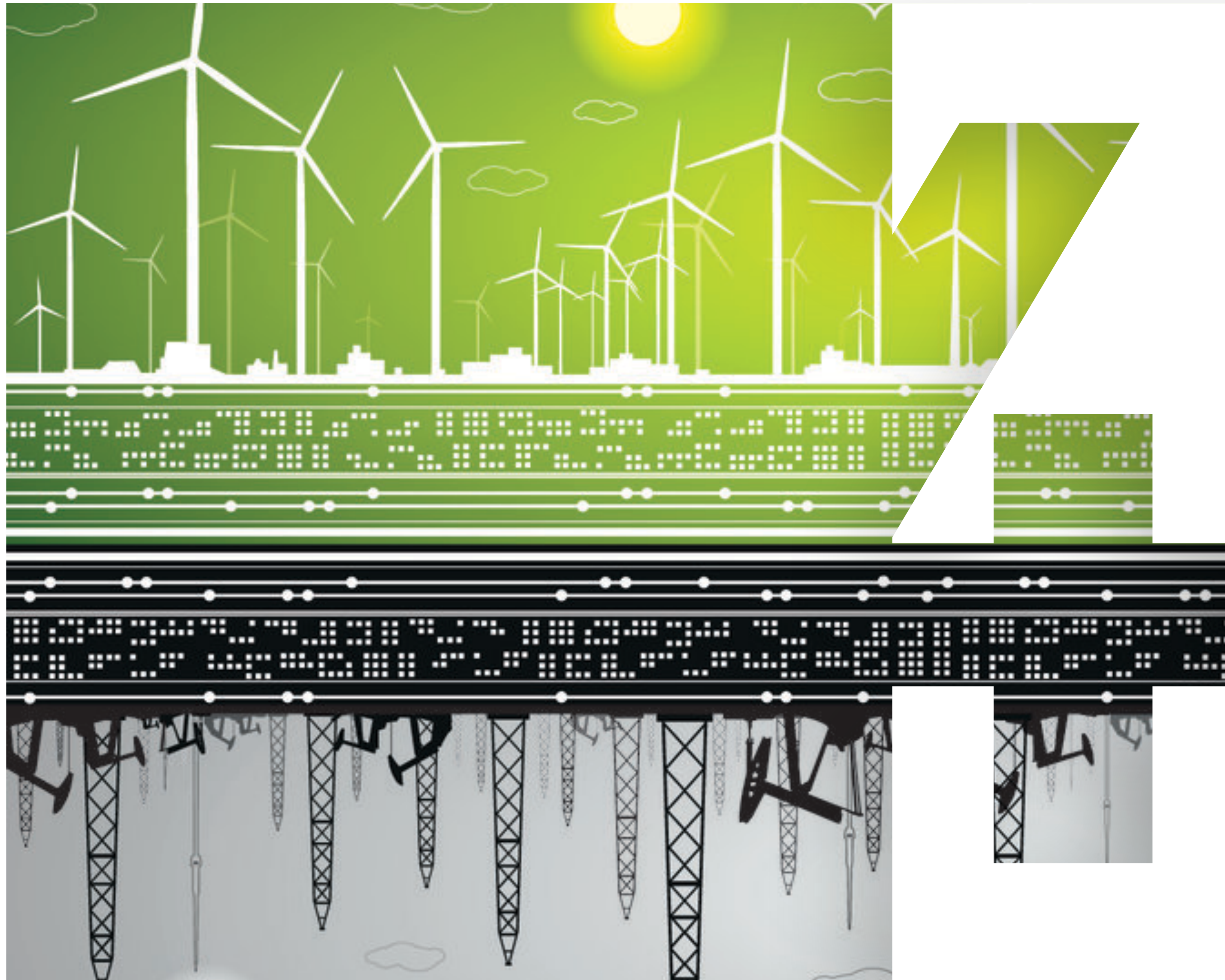
Machine Learning
Quantum Computing
Neuromorphic Computing





BRICKS AND CLICKS

Digital Kiosks
Interactive Stores
New Retail Logistics Models
Integrated Omni-channel
Marketing



SMART IS THE NEW GREEN

Smart Technologies
Smart Products
Smart Cities

SOCIAL TRENDS

Gen Z and Y
Reverse Brain Drain
Heterogeneous Society
She-economy
Middle Class



ECONOMIC TRENDS

Future of Resources
Africa as the Growing Market
Next Game Changers

URBANIZATION: CITY AS A CUSTOMER

Mega Corridors
Mega Cities
Mega Regions
Mega Slums



FUTURE OF INFRASTRUCTURE DEVELOPMENT

Transport Infrastructure

Deep Sea Mining

Future of Water Infrastructure

High-speed Rail

FUTURE OF ENERGY

Availability of Resources
Energy Harvesting
Smart Grids
Renewable Mix
Shale Gas





FUTURE OF MOBILITY

Micro-Mobility
Autonomous Cars
Telematics-based Insurance
Car Sharing
Connected Cars
Integrated Mobility

HEALTH WELLNESS & WELL-BEING

Mind, Body, Soul
eHealth, mHealth
Gene Therapy
Non-invasive Surgery



INNOVATING TO ZERO

Vision Zero at Work
Carbon Neutral Cities
Zero Target by Cities





STACKING TRENDS TO IDENTIFY OPPORTUNITIES

For example:

Cognitive Era

+

Connectivity and convergence

= Predictive analytics

Health

+

Connectivity and convergence

+

Special Trends

= Robo Assistants

**CLOSER TO
HOME....**

RESEARCH

Interdisciplinary
Team science
Funding priorities
International collaboration
Corporate partnerships
Open science

SCHOLARLY COMMUNICATIONS

M&A activity
Continued shift to open
Breakdown of Big Deal
Publishers becoming solutions
companies
Role of learned and professional
societies
Expansion of the record

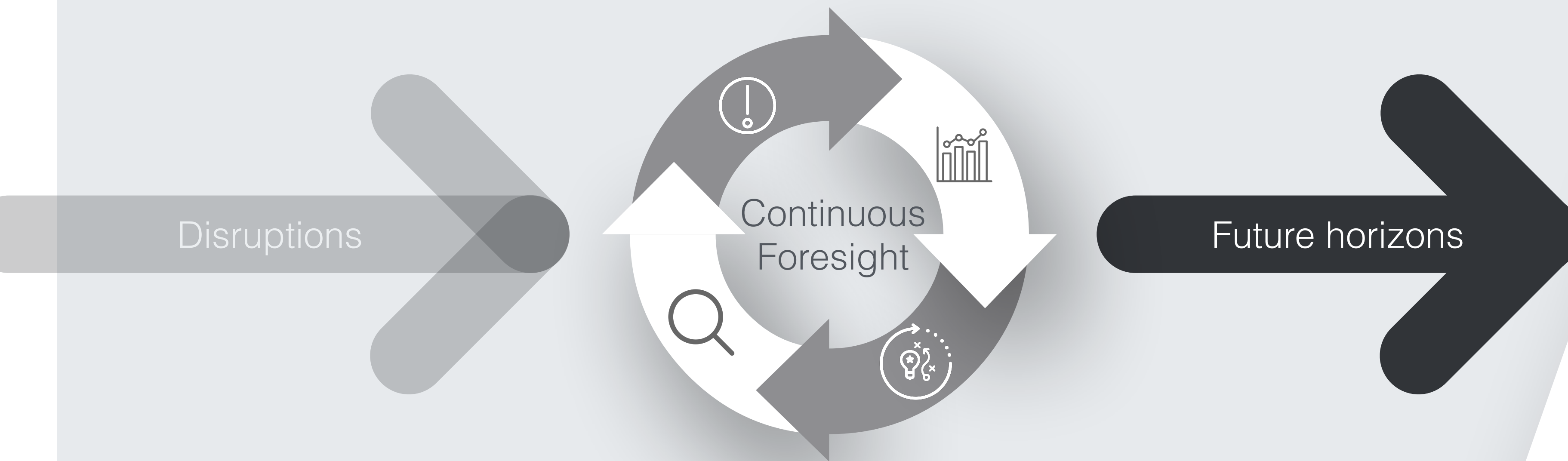


EVALUATION & IMPACT

Tighter funding drives demand for better assessment
Researchers making their mark
Evaluating collaboration
Impact of non-traditional outputs
Availability of more powerful analytics
Precision assessment

FROM FORESIGHT TO FUTURES

Need to develop a comprehensive way of identifying drivers and signals to thrive in future
We can use this approach to anticipate Elsevier moves and identify opportunities in our own organizations



“As businesses step into the post-coronavirus future, they need to find a balance between what worked before and what needs to happen to succeed in the next normal.”

INNOVATIVE BUSINESS MODELS

A new revenue model that defines how a company creates and capitalizes economic value, typically impacting its value proposition, product offering, operational strategies, and brand positioning.



ACM OA MODEL

Shifts customers into priced tiers based on article output and provides reading access

CUSTOMER VALUE CHAIN COMPRESSION

The compression in value chains as a result of advanced technologies, internet platforms, and other direct-to-consumer models that enables reduction in friction and the number of steps in customer journeys.



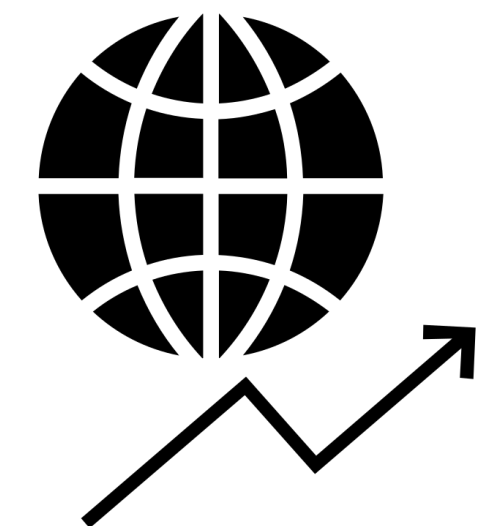
F1000

Researchers submit articles and data for immediate publication. Peer review and revisions follow.



TRANSFORMATIVE MEGA TRENDS

Global transformative forces of change that have a far-reaching impact on all industries, economies, and societies—and have been changing our future.

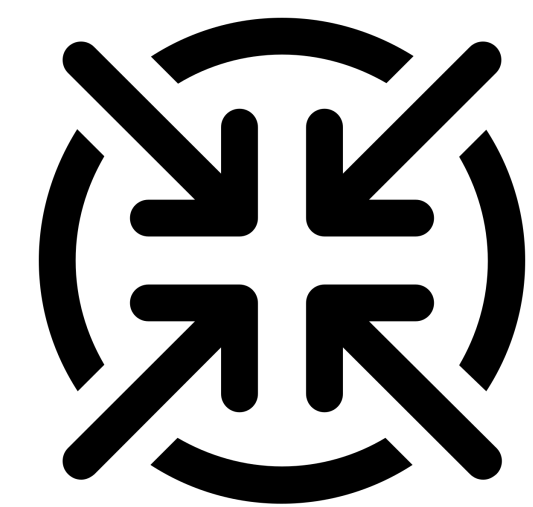


SOME PUBLISHERS

Resist open access at all costs, constraining author choice

INTERNAL CHALLENGES

The internal organizational behaviors that prevent a company from making required changes.



COMPETITIVE INTENSITY

The continual increase in the competitive environment wherein more vendors are competing aggressively on each customer, lead, or opportunity.



GROWTH OF PLATFORMS

Over past 20 years significant entrants into analytics space

GEOPOLITICAL CHAOS

Chaos and disorder arising from political discord, natural calamities, pandemics, and social unrest that impact global trade, collaboration, and business security.

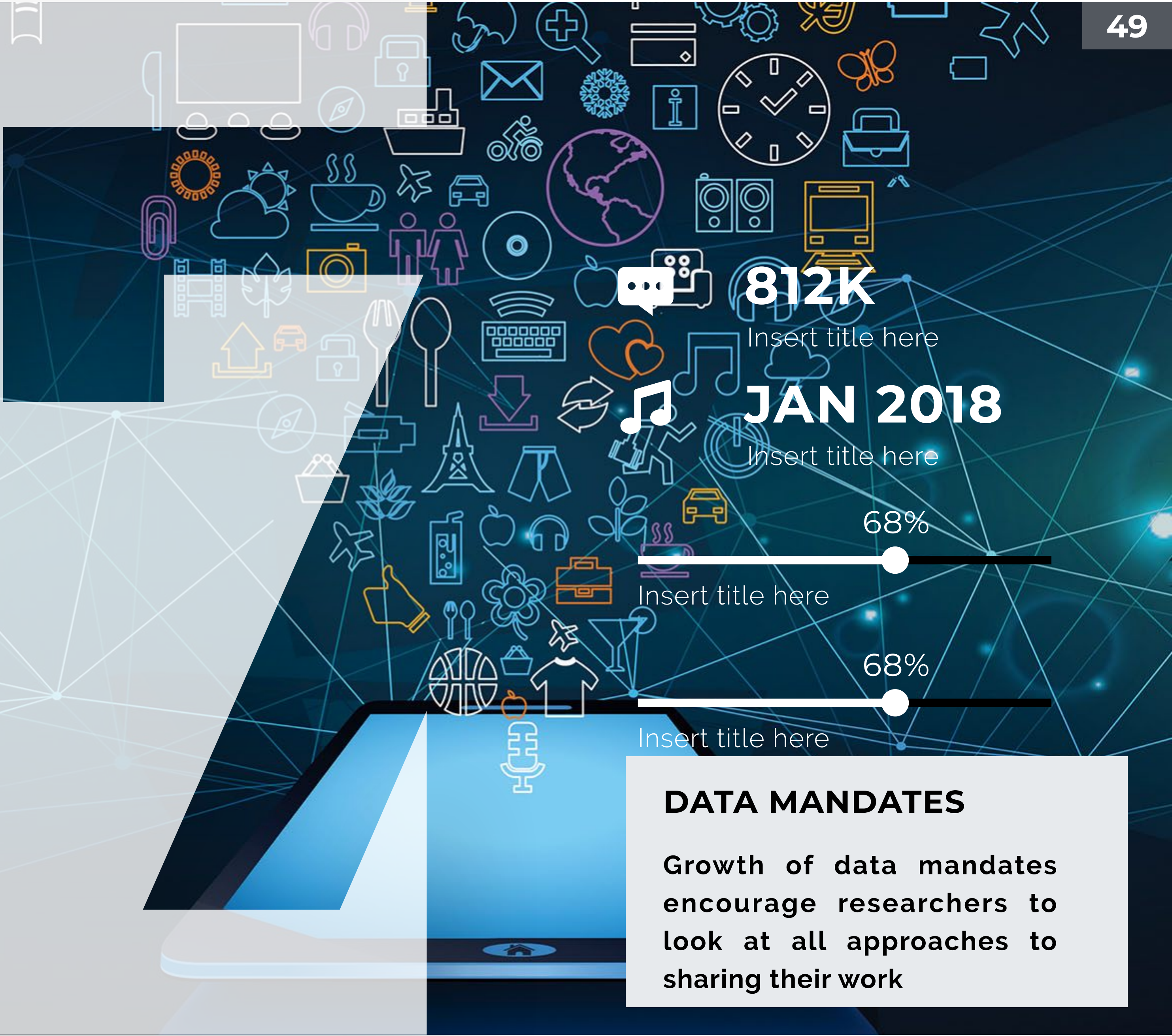
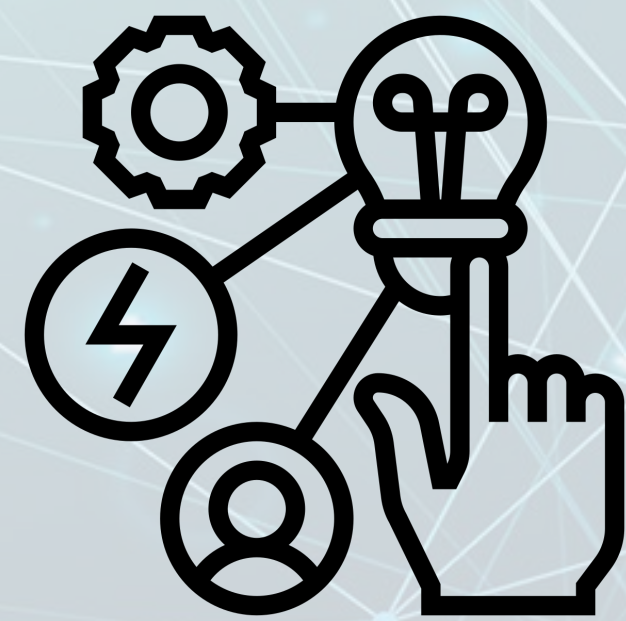


OPEN SCIENCE & COVID

Will the scientific community accept a return to pre-pandemic ways of doing research?

DISRUPTIVE TECHNOLOGIES

New disruptive technologies that are displacing the old and significantly altering the way consumers, industries, and businesses operate.



INDUSTRY CONVERGENCE

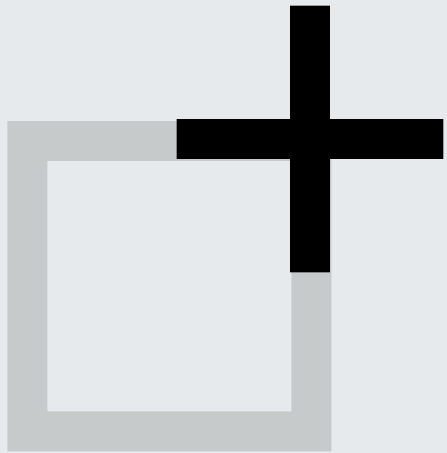
Collaboration between previously disparate industries to deliver on white space cross-industry experiences in customer applications, enabling technology, and other growth opportunities.



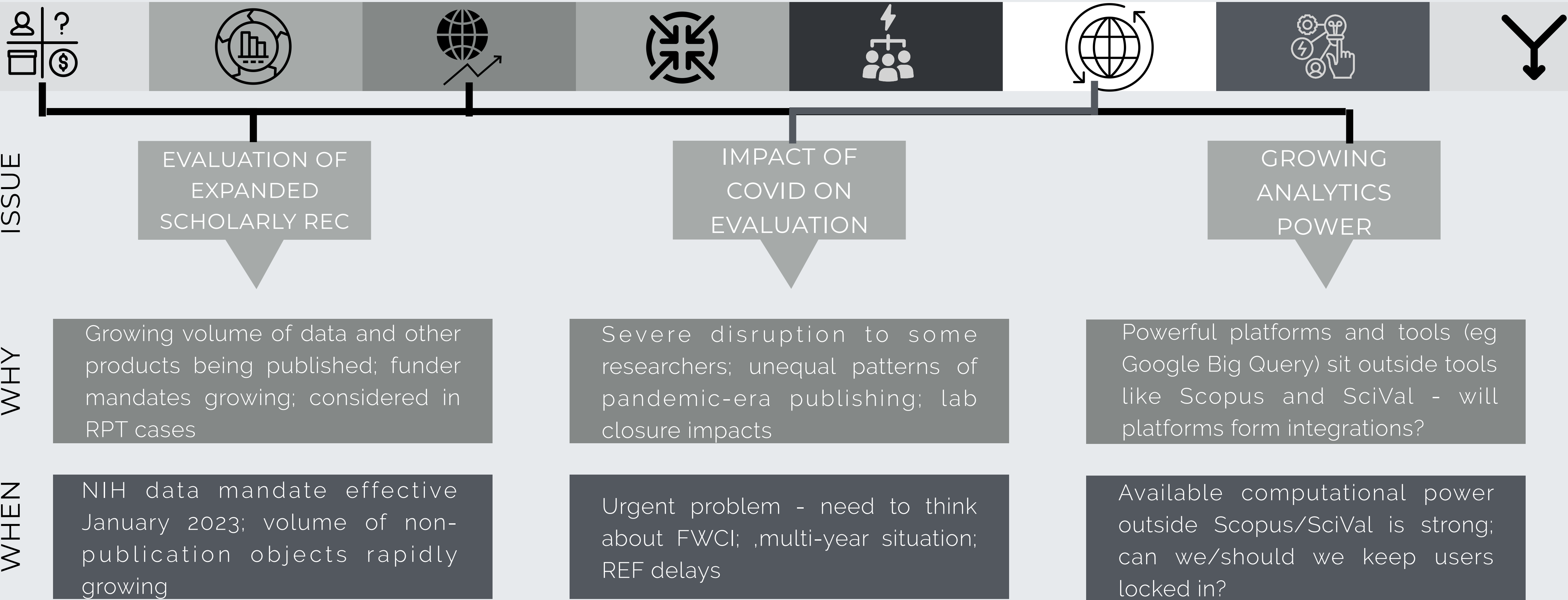
PORTFOLIO COMPANIES

Bringing together various aspects of research information workflow





STRATEGIC SHIFTS





EVALUATION BEYOND ARTICLES

How do we track scholarly contributions?

How do we incentivize behaviors? Give credit?

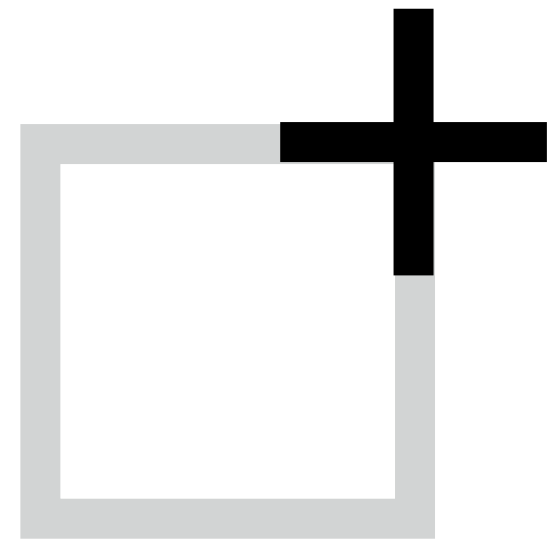
What will be the impact and trajectory of mandates?

How will objects be discovered and will this take away traffic from Scopus?

How do we recognize near term impact?

What's the role and impact of preprints?

How do we manage explosive burst of research eg COVID 19?



IMPACT OF COVID

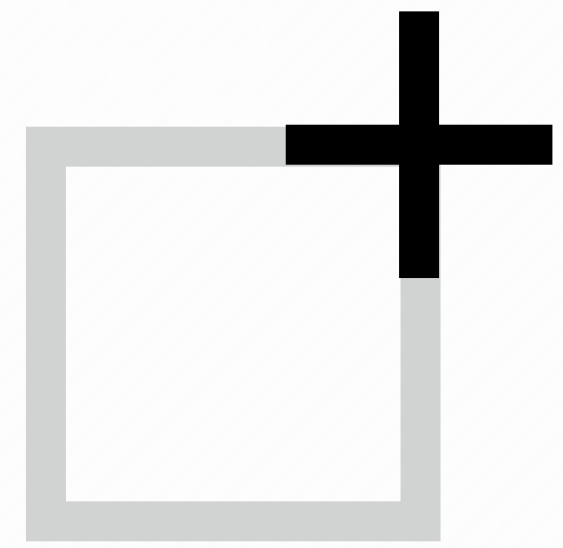
- 1** Productivity hampered - the pandemic exacerbated disparities and closed labs and grants
- 2** Shifting research funds to COVID work, and vast “bubble” of COVID material
- 3** Impacts on scholarship will persist for years - how do we adjust evaluation criteria such as citations and funds? How to reward mentoring?



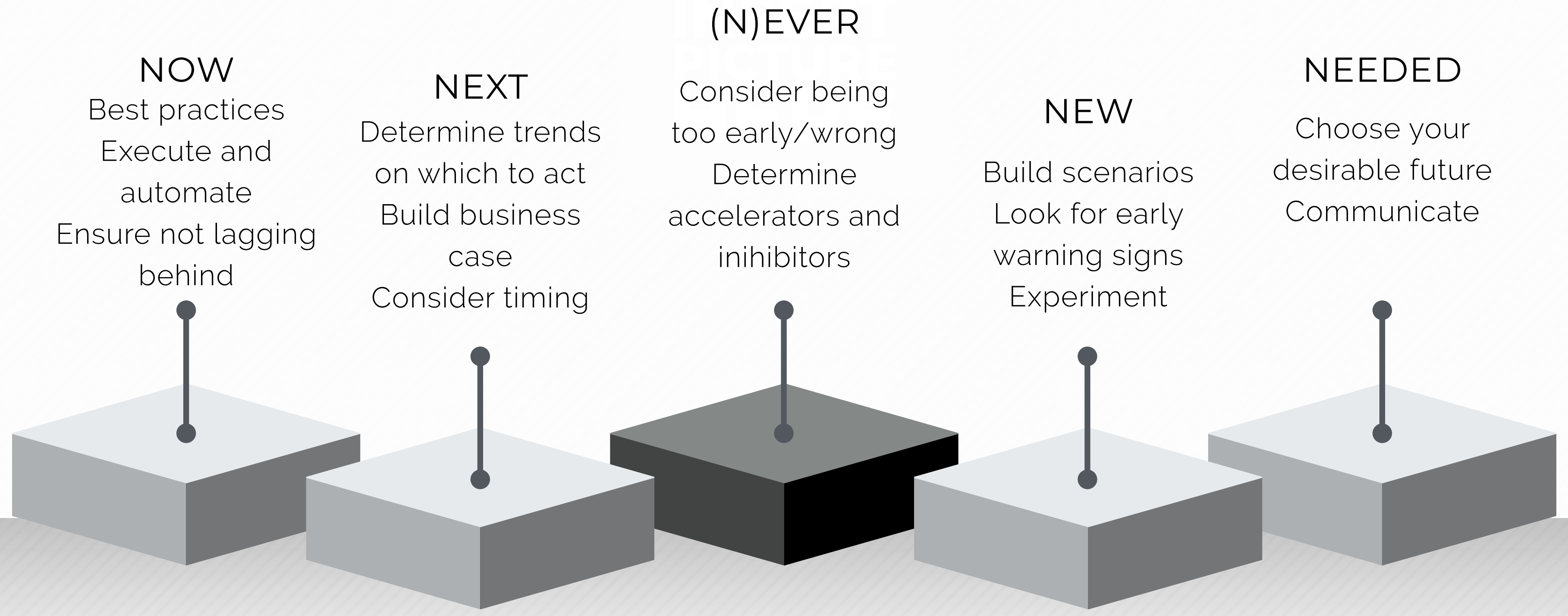


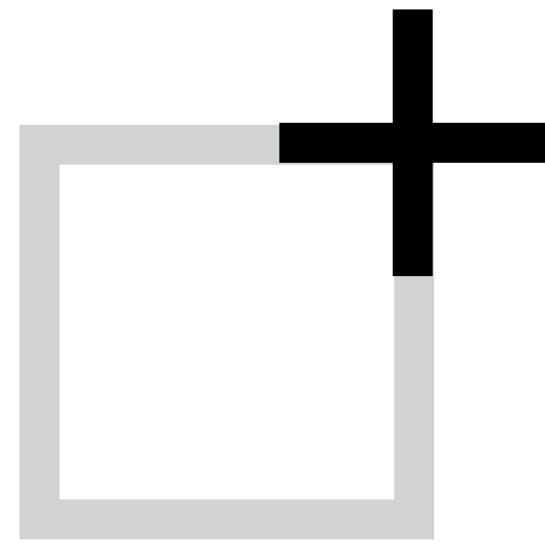
NEW TOOLS FOR EVALUATION

The emergence of powerful tools such as Google BigQuery offer new ways to work with data. Institutional approaches to evaluation and leadership dashboards create competition. What's the link between Scopus and SciVal and CRIS systems (especially ones that are not called Pure?)



PLANNING YOUR NEXT STEPS





FUNDER ASSESSMENT



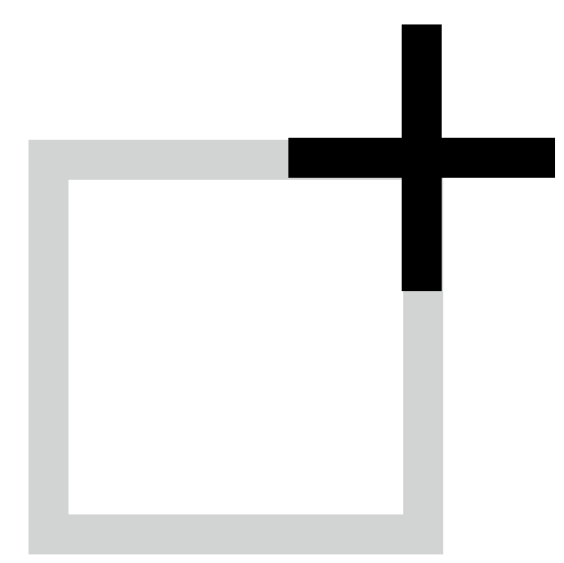
Assessment and evaluation conducted during funding rounds by federal, foundation and other research funders

National research assessment exercises in Australia, UK, etc all drive demand for analytics tools with impact on content and functional developments as well as customer base

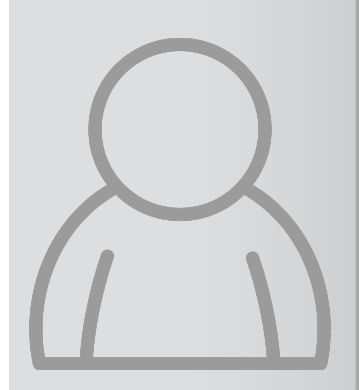


State of Australian
University Research
2018-19
ERA National Report

REF2021 Research
Excellence
Framework

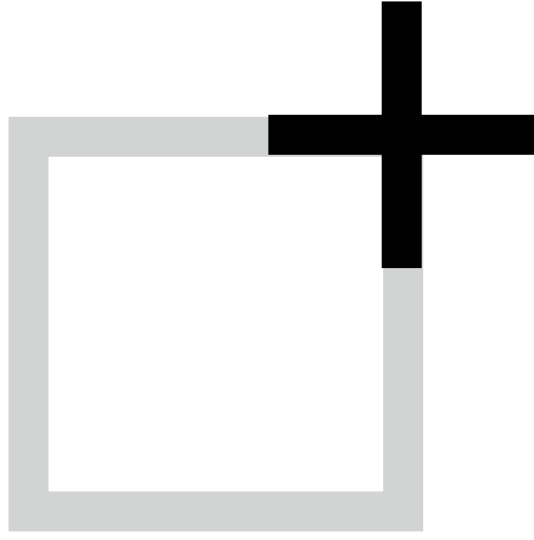


RANKINGS

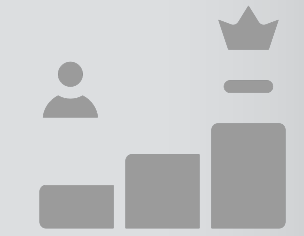


Global, national, disciplinary rankings all draw upon analytics services. Universities want to model and anticipate, and to validate.





INSTITUTIONS



Universities wish to evaluate research activity as part of periodic reviews of departments. Research impact is used to demonstrate wider reach, such as economic impact, and to showcase research. It can also be used for modeling - for example to optimize research groups, and to identify collaborators and potential hires.

UNIVERSITY OF CALIFORNIA
RESEARCH INITIATIVES

ABOUT | CONTACT

Search

PROGRAMS & INITIATIVES | OPEN OPPORTUNITIES | **IMPACT** | RESEARCH HIGHLIGHTS

» ADVANCING UC'S RESEARCH MISSION

» BENEFITING CALIFORNIA

» SUPPORTING UC FACULTY

IMPACT

We invest in research that benefits UC and California

Carnegie Mellon University ★

United States

More details on this Institution

2011 to 2020 All subject areas ASJC

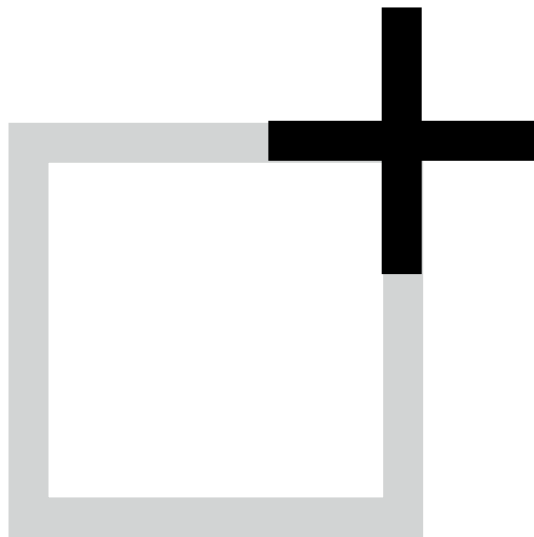
Summary Topics Rankings Collaboration Published Viewed Cited Authors Economic Impact Societal Impact Awarded Grants

Overall research performance

40,180 ▲
Scholarly Output ⓘ

14,085 ▲
Authors

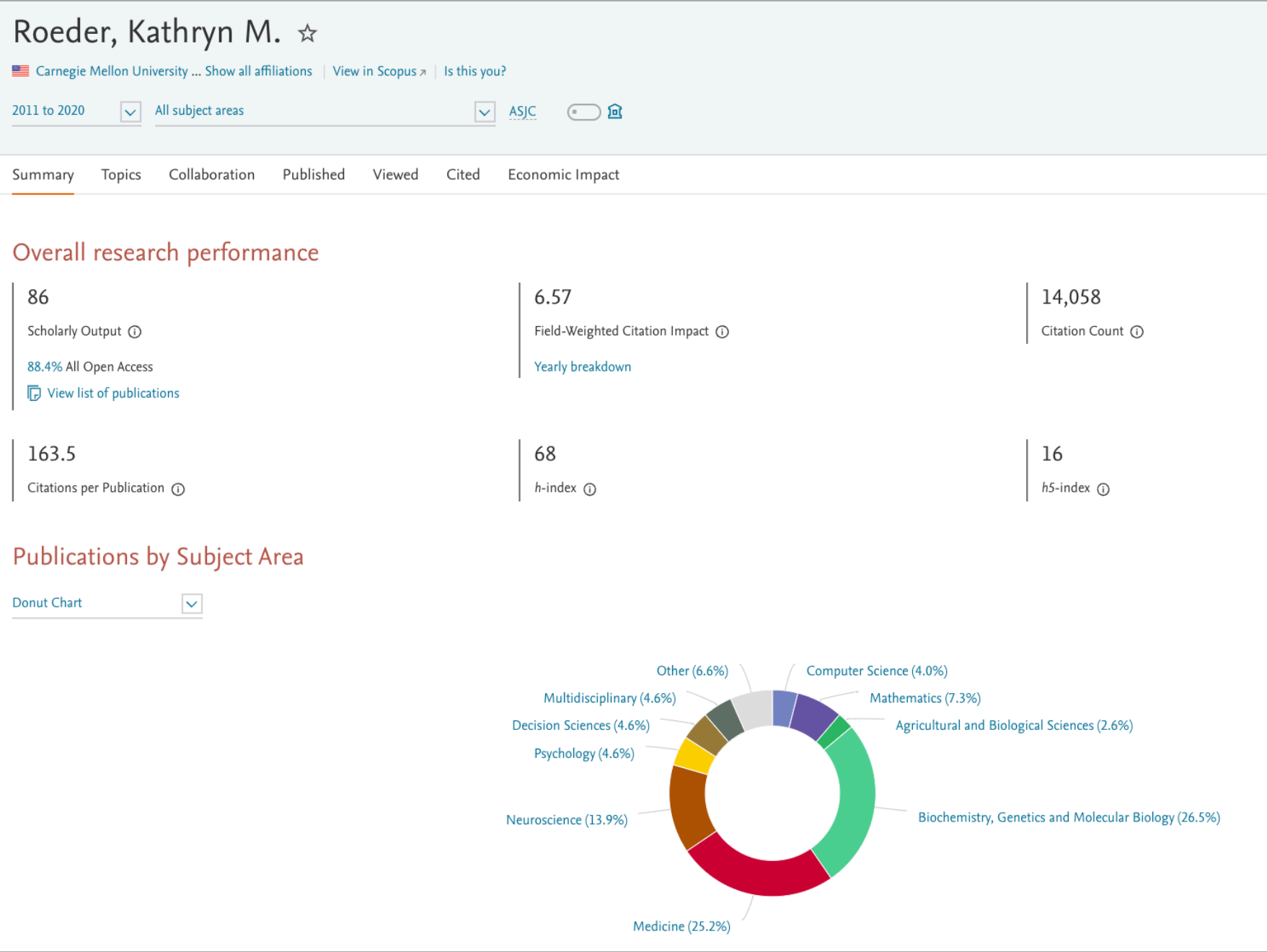
2.44
Field-Weighted Citation Impact



INDIVIDUALS



Individuals evaluate their research and its impact to support promotion and tenure cases and to enhance research grant applications. They also wish to find collaborators and graduate students. The use of alternative metrics is favored by many, especially in fields where social media is a primary communication approach.



GREATER FOCUS ON IMPACT

Adapted from: Assessing the impact of healthcare research: A systematic review of methodological frameworks
<https://doi.org/10.1371/journal.pmed.1002370>

1 PRIMARY RESEARCH RELATED IMPACT

Publications, citations,
dissemination,
collaborations

2 INFLUENCE ON POLICY MAKING

Level of policy
making, nature of
impact, collaboration
with industry and govt

3 HEALTH & HEALTH SYSTEMS IMPACT

Evidence based
practice, quality of
care, health workforce

4 SOCIETAL IMPACT

Health literacy,
knowledge, social
inclusion

5 ECONOMIC IMPACT

R&D investment,
royalties and IP
revenue, spin-off
companies

6 READILY EXTENSIBLE

To other fields.....

WE CAN'T DO THIS ALONE!

Partnerships with information and analytics companies like Elsevier can help us in achieving our organization's goals

Sharing expertise and experiences at conferences like this is critical.

Again, welcome, virtually, to CMU - have a great conference!

