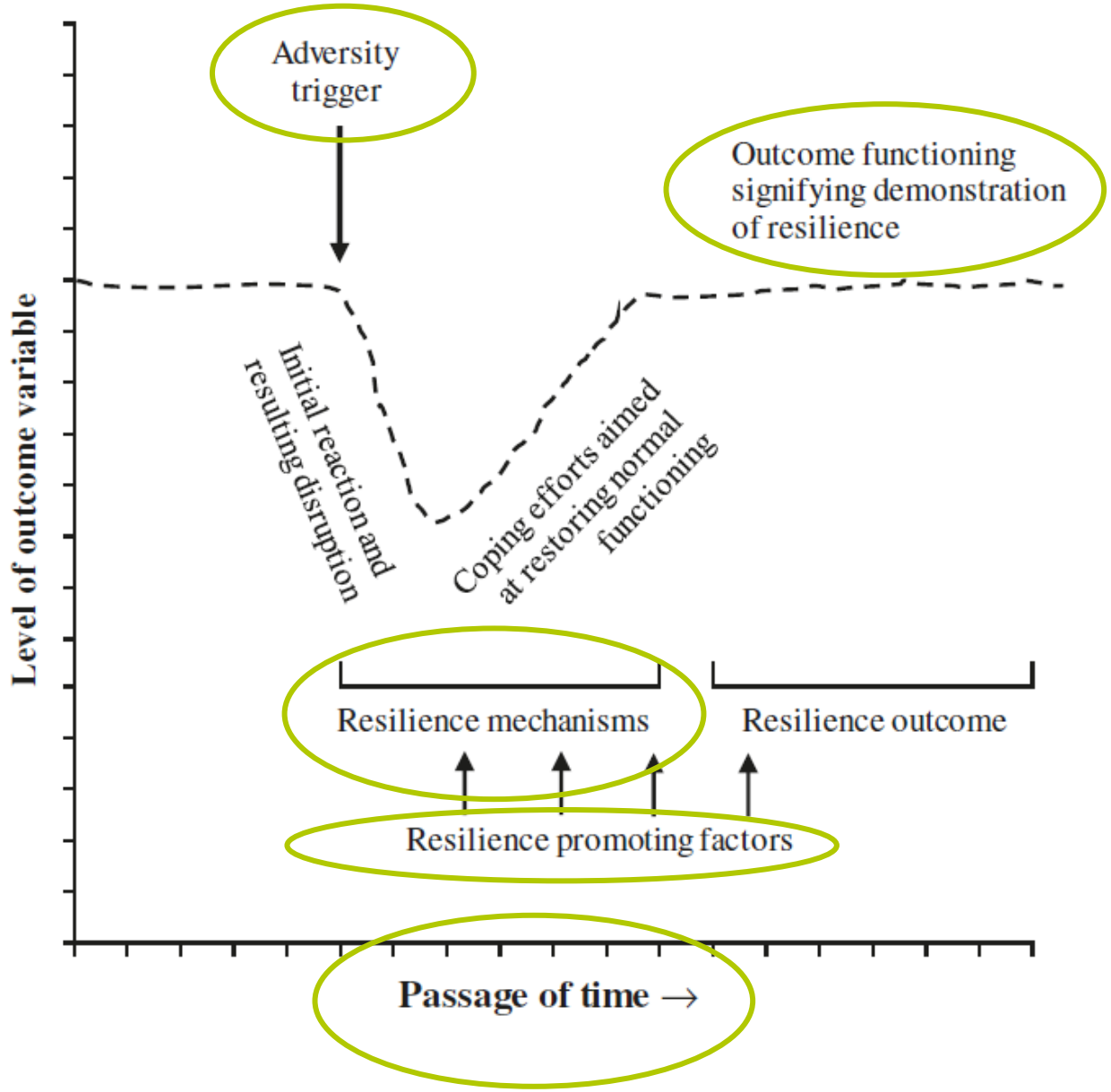
Resilient science: Crossing disciplinary and international boundaries

Prof. Dr. Thomas Rigotti

Agenda

- Resilience as a process that unfolds over time
- Potential threats and challenges to scientific collaboration
- Some ideas to cope with threats and challenges in scientific collaborations

Integration of Different Aspects



1. **Adversity** (external threat to the system) as conditio sine qua non
2. **Outcome:** Need to define outcome variable (e.g. mental health, cognitive functioning → resilient ageing)
3. **Definition of the Time Frame** (minutes, days, years, decades, centuries)
4. **Mechanisms on different levels** (from molecules to behavior, to systemic processes)
5. **Resilience Promoting factors** (Internal / External; Resilience as a transactional process between individual [or other systems] and environmental factors)

Fisher et al. (2019)

Threats and Adversities to Scientific Collaborations

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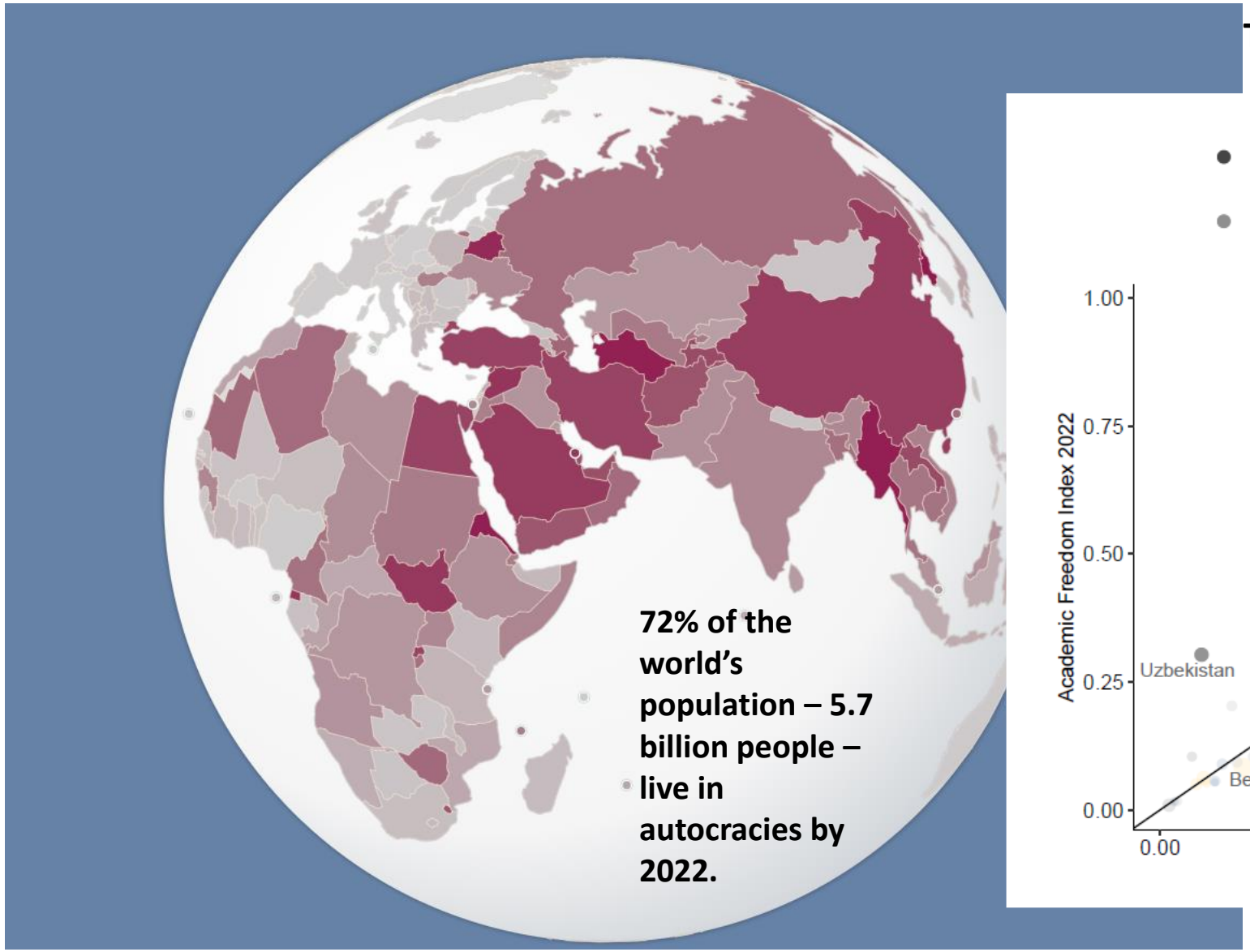
Major Threats

- Academic freedom declines on a global level
- Growing scientific skepticism
- Potential decrease in public funding
- Most money spent on research by institutions that are not interested in sharing results
- Scientific misconduct

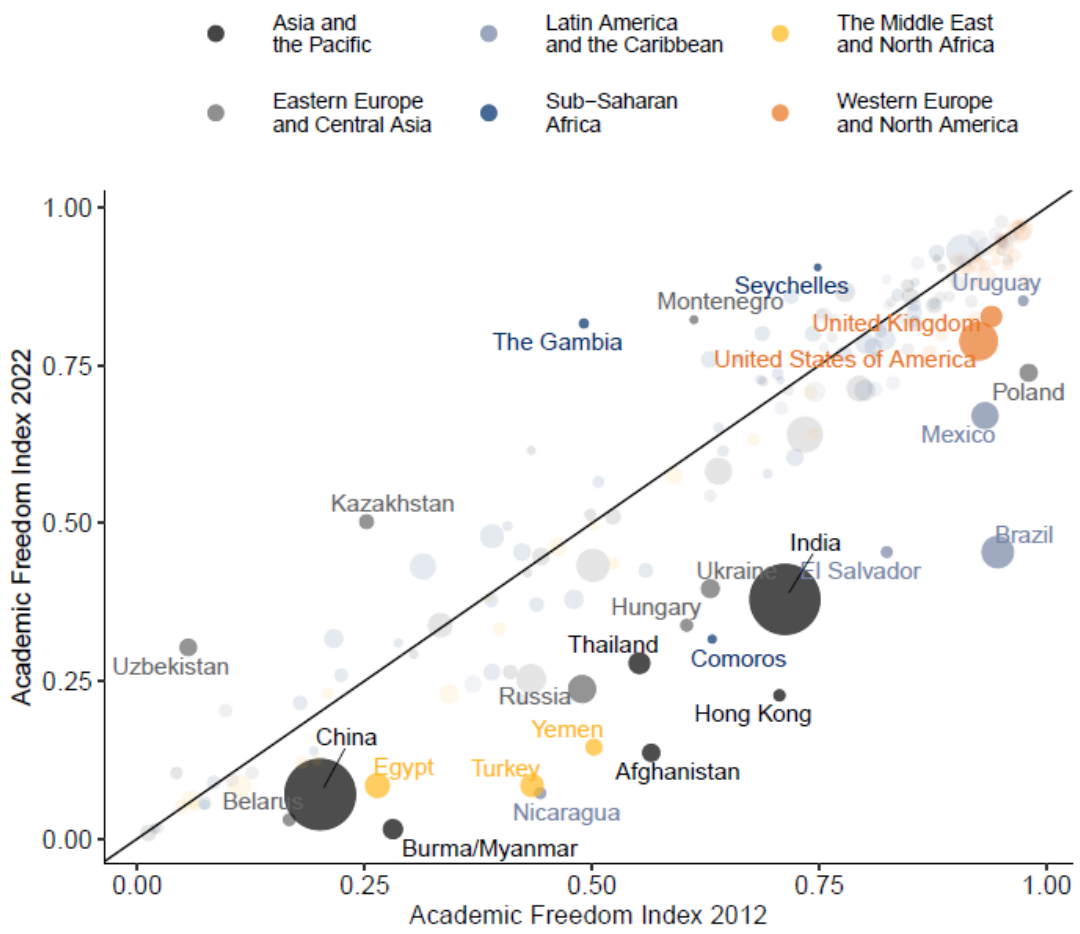
Major Challenges of Inter-, and Transdicplinary research

- Finding a common language
- To obtain funding is difficult
- Careers in academia are mainly built within a discipline
- Shortage of publication outlets for cross-disciplinary research
- Data protection laws
- Finding appropriate reviewers (for grant proposals, manuscripts,..)

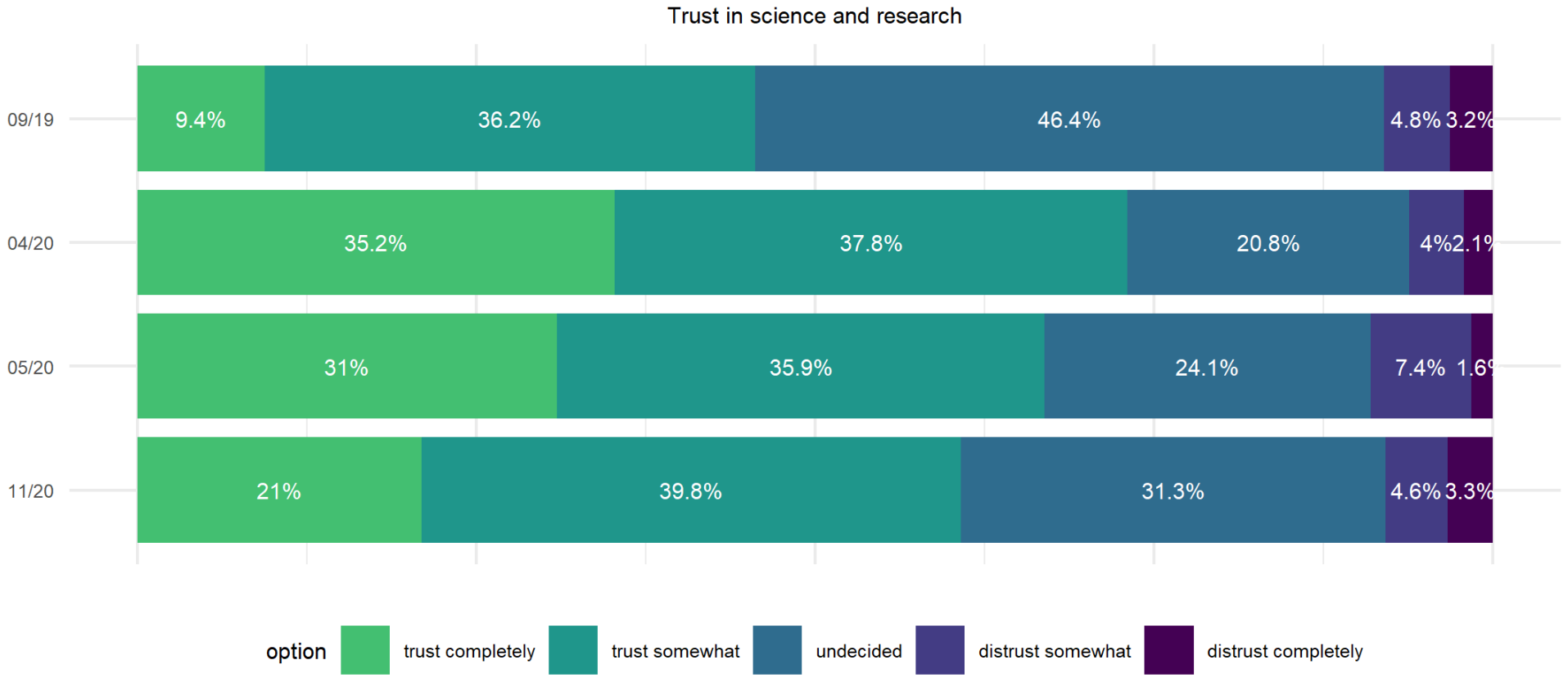
Academic Freedom Index



The State of Academic Freedom Worldwide



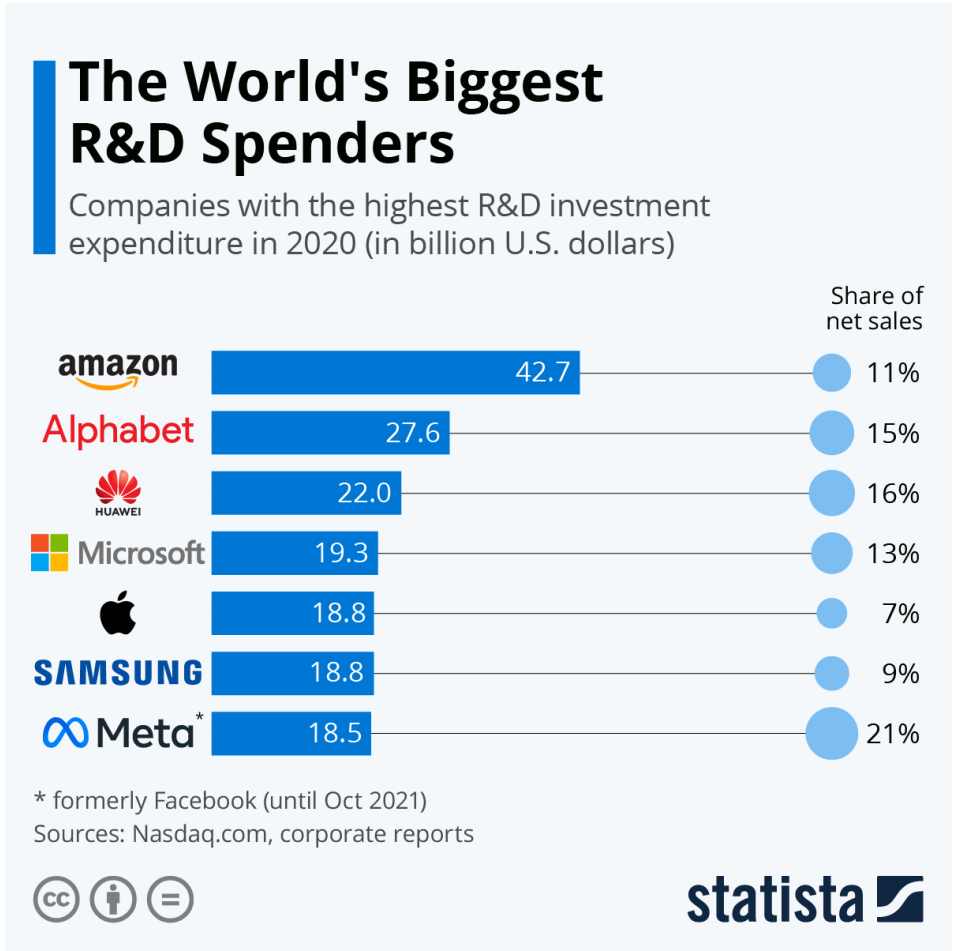
Science Skepticism

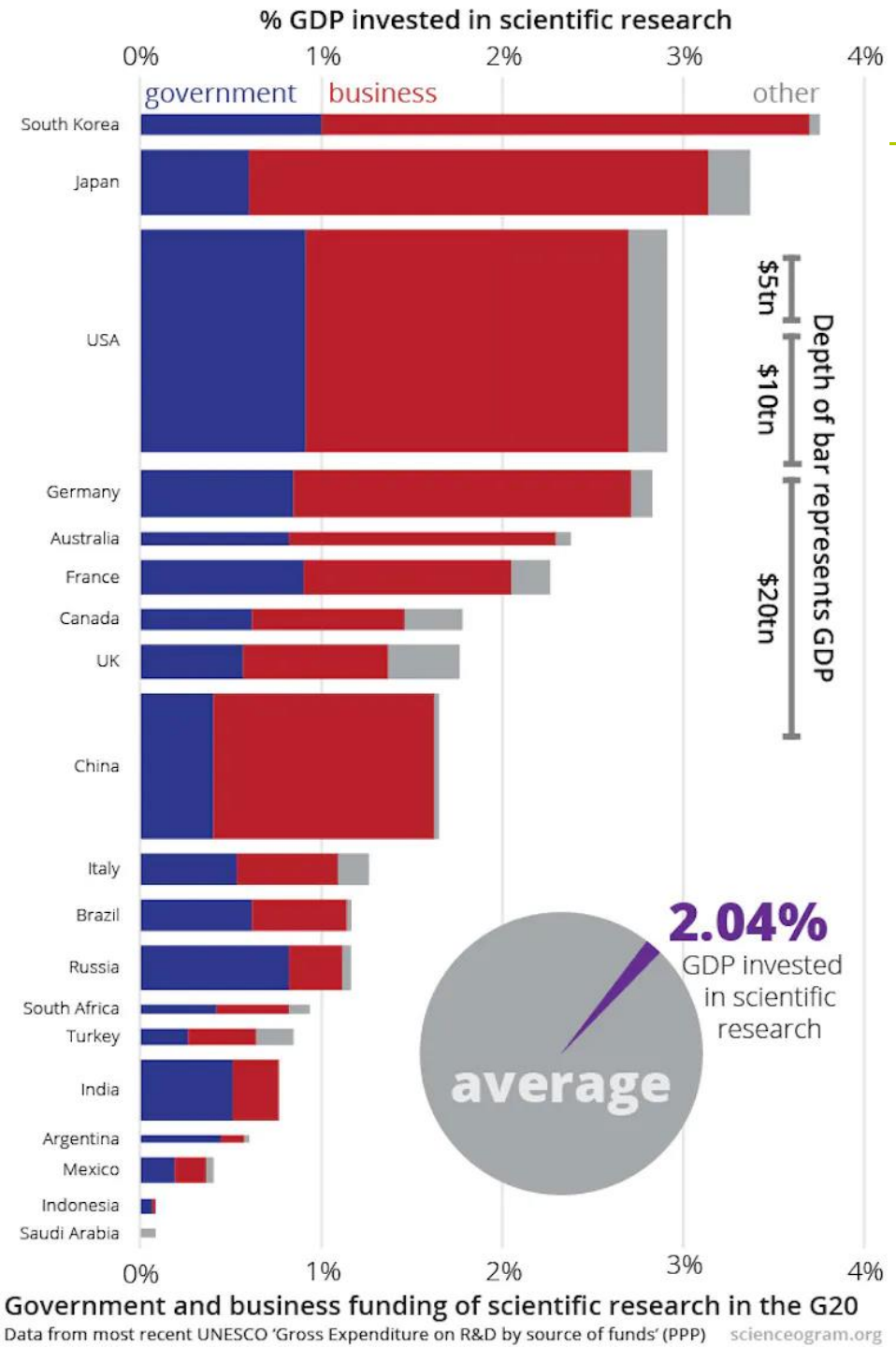


Participants at the March for Science in New York demand, "Believe scientific facts, not alternative facts" in 2017 (AFP / Bryan R. Smith)

Bromme, R., Mede, N. G., Thomm, E., Kremer, B., & Ziegler, R. (2022). An anchor in troubled times: Trust in science before and within the COVID-19 pandemic. *PloS one*, *17*(2), e0262823.

The bigger share of research is private





Social Faultlines

Schilbach, M., Selenko, E., Baethge, A. & Rigotti, T. (2022). Work in times of Brexit: Explanatory mechanisms linking macropolitical events with employee well-being. *European Journal of Work and Organizational Psychology.* https://doi.org/10.1080/1359432X.2021.2019709

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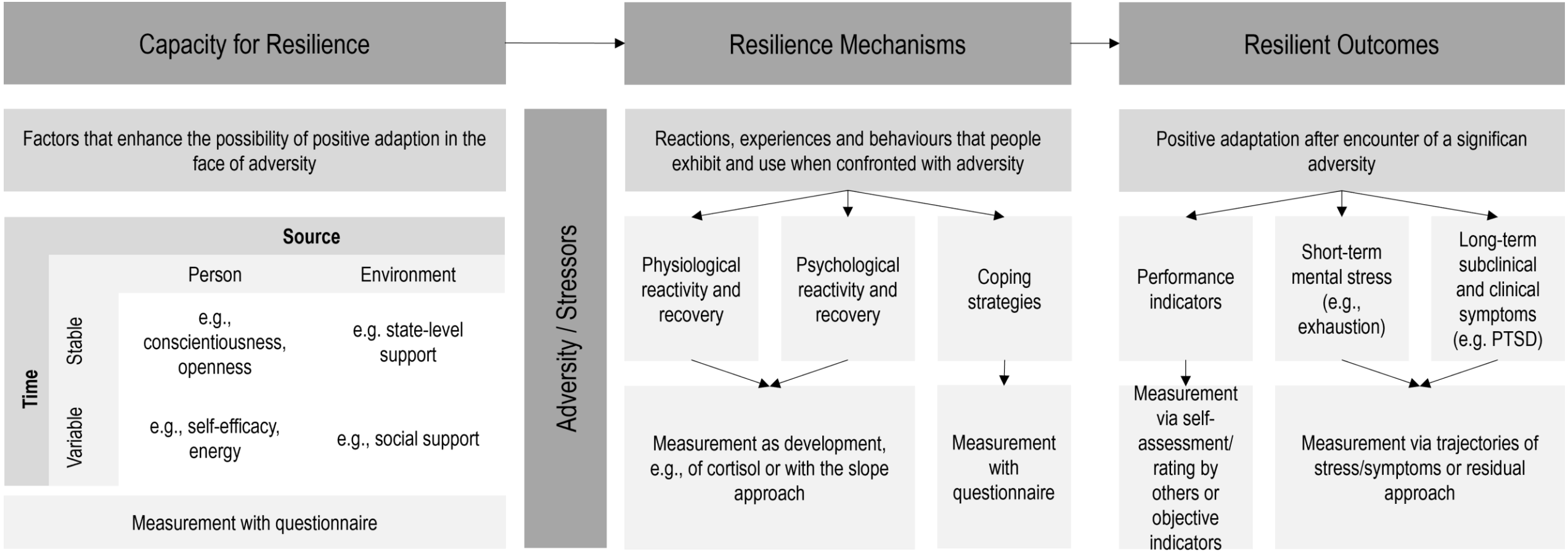
A Resilience Framework Adapted to Scientific Collaboration



Arnold, M., Schilbach, M., & Rigotti, T. (2023). Paradigmen der psychologischen Resilienzforschung. *Psychologische Rundschau*

Five Pillars for Scientific Collaborations

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Five Pillars of International Research Collaboration

Trust	Common Goals	Communication	Openness	Strategy
The ability of research partners and counries to which they belong, to work effectively together requires high levels of trust	The presence of a shared set of goals allows partners to focus their efforts and make effective decisions in harnessing resources necessary for collaboration	The sharing of data, the ability to interact both face-to-face and virtually, a common language, and a range of tools to support collaborative research	Open access to resources, data, skills and talent can promote collaboration; however, this must be balanced against security risks	The collection or resources, infrastructure, and programs designed to support research, training, and mobility for a nation through both the public and private sectors

Global science for global challenges: paths towards securing international scientific collaboration — Frontiers Policy Labs (frontiersin.org)

Resilient cross-national, inter-, and trans-disciplinary research

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R isks and opportunities | Anticipate threats and challenges, and prepare to cope with them

E stablish joint standards| Agreements on tools, quality assessments, communication rules

S afeguards | Establish a shared ethical climate and encourage open communication on potential misconduct

I nvest in building trust | Allow for face-to-face interaction, Leadership Training

L earn from each other | Keep open minded, and patient in reaching a shared understanding of concepts

I ntegrate results| Combine results from different disciplines to an integrative approach

E xperiment | Don‘t stick to established methods within disciplines – try out new things

N egotiate common grounds| Define concepts in a way that is both specific and flexible

T ranslate | Can Concepts and results be transferred between disciplines and cultural settings?

Thank you!

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