A NASEM Roundtable:
Aligning Incentives for Open Science

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Humans are innately scientists

• Curious, driven to understand ourselves and the universe around us

• Those who seek to become professional scientists are motivated by the excitement of bold, impactful discovery, of finding/understanding something unexpected and important
What are the sources of scientific discovery?

• Bold, impactful discoveries commonly emerge from synthesis and synergy – bringing together ideas and people to understand the relationship of seemingly disparate concepts or observations, and realizing the significance and potential of that relationship.

• Synthesis and synergy are driven by open science – transdisciplinary teams, risk-taking, data sharing, rapid/broad dissemination of discoveries, shared credit.
Outcomes of open science

- Impactful discovery
- Rapid and rigorous testing of new ideas
- Diverse participation in research
- Effective use of resources
- Efficient application of fundamental discoveries

However...
Incentives and rewards are misaligned with open science

• Our incentive and reward system for educating, hiring, promoting, recognizing scientists, and for funding and communicating science, is conservative, incremental, risk-punitive, and focused on individual achievement that fosters isolation and hyper-competition.

• To survive, trainees and scientists sacrifice their goals of bold, impactful discovery – the goals that beckoned them into science, and that motivate the best science.
How align incentives and rewards with open science?

• A multi-sector, multi-stakeholder challenge

• A NASEM Roundtable – academia, libraries, disciplinary societies and alliances, foundation funders, government funders
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- **Academia**
  - Danny Anderson, President, Trinity University
  - Roslyn Clark Artis, President, Benedict College
  - Michael Crow, President, Arizona State University
  - Mark Cullen, Sr Associate Dean for Research, School of Medicine; Stanford University
  - Ronald Daniels, President, Johns Hopkins University
  - Tashni-Ann Dubroy, Chief Operating Officer, Howard University
  - Randolph Hall, Vice President for Research and Professor, University of Southern California
  - Renu Khator, President, University of Houston
  - Richard McCullough, Vice Provost for Research, Harvard University
  - Robert Robbins, President, University of Arizona
  - Shirley Tilghman, President Emerita, Princeton University
  - Roger Wakimoto, Vice Chancellor for Research, UCLA
  - Keith Yamamoto, Vice Chancellor for Science Policy & Strategy, UCSF

- **Libraries**
  - Chris Bourg, Director of Libraries, Massachusetts Institute of Technology
  - Loretta Parham, CEO & Director, Atlanta University Center Woodruff Library
  - Jerry Sheehan, Deputy Director, National Library of Medicine, National Institutes of Health
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- Foundations, Funders
  - Courtney Brown, Vice President for Strategic Impact, Lumina Foundation
  - Stuart Buck, Vice President of Research, Arnold Ventures
  - Anne-Marie Coriat, Head of UK and Europe Research Landscape, Wellcome Trust
  - Susan Fitzpatrick, President, James S. McDonnell Foundation
  - Maryrose Franko, Executive Director, Health Research Alliance
  - Nicholas Gibson, Senior Program Officer, Human Sciences, John Templeton Foundation
  - Daniel Goroff, Vice President and Program Director, Alfred P. Sloan Foundation
  - Patricia Hswe, Scholarly Communications Officer, Andrew W. Mellon Foundation
  - Adam Jones, Program Officer, Science Program, Gordon and Betty Moore Foundation
  - Tom Kalil, Chief Innovation Officer, Schmidt Futures
  - Boyana Konforti, Director, Scientific Strategy & Development, HHMI
  - Ross Mounce, Director of Open Access Programs, Arcadia
  - Dawid Potgieter, Senior Program Officer, Templeton World Charity Foundation
  - Brian Quinn, Asst VP, Research-Evaluation-Learning, Robert Wood Johnson Foundation
  - Thomas Wang, Chair, Open Science Committee, American Heart Association
  - Jennifer Weisman, Director, Global Health Division, Bill & Melinda Gates Foundation
  - Garabet Yeretzssian, Director, Crohn’s Disease Program, Helmsley Charitable Trust
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• Government, Funders
  Elizabeth Albro, Commissioner, Center for Education Research, U.S. Dept of Education
  Jean-Claude Burgelman, Director, Research & Innovation, European Commission
  Robert Hanisch, Director, Office of Data and Informatics, NIST
  Lisa Nichols, Asst Director for Academic Engagement, OSTP
  Alan Tomkins, Deputy Director, Social, Behavioral & Economic Sciences, NSF
  Duncan Wingham, Exec Chair, Natural Environment Research, UK Research & Innovation

• Professional Societies and Alliances
  Mary Sue Coleman, President, AAU
  Peter McPherson, President, APLU
  Heather Pierce, Senior Director, Science Policy and Regulatory Counsel, AAMC
  Richard Wilder, Dir, Business Development, Coalition for Epidemic Preparedness Innovations

• Project Coordinators and NASEM Staff
  Greg Tananbaum, Open Research Funders Group
  Heather Joseph, SPARC
  Tom Arrison, Program Director, Policy and Global Affairs, NASEM
  George Strawn, Director, Board on Research Data and Information, NASEM
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The Charge:

• **Convene key stakeholders** – academic leaders, researchers, librarians, funding agencies, foundations, learned societies, publishers and infrastructure developers.

• **Gain insight** on the current state of the research ecosystem, specifically, the barriers and challenges of current incentives to achieving open science

• **Derive and implement a strategy** to mitigate disincentives and align incentives to support the missions and values of open science at scale

Public Symposium ⇒ Working Groups ⇒ Toolkit ⇒ Coalitions of the Willing