

# Open Science in Transportation Welcoming Remarks: Setting a U.S. Context

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# *Open Science by Design: Realizing a Vision for 21st Century Research*

- Benefits and Motivations of Open Science
  - Rigor and Reliability
  - Ability to address new questions
  - Faster and more inclusive dissemination of knowledge
  - Broader participation in research
  - Effective use of resources
  - Improved performance of research tasks
  - Open publication for public benefit
- Barriers and Limitations of Open Science
  - Costs and infrastructure
  - Structure of scholarly communications
  - Lack of supportive culture, incentives and training
  - Privacy, security, and proprietary barriers to sharing
  - Disciplinary differences



# *Open Science by Design: Realizing a Vision for 21st Century Research*

- Recommendations and Implementation Actions
  - Create a culture that actively supports Open Science by Design by better rewarding and supporting researchers engaged in open science practices
  - Train students and other researchers to implement open science practices effectively; support development of educational programs
  - Develop policies and procedures to identify the data, code, specimens, and other research products that should be preserved for long-term public availability; provide resources for long-term preservation and stewardship
  - Research archives should be designed and implemented according to FAIR (Findable-Accessible-Interoperable-Reusable) principles
- <https://www.nap.edu/catalog/25116/open-science-by-design-realizing-a-vision-for-21st-century>



# Transportation Open Science in the United States

- 2013: White House Memorandum for the Heads of Executive Departments and Agencies entitled “Increasing Access to the Results of Federally Funded Scientific Research.”
- 2015: USDOT Access Plan “establishes objectives to ensure public access to Publications and Digital Data Sets arising from DOT-managed research and development (R&D) programs.”  
<https://www.transportation.gov/mission/open/official-dot-public-access-plan-v11>
- Digital data sets, in addition to final reports and any other publications produced by federally funded projects have to be submitted to the National Transportation Library for indexing in the Repository & Open Science Access Portal (ROSA P) where they are publicly searchable and accessible.  
(<https://rosap.ntl.bts.gov/welcome>)

# Challenges to Achieving Open Science

- There are still many challenges to achieving open science in the United States.
- National Academies Roundtable on Aligning Incentives for Open Science
  1. Enhancing provost and chair conversations to increase the open sharing of research outputs;
  2. Identifying stakeholder gaps to accelerate adoption and harmonization;
  3. Sending signals (the “nudge” form) to researchers that open science is valued;
  4. Examining good practices for open science;
  5. Rewarding open science activities through success stories;
  6. Reimagining outputs to facilitate dissemination, reproducibility and replication, discussion, and curation.
- This workshop is a great opportunity to learn from global partners on what has worked and challenges and opportunities that remain.