



IDEAS • CHALLENGE

ADVANCED RESEARCH PROJECTS AGENCY • INFRASTRUCTURE



ARPA-I Ideas Challenge - Stage 1 Webinar
August 20, 2025

Disclaimer

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Webinar Protocol

- Attendee Microphones and Cameras are disabled for this webinar.
- You are welcome to ask questions via the Question and Answer (Q&A) tool located on the Zoom toolbar.
- This webinar is being recorded. This recording will be posted at a later date to the Ideas Challenge website:
<https://www.transportation.gov/arpa-i/ideas-challenge>
- If you experience any technical difficulties during this event, please email ideas.ARPA-I@dot.gov.

Agenda

- Welcome / Introduction
- ARPA-I Overview
- Ideas and Innovation Challenge Solicitation
- Questions and Answers



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Presenters



Lee White

Deputy Assistant Secretary, Office of the
Assistant Secretary for Research and Technology
U.S. Department of Transportation



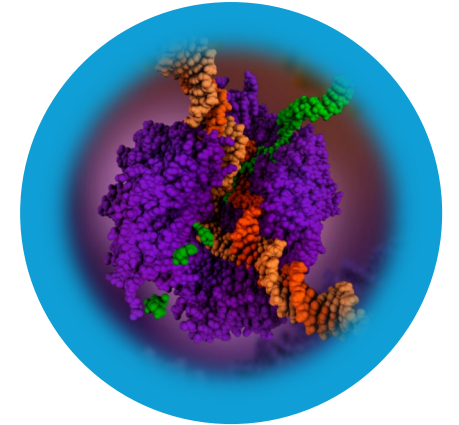
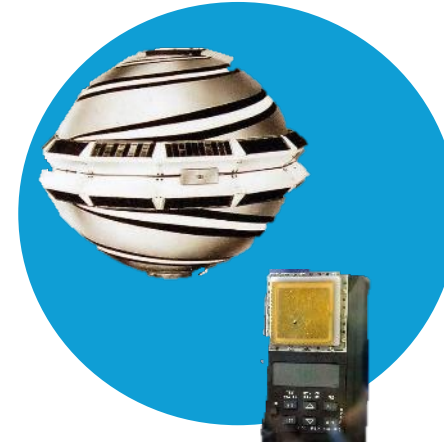
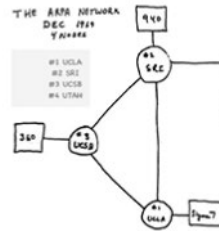
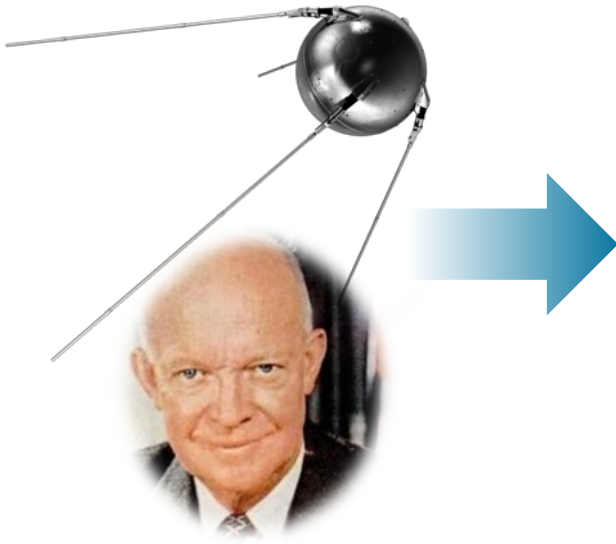
Dr. Vincent Tang

Deputy Director, ARPA-I
U.S. Department of Transportation

ARPA-I Mission

ARPA-I will accelerate the development of transformative transportation technologies that decrease costs, increase safety, enhance resilience, and make America more globally competitive.

The Promise

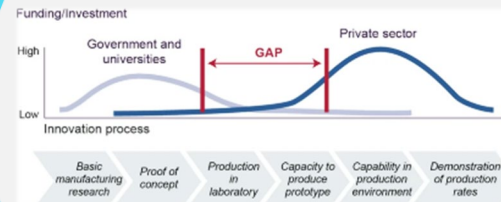


Our Unique Role at U.S. DOT

**Higher risk,
higher reward**



**Bridging
the Gap**



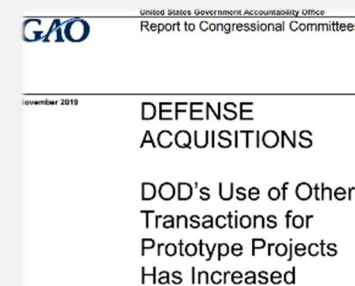
**Actively
Managed**



Multi-Modal



**Special
Authorities**



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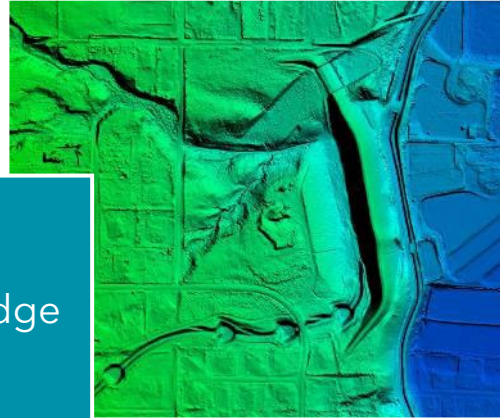
U.S. DOT Modal Research Organizations



- Federal Aviation Administration (FAA)
- Federal Highway Administration (FHWA)
- Federal Motor Carrier Safety Administration (FMCSA)
- Federal Railroad Administration (FRA)
- Federal Transit Administration (FTA)
- Maritime Administration (MARAD)
- National Highway Traffic Safety Administration (NHTSA)
- Pipeline and Hazardous Materials Safety Administration (PHMSA)

Our Approach

Knowledge



Optimization



Construction



ARPA-I Ideas and Innovation Challenge

A promotional graphic for the ARPA-I Ideas Challenge. It features a dark blue background with a complex network of glowing blue and green lines, resembling a transportation infrastructure map. In the center, there is a white box containing the challenge's logo and text.

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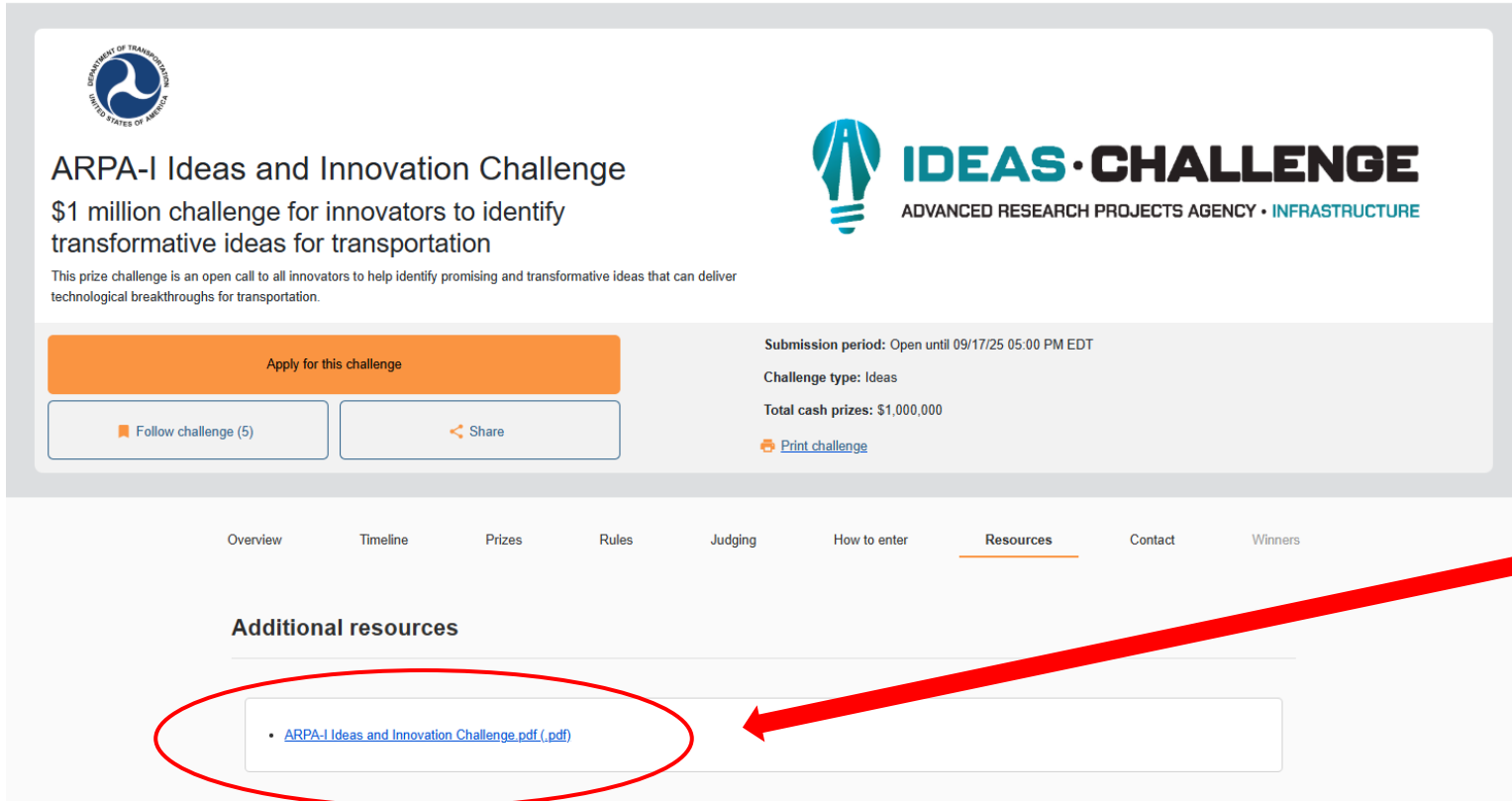
Build America's transportation future - submit bold ideas to ARPA-I's Ideas Challenge and transform how we move, build, and connect!


Now accepting applications until September 17, 2025

SUBMIT YOUR IDEAS NOW AT CHALLENGE.GOV

<https://www.transportation.gov/arpa-i/ideas-challenge>

Challenge.gov



 **ARPA-I Ideas and Innovation Challenge**
\$1 million challenge for innovators to identify transformative ideas for transportation

This prize challenge is an open call to all innovators to help identify promising and transformative ideas that can deliver technological breakthroughs for transportation.

[Apply for this challenge](#)

[Follow challenge \(5\)](#) [Share](#)

Submission period: Open until 09/17/25 05:00 PM EDT
Challenge type: Ideas
Total cash prizes: \$1,000,000
[Print challenge](#)

Overview Timeline Prizes Rules Judging How to enter **Resources** Contact Winners

Additional resources

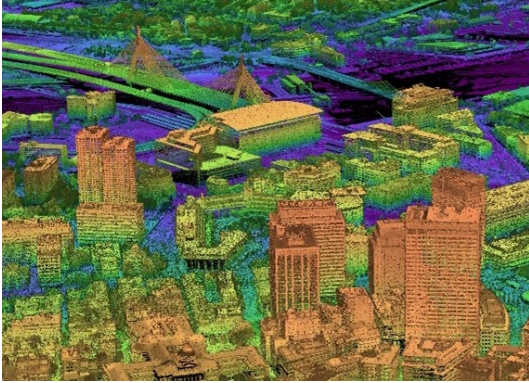
- [ARPA-I Ideas and Innovation Challenge.pdf \(.pdf\)](#)

Read the Ideas Challenge Solicitation closely for all official information about the challenge rules and requirements.

<https://www.challenge.gov/?challenge=arpa-i-ideas-challenge&tab=overview>



An Open Call to Innovators Across the U.S.



- Public and private sectors
- Identify the most promising and transformative R&D proposals
- Potential to deliver radically transformative technologies for U.S. transportation infrastructure

Getty Images

Vision and Objectives

- Enhance the safe, secure, and efficient movement of people and goods.
- Lower the long-term costs of infrastructure planning, construction, and maintenance.
- Strengthen the resilience of infrastructure against physical, natural, and cyber threats.
- Enhance the United States' position as a global leader in advanced transportation infrastructure technologies and materials.



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Ideas Challenge Schedule

- **Stage 1: Concept Paper**
(due September 17, 2025, 5pm ET)
- **U.S. DOT Innovation Workshop**
(late 2025)
- **Stage 2: Ideas Challenge Finals**
(early 2026)



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Concept Paper and Innovation Workshop

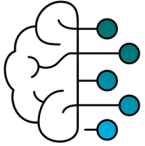
Concept Paper

- The important transportation infrastructure problem being addressed.
- The envisioned breakthrough capability or solution to that problem that could transform the transportation infrastructure of the United States.
- Initial plans and key metrics that will help define the successful Research and Development (R&D) project as well as the proposed path to operationalization, deployment, and commercialization of that solution.

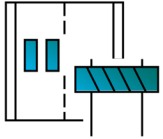
U.S. DOT Innovation Workshop

- Stage 1 winners will be invited to an U.S. DOT innovation workshop in late 2025.
- Present and receive feedback from U.S. DOT R&D leadership and stakeholders.
- Refine ideas and approach for Stage 2 consideration.

ARPA-I Focus Areas



Knowledge: *Tools that allow infrastructure operators to understand everything they need to know about their transportation infrastructure systems.*



Construction: *Constructing infrastructure safer, faster, more cost-effectively, and with a longer lifespan.*



Optimization: *Optimizing the movement of people and goods at scale in real time to radically increase system safety, enhance performance, and decrease costs, leveraging connectivity and automation.*



Enabling and Foundational Technologies: *Enabling and other foundational technologies that are not described above but that could create the basis for future technologies are also encouraged and will be considered.*



Topics Specifically Not Encouraged

- Incremental improvements.
- Policy or regulatory in nature.
- Traditional education and workforce training.
- Topics focused solely on standards and interoperability specification development.
- Topics that do not further ARPA-I and/or U.S. DOT missions.

The Heilmeier Catechism (adapted)



- **Objective:** What new breakthrough capability do you aim to deliver? What transportation problem are you trying to solve? Articulate the proposed concept with minimal jargon.
- **State-of-Practice:** How is it done today? What are the limitations of the present approach(es)?
- **Opportunity:** What is new about your approach? Why do you think this approach will be successful at this time?
- **Impact:** If the proposed project succeeds, what difference will it make?
- **Plan:** What are the technical and commercialization plans and transition risks for the proposed project? How much will it cost? How long will it take to succeed? What might be appropriate mid-term and final target metrics to check for success?

Additional Information

- **Prizes:**

- Up to 15 Stage 1 awards of \$20,000 each
 - \$300,000 Stage 1 total
- Up to five (5) Stage 2 awards of up to \$300,000 each
 - \$700,000 Stage 2 total
- \$1,000,000 total prize purse across both stages

- **Events** (at the end of each stage):

- Stage 1 – Winners will be invited to an U.S. DOT innovation workshop in late 2025
- Stage 2 – Finalists will be selected to the Ideas Challenge Finals in early 2026

- **Eligibility:**

- Review Rules section of the solicitation document carefully

We look forward to your ideas!



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<https://www.challenge.gov/?challenge=arpa-i-ideas-challenge>



Questions: ideas.ARPA-I@dot.gov

Ideas Challenge Website: www.transportation.gov/arpa-i/ideas-challenge/