Presentation Outline

- About NSF, the Directorates, and TIP

- Introduce the ReDDDoT Program

- Questions?

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About the U.S. National Science Foundation (NSF)

- NSF is an independent federal agency

- It was established in 1950 by Congress to:
  - Promote the progress of science.
  - Advance the national health, prosperity and welfare.
  - Secure the national defense.

- NSF's FY 2023 enacted budget is $9.8 billion

- Receives more than 43,000 proposals per year for research, education, and training projects, and more than 13,000 applications for graduate and postdoctoral fellowships

NSF's Three Strategic Priorities

STRENGTHENING ESTABLISHED NSF

With **investments that expand the frontiers of knowledge and technology**.

INSPIRING THE MISSING MILLIONS

Using **interventions and capacity building** that enhance and broaden participation.

ACCELERATING TECHNOLOGY AND INNOVATION

Through innovative, **cross-cutting partnerships** and programs.

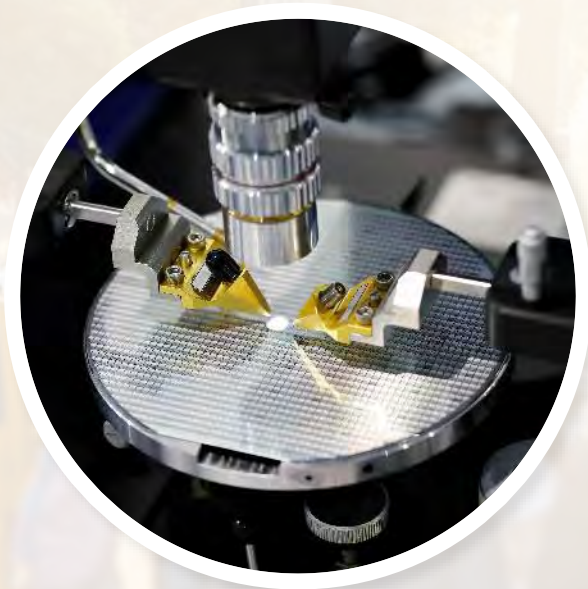# A Pivotal Moment for the Nation and Society

Climate change

Equitable access to education, health care

Critical and resilient infrastructure

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A Changing Science and Engineering Enterprise Can Meet This Moment

Pace of discovery accelerated by data, emerging technologies

Demand for societal and economic impact

Opportunity to leverage partnerships

A New "Horizontal": Strengthen, Scale Use-Inspired and Translational Research

ENGINEERING

BIOLOGICAL SCIENCES

COMPUTER & INFORMATION SCIENCE & ENGINEERING

GEOSCIENCE & POLAR PROGRAMS

SOCIAL, BEHAVIORAL & ECONOMIC SCIENCES

DIRECTORATE FOR TECHNOLOGY, INNOVATION AND PARTNERSHIP

MATHEMATICAL & PHYSICAL SCIENCES

STEM EDUCATION
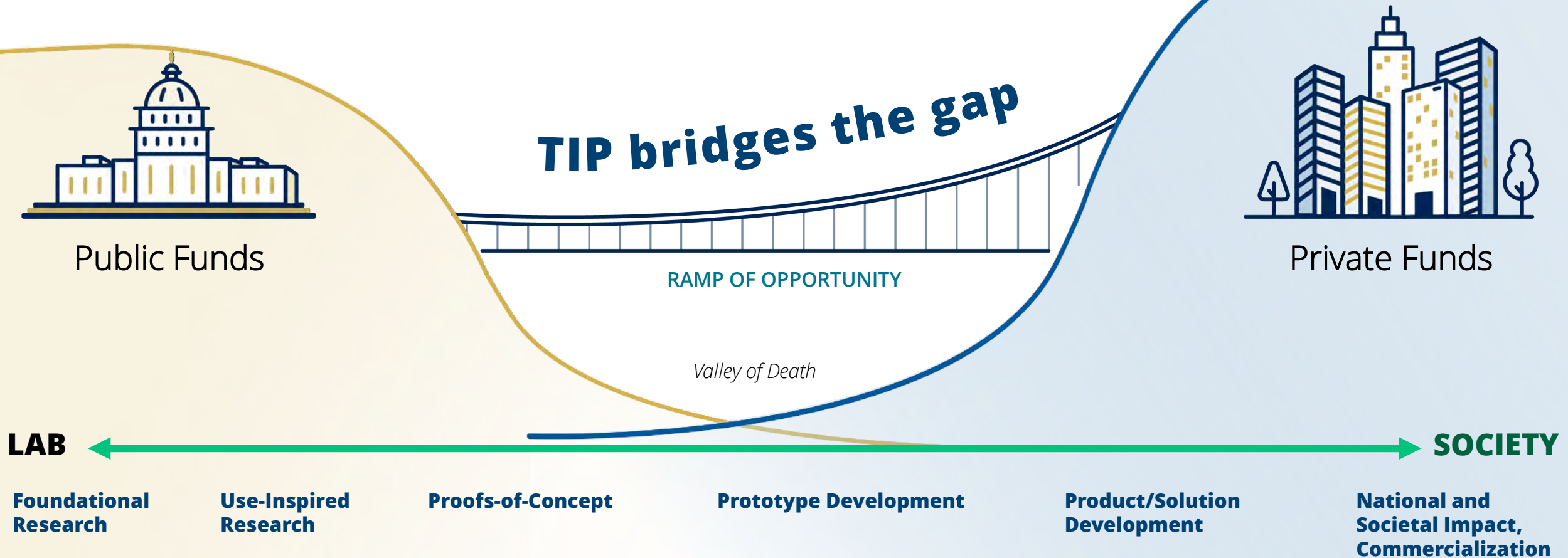
Integrative Activities

International Science & Engineering

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TIP Directorate Mission

TIP harnesses the nation's vast and diverse talent pool to advance critical and emerging technologies, address pressing societal and economic challenges, and accelerate the translation of research results from lab to market and society. TIP improves U.S. competitiveness, growing the U.S. economy and training a diverse workforce for future, high-wage jobs.

TIP Programs Power Technology Breakthroughs

Public Funds

TIP bridges the gap

RAMP OF OPPORTUNITY

Valley of Death

Private Funds

LAB ←————————————————————————————————→ **SOCIETY**

Foundational Research

Use-Inspired Research

Proofs-of-Concept

Prototype Development

Product/Solution Development

National and Societal Impact, Commercialization

TIP: Accelerating Research to Impact

Diverse Innovation Ecosystems

Nurtures regional and national innovation and technology ecosystems to support researchers and innovators.

Technology Translation and Development

Supports researchers, startups, and entrepreneurs to create technologies and innovations with impact.

Workforce Development

Supports people from all demographics and geographies to get the training and expertise for the jobs of the future.

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NSF seeks to prioritize and focus TIP investments to advance U.S. technological competitiveness and address societal and economic needs as well as workforce gaps through use-inspired and translational research, public and private partnerships, and crosscutting investments.

Develop a roadmap over a **3**-year time frame

Advance U.S. competitiveness and develop the U.S. workforce in **10** critical technology areas.

Address societal, national and geostrategic challenges in **5** areas.

PILOT

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Key Challenge Areas from CHIPS and Science Act

National, Societal and Geostrategic Challenges:

1) United States **national security**;

2) United States **manufacturing and industrial productivity**;

3) United States **workforce development and skills gaps**;

4) Climate change and environmental sustainability;

5) Inequitable access to education, opportunity, or other services.

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Key Technology Areas from CHIPS and Science Act

Artificial Intelligence

Advanced Computing & Semiconductors

Quantum Information Science & Technology

Robotics & Advanced Manufacturing

Disaster Prevention & Mitigation

Advanced Communications

Biotechnology

Cyberinfrastructure & Cybersecurity

Advanced Energy & Industrial Efficiency Technologies
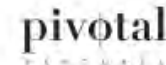
Advanced Materials

ReDDDoT Program Website

The home link is: https://new.nsf.gov/funding/opportunities/responsible-design-development-deployment

ReDDDoT Program Scope

Proposals from **multidisciplinary, multi-sector teams** that **examine and demonstrate the translational principles, methodologies, implementations, and impacts** associated with responsible design, development, and deployment of technologies

A key goal of the program is to support and strengthen collaborations across disciplines and sectors, for example, **academia, industry, government, and non-profits**.

The program also aims to ensure that **ethical, legal, and societal considerations and community values** are embedded across technology lifecycles to generate products that promote the public's wellbeing and mitigate harm.

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Background: CHIPS and Science Act of 2022

SEC 10398: ETHICAL, LEGAL, AND SOCIETAL CONSIDERATIONS.

The Director shall engage, as appropriate, experts in the social dimensions of science and technology and set up formal avenues for public input, as appropriate, to ensure that ethical, legal, and societal considerations are taken into account in the priorities and activities of the Directorate, including in the selection of the **challenges and key technology focus areas** under section 10387 and the award-making process, and throughout all stages of supported projects.

SEC 10383: ACTIVITIES.

"develop mutually-beneficial research and technology development partnerships and collaborations among institutions of higher education…, and non-profit organizations, labor organizations, businesses and other for-profit entities…"

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ReDDDoT Program Objectives

- Stimulating activity and filling gaps in research, innovation, and capacity building

- Creating broad and inclusive communities of interest that bring together key stakeholders to better inform practices

- Educating and training the STEM workforce

- Accelerating pathways to societal and economic benefits while developing strategies to avoid or mitigate societal and economic harms

- Empowering communities, including economically disadvantaged and marginalized populations, to participate in all stages of technology development, including the earliest stages of ideation and design

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ReDDDoT Program Values (Examples)

A technology's lifecycle provides opportunities for meaningful stakeholder engagement to inform responsible design, development, and deployment. An array of values could shape and be considered, including but not limited to:

- *Accountability*

- *Equity*

- *Inclusion*

- *Sustainability*

- *Transparency*

- *Accessibility*

- *Safety*

- *Fairness*

- *Sensitivity to culture and context*

- *Privacy*

- *Security....*

Proposal Types

Phase 1 - Deadline: April 08, 2024
- Planning Grants
- Translational Research Coordination Networks
- Workshops

Phase 2 - Deadline: April 22, 2024
- Project Proposals

Office Hours
- Friday, February 16, at 2 PM Eastern
- Friday, February 23, at 2 PM Eastern

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Types of Organizations That Can Apply

- **Institutions of Higher Education (IHEs)** - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members.

- **For-profit organizations** - U.S.-based commercial organizations, including small businesses, with strong capabilities in scientific or engineering research or education and a passion for innovation.

- **Non-profit, non-academic organizations** - Independent museums, observatories, research labs, professional societies, community organizations, and similar organizations located in the U.S. that are directly associated with educational or research activities or that bring relevant expertise/perspectives.

- **State, local, and Tribal governments**, limited to agencies, offices, divisions, or other units specifically dedicated to innovation, economic and/or workforce development.

- **Tribal Nations** - An American Indian or Alaska Native tribe, band, nation, pueblo, village, or community that the Secretary of the Interior acknowledges as a federally recognized tribe pursuant to the Federally Recognized Indian Tribe List Act of 1994, 25 U.S.C. §§ 5130-5131.

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Find Your Opportunities

Academia

- America's Seed Fund powered by NSF
- Accelerating Research Translation
- Convergence Accelerator
- Enabling Partnerships to Increase Innovation Capacity
- Experiential Learning for Emerging and Novel Technologies
- NSF Entrepreneurial Fellowships
- NSF Innovation Corps (I-Corps™)
- Partnerships for Innovation
- Pathways to Enable Open-Source Ecosystems
- Privacy-Enhancing Technologies Prize Challenge
- Prototype Open Knowledge Network
- NSF Regional Innovation Engines

Business & Industry

- America's Seed Fund powered by NSF
- Convergence Accelerator
- Experiential Learning for Emerging and Novel Technologies
- Pathways to Enable Open-Source Ecosystems
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- NSF Regional Innovation Engines

Government

- Convergence Accelerator
- Experiential Learning for Emerging and Novel Technologies
- NSF Regional Innovation Engines
- Visionary interdisciplinary Teams Advancing Learning Prize Challenge

Nonprofits

- Convergence Accelerator
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new.nsf.gov/tip/latest

For more information…

Responsible Design, Development, and Deployment of Technologies (ReDDDoT)

redddot@nsf.gov

https://new.nsf.gov/funding/opportunities/responsible-design-development-deployment

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Questions?

- Email tip@nsf.gov or dsumy@nsf.gov
- Visit https://new.nsf.gov/tip/