



White House Initiative on Historically  
Black Colleges and Universities



2018 NATIONAL HISTORICALLY BLACK COLLEGES  
AND UNIVERSITIES WEEK CONFERENCE

# HBCU COMPETITIVENESS:

## Aligning Institutional Missions With America's Priorities

**September 16-19, 2018**

Washington Marriott Wardman Park  
2660 Woodley Road, NW  
Washington, DC 20008

TECH TRANSFER



# Using Tech Transfer To Inspire HBCU Entrepreneurship

- Session Overview / What is Tech Transfer?
- Daniel Lockney – National Aeronautics Space Administration/NASA
- Jahleel Hudson – National Nuclear Security Administration/NNSA
- James Mitchell – United State Geographical Survey/USGS
- Dawn Tucker Thomas – Department of Transportation/DOT
- Current Student Opportunity at NASA
- Q&A

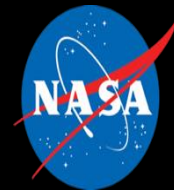


# Session Overview

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## What is Tech Transfer?

According to the Federal Laboratory Commission (FLC), technology transfer, also called T2, is the process by which existing knowledge, facilities, or capabilities developed under federal R&D funding are utilized to fulfill public and private needs



# NASA TECHNOLOGY TRANSFER PROGRAM

BRINGING NASA TECHNOLOGY DOWN TO EARTH

## NASA Technology Transfer Overview

**Daniel Lockney**

**Technology Transfer Program Executive**  
**NASA Headquarters**

**September 2018**



NASA TECHNOLOGY  
TRANSFER PROGRAM

[technology.nasa.gov/patents](https://technology.nasa.gov/patents)

## NASA Patent Portfolio



NASA maintains a portfolio of patents with commercial potential and makes them available to the public through our patent licensing program. Whether you're looking to start a new company using NASA technology, enhance an existing product, or create a new product line, you can gain a competitive edge in the marketplace by putting NASA technology to work for you. Click on each of the category icons for a list of patents in that category or use the search below to explore NASA's patent portfolio.



Aeronautics



Communications



Electrical/  
Electronics



Environment



Health, Medicine,  
and Biotechnology



IT  
and Software



Instrumentation



Manufacturing



Materials and  
Coatings



Mechanical and  
Fluid Systems



Optics



Power Generation  
and Storage



Propulsion



Robotics, Automation  
and Control

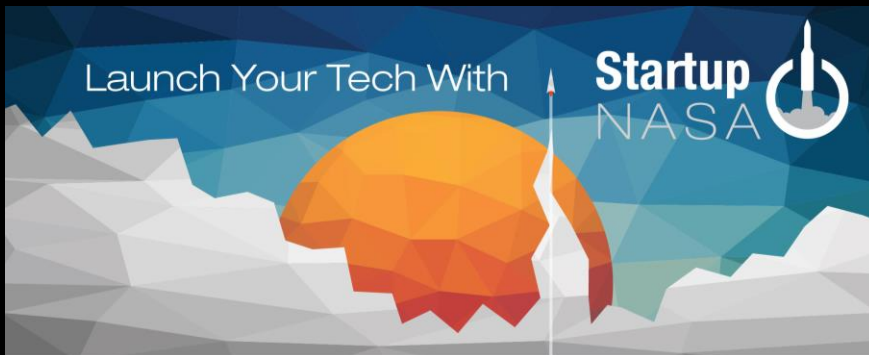


Sensors



NASA TECHNOLOGY  
TRANSFER PROGRAM

# technology.nasa.gov/startup



Our Startup NASA initiative helps address two of the biggest challenges faced by startup companies: raising capital and securing intellectual property rights.

Hold on to your money. Get a head start.

By offering a license with no up-front costs for commercial use of our patented technologies, we're letting companies hold on to their cash while securing the intellectual property needed to carve out competitive market space.



Of course, a few rules apply:

- NASA waives the initial licensing fees, and there are no minimum fees for the first three years. Once the company starts selling a product, NASA will collect a standard net royalty fee.
- Startup licenses are non-exclusive. However, NASA also negotiates exclusive licenses for its technologies for a fee.
- Terms of the Startup license are offered "as is" — they're non-negotiable.
- Companies entering into these licenses are bound by all requirements in federal licensing statutes and NASA policies, including development of a commercialization plan and reporting on efforts to achieve practical application.
- While NASA does license to foreign entities, this start-up agreement is only available to companies in the U.S.

Getting started is simple:

**Find a technology:** <http://technology.nasa.gov/patents>

**Complete an online application using NASA's Automated Technology Licensing Application System (ATLAS)**







NASA TECHNOLOGY  
TRANSFER PROGRAM

[software.nasa.gov](https://software.nasa.gov)



business systems and  
project management



system testing



operations



design and  
integration tools



vehicle management



data servers  
processing and handling



propulsion



structures and  
mechanisms



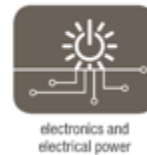
crew and life support



data and image  
processing



materials  
and processes



electronics and  
electrical power



environmental  
science



autonomous  
systems



aeronautics



NASA TECHNOLOGY  
TRANSFER PROGRAM

[software.nasa.gov/remotesensing](https://software.nasa.gov/remotesensing)



**NASA satellite data.**  
**NASA tools to analyze it.**  
**NASA software**  
**to build your own.**

**All in one place. All available to you.**

## Remote Sensing Toolkit

While NASA's free and open remote-sensing data has long been of benefit to the scientific community, other government agencies, and nonprofit organizations, it has significant untapped potential for commercialization. NASA's Technology Transfer program has created an online resource to promote commercial use of this data and the software tools needed to work with it.

With the Remote Sensing Toolkit, users will now be able to find, analyze and utilize the most relevant data for their research, business projects or conservation efforts.



Remote Sensing Data



Remote Sensing Data  
Tools



Build Your Own  
Tools



Search





NASA TECHNOLOGY  
TRANSFER PROGRAM

[technology.nasa.gov/publicdomain](https://technology.nasa.gov/publicdomain)

## Public Domain

### NASA TECHNOLOGIES

To stimulate the innovation economy, NASA makes a portion of its technology portfolio ***freely available*** for anyone to use.

The technologies in this public domain portfolio do not require a license agreement, and anyone may freely pursue independent product development right away without the need to contact NASA in any way.





NASA TECHNOLOGY  
TRANSFER PROGRAM

**NASA technologies save lives, create jobs,  
and increase revenue**



# Jahleel Hudson

*National Nuclear Security Administration*

 *Office of Defense Programs*



# National Nuclear Security Administration

- Semi-autonomous agency within the DOE established by Congress in 2000.
- 2,300 federal employees with about \$15.6B budget, led by Administrator Lisa Gordon-Hagerty.
- Responsible for enhancing national security through the military application of nuclear science.
- Defense Programs performs NNSA mission to ensure the United States maintains a safe, secure, and reliable nuclear stockpile through the application of unparalleled science, technology, engineering, and manufacturing.
- Office of Strategic Partnership Programs facilitates technology transfer at NNSA.



# NNSA Footprint





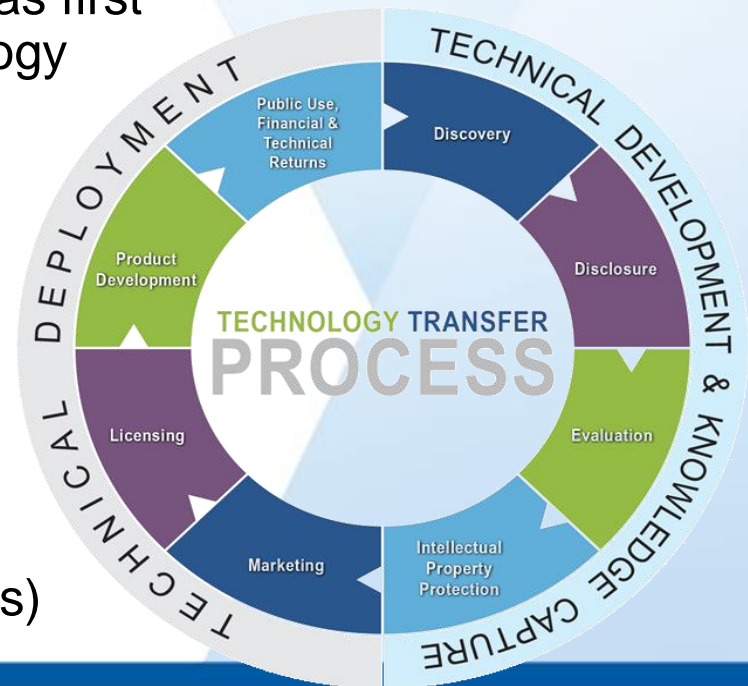
# Strategic Partnership Programs

Advance and strengthen technology transfer efforts at NNSA national security laboratories, plants, and sites throughout the nuclear security enterprise to enhance the economic, energy, and national security interests of the United States.

- NNSA regularly transfers technology to other government agencies, including state and local governments as well as industry and academia
- Technology transfer has a long history but was first legislated by the Stevenson-Wydler Technology Innovation and Bayh-Dole Acts of 1980

NNSA transfers technology in several ways:

- Commercialization/Licensing of Patents
- CRADAs, ACTs and other partnerships
- Intellectual exchanges (e.g. publications)
- Personnel Exchanges (e.g. entrepreneurial leave and technologist in residence programs)



# Technology Transfer

*“Not enough of us reflect on how modern civilization pivots on the discoveries of just a few intellectually restless people.”*

**-Neil deGrasse Tyson**



# United States Geological Survey

**James M Mitchell,**  
*Patent and Licensing Manager,  
Intellectual Property Advisor  
Office of Policy and Analysis  
[USGS Technology Transfer](#)*





# Linking Science to Decisions

The USGS serves the Nation by providing reliable scientific information to:

- describe and understand the Earth.

- minimize loss of life and property from natural disasters.

- manage water, biological, energy, and mineral resources.

- enhance and protect our quality of life







## Research and Development

- Market Pull
  - R&D based on a need of public
- Market Push
  - Invention pushed through R&D without consideration of a need



## Collaborate

- Create a T2 Plan with Stakeholders
- (e.g. Universities, Private Parties, local Government)



## Commercialize

- Deploy & Adopt
- Start Ups
- Entrepreneurship



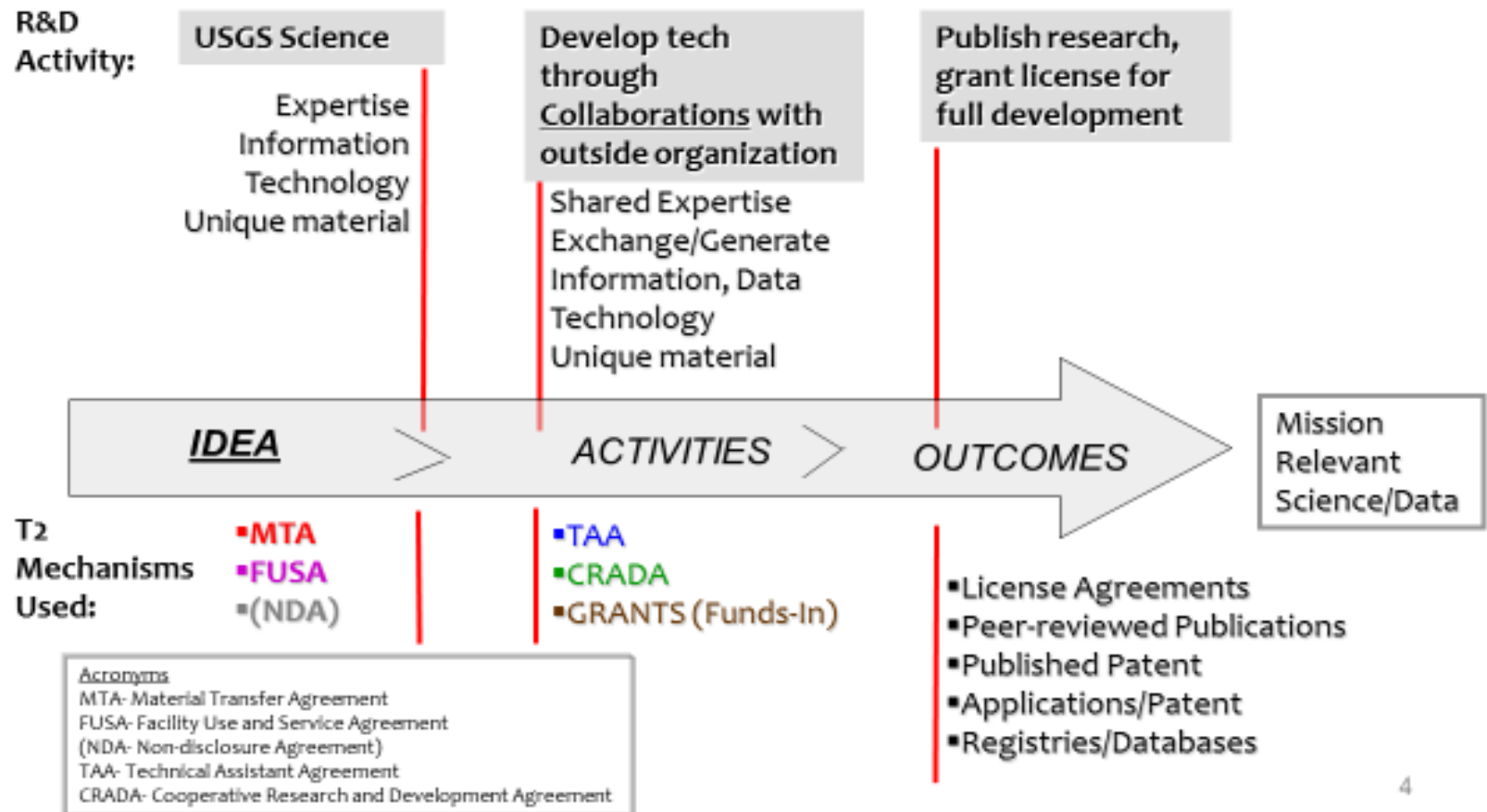


# Example of Common Legal Authorities

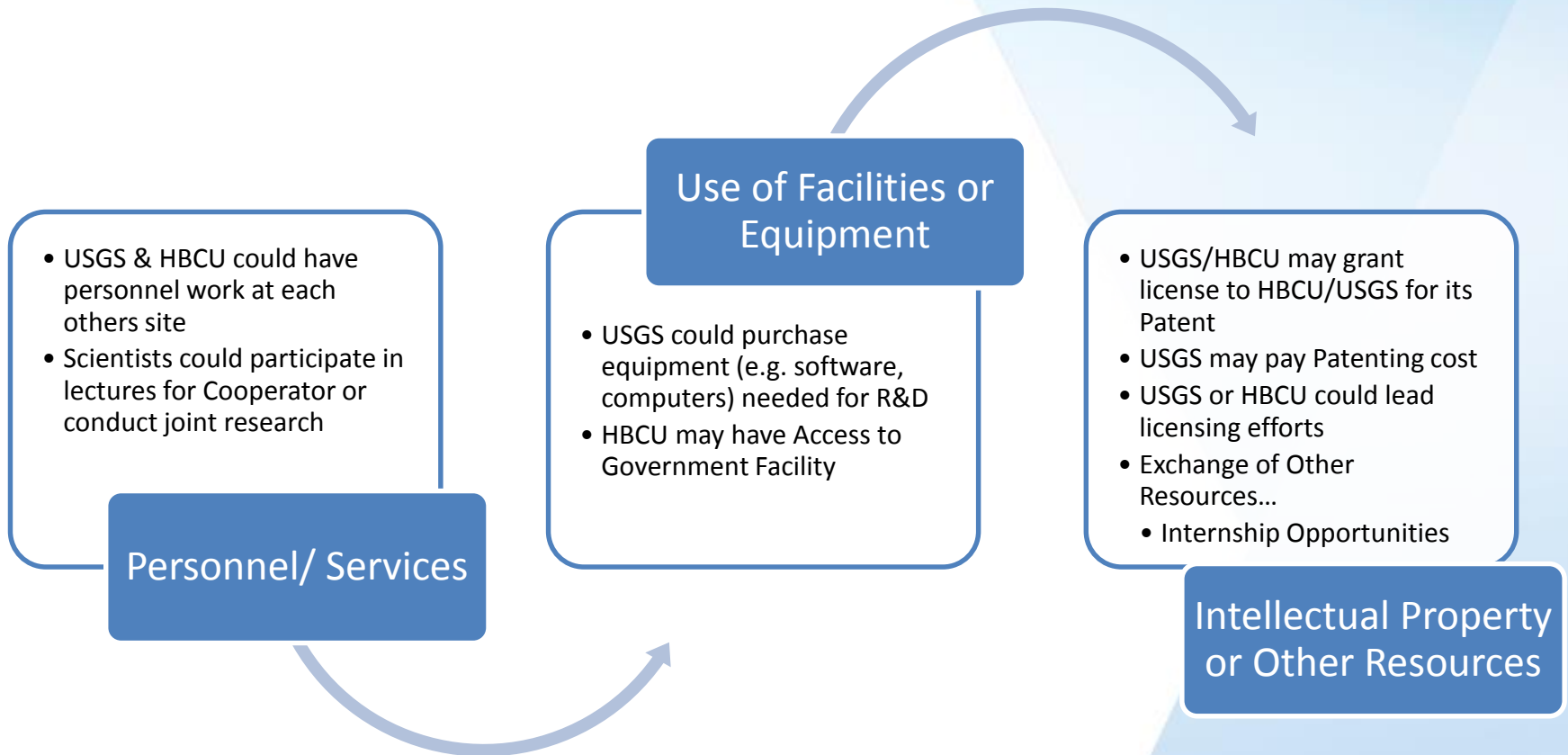
- **15 U.S. Code § 3710a - Cooperative Research and Development Agreements**
  - the Government, through its laboratories, provides:
    - personnel, services, facilities, equipment, intellectual property, or **other resources** with or without reimbursement
      - E.g. USGS may pay for patent cost associated of developed technology
    - (but not funds to non-Federal parties)
- **The State Water Resources Research Act** Program, authorized by section 104 of the Water Resources Research Act of 1984-**Grants**
  - Promote collaboration between the USGS and university scientists in research on significant national and regional water resources issues;
  - Funding for this program is around 1 million dollars in federal funds per year
  - proposals may be for projects of 1 to 3 years in duration and may request up to \$250,000 in federal funds.
    - <http://water.usgs.gov/wrri/>
- **43 U.S.C 36 (c)- Cooperation Authority**
  - authorized to accept lands, buildings, equipment, and other contributions from public and private sources and **to prosecute projects in cooperation** with other agencies, Federal, State, or private



# OUTCOMES - Technology Development and Transfer Continuum

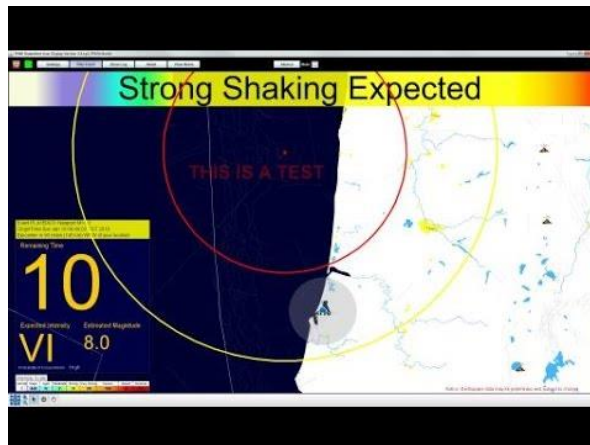
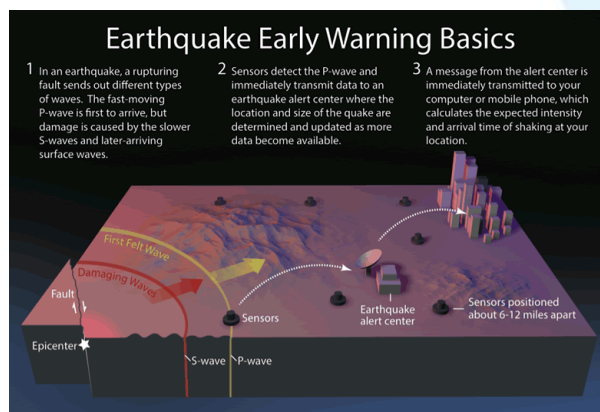


# Examples of Exchange of Resources



# ShakeAlert: Earthquake Early Warning

**USGS and its partners are developing an EEW system for the U.S**



**In 2017, USGS awarded \$4.9 million to six universities and a university-governed non-profit, to support transitioning the west coast “ShakeAlert” earthquake early warning system into a production system.**



# University Transportation Centers Program

## U.S. Department of Transportation

Office of the Assistant Secretary for Research and Technology  
Dawn Tucker-Thomas, University Grants Manager





# University Transportation Centers (UTC) Program

- Congressionally-mandated financial assistance program to advance transportation expertise and U.S. technology in the various disciplines that comprise of transportation. This is conducted through:
  - Advancing technology through research, education, technology transfer activities
  - Providing critical transportation knowledge base
  - Addressing critical workforce needs for the next generation
- Fixing America's Surface Transportation (FAST) Act authorized \$377.5 million for up to 35 competitively selected grants for UTCs of Centers

- 5 National
- 10 Regional
- 20 Tier 1



# New Technology Transfer (T2) Requirement

- Effective April 16, 2018, Centers must develop T2 Plans to guide the development and potential adoption of research outputs
- At a minimum, T2 Plans must include:
  - Identification and description of stakeholder involvement
  - Assistance of stakeholders in implementing and deploying research outputs
  - Commercialization process of research outputs
  - Collection and use of licensing revenues to provide further support for research and technology transfer
  - Dissemination of research results
  - How corporate research support will be increased
  - Technology transfer goals and performance measures
- Revised reporting requirements document to now require Centers' to report on research outputs, outcomes, and impacts



# University of South Florida Center for Urban Transportation Research

*“Travel Assistant Device”* is a mobile application for global positioning system enabled cell phones that helps new transit riders navigate public transportation system. Technology has been licensed to a start-up for technology transfer and commercialization

Mobile app tested and deployed in various counties in Florida and also being used in Washington, DC, San Diego, Tampa, Seattle and a few other cities





## **Driver Assistance Systems to Support Snowplow Operations**

Snowplow driver assist systems help motor vehicle operators of snowplows, ambulances and patrol cars combat inclement weather conditions that often cause zero visibility. Currently, deployed in Minnesota and Alaska.

Center has collaborated with community partners to:

1. Develop low-cost road surface monitoring technology
2. Develop the world's first decentralized smart adaptive traffic signal system
3. Develop cutting edge connected and autonomous vehicle technologies

Technology Companies



Affordable Automated Road Assessments



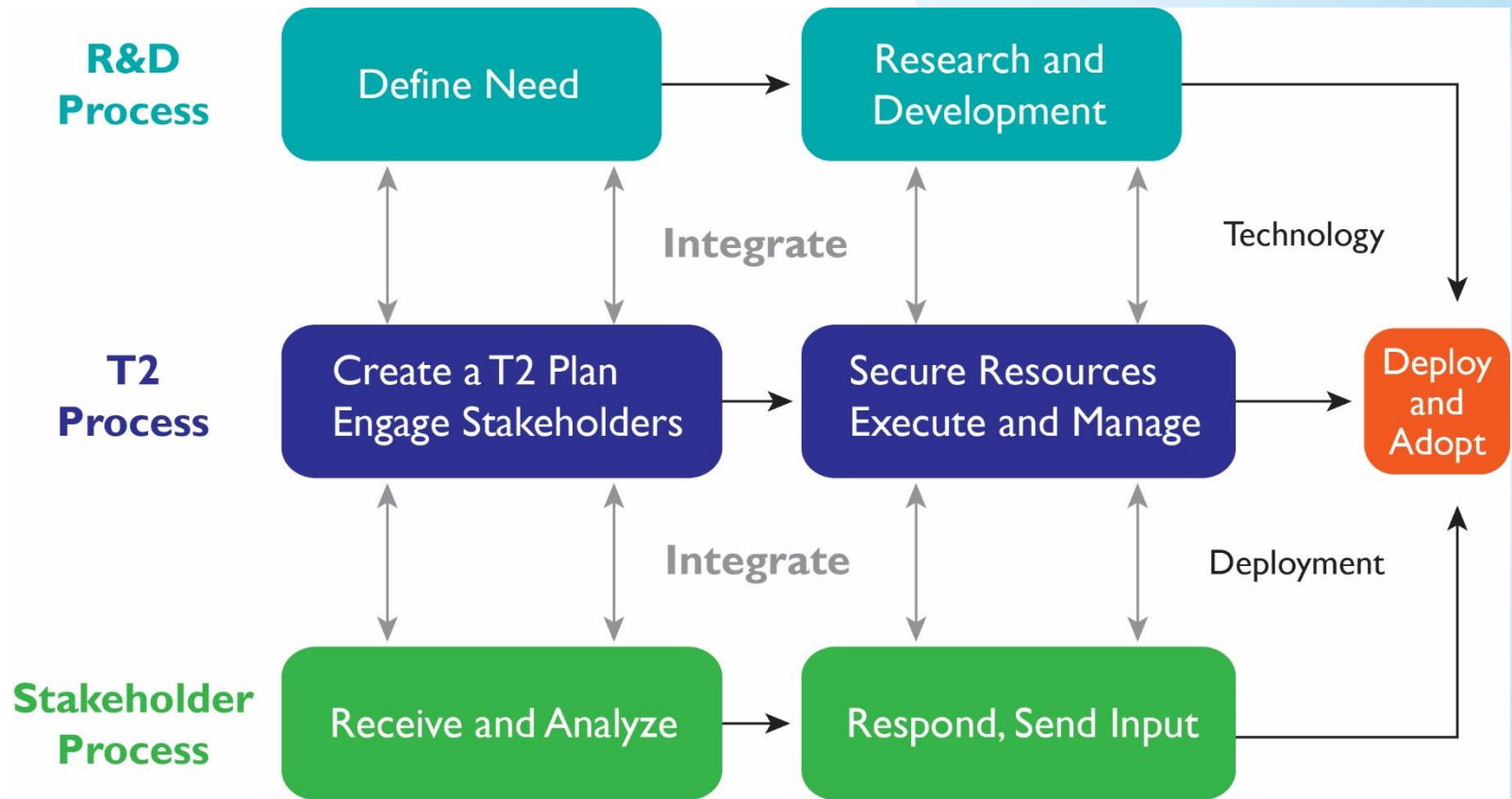
Intelligent transportation technologies for smart cities



Intelligence for connected and automated vehicles



# Integrating T2 and Transportation R&D



Principles: Understand Adopter Needs, Address Barriers to Adoption, Understand the Technology, and Communicate Value





# Thank you!

**Dawn Tucker-Thomas**

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<https://www.transportation.gov/utc/>



# CURRENT OPPORTUNITY AT NASA

## What is M.I.T.T.I.C.?

MUREP Innovation  
and  
Tech Transfer Idea Competition

