

# TechPort: Sharing NASA's Technology Knowledge



## What is TechPort?

The Technology Portfolio System, TechPort, is NASA's first comprehensive resource for locating information about NASA-funded technology development activities. This system enables users to explore NASA's technology portfolio and learn about technology projects as NASA works to mature technologies for aeronautics, space exploration, and scientific discovery missions.

## Data and Access

As of September 2017, TechPort contained information on more than 1,200 active technology development projects and over 8,000 completed projects. The earliest records are from Small Business innovative Research projects funded in 2001. TechPort contains many of NASA's current technology and development activities.

As a repository for technology development, TechPort does not include basic research, but does include many scientific instruments and sensors that support research. Additionally, TechPort is a dynamic system which means that projects will continue to be added and current records will continue to be updated.

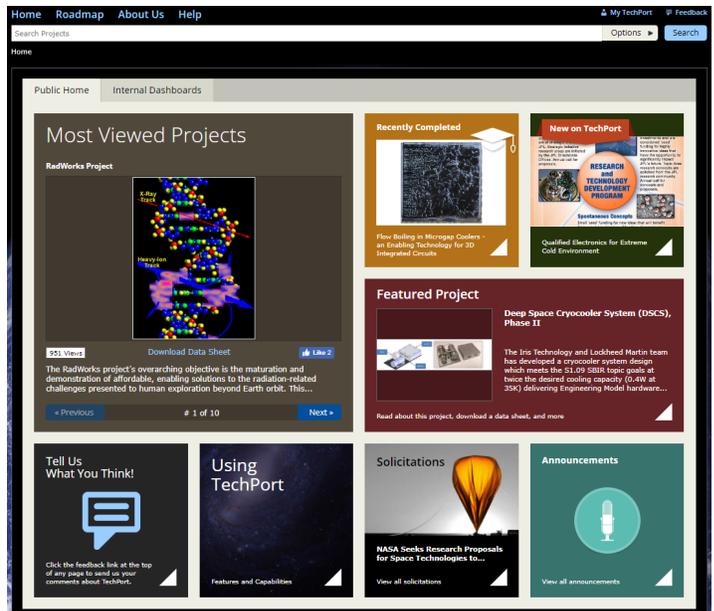
To access TechPort, go to <http://techport.nasa.gov>

## Why Was TechPort Developed?

NASA embraces the development and advancement of technology to support U.S. industries, enhance academic research, spur innovation, and promote the building and sharing of knowledge. NASA believes sharing information about NASA's current technology development activities will increase awareness of and appreciation for our Nation's investment, and enable users to find unique ways to employ NASA's data in a variety of solutions.

TechPort was developed to serve two distinct purposes:

- Make information about NASA's technology development activities accessible, usable, and easy to find.
- Support NASA's technology portfolio analysis, strategic planning, and technology management activities.



TechPort Home Page



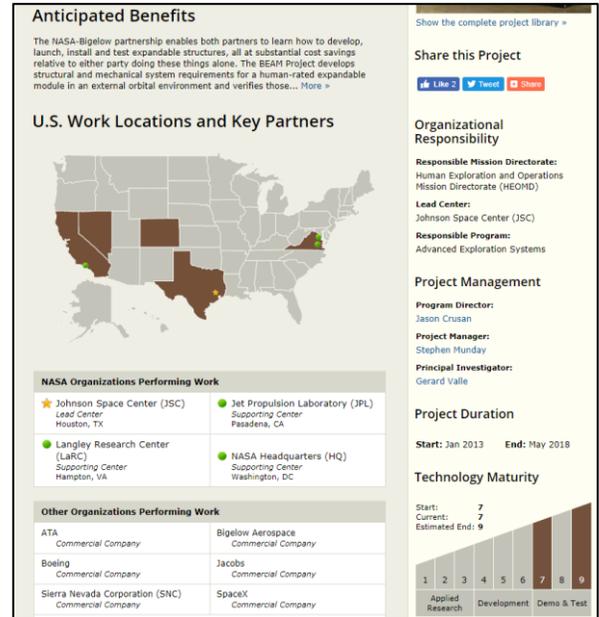
## Benefits

Through its collaboration activities, NASA expands the frontiers of knowledge and capabilities in aeronautics, science, and space, and creates opportunities for U.S. industry and academia. By making technology development information accessible, usable, and easy to find, NASA fuels entrepreneurship, innovation, and scientific discovery. Industry and academia has insight into the technology portfolio, and can use this information to identify possible areas of technology development collaboration, forecast when technologies may be released for public use and commercialization, and identify areas of aeronautics and aerospace technology development need. Information about NASA's technology development activities is a valuable national resource and a strategic asset that will expand the knowledge base, spur innovation in U.S. industry and help grow American businesses.

For NASA, TechPort enables comprehensive technology portfolio strategy development, investment prioritization, and decision-making by enabling users to compare existing NASA investments against NASA's Technology Roadmap and prioritization. Users can determine what work is needed, what is funded, and where gaps exist requiring additional technology development. The integrated data set and automated report generation features ensure greater consistency of data used for all levels of analytical study, and save time in data validation, analysis, and report development.

## Uses

The general public can use TechPort to find technology projects of interest and discover how these have led to breakthroughs and discoveries. TechPort is equipped with features that allow users to efficiently search technology projects, conduct analysis, identify technology gaps, and generate comprehensive technology reports. It enables researchers, scientists, industry, and other government agencies to obtain a brief description, and information about the management team, technology readiness level, anticipated benefits, contributing partners, and locations where work is performed. Social media links and other information is available for larger and more advanced technology development activities. This comprehensive data coupled with NASA's Technology Roadmap and NASA's Strategic Technology Investment Plan provides academia and industry a look into future technology projects giving insight into technology needs, potential gaps (research and development opportunities), and potential developments partners.



TechPort Project - Benefits, States with work, and Technology Maturity

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## Business leaders could use TechPort to:

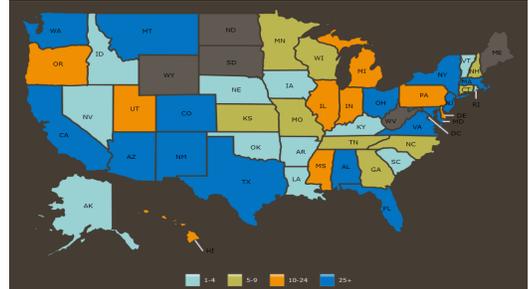
- Leverage the information on NASA's portfolio of technology development to forecast technologies that might be available for use in the future and build their business around them.
- Search for ideas to generate new business lines or start-ups for companies. For example, if a company is trying to develop better corrosion protection, then, with TechPort, it can investigate if NASA is developing technologies that would help innovate its product in the future.
- Compare NASA's Strategic Technology Investment Plan against NASA's current investments, to identify if there are gaps in a technology area the company could fill.
- Find states where technology development is focused to locate job opportunities or companies with which to partner.

## Academic users could use TechPort to:

- Inform and add direction to PhD research by discovering historical and current projects related to research areas of interest.
- Search for universities to see which colleagues are already working with NASA to coordinate efforts.
- Find points of contact for research collaboration.

## Other government agencies could use TechPort to:

- Make investment decisions for partnering with NASA or adapting NASA technology when it becomes available.
- Identify colleagues within a specific technology area to develop a community of practice for a new technology.
- Identify what companies are developing technologies for NASA with the thought of evaluating them for potential future work.
- Identify technology development efforts that overlap or complement what their agency is doing.



TechPort Report – States with Work

**Advanced Exploration Systems Division**  
**AES Modular Power Systems (AMPS)**  
Active Technology Project (2011 - 2018)

**Project Introduction**

The AES Modular Power Systems (AMPS) project will demonstrate and infuse modular power electronics, batteries, fuel cells, and autonomous control for exploration ground system demonstrations; assess and provide recommendations for improvements of proposed power systems for other Advanced Exploration Systems (AES) projects/HEOMD demonstration systems; and develop modular power design concepts that will guide the ground system demonstrations and modular component and assembly development for the duration of this project.

The goals of this project are to develop modular power design systems and components for human exploration flight vehicles; assess, develop, and/or improve power system designs for AES/HEOMD ground/flight demonstrations; demonstrate modular power design systems, by participating in annual ground demonstrations, infusing power technologies developed by the Space Technology Program Game Changing Development (GCD) Space Power Systems (SPS) project, Small Business Innovative Research (SBIR), and other government agencies as practicable; demonstrate and verify the operation of the modular power systems in a relevant, end-to-end, ground test environment; and develop modular power units which, when combined with standardized interfaces can provide commonality across a variety of exploration vehicles and guide AES ground system demonstrations. Specifically in FY8, with a focus on supporting deep space habitat power systems, the AMPS project will: Continue to develop and demonstrate performance and operation of modular power electronics hardware in a relevant, virtual, end-to-end ground based tested environment for the AES integrated project. Continue to develop a Power Systems Modular Standard which may be used by NASA and other space governmental agencies to improve power availability and reduce spare parts and incorporate it into a Next Space Technologies for Exploration Partnerships-2 (NextSTEP-2) prototype habitat design. Continue to develop an autonomous control power system utilizing features which will allow the power system to operate in certain nominal or failure situations without ground or crew intervention. Continue a regenerative fuel cell study in coordination with the Mars Study Capability Team with a focus on applications for Lunar and Mars surface operations that evaluates available technologies and identifies an energy storage solution with commonality across multiple mission phases; and Support, in the power system area, the Habitat Integrated Projects Team and the NextSTEP BAA Habitat contractor activities as requested.

**Anticipated Benefits**

By optimizing across multiple platforms, AMPS power systems designs will differ from those that would be developed by considering one application in isolation. It is this multivehicle commonality that will provide the cost savings for NASA's planned fleet of flight hardware and reduce the number and mass of spare.

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For more information and an accessible alternative, please visit:  
<https://techport.nasa.gov/view/10759>

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Technology Project Data Sheet



## **How do I Engage NASA and Get More Information on Partnerships?**

NASA has various partnership agreements in a broad spectrum of areas to advance NASA mission and program objectives. Examples of partnership agreements include Space Act Agreements, Commercial Space Launch Act Agreements, and Cooperative Research and Development Agreements, among others.

If you are interested in pursuing potential partnership opportunities in a specific technical or program area identified in the TechPort system, please contact the NASA point of contact identified on the respective project page. If you are interested in pursuing a partnership with a particular NASA Center or component facility, please use the respective Center contact information provided on the "Partnership" tip sheet found on the bottom of the TechPort home page.

## **How do I Engage NASA and Get More Information?**

To access TechPort, go to <http://techport.nasa.gov>. At the bottom of the page select "Contact NASA" for general questions, or "Contact TechPort" for specific system operation information. Media should contact NASA Public Affairs, or go to <http://www.nasa.gov/content/submit-a-question-for-nasa/>