

# Innovative Partnerships Update

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# Innovative Partnerships Office



## Partnerships

- Within NASA, primarily responsible for:
  - Technology transfer and commercialization,
  - Intellectual property management,
  - Technology coordination, partnerships and joint activities with other Government agencies, and
  - Technology coordination, partnerships and joint activities with commercial industry.
- Lead the technology transfer, commercialization, IP management and technology partnership development functions at each NASA Center.



## Innovation

- Develop and pilot new models and approaches to nurture innovation inside and outside of NASA.
- Represent OCT in deliberations involving innovation-related policies and processes for NASA.



## Emerging Space (new in FY 2012)

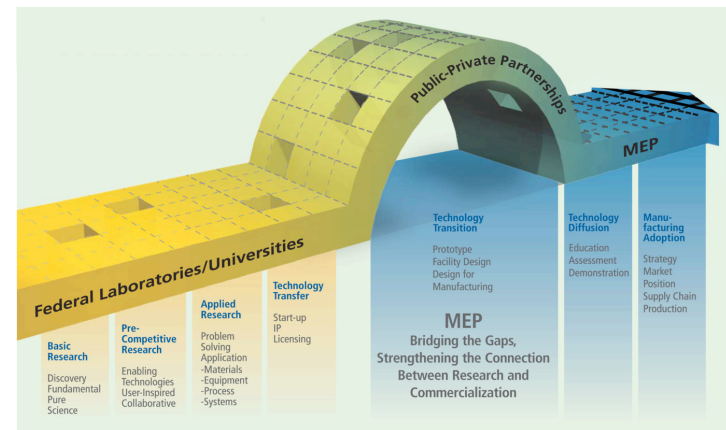
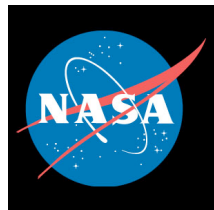
- Analyze and assess emerging space markets bringing this data into Space Technology selection processes.
- Advocate for foundational research investments and collaboration models like those employed by NACA in sparking the growth and success of the American aviation industry.



- Colorado Technology Acceleration Program
  - Licensing Acceleration Pilot
- SBIR “Technology Available” Initiative
- Innovation Ambassadors
- Quantification of Spinoff Benefits



# Partnerships for Economic Growth



- NASA recently signed a Space Act Agreement with the Colorado Association of Manufacturing and Technology (CAMT).
  - Develop a pilot initiative focused on accelerating technology transfer and commercialization through the creation of a regional Technology Acceleration Park (TAP), focused on the Aerospace and Energy sectors.
  - Other partners include: NREL, Department of Commerce, ITA, Department of Labor, University of Colorado, Colorado State Department of Economic Development, Jefferson County Workforce Development Council, Colorado STEM Network, Governor's Office.
- NASA seeks to replicate this model in other states and regions, to drive regional economic growth and strengthen aerospace and energy supply chains.

## Accelerated Licensing Pilot



- As an element of the NASA partnership with CAMT and the Colorado Technology Acceleration Program (TAP), CAMT will work with companies in Colorado to identify particular technology areas that they would like to explore, with regard to licensing NASA technology.



- The initial goal for this pilot is to identify at least 20 candidate licensing opportunities.
- Dr. Elvir Causevic, the TAP Director in Colorado, is engaging with Colorado companies to identify technology need areas.
- NASA will work with CAMT to analyze the NASA IP portfolio and identify potential matches and opportunities for licenses.



## SBIR “Technology Available” Pilot



- In the 2011 solicitation for SBIR/STTR, NASA will explicitly include information about available NASA patented Intellectual Property (IP) that may be relevant to our SBIR subtopics.
  - This will make it easier for SBIR firms to build on NASA’s patented technology with the intent of producing infusible technologies for NASA projects and/or a product for commercialization.
- Research license agreements will be signed by companies planning to use a NASA patent in support of an SBIR subtopic.
  - The research license will be granted for the period of performance of the SBIR research.
  - Should companies wish to commercialize their technology (building on the NASA IP) after the research is complete, they can seek a commercialization license using standard licensing procedures.
  - Companies can also pursue patent protection for an innovation they may develop under their research that goes beyond the NASA patent.



## SBIR “Technology Available” Pilot



- This new feature to our SBIR solicitation builds on a pilot that was done by NIST, and is consistent with the OSTP/SBA strategy for SBIR 2.0.
- The pilot will be a win-win for NASA and our SBIR firms for many important reasons:
  - allows further innovation/development of NASA owned intellectual property;
  - creates greater awareness within the NASA technical community of available NASA technology that may help meet their needs;
  - reduces reinventing what already exists;
  - advances the state-of-the art for new NASA applications; and
  - accelerates the dissemination of NASA owned technology so that NASA can procure products we need from industry and move on to other new research and development challenges.



# Innovation Ambassadors



- Innovation Ambassadors is a competitively selected professional development opportunity for NASA staff.
- This program:
  - Allows NASA to learn about and benefit from creativity and innovation occurring outside the agency;
  - Shares NASA expertise with a broader external community;
  - Provides a unique training opportunity for select NASA employees to broaden their technical and management skills with a focus on innovation; and
  - Fosters new relationships between NASA and external organizations especially those outside the conventional aerospace field.







## Innovation Ambassadors



- The Innovation Ambassadors are nominated by their home organizations to participate in this temporary developmental assignment.
  - The program is established in partnership with the Office of Human Capital Management and the Office of the Chief Engineer Academy of Program/Project and Engineering Leadership (APPEL).
- Selected Ambassadors are assigned to work with a host external organization for up to one year.
  - The host organization will have the benefit of the expertise of the NASA employee at no cost.
  - The nominating NASA organization continues to fund the individual and prepares a re-insertion plan for the completion of the assignment.
  - The NASA employee will focus on improving technical and management skills while learning, on a day-to-day basis, about the innovative technologies and processes used by the host organization.
  - OCT funds the extended TDY (if any) for the selected Ambassadors.
- Following the assignment, the NASA employee will be expected to disseminate the new knowledge within NASA and lead efforts to implement new technologies and process improvements based on the experience.

# Innovation Ambassadors



- The initial class included two Ambassadors.
- Eric Darcy from Johnson Space Center.
  - Eric worked with the National Renewable Energy Laboratory (NREL) in Golden, Colorado, to develop mathematical models for lithium-ion battery performance,
  - As the Battery Group Lead at Johnson, Dr. Darcy has routine opportunities to share with his team the ideas he learned while at the NREL.
- Kelly Snook from Goddard Space Flight Center
  - Kelly explored the use of sound as a means of visualizing and analyzing scientific data at the Massachusetts Institute of Technology Media Lab.
  - Kelly Snook's work has led to the development of a new high tech fabrication facility, or "fab lab," at Goddard.
- Announcement for Innovation Ambassador opportunities for 2011 will be released soon.



NASA engineer Eric Darcy, left, and NREL engineer Kandler Smith get ready to test lithium-ion batteries for how well they can combat rare but potentially catastrophic thermal runaways.



## Quantification of Spinoff Benefits



- Since NASA's inception, there has been a steady stream of public benefit around the world from technologies developed for space and aeronautics.
  - There have been numerous studies and approaches developed for generalizing the measure of these benefits, but none have been broadly accepted or consistently adopted.
  - Anecdotal examples have given snapshots of quantitative benefits but there was no method of systematically collecting and validating benefits.
- NASA is implementing an approach for systematic collection of quantitative benefits from the transfer of space and aeronautics technology.
  - This approach identifies a small number of quantitative measures that capture the predominant categories of benefits.
  - The definition of these measures is being shaped by analysis of the last several years of technology transfer successes published in NASA's annual Spinoff document.
- NASA is beginning to implement the collection and validation of these measures in the process of writing and documenting future Spinoff stories, and in retrospectively beginning to collect information from previously published Spinoff stories.



## Summary of Quantification Categories

- **JOBS CREATED:** This measures the **number of people** that a company producing or offering a product or service that is a direct application or spinoff of NASA technology has hired as employees since its initiation of use or production of that NASA-derived product or service.
- **REVENUE GENERATED:** This measures the **number of dollars** that a company producing or offering a product or service that is a direct application or spinoff of NASA technology has generated from the sale or use of this product or service.
- **COST AVOIDANCE:** This measures the **number of dollars** that a company producing or offering a product or service that is a direct application or spinoff of NASA technology has either saved for themselves or for their customers as a result of improvements in efficiency in production, use, fuel consumed while producing or using, or in other quantifiable measures as a direct or indirect result of applying the NASA-derived technology.
- **LIVES NOT LOST:** This measures the **number of people** whose lives were not lost due to a product or service that is a direct application or spinoff of NASA technology.
- **QUALITY OF LIFE:** This measures the **number of people** whose lives a product or service that is a direct application or spinoff of NASA technology has extended, enhanced, and/or improved.
- **ENVIRONMENTAL IMPACT:** Specifics of this measure are still being assessed, but candidates include reduction of emissions, carbon footprint and/or power consumption .