



The Computerworld Honors Program

Honoring those who use Information Technology to benefit society

Final Copy of Case Study

LOCATION:
United States

ORGANIZATION:
National Aeronautics and Space Administration (NASA)

YEAR:
2011

ORGANIZATION URL:
<http://www.nasa.gov/>

STATUS:
Laureate

PROJECT NAME:
NASA HQ Innovation Ecosystem

CATEGORY:
Innovation

PROJECT OVERVIEW

NASA recognizes that sharing best practices and cross-pollinating ideas can improve operational efficiency, reduce duplicate efforts, and drive more effective communication of its capabilities to potential clients and partners. Traditional technology outreach and knowledge transfer efforts did not produce the exponential collaboration opportunities NASA desired and, as a result, the agency identified the need for an Innovation Ecosystem—a systematic approach to encouraging and capturing innovative technologies and relationships, knowledge discovery and dissemination, capability building, and investment portfolio management. In September 2010, NASA Headquarters (HQ) Information Technology and Communications Division (ITCD) launched the development of the NASA HQ Innovation Ecosystem to employ a holistic approach to information sharing, collaboration and innovation facilitation across the agency. The overarching goal is to offer a scalable and sustainable method for NASA HQ to leverage intellectual capital for building and strengthening its capabilities while developing a robust technology portfolio to enable and promote agency-wide innovation. The focus of the NASA Innovation Lifecycle is on mission-related technology and advanced mission-related information technology supporting infrastructure. The Innovation Ecosystem Program comprises four distinct components facilitating technology innovation and adoption across NASA:

- Technology Injection Framework: Establishes the governance and supporting infrastructure to enable the Innovation Ecosystem and embed the capability within the existing NASA resources, including the NASA Technology Innovation (NTI) Advisory Council, the establishment of communities of interest, and the implementation of an Innovation Lifecycle process to identify, vet, and integrate emerging technologies and innovations rapidly into NASA.
- Technology Showcase and Physical Demonstration: Provides hands-on demonstrations of new technologies and innovations created within NASA, the private sector, and universities, and is the most visible aspect of the Innovation Ecosystem to NASA personnel and partners.
- Technology Injection Platform: Reaches the NASA audience—even when they cannot physically visit the Technology Showcase—and engages their innovation

through conversations and relationships. This platform provides a larger virtual version of the Technology Showcase and actually exceeds the physical capacity of the Showcase. The platform encourages input from the audience, which will become a source of innovation presentation and discussion. Ultimately, this will become the knowledge management engine of the online Innovation Ecosystem platform. • Information Dissemination: The methods and strategies for disseminating information regarding technologies and innovations are the foundation for communicating the overall Technology Injection Program, Technology Showcase, and the evolution of the Innovation Ecosystem.

SOCIETAL BENEFITS

The Innovation Ecosystem provides scientists, technologists, and innovators worldwide with a common platform for identifying, collaborating on, and leveraging emerging technologies and breakthrough innovations to support NASA missions. It also encourages NASA personnel to view new technologies and innovations from a “vendor-agnostic” perspective to expand NASA’s relationships with innovators.

PREVIOUS PROJECT UPDATED/EXPANDED?

Phase I established a holistic approach for the Innovation Lifecycle Technology Injection, which leverages information sharing and collaboration. This approach offers a scalable and sustainable method for NASA to leverage intellectual capital for building and strengthening its capabilities and bringing to market a robust technology portfolio. The products of Phase I are the Technology Showcase, Virtual Showcase and Technology Collaboration Platform, and Information Dissemination Vehicles. This foundation allows for technology to be displayed in physical and virtual forms, provides a platform for knowledge management and technology collaboration, and delivers a mechanism for communicating important information about the Innovation Ecosystem. Phase II will build on the successes of the Phase I and its three resulting recommendations covering Technology Relationships, the NTI Advisory Council, and Technology Communities. Phase II will establish the NTI Advisory Council and associated governance, formally establish Technology Communities of Interest on the platform, increase and expand available technology in the Showcase, and further integrate Innovation communications into existing NASA methods. Phase III will build on the strength of the physical and virtual Technology Showcases and the ability to collaborate around technology through the Platform. It will also rely on stronger governance through the NTI Advisory Council and on further information dissemination. This solid foundation will empower greater relationship development and encourage new technologies to rotate in and out of the showcases. It will also enable technologies that meet mission needs and find justification for further Technology Engineering and Incubation to include prototyping and a development sandbox for testing and scaling. As technology progresses through the Innovation Lifecycle, NASA’s internal technology innovation successes will also be showcased.

PROJECT IMPLEMENTATION COMPLETE?

Yes

PROJECT BENEFIT EXAMPLE

The Technology Showcase is the most visible aspect of the Technology Injection Program and is the starting point of the Innovation Ecosystem. It sets the tone for enabling innovation at NASA as a tangible demonstration of how innovation and technology injection at NASA can work and underscores the importance of interacting with stakeholders and building internal and external relationships. At the same time, it provides a source for collaboration



and innovation. The initial showcase is under construction at NASA HQ. Each NASA Center has been encouraged to build a Technology Showcase to facilitate discussions and interaction with technology relevant to their own mission needs. As additional Technology Showcases are established, the network expands, promoting further collaboration between Centers and missions. The Network will act as a library would for books, allowing for inter-network loans of physical technology. The Technology Showcases also provide places to feature NASA technology innovation award winners and the most innovative technologies from Small Business Innovation Research (SBIR); by being featured in the Showcases, these technologies may be recognized, applauded, and perhaps, even find a “home” with NASA or other cutting-edge organizations. The Virtual Showcase and Technology Collaboration Center Platform augments the information available to visitors of the physical showcases and serves as a virtual information-sharing and collaboration platform for NASA staff unable to visit the showcases. All NASA employees and affiliates can access the Virtual Showcase. As the Virtual Showcase and Technology Collaboration Center Platform tool develops further, the NTI Advisory Council will use it for governance and implementing their recommendations, while NASA stakeholders will use it to facilitate Technology Communities in innovation discussions, innovation and technology planning, and information sharing.

IS THIS PROJECT AN INNOVATION, BEST PRACTICE? Yes

ADDITIONAL PROJECT INFORMATION

The NASA Innovation Ecosystem is a best practice that is definitely applicable and customizable to other organizations aiming to connect innovators, build relationships, and capture knowledge. The NASA Innovation Ecosystem advances the practices of technology injection and innovation management by tailoring leading industry best practices in driving innovation and knowledge management to the mission-specific advanced technology needs of NASA from all possible sources, not just the aerospace industry, allowing for true innovation and relationship building. The Innovation Ecosystem utilized lessons learned from various industry models and case studies to create an Innovation Lifecycle process that manages NASA’s innovation pipeline growth, brings together the most appropriate subject matter experts from across NASA at the right time to drive early adoption, and utilizes advances in prototyping and optimization to bring the innovation “to market” within NASA in order to realize key mission and project results/improvements. Additionally, the Innovation Ecosystem project developed the NASA Technology Innovation (NTI) Advisory Council to actively engage stakeholders through a revolutionary, mission-led, cross-functional structure:

- The NTI Advisory Council identifies, reviews, evaluates, and recommends new technologies and innovations that may serve to provide new value to NASA missions across the agency.
- The NTI Advisory Council supports the NASA technology innovation process by evaluating, facilitating, and recommending new technologies for wider agency adoption and implementation. This is partly driven by needs from the various Mission Directorates, and also looks at industry technology trends for new prototype or in-production technologies.
- The NTI Advisory Council also advises the NASA Deputy Administrator and other leaders as appropriate on emerging technologies and innovations that will enable or support current and future agency missions.