

BUSINESS INNOVATION SYMPOSIUM (E6)

Innovation, Entrepreneurship & Investment: The Microscopic Perspective (1)

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THE INNOVATION LANDSCAPE WITHIN A LARGE GOVERNMENT AGENCY: PROMISING PRACTICES FROM THE U.S. NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Abstract

The NASA Mission is to “Drive advances in science, technology, aeronautics and space exploration to enhance knowledge, education, innovation, economic vitality, and stewardship of Earth. NASA’s complementary Vision is to “reach for new heights and reveal the unknown for the benefit of humankind” (NASA Strategic Plan). NASA’s future success will be determined largely by the investment and innovations made today in scientific research, technology and our workforce. To achieve mission success through the highest standards in engineering, research, operations and management, NASA is committed to nurturing an organizational culture of innovation.

Innovation is the application of a novel approach that provides improved outcomes or enables new outcomes to create value for people. Innovation as defined here, is broadly applied to technological, scientific, engineering, educational, outreach and organizational activities across NASA. Innovation is essential to enable NASA to achieve all three Strategic Goals outlined in the NASA Strategic Plan. The first strategic goal focuses on expanding the frontiers of knowledge, capability, and opportunity in space. The second strategic goal focuses on our work to improve the understanding of life on Earth. Finally, the third strategic goal focuses on major management priorities and challenges.

This paper builds on a framework proposed by Pisano which maps the Innovation landscape into four quadrants, depending on whether the innovation pursues new approaches in the area of technology or organizational processes. While the Pisano analysis is applied to private sector firms, this paper adapts the framework to a large, public sector agency and explores Routine, Disruptive, Revolutionary and Transformative innovations. Routine innovation builds on existing technological capabilities and fits within the existing organizational model. Disruptive innovation requires organizational change rather than a breakthrough in technology, as proposed by Christensen. Revolutionary innovation is the counterpoint to disruptive innovation, requiring a technological breakthrough within the existing organization. Transformative innovation combines technological and organizational disruptions.

Assessing innovation along these two dimensions helps provide a balanced strategy for investment in terms of the degree that innovations involve a change in technology a change in organizational practices. Leadership within an organization can evaluate how investment in each of the four areas contributes to meeting strategic goals. This paper maps innovation activities within NASA to the four quadrants of the Innovation Landscape and presents promising practices that illustrate dynamics of innovation within a large government agency.