ABSTRACT AND BIOGRAPHY

Participatory Exploration and the Role of the User Contribution System in Space Exploration

What do established companies like Hyatt, Best Buy, Honda, Dell, Proctor & Gamble, Dell, and Starbucks have in common with online ventures such as Wikipedia, youTube, Facebook, Ebay and Amazon? They are all organizations that have created value for their business by allowing non-traditional participants to voluntarily contribute their time, energy and expertise to the organization's mission. This paper/presentation will discuss the role of the "user contribution system" as applied to the future of space exploration. A background on recent legislation passed in 2008 on "participatory exploration" requiring NASA to identify opportunities to leverage new technologies and to facilitate participation by the public, the private sector, nongovernmental organizations, and international partners, will be discussed. Then, participatory exploration will be defined in respect to a user contribution system for the purpose of investigating how measurable value can be added through the aggregation of voluntary contribution from participants both inside and outside the NASA community. The paper/presentation will challenge project and program managers to capitalize on this idea by building their own platform with the goal of addressing a current challenge, such as reducing the cost of R&D, improving knowledge transfer, or increasing system reliability. Case studies of external organizations, as well as projects and programs within NASA, will be used to offer lessons learned and advice based on the successful implementation of user contribution systems.

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Nicholas Skytland is a project manager at NASA who is passionate about developing an open innovation framework within NASA to offer individuals, academia, companies, and space agencies around the world the opportunity to directly contribute to space exploration. Skytland is the project manager of the EVA Physiology, Systems and Performance Project (EPSP), and the deputy project manager of the Digital Astronaut Project, within the Space Life Sciences Directorate at Johnson Space Center (JSC). His work includes planning future lunar architectures, designing the next generation space suits, and developing an open-source computational model to simulate human responses to spaceflight and reduced gravity environments.

In 2008, Skytland also served as the Technical Assistant to the Deputy Associate Administrator for Strategic Partnerships where he was responsible for developing non-traditional partnerships for NASA. Prior to his position in Space Life Sciences, Skytland worked in the Mission Operations Directorate at the Neutral Buoyancy Laboratory where he was the facility interface for training operations and coordinated astronaut extra-

vehicular activity (EVA) training and provided real-time flight support for International Space Station (ISS) and Space Shuttle programs. In 2004, Skytland worked for the X PRIZE Foundation and was instrumental in the planning and support of the first privately funded, manned space launch event of SpaceShipOne in the Mojave Desert. Skytland has helped coach and train people to experience the excitement of weightlessness through the Zero G Corporation.

Skytland holds a master's degree from the International Space University in Space Studies and a bachelor's degree from Valparaiso University in Mechanical Engineering. He is currently pursuing an MBA degree at the University of Texas. Skytland serves on the executive committee for the American Astronautical Society, as well as for Yuri's Night. In October 2008, Skytland was awarded the Outstanding Young Alumnus Award from Valparaiso University.