

Title: Risk as a Driver for Innovation.

Authors: Jeff Davis, Jennifer Fogarty, Michele Perchonok, Neal Zapp, Melvin Ferebee, J. Michelle Edwards

The Space Life Sciences directorate (SLSD) and Human Research Program (HRP) at NASA Johnson Space Center has implemented a system for managing human systems risks. These risks are defined as the health and performance risks posed to crew during and after spaceflight. Identification and evaluation of these risks has led to the identification of gaps in knowledge about the risks as well as gaps in technology needed to mitigate them. Traditional routes of closing technology gaps have, in some cases, proven to be too slow when a solution was required quickly. Therefore, certain gaps were used to drive the development of “challenges” for the scientific community. Partnering with open innovation service providers such as InnoCentive and Yet2.com, SLSD and HRP have decreased the amount of time from identification of a need to the evaluation of a solution. Although not all proposed solutions will result in a risk mitigation strategy or tool, the process has allowed faster evaluation of proposed solutions providing the researcher the ability to move to another possible solution if the first does not sufficiently address the problem. Moreover, this process engages the community outside of NASA and broadens the population from which to draw solutions. In the traditional grant funding structure, only those in the specific field will apply for the grant. However, using open innovation, solutions can come from individuals in many different fields. This can expand the general view of a field (way of thinking within a field) and the application of solutions form new fields while providing a pathway for the acquisition of novel solutions or refinements of current mitigations. Identification of the human systems risks has helped drive the development and evaluation of innovative solutions as well as engaging a broader scientific audience in working with NASA.