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Open Knowledge in Mars Missions:

A Discussion on Communication Boundaries and Collaboration

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This work aims to inspire an open discussion on open knowledge, communication boundaries, and collaboration in Mars and Moon missions.

It is well known that communication can be an element of primary importance in manned space missions. In a recent study on Mars mission simulations performed at the Mars Society´s Mars Desert Research Station in the last five years, communication was revealed as the most relevant factor for crew performance and safety. The main goal of space missions is the acquisition and communication of new knowledge. But how to share information, how to deal with data sharing and privacy? Collaboration and transdisciplinarity are essential for current scientific research and technological innovation. Although there exists an open call from NASA and great interest on the part of the space industry in a manned mission to Mars, the present model of communication needed for knowledge sharing might not work in a context where communication patterns and learning-by-doing approaches will have to be reshaped by the distance between Earth and Mars.

Moreover, this topic is also of crucial importance for the current plans of ESA for a permanent settlement on the Moon, such as the Moon Village project.

A global effort regarding knowledge construction, negotiation on ontologies, and open sharing of data could be enabled by the engagement of the scientific communities and involving even laymen and amateurs around the world using the World Wide Web.

An Open Knowledge paradigm made possible by two-way open access communication appears to be a viable solution for supporting the mission crew and ground control, delivering complete information to the public and producing the best feedback for the scientific success of the mission, and supporting the psychological well-being of the crew during the simulation, the voyage, and the stay on Mars. Collective Big & Open Data archiving and retrieval, open portals, and public discussions among crew, mission control, scientific communities, and web users could provide proper support for such an innovative and far-reaching challenge for Mankind.The objective of this discussion is to invite the audience to contribute and interact by sharing their knowledge and opinions in order to jointly develop a contribution on open knowledge for space missions that will be shared as envisioned by the open knowledge logic.