

26th IAA SYMPOSIUM ON HUMAN EXPLORATION OF THE SOLAR SYSTEM (A5)
Human Exploration of Mars (2)

Author: Mr. Niravkumar Patel
France

POTENTIAL SPINOFFS FROM FUTURE MARTIAN TECHNOLOGY

Abstract

Since the Apollo missions, space has contributed to humankind endlessly, and it has never stopped. Many technologies have been developed specifically for space exploration, but we have found a way to bring them back to us in our everyday lives. Spinoffs are a significant asset of space exploration. Spinoffs provide commercial benefits and keep the curiosity burning among space enthusiasts. From memory foam to fireproof suits for firefighters, we as humankind come across every day. Space is enormous, and we are taking baby steps towards it. As we move on, we have started exploring our lower orbit, higher orbit, Moon, and many other planets of our solar system. Humans are now preparing to go to the Martian surface after our natural satellite Moon. We are aware that Mars does not have a suitable environment to live in for humans, but curiosity kept our curiosity alive. We have sent many rovers on the Red Planet to collect as much data as possible. NASA, ESA, and many other private companies dream about going to Mars to reveal its secret. Scientists and researchers are now preparing for human missions to Mars, keeping in mind that it is not easy.

A lot of new technologies are being developed specifically for Mars missions, which will be expensive. What if we start thinking about the spinoffs from future Martian technologies? In this report, a thorough literature review has been conducted about the spinoffs from the past and then identified current developing technologies for upcoming Mars missions. This topic has been investigated by a student from the Master of Space Studies 2022, International Space University (ISU), within the frame of the Individual Project Research. Identified technologies are assessed via TRL – Technology Readiness Levels, a tool developed by NASA to measure technology readiness. It is acknowledged that spinoffs are not the main reasons we are conducting space missions and space exploration, but they are a byproduct. The intention of helping humankind should not be a process via Space exploration. Spinoffs are profits earned from the curiosity inside us to unfold the universe.