

Technology Roadmaps for Space Exploration (09)
Technology Roadmaps for Exploration (1)

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INTERNATIONAL SPACE EXPLORATION TECHNOLOGY INVENTORY: MAPPING
COMPARATIVE READINESS LEVELS ACROSS NATIONAL ACTORS

Abstract

The technologies required at all levels of space exploration require considerable acumen, reflecting an advanced national space technical readiness level. This paper will examine the technical readiness level of five leading space-participant nations considered most able to stage exploration:

1) United States 2) Europe (considered as an integrated actor) 3) Russia 4) Japan 5) China

The paper will also briefly consider emerging space actors who show an increasing ability to conduct space exploration missions.

The five nations listed above will be compared and contrasted in their ability to conduct exploration missions in three environments:

1) Lunar 2) Deep Space 3) Mars

The paper will examine each country's national technology capabilities through the prism of a metric-based analytic matrix. The objective of this analysis will be not only to characterize the relative national space exploration readiness levels of each nation, but also to identify areas where their abilities intersect—possibly enabling collaborative long-term mission roadmapping.