

BUSINESS INNOVATION SYMPOSIUM (E6)

New space at the national, international, and overall industry levels: innovation, entrepreneurship & investment at the macroscopic level of analysis (3)

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HOW NEW SPACE APPLICATIONS WILL CHANGE THE SPACE INDUSTRY BUSINESS MODELS?

Abstract

Goal: Exponential technology growth in recent past has dramatically influenced the everyday life across the planet. The innovative trend is already impacting the Space industry landscape in Manufacturing, Research Development and Operations avenues. Starting from such fast-evolving scenario, this research paper targets to find how these new technology applications are going to impact the current business models in the Space industry.

Methodology: The space industry elements could be broadly discussed in three domains of operations as; ground-based, space-access, and in-space elements. The first step is carried out by identifying potential new space applications belonging to each category. A qualitative assessment of recent innovative development provides a list of fifteen applications that could potentially change the well-established business models in the Space industry. This list includes applications like 3-D printing, quantum computing, space mining, space-based power generation, in-space habitats, reusable launch elements, etc. As the following step, the applications are analyzed using Analytical Hierarchy Process (AHP) to down select the most promising applications. The AHP process involves a quantitative analysis of applications based on evaluation factors, to measure the impact, development risk, setup cost, market scenario and the return of investment potential for each application. A global score is calculated for every application, accounting previously mentioned factors, thus ranking the applications based on a quantitative measuring scale. The top-ranked applications are then taken as evaluation case studies for the business model analysis. The major industry players are identified with current market scenario assessment in respective applications and their operating business models are assessed, based on factors like product and services, value configuration, management scheme, infrastructure, cost structure, revenue stream, key activities et al.

Results and applications: The business model analysis for each application is carried out based on same common business elements. This provides a consistent comparison platform to identify the commonalities, differences and potential advantages associated with each application. This assessment will provide a clear picture of space industry's growing landscape and aims to be of critical value, both, to startups and established industry players in investigating the most impactful and feasible innovative applications to pursue, as well as key business factors to consider while entering such new horizons.