

## 20th IAA SYMPOSIUM ON BUILDING BLOCKS FOR FUTURE SPACE EXPLORATION AND DEVELOPMENT (D3)

### Strategies & Architectures as the Framework for Future Building Blocks in Space Exploration and Development (1)

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## LUNAR COMMERCE PORTFOLIO: CHARACTERISING THE STRUCTURE, ACTORS, AND REVENUE POTENTIAL OF THE EMERGING LUNAR ECONOMY

### Abstract

The coming decades see a marked increase in planned lunar missions. Additionally, increasing emphasis is being placed on creating a commercially-driven lunar economy, to make lunar exploration and development more sustainable. However, freely accessible characterisations and quantifications of the lunar economy have been limited in number to date. For sustainable lunar exploration, development, and commercialisation to occur, this data is necessary in an accessible form. To justify investment in future capabilities and infrastructure, commercial entities with potential interests in lunar development require robust due diligence, and a clear understanding of the potential value chains of the lunar economy. This paper provides this information by presenting the initial findings of (the first edition of) the Lunar Commerce Portfolio, a study initiated in 2021 by the Moon Village Association. This study can be used by investors, entrepreneurs, established businesses and policymakers to drive decision-making and kick-start investment. The study provides research and analysis of nine mutually exclusive and collectively exhaustive market segments of the emerging lunar economy. The study includes the detailed breakdown of each

market by potential suppliers and customers, and utilises latest pricing and technological data to produce an estimate of the total revenue potential of the lunar economy, broken down by market segment. Inter-dependencies between market segments are considered, allowing for a high degree of fidelity in the market model, depending on underlying factors. Several potential steady-state scenarios of the economy's revenue potential are produced, spanning an early phase, whereby lunar settlement(s) are earth-dependent, and a mature phase, whereby they are largely self-sufficient. In addition to these estimates, the study provides detailed descriptions of each market of the lunar economy, as well as potential routes and barriers to commercialisation. This study has been conducted utilising both micro-analysis of current and potential actors, as well as macro-analysis of broader market drivers and constraints. The analysis was informed through publicly available data, interviews with industry actors, and the latent knowledge of participating expert members. The Moon Village Association, through its Working Group on Lunar Commerce and Economics, has conducted this work through voluntary engagement. This IAC submission represents the primary results and presentation of said analysis. This presentation aims to make preliminary results available and accessible to as wide an audience as possible among relevant actors, to achieve maximum impact.