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THE SPACE DEVELOPMENT MATRIX: AN INTERNATIONAL PORTAL TO FORECASTING AND
VALUATING A SUSTAINABLE SPACE BASED ECONOMY**Abstract**

For decades the industry has been thwarted by the absence of a path to profitability in beyond orbital space. The development of infrastructure capable of supporting humans and sustainable economic activities is deemed costly and without sufficient market demand. In this paper, we discuss the development of the *Space Development Matrix* (SDM), a web platform that creates the foundation upon which forecasting of a Space based economy is possible.

The development of an economic growth plan is predicated on the ability to quantify *market demand*, *risk*, and *economic return*. The SDM is a 1st of its kind relational information platform that captures, aggregates, and disseminates the strategic metadata necessary to help plan, forecast, and develop an economic growth plan. It was conceptualized to address the following overarching gaps in the current Space ecosystem: *global situational awareness* – a global directory on who-is-who and who-is-working / has worked on what / when; technology development and mission *prioritization* – aggregated and market demand driven technology and mission prioritization; *data management and dissemination* – breaking down data silos and making information readily accessible; and the *big picture* – contextualization of Space technology development milestones, mission accomplishments, and solar system strategic knowledge in an economic centric outlook.

The development of the SDM is based on the premise of a Space economy centric information classification structure. We have established the following five categories of data classifications in support of the SDM: *Economic Zones*, *Economic Activities*, *Market Demand*, *Space Systems*, and *Technology*. In this paper we show how aggregated analysis and forecasts will lead to high confidence valuation of a future Space based economy. Space is currently perceived as risky and uncertain business; we show how the SDM uses technology, system, industry, solar system knowledge, and Space activity demand metadata to quantify risk posture as a function of economic activities and zones. Market demand constitutes the link between technology/system development and the establishment of economic activities and zones. In turn, the establishment of a market is predicated on the existence of viable economic zones that will drive economic activities and demand. In any economy, the ability to attract significant capital investments is grounded against the capacity to quantify risk and forecast market value; this is what we aspire to achieve with the SDM.