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IN-SPACE ECONOMY IN 2021: STATISTICAL OVERVIEW AND CLASSIFICATION OF COMMERCIAL ENTITIES

Abstract

New in-space economy fields are emerging. The nascent space industries include satellite servicing, orbital transfer vehicles, commercial space stations, in-space manufacturing, commercial rovers landers and many others. New in-space economy definition includes cislunar economy and for the near future also Moon and Mars economies.

Factories in Space (www.factoriesinspace.com) is the largest online database of commercial entities in the emerging in-space economy, space resources and microgravity manufacturing fields. The directory was started in 2018 and is growing quickly with over 300 entries currently.

First part of the paper will define what new in-space economy is and establish classification for the commercial entities. Literature review will be performed and glossary will be created to define the relatively new terms in a single source. Until the new industry categories are defined and widely accepted, activities will be named and grouped by varying methods, which makes it challenging to determine competitors and estimate market sizes. The count of high-level categories will be limited to the order of 10 for practical purposes.

Second part of the paper will present statistical overview of which companies are or aim to be active in the new in-space economy fields. While most of the commercial lander, space resources, habitat and space utilities (energy, oxygen, water, communications) enterprises are focusing on LEO and Moon, many of them will likely add Mars and deep space to their activities once launch opportunities and markets arise. Within the classifications, comparison will be made between capabilities, development status, geographical distribution and funding where available. Goal is to leave a snapshot from 2021 to be able to start discovering trends and next space market booms over the coming decade.

Last third of the paper will take a further look into selected markets. Many reports have been produced about the market analysis of various in-space economy industries, for example satellite servicing and space debris removal. Will reference and discuss the estimates made by the studies, because in some cases the number of companies is not correlated to the market opportunity and there could already be some signs of market bubbles forming.

As far as the author is aware, such analytical overviews and taxonomies for the new in-space economy have not been published before and the aim is to start repeating it annually.