Commercial Landscape of Space Resources in 2021 – Industry Survey

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Introduction

New in-space economy fields are emerging. Factories in Space is the largest public database of commercial entities in the emerging in-space economy, space resources and microgravity manufacturing fields. The directory started in 2018 and has over 300 entries.

Classification & Glossary

What are space resources? How do the companies classify? Space Resources field divides into the following.

In-Space Economy - New extraterrestrial space industries.

Space Resources - Deals with the prospecting, mining, beneficiation, processing, ISRU and recycling of natural or artifical resources in space, including Moon, Mars and asteroids.

ISRU (In-Situ Resource Utilization) - Any hardware or operation that harnesses and utilizes 'in-situ' resources to create products and services for robotic and human exploration [1]. Encompasses exploration, mine planning, mineral processing, metallurgy and sale of off-Earth resources [7].

Prospecting - Determining the composition of asteroids and planets with mining and ISRU in mind.

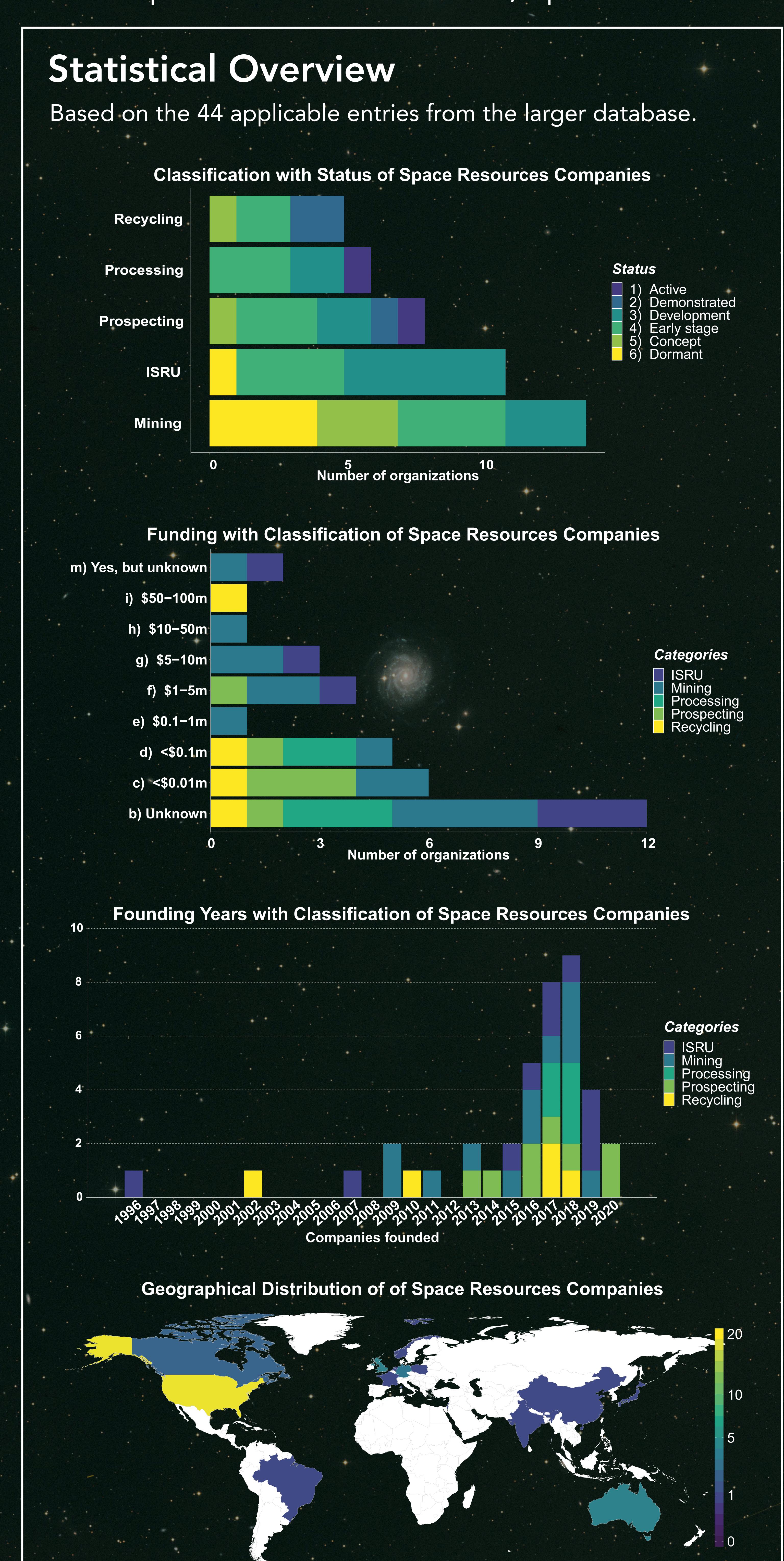
Mining (Asteroid Mining, Lunar Mining) - Extracting and collecting the raw resources from planetoids or planetary surfaces.

Processing or Beneficiation - Separating valuable minerals from waste rock.

Recycling - Reprocessing artificial objects including satellites and spent rocket stages into raw materials or reusing parts of them for new missions.

Raw Materials - Selling processed materials like ice, water, oxygen and metals.

Leaving out broader support services and potential customers starting with Propellant Refuel Stations, Space Utilities (Energy, In-Space Internet etc) and In-Space Transportation.





Selected Markets: Further Look

Asteroid mining: "The global asteroid mining market was valued at \$712.0 million in 2017 and is projected to reach \$3,868.9 million by 2025" [2] "The space mining market was valued at \$0.49 billion in 2017 and is expected to reach 2.84 billion by 2025." [3]

Helium-3: "The price of gaseous He3 has recently increased from \$200 per liter to over \$2750. Consumption in the USA is about 60,000 L (8 kg) per year (2014)." [4] Revenue can be \$165 million.

Recycling: "8000+ tons of space debris incl. 250 tons of aluminium from Ariane upper stages to save billions in launch costs." [5]

References

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- [3] https://www.marketsandmarkets.com/Market-Reports/space-min-ing-market-129545886.html
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