

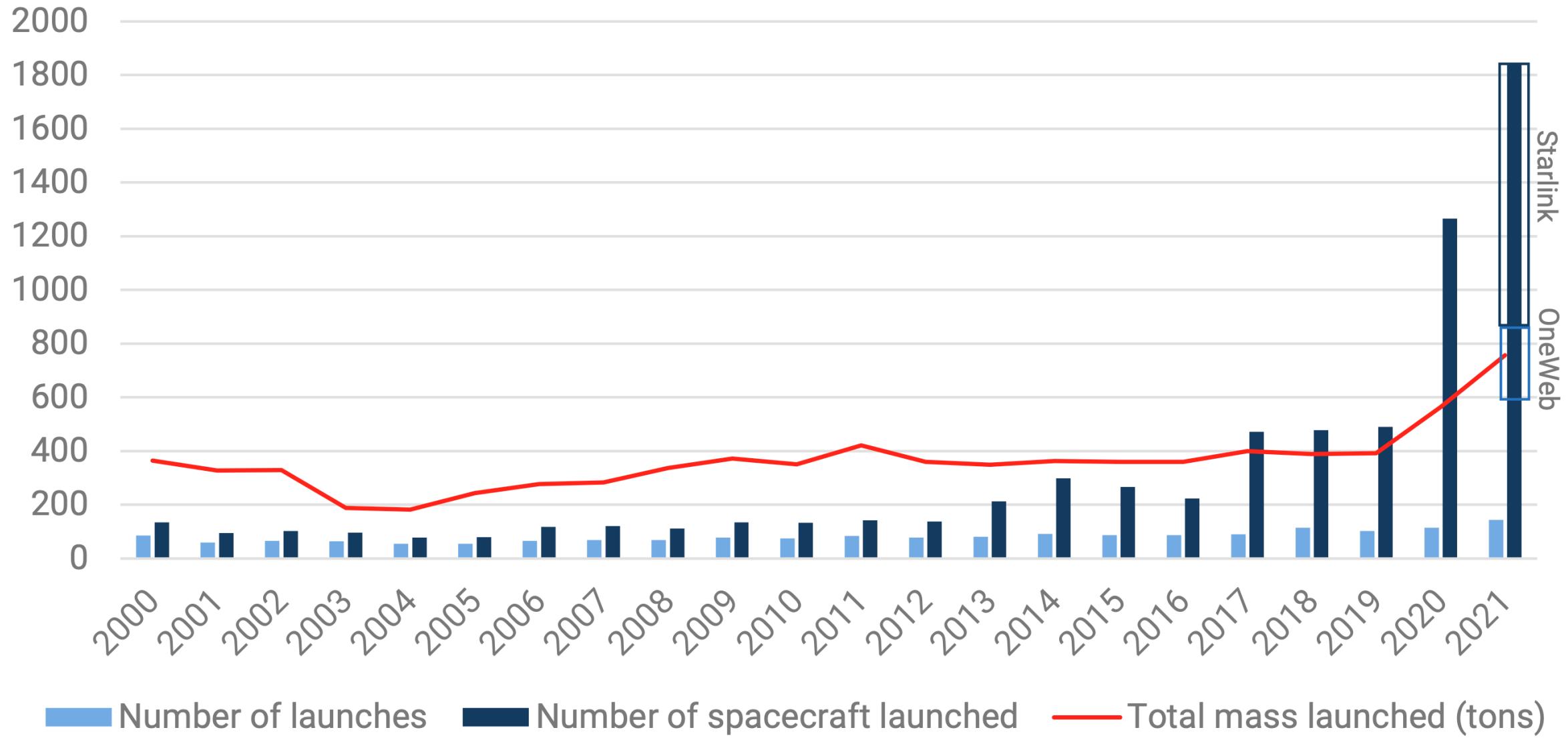
Trendy vo vesmírnom sektore a fungovanie ESA

Tomáš Hrozenký, výskumník v ESPI
SPACE :: TALK, Košice, 6. október 2022

Trendy vo vesmírnom sektore



Zdroje: NASA, ESA, U.S. Government



■ Number of launches ■ Number of spacecraft launched — Total mass launched (tons)

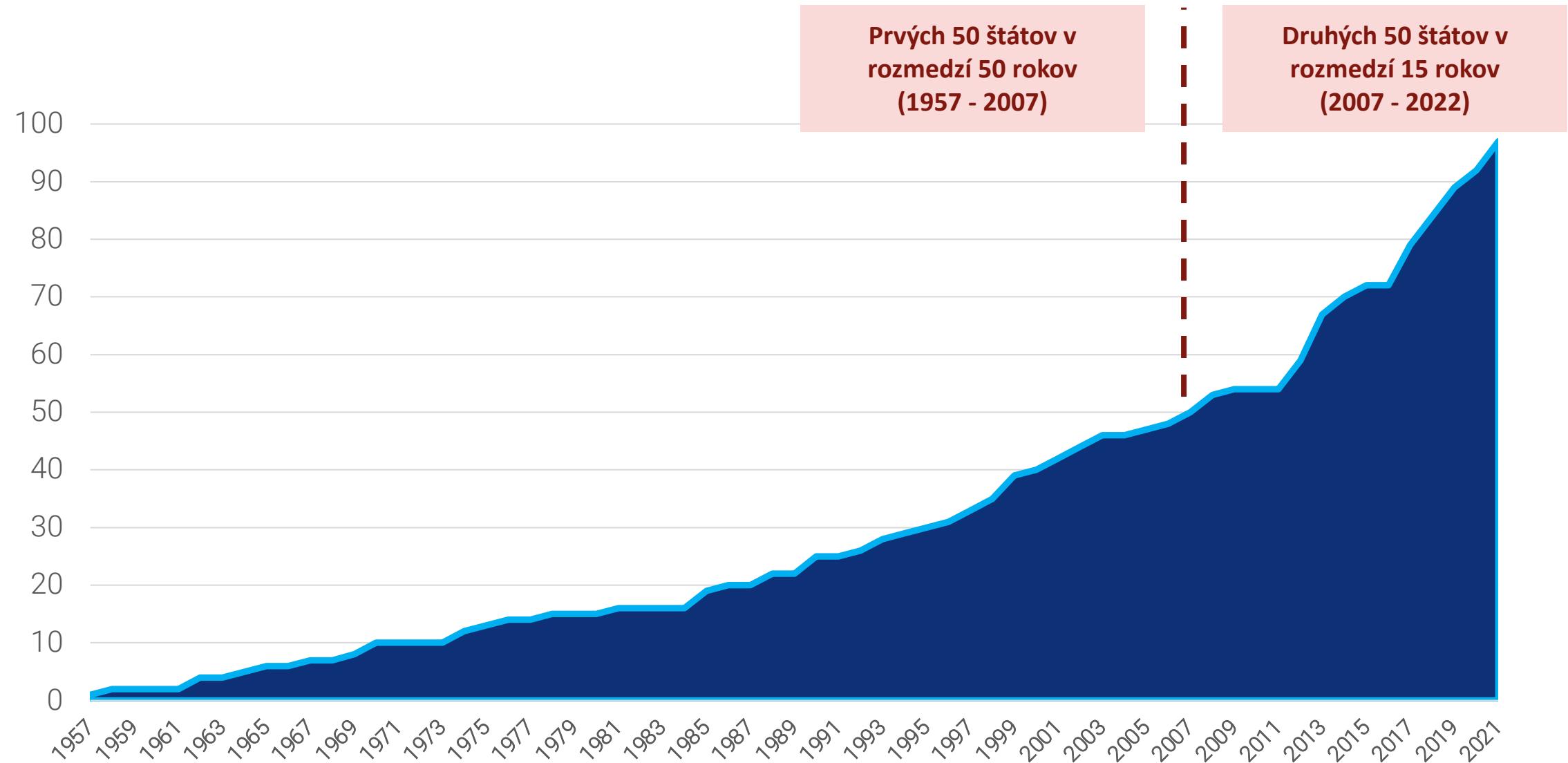
*Democratisation
Privatisation
Commercialisation*

Rastúci počet “spacefaring” nations



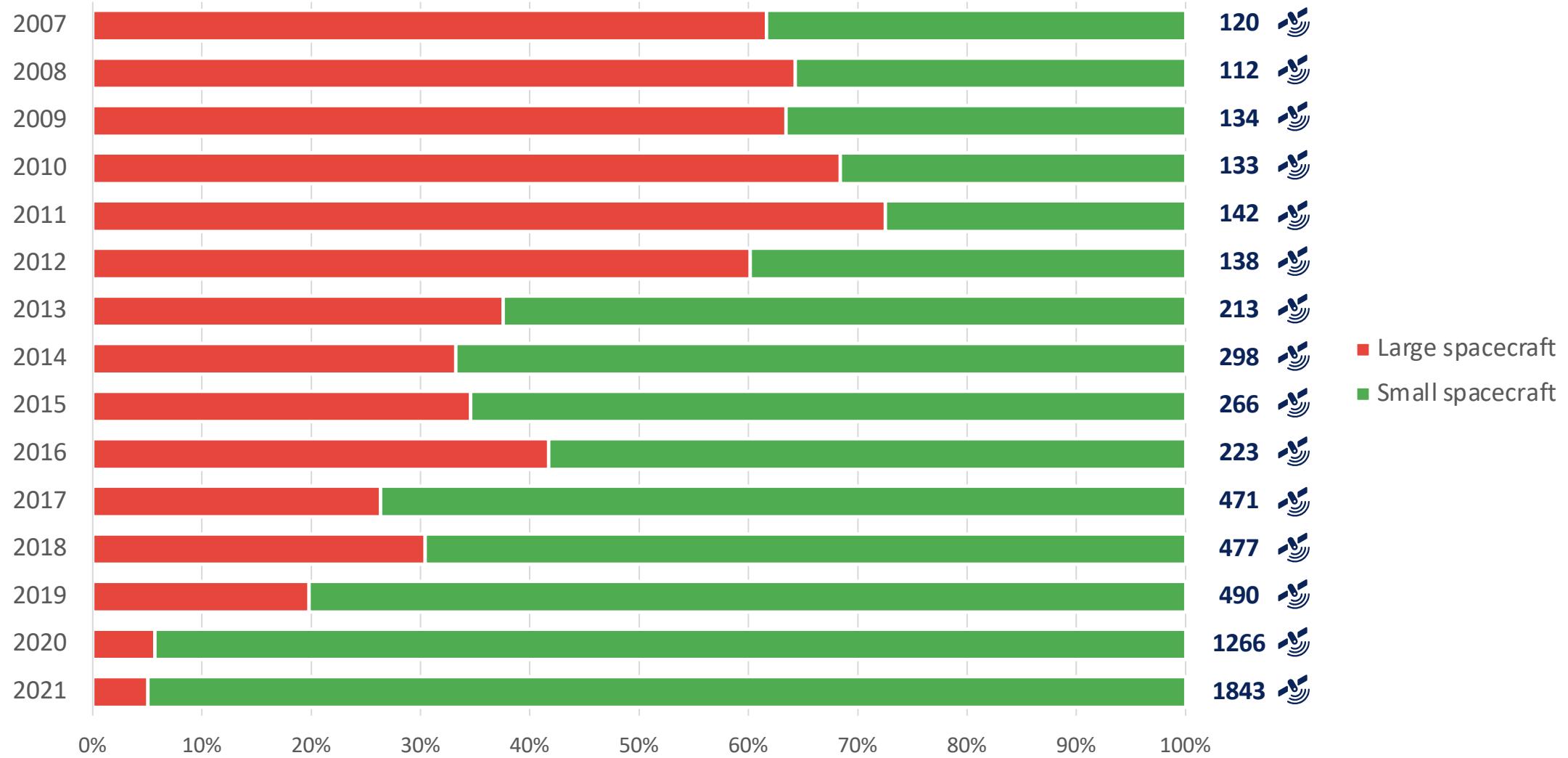
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Zdroj: vlastné spracovanie

Rastúce využívanie malých (dostupnejších) družíc

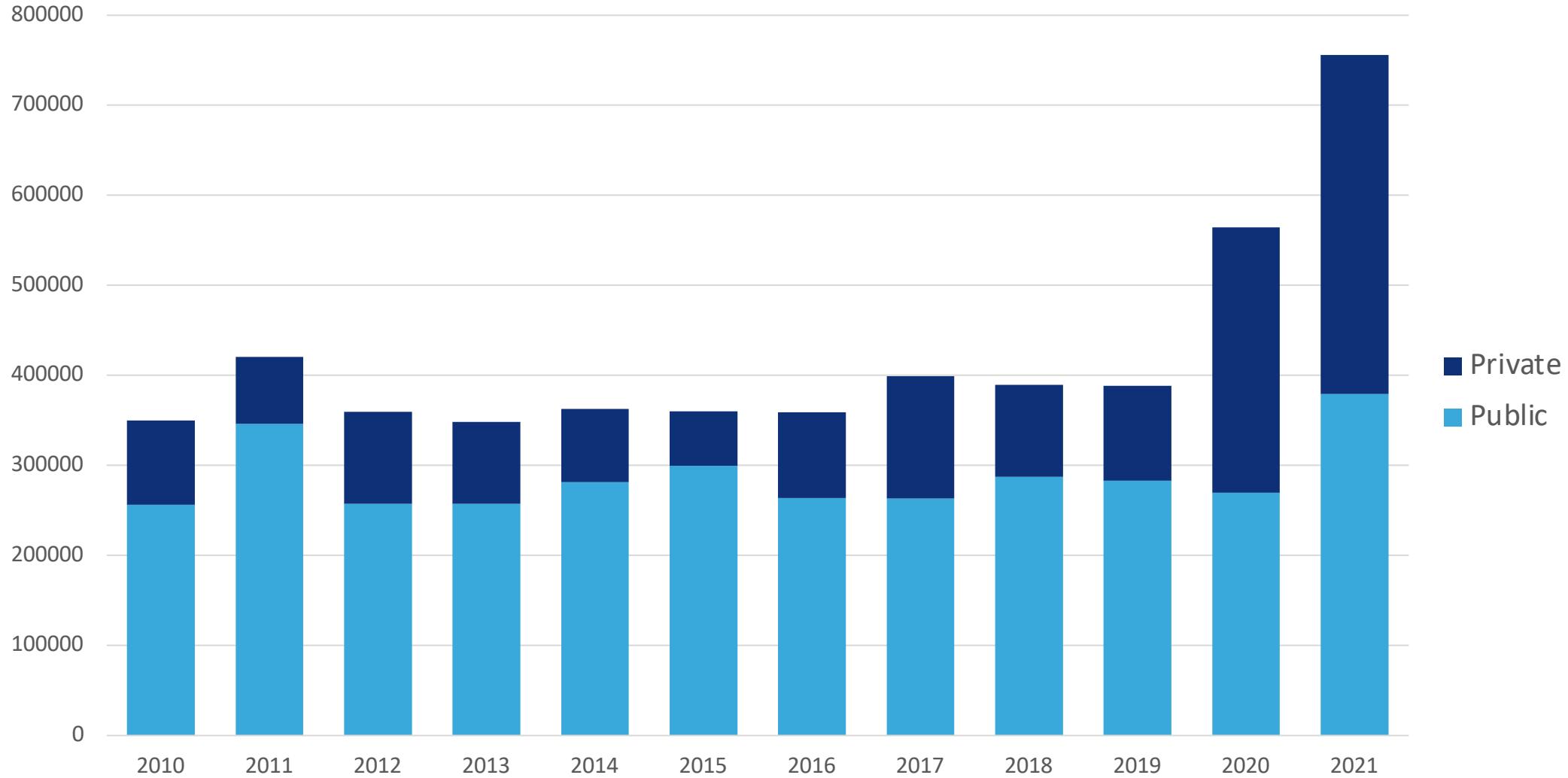


Vývoj kozmonautiky cez porovnanie konečných užívateľov

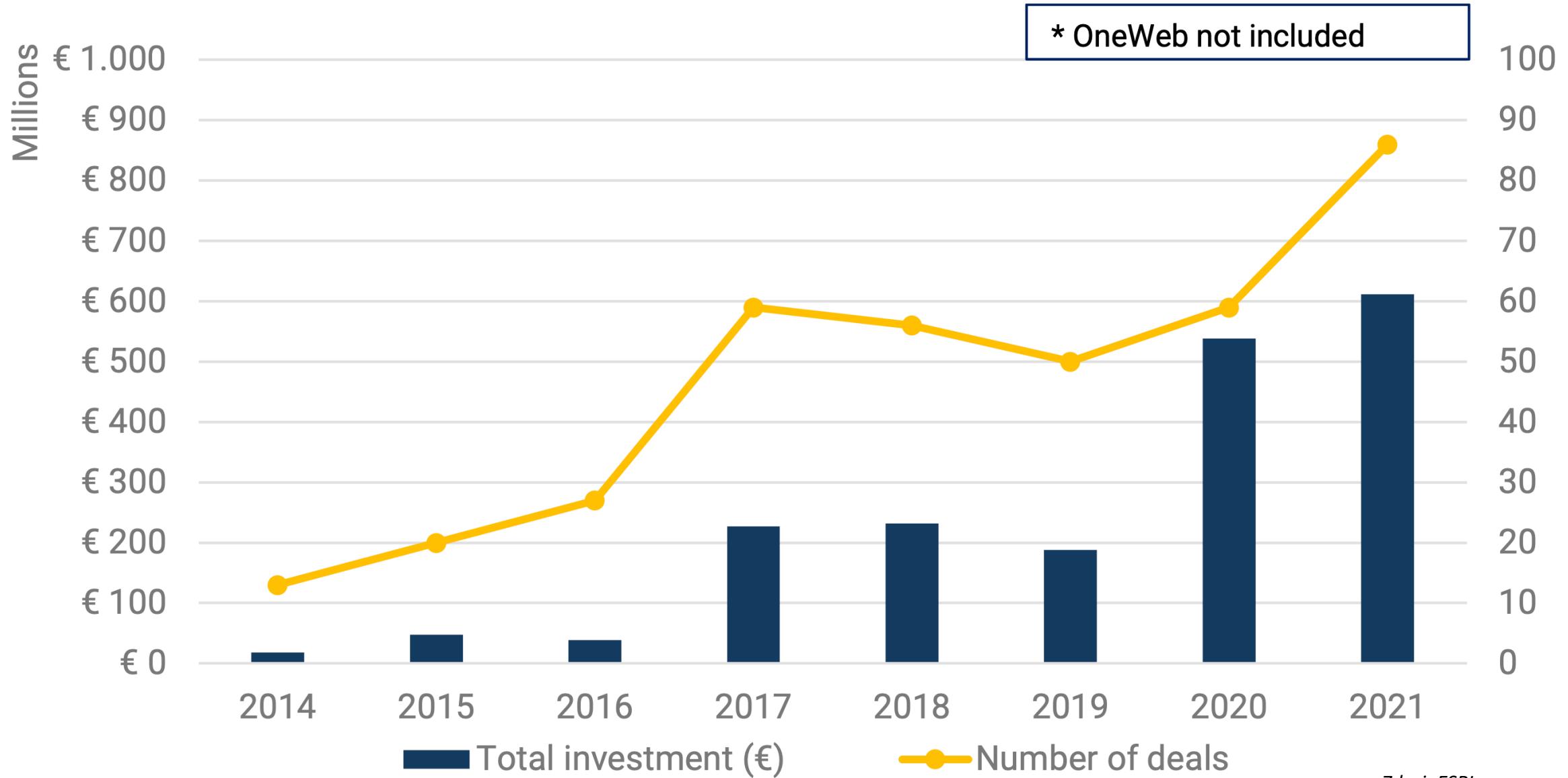


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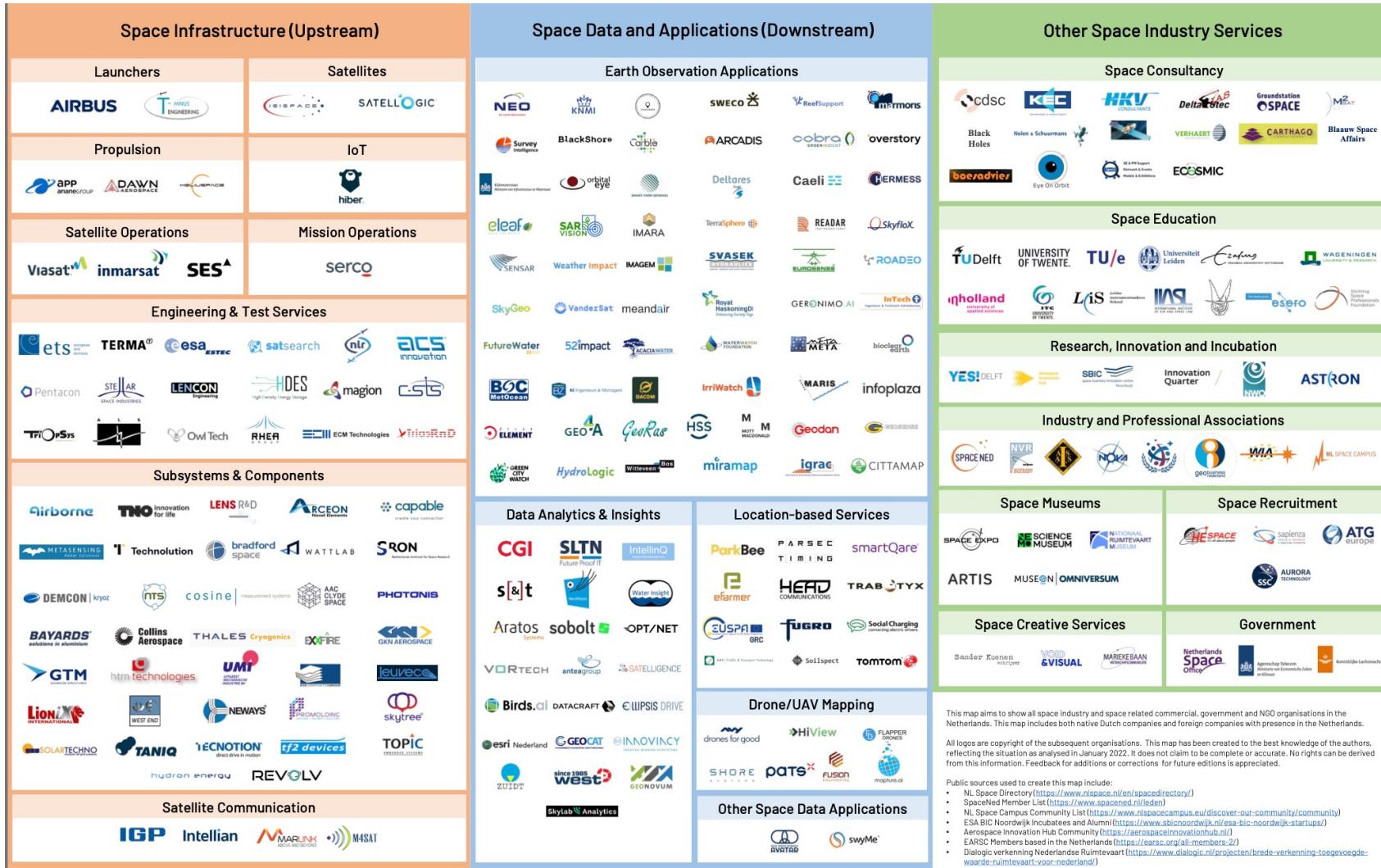
Zdroj: ESPI



Príklad – 200 organizácií v holandskom "vesmírnom ekosystéme"



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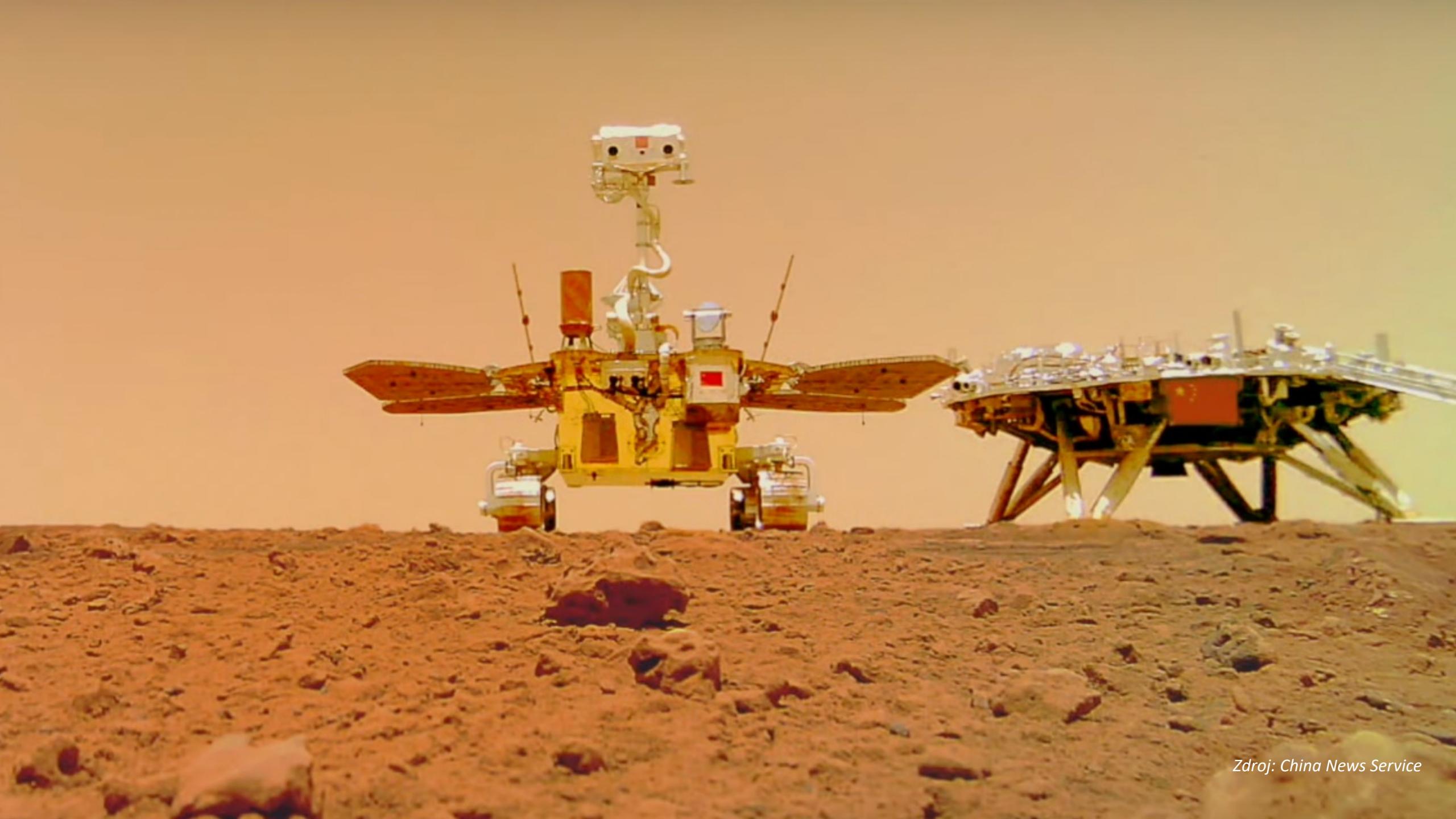
Map version 1.1 - 25 January 2022 - Author: Remco Timmermans for Groundstation.Space ©

Space Industry Map of the Netherlands 2022

Zdroj:
Groundstation.space



Čína – nový globálny líder v prieskume a využívaní vesmíru ?



Zdroj: China News Service

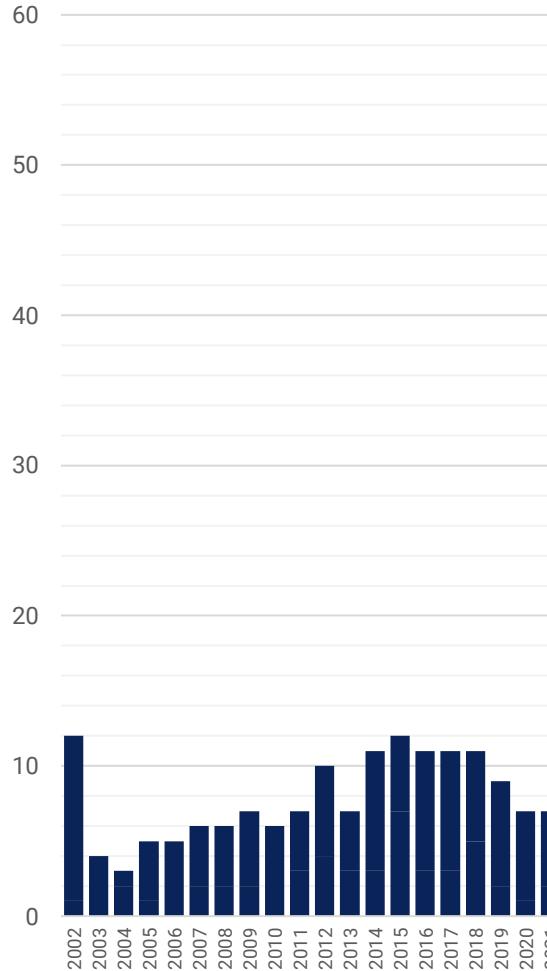
Porovnanie štartov u 4 hlavných aktérov



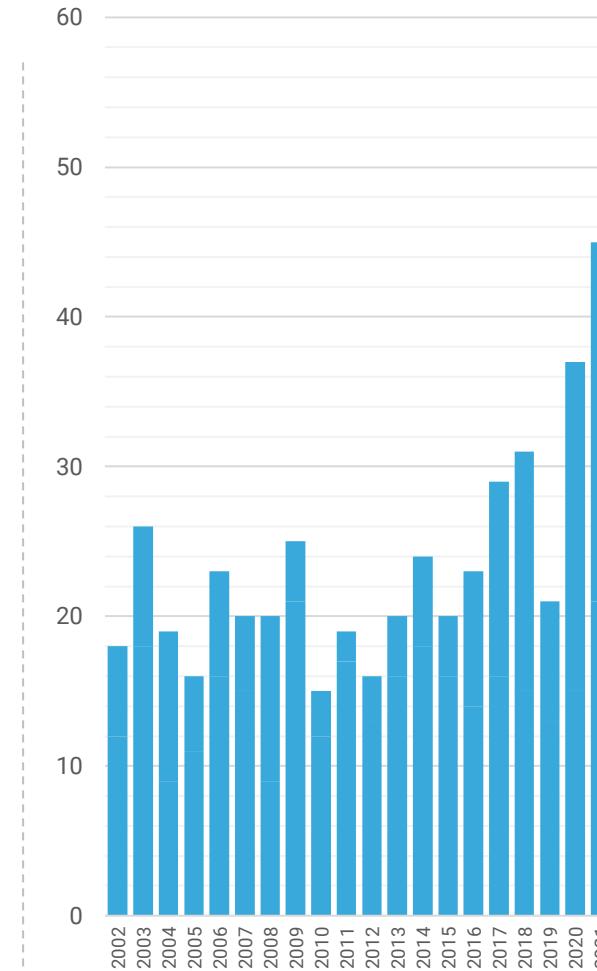
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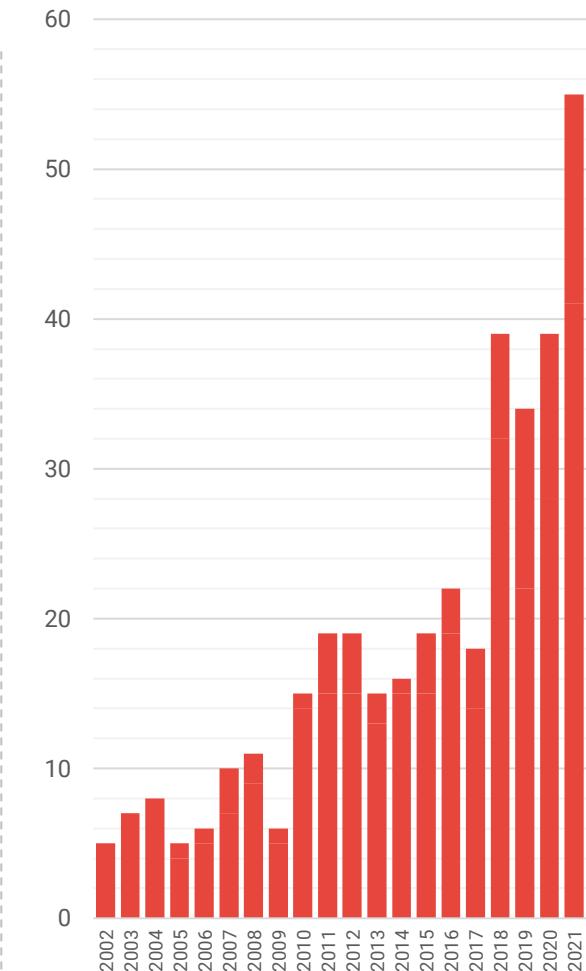
Vesmírne misie z Európy



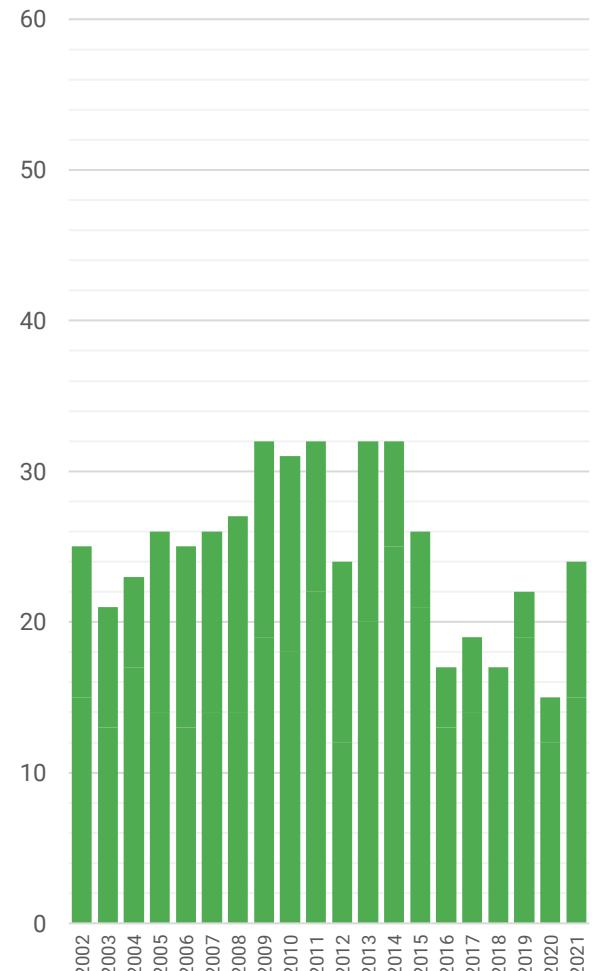
Vesmírne misie z USA



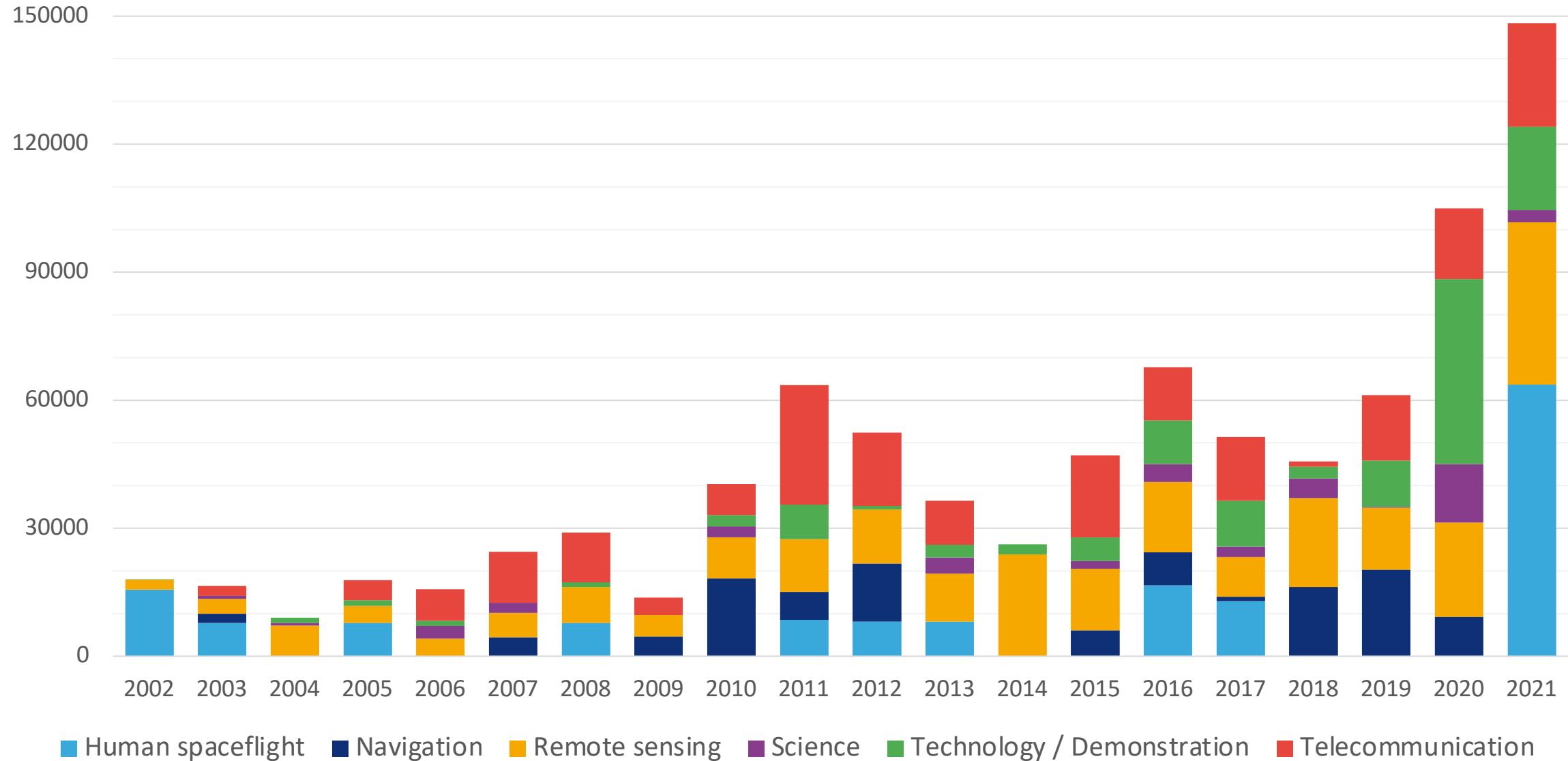
Vesmírne misie z Číny



Vesmírne misie z Ruska



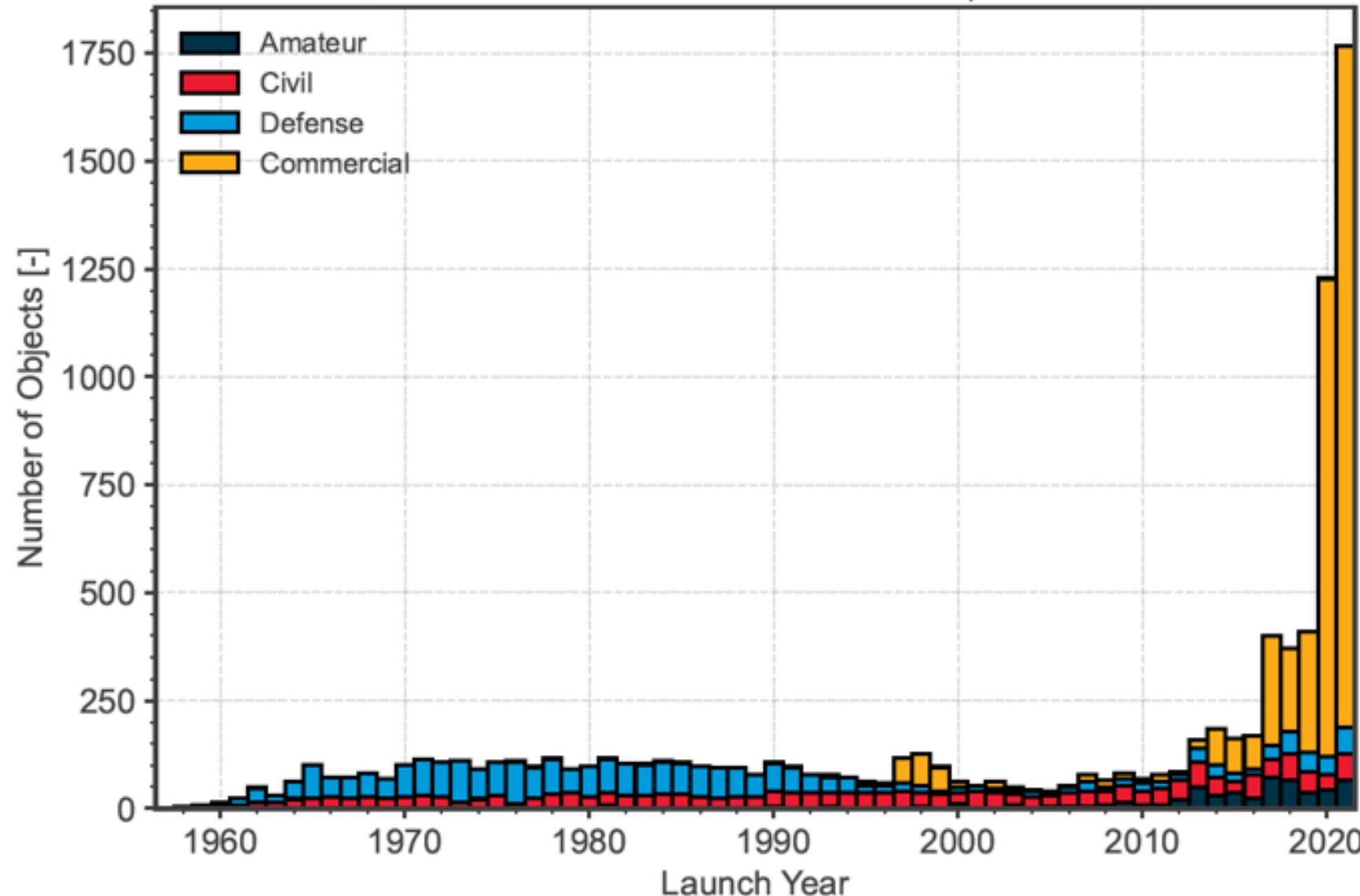
Čínska kozmonautika (tony vyneseného nákladu)



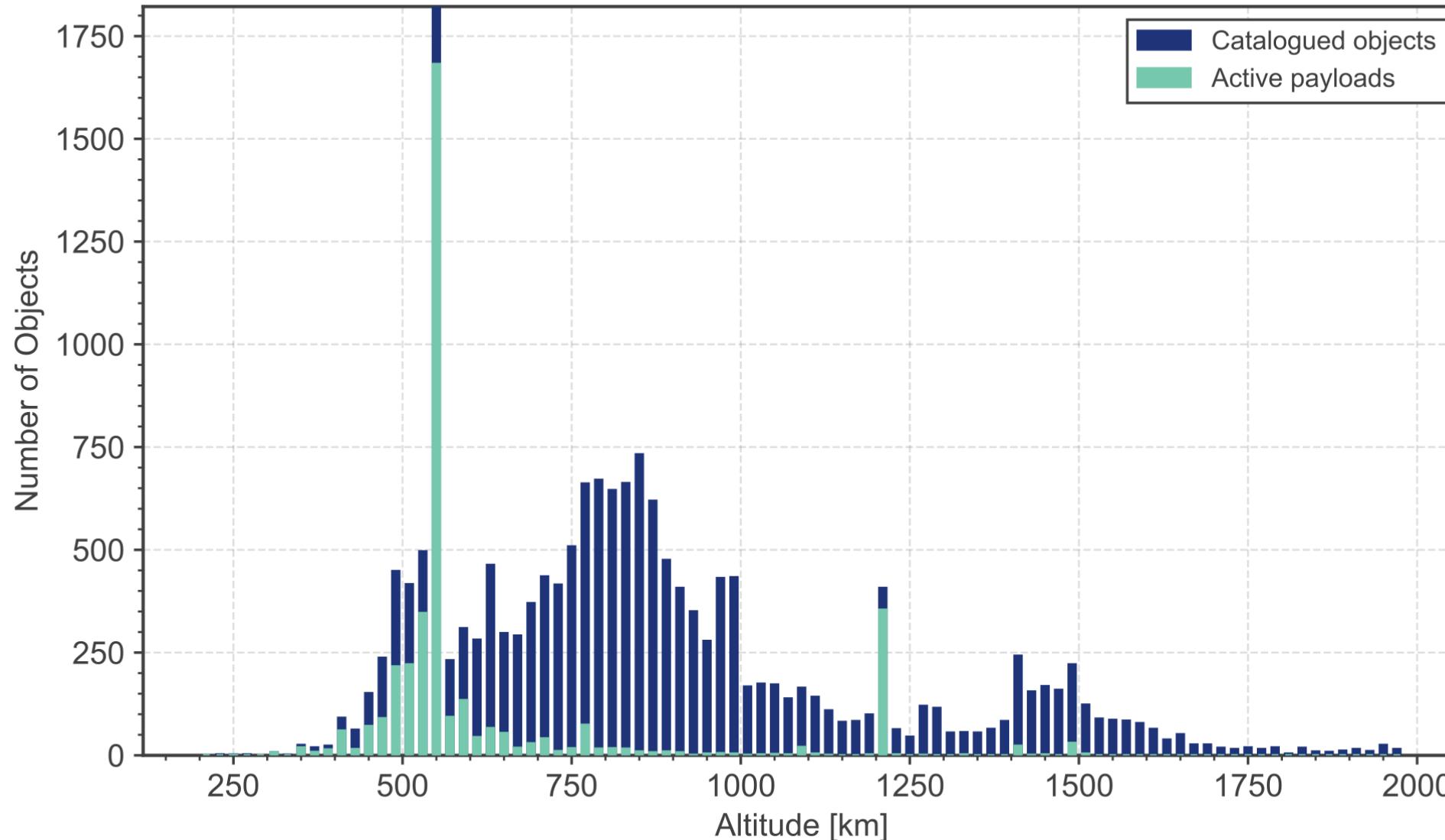
Zdroj: ESPI

Problém s bezpečnosťou a udržateľnosťou vesmírnych aktivít (predovšetkým na nízkych dráhach)

Payload Launch Traffic into $200 \leq h_p \leq 1750\text{km}$

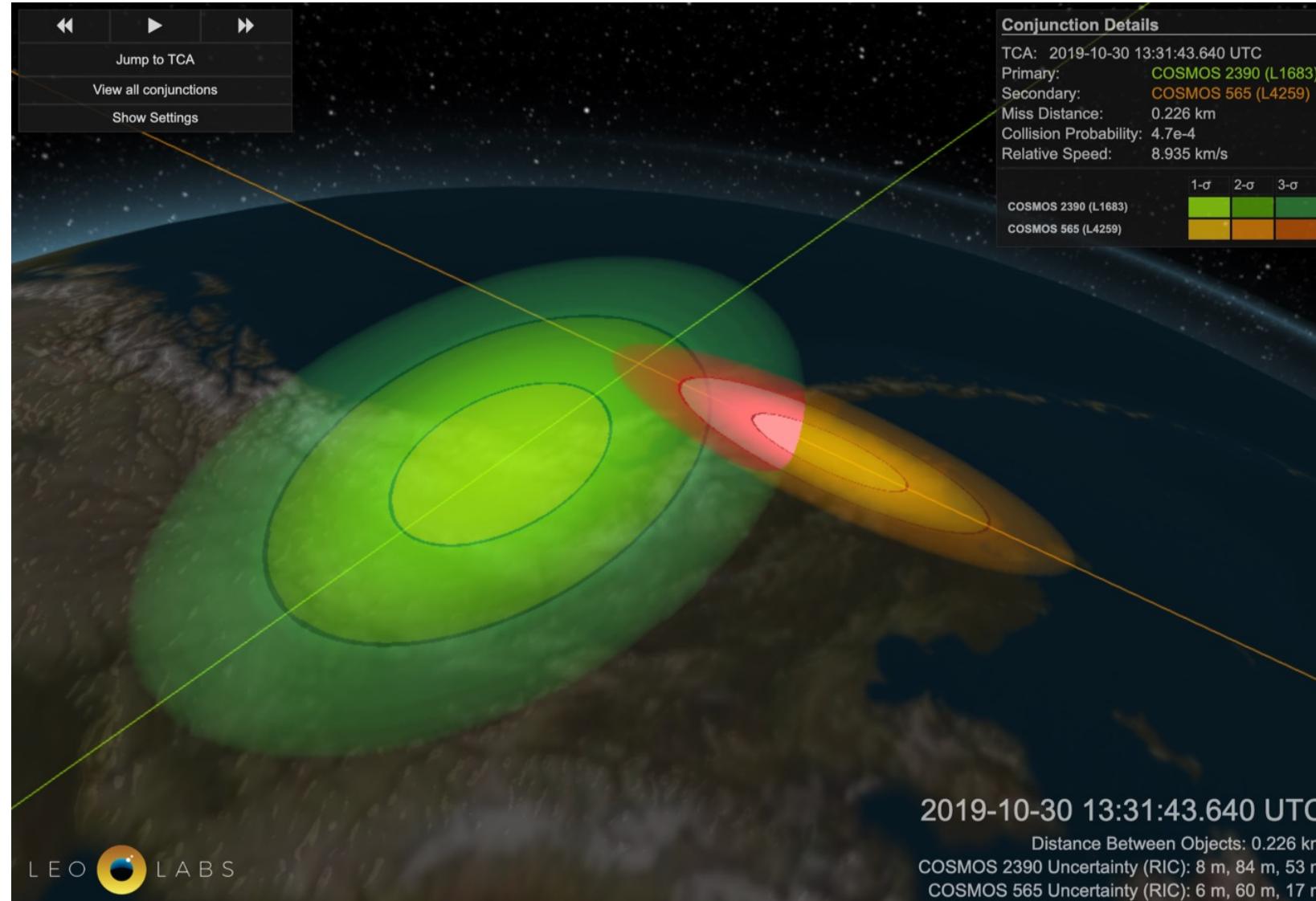


Number of catalogued objects and active payloads: destination orbits

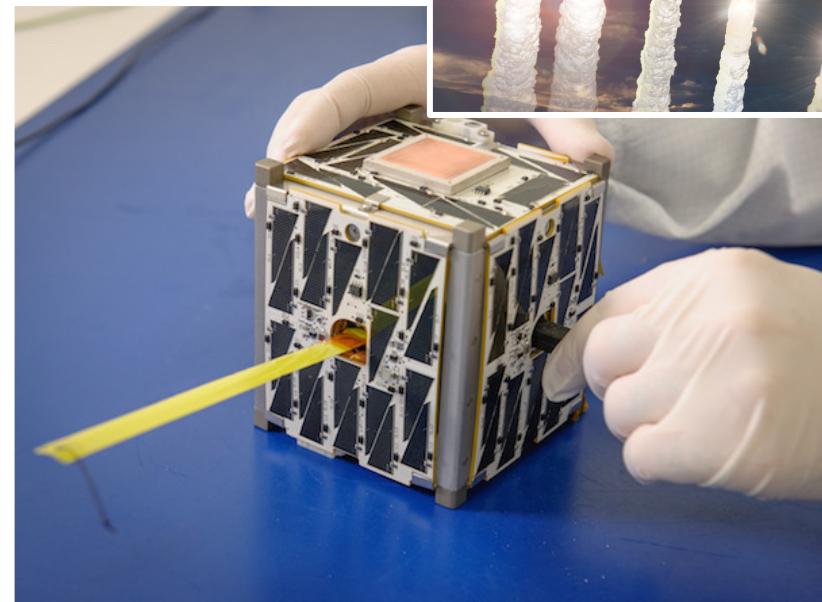
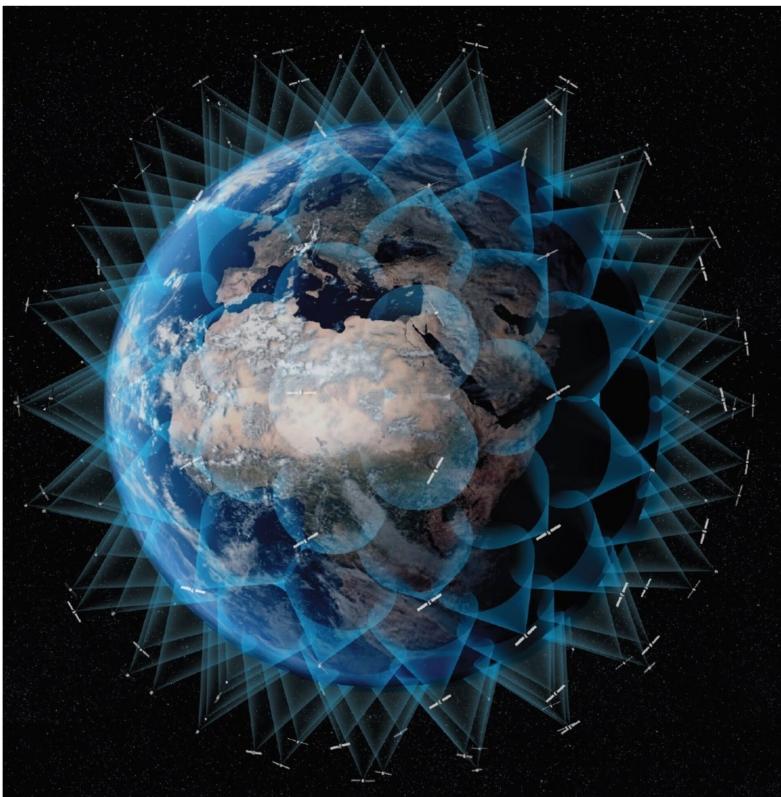


Zdroj: ESA (Space Environment Report 2022)

Nedostatočné situačné povedomie



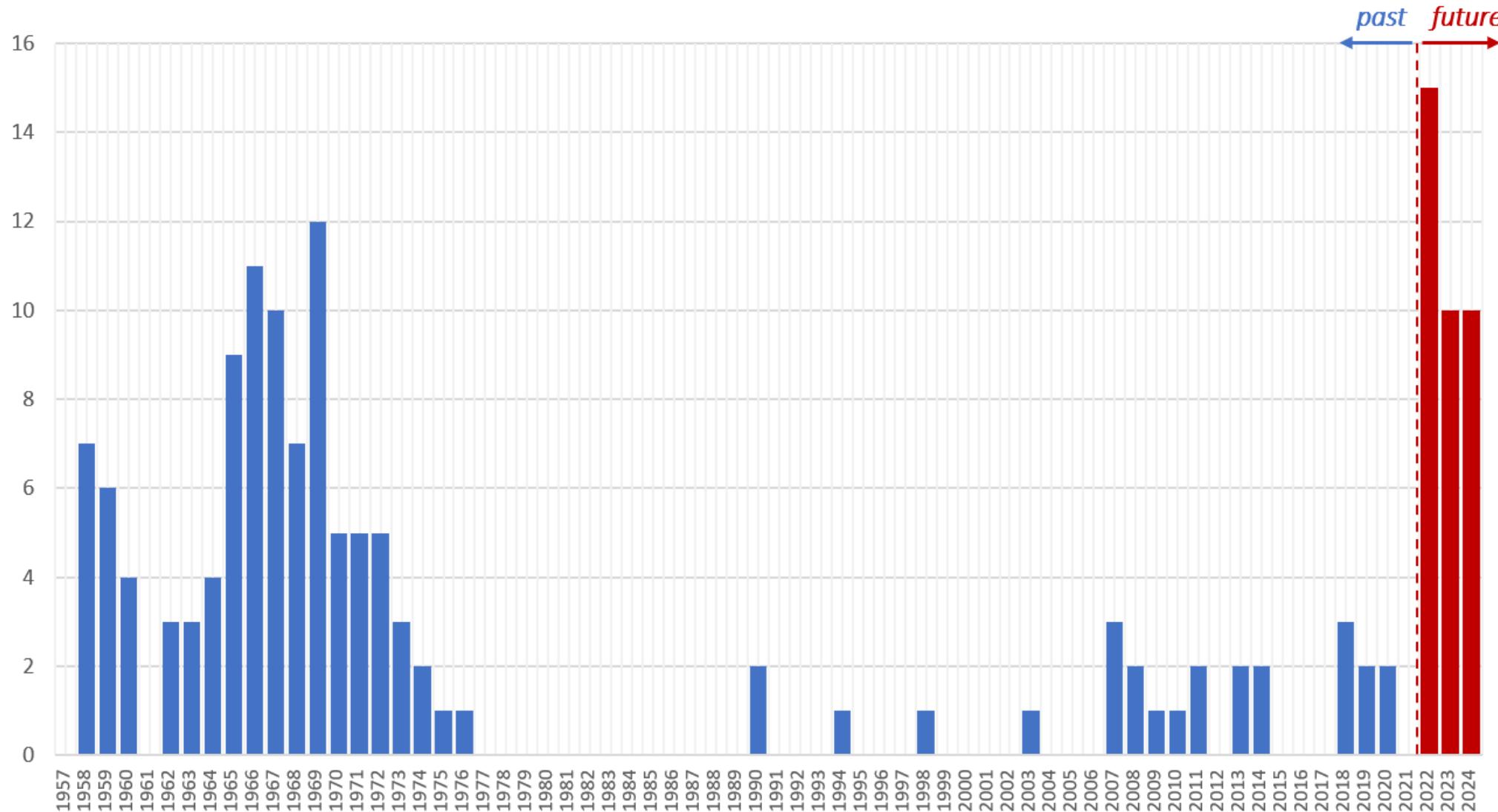
Zdroj: LeoLabs



*Zdroj: ESA /
NASA*

Návrat na Mesiac a vznikajúci cis-lunárny ekosystém

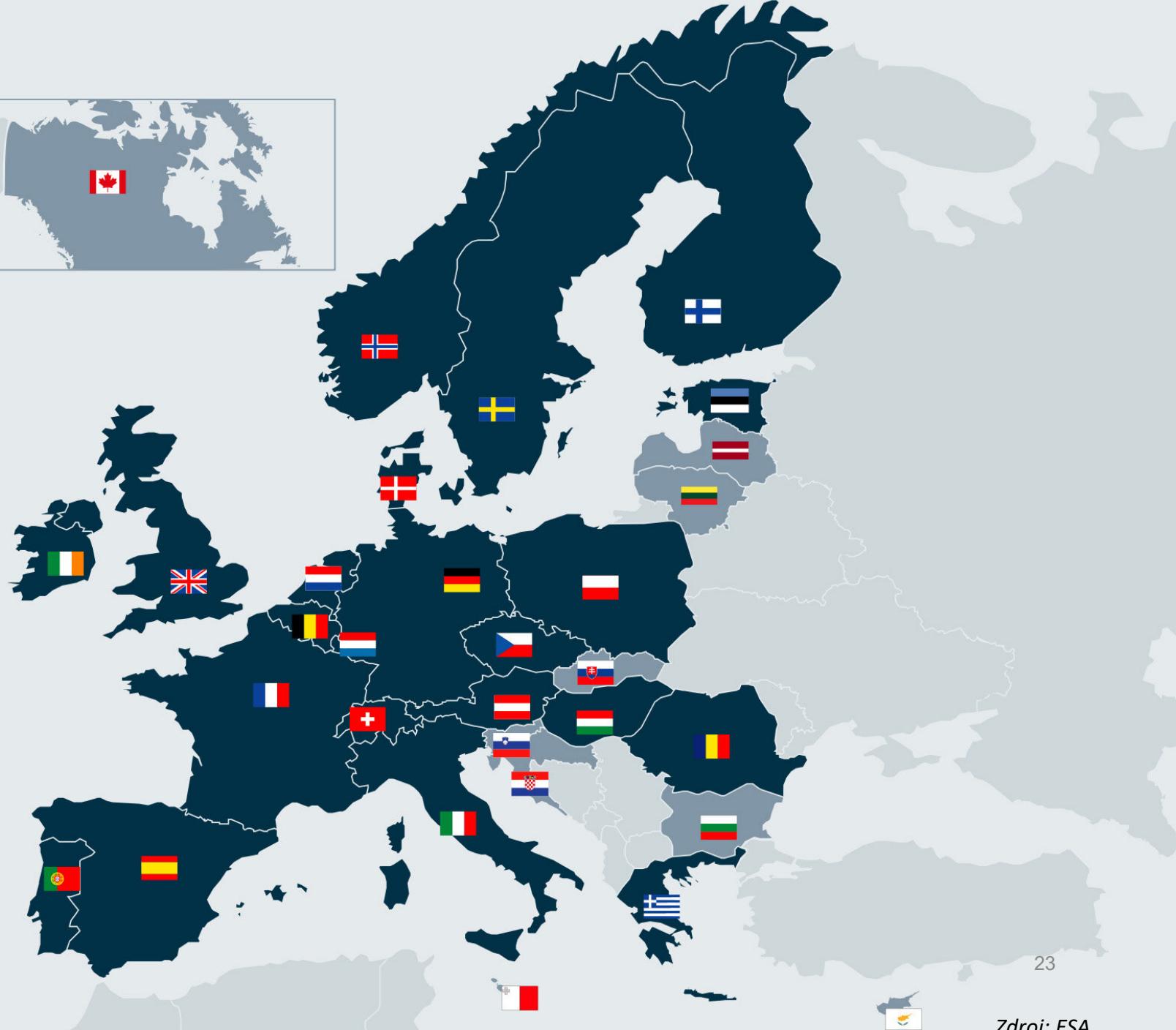
Missions to the Moon over time



Zdroj: vlastné spracovanie



Fungovanie ESA



European Space Budget

€11,648 million

**National Space
Budgets***

€9,518 million

EU Space Budget

€2,130 million

Budget remaining with national bodies

€4,389 million

National contributions to EUMETSAT

€465 million

National contributions to ESA budget

€4665 million

EU budget delegated to ESA

€1,535 million

Budget remaining with the EU

€595 million

Space Budget Distribution

Budget managed by national bodies

€4,389 million

EUMETSAT budget

€654 million**

€134 million

ESA budget

€6,676 million***

Budget implemented by the EU

€595 million

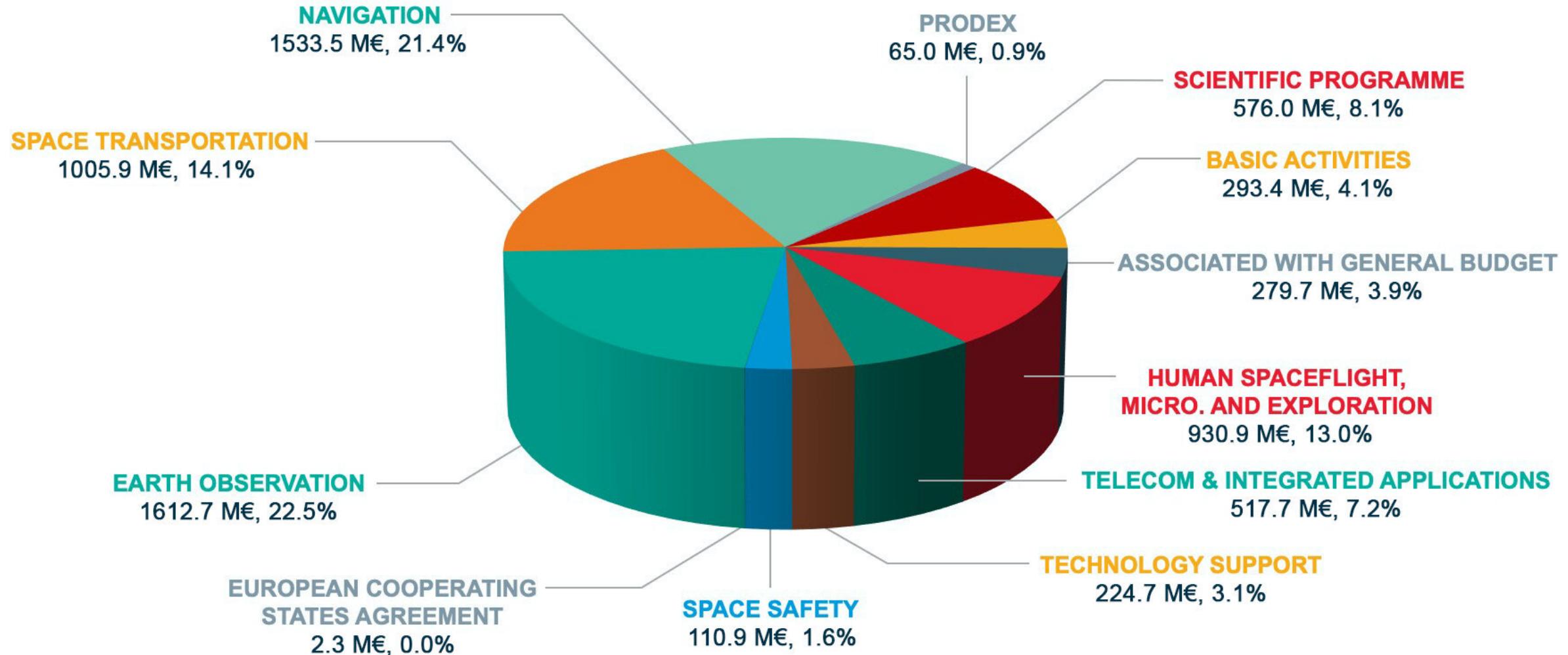
*National Space Budgets include all budgets of EU and ESA member states excluding Canada

** EUMETSAT budget includes €189 million from other sources including the contribution from Turkey

*** ESA budget includes €343 million from other sources including the contribution from Canada

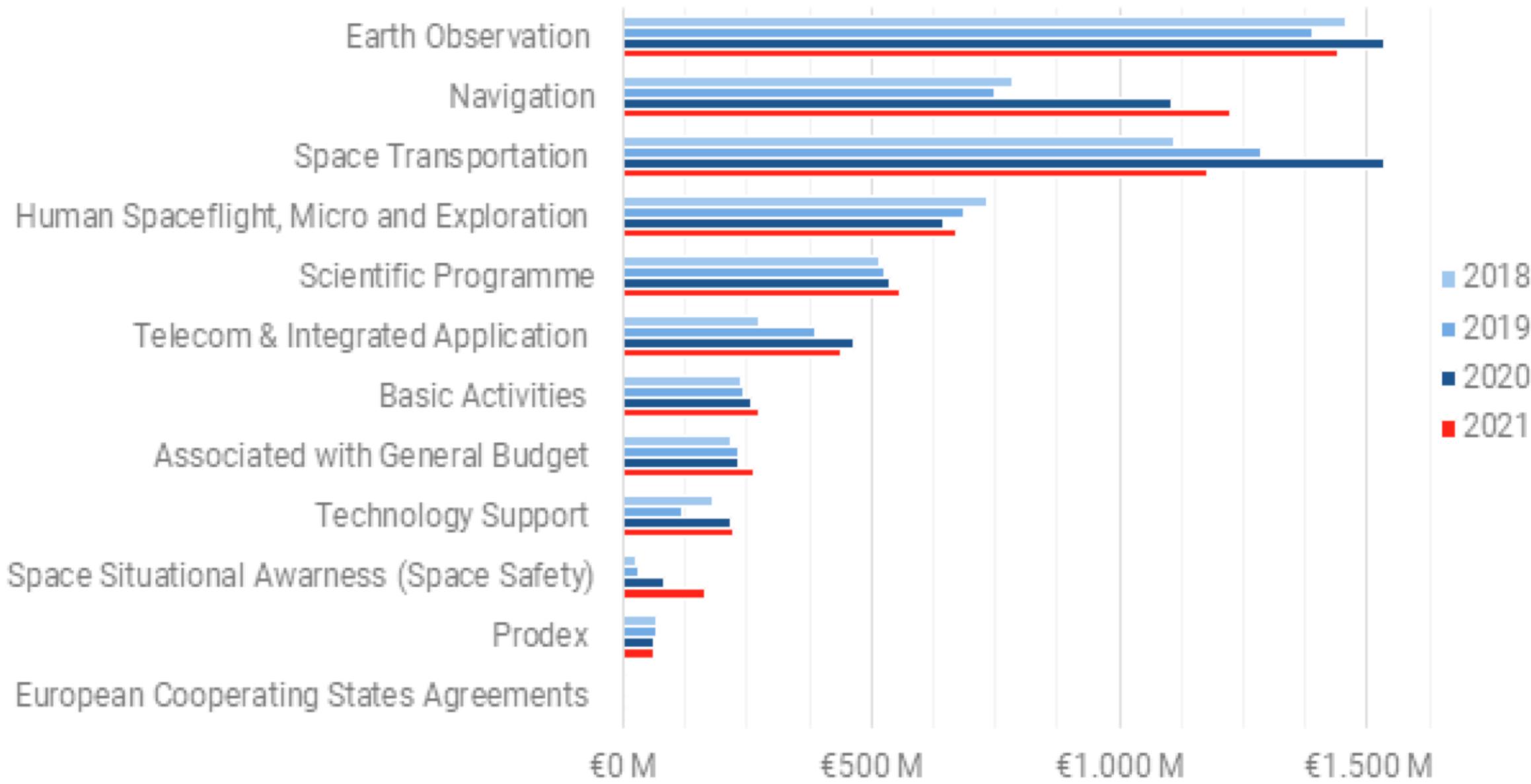
Zdroj: ESA, ESPI, Euroconsult, EUMETSAT

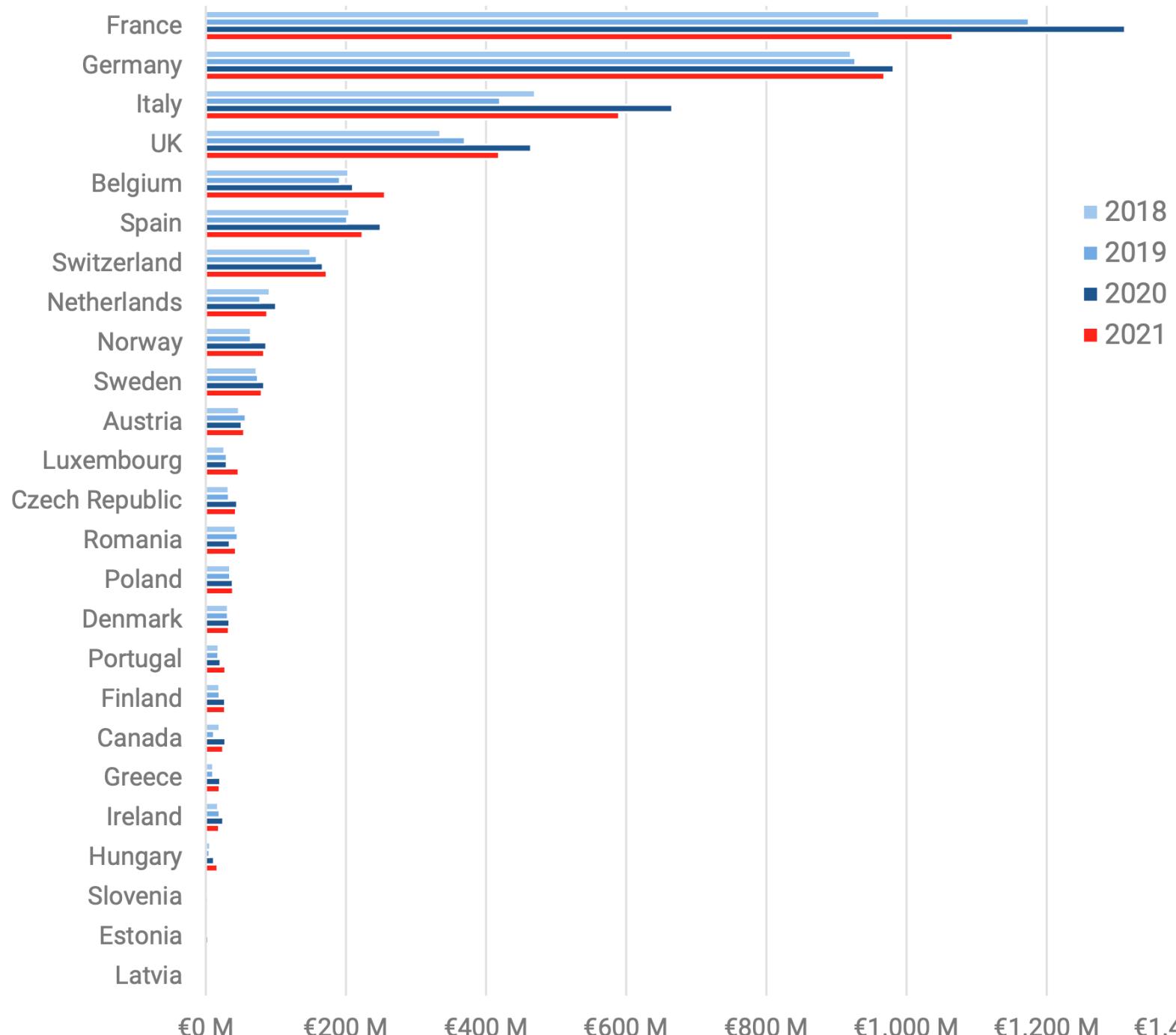
ESA BUDGET BY DOMAIN FOR 2022: 7.15 B€*



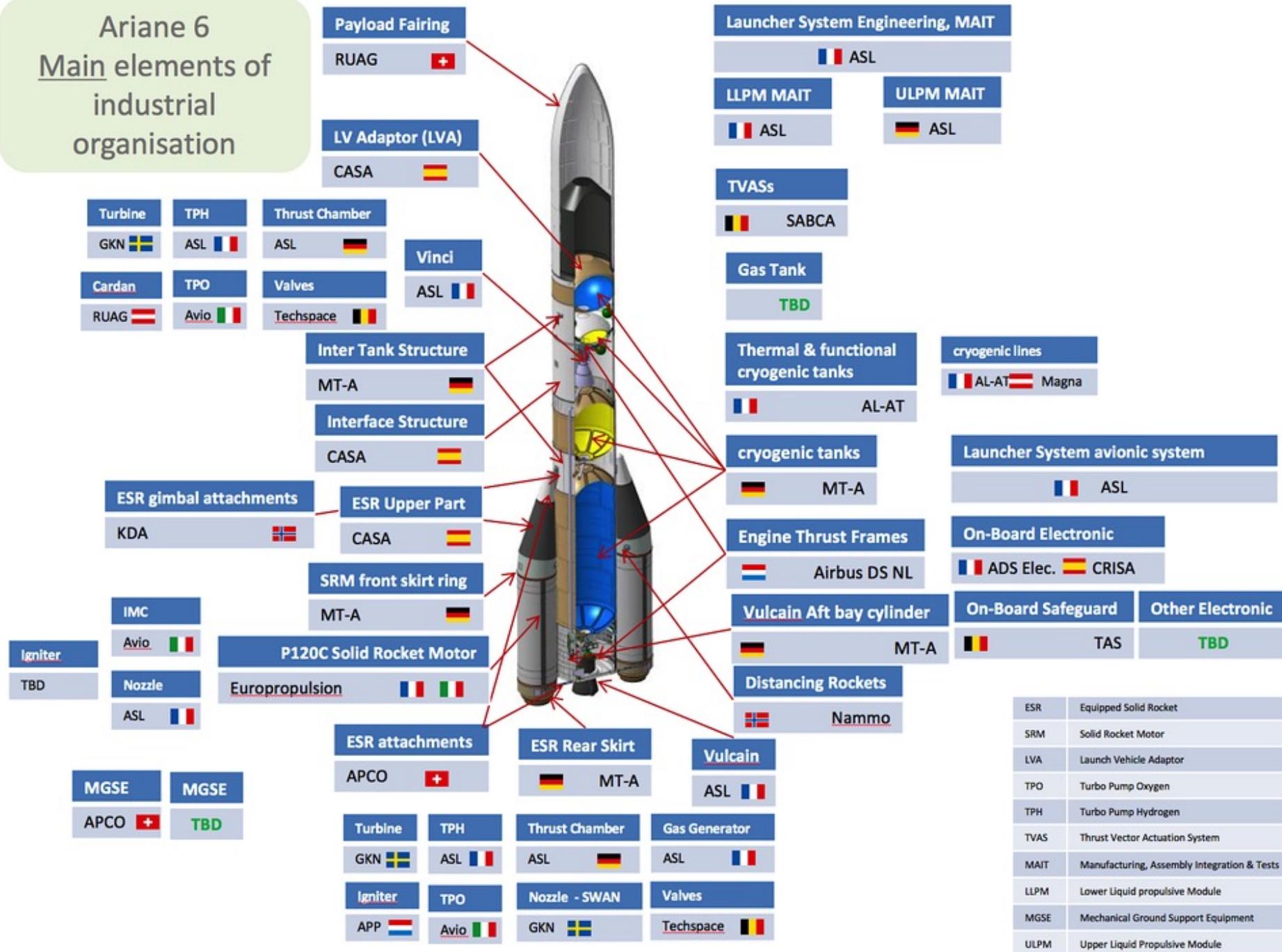
*includes activities implemented for other institutional partners

Zdroj: ESA





Ariane 6 Main elements of industrial organisation



Thank you!

ESPI is the European think tank for space. We provide decision-makers with an informed view on mid-to-long-term issues relevant to Europe's space activities.



Research &
Analysis



Conferences &
Workshops



Space Sector
watch



Policy &
Strategy



Economy &
Commerce



Security &
Defence



International &
Legal