

# Space economy

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## Space economy at a glance



## Definizione di Space economy:

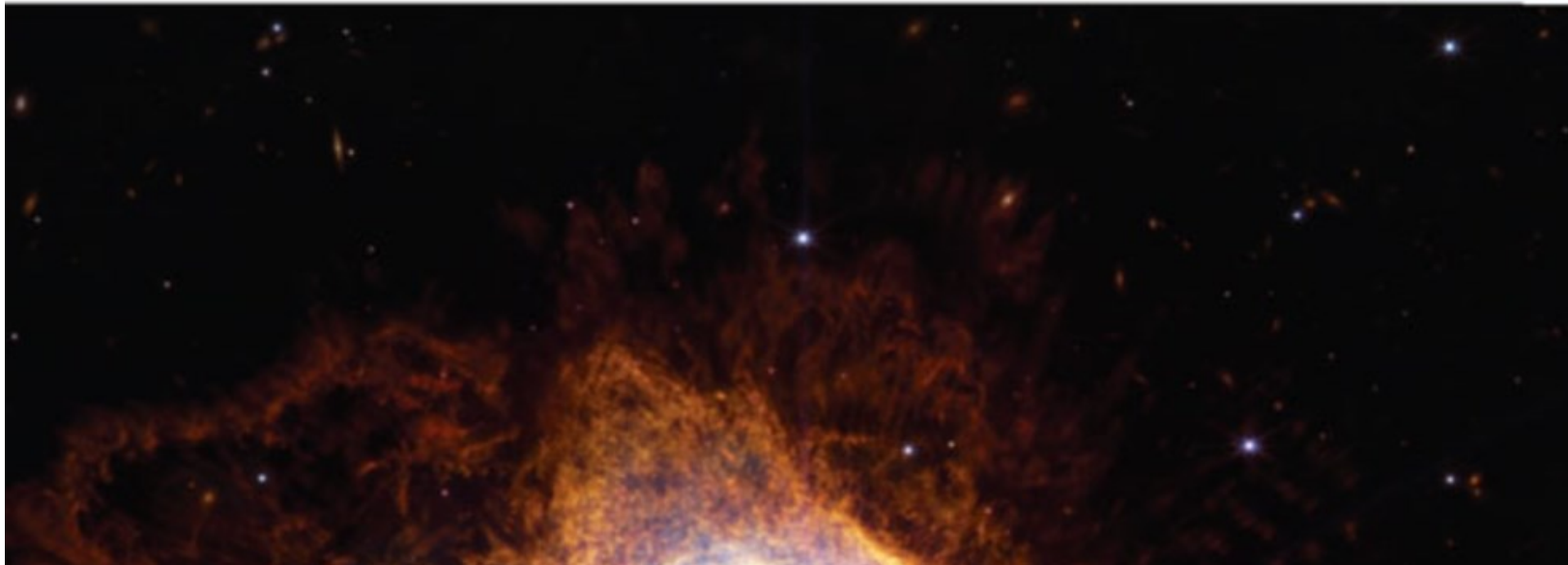
L'insieme delle attività e dell'uso delle risorse spaziali che creano valore e benefici per l'umanità nel corso dell'esplorazione, comprensione, gestione e utilizzo dello spazio

Essa include tutti i soggetti, pubblici e privati, impegnati nello sviluppare, fornire e utilizzare prodotti e servizi legati allo spazio: ricerca e sviluppo, costruzione e uso delle infrastrutture spaziali (stazioni a terra, veicoli di lancio, satelliti), applicazioni derivanti dallo spazio (strumenti di navigazione, telefoni satellitari, servizi meteorologici, ecc.), come pure le conoscenze scientifiche che scaturiscono da tali attività.

SPACE FOUNDATION  
  
THE  
**SPACE**  
REPORT

THE AUTHORITATIVE GUIDE  
TO GLOBAL SPACE ACTIVITY

2 0 2 2 Q2



# THE SPACE FOUNDATION SPACE REPORT

The Space Report 2022 Q2 shows 9% growth of global space economy over the last year's number of \$431 billion. The new global space economy number, \$469 billion couples with new records for successful launches and payloads, commercial revenues, and government spending on space.

Today most of the money generated by the space industry comes from the commercial sector, which saw a 6.4% boost in revenues of \$362 billion (which is 77% of \$469 billion global space economy). Of that amount more than \$224 billion is from products and services delivered by space firms. Nearly \$138 billion was spent on infrastructure and support for commercial space enterprises.

[Read the Report](#)



All presented information is courtesy of The Space Report by Space Foundation as of July 2022

## Orbit Repositioning

- Removal of derelict spacecraft
- Move assets at will

## HVA Life Extension

(Phasing Out Legacy)

- Extend legacy HVA EOL
- STOP building spacecraft this way

## Cis-lunar SDA

- Provide support for US interests

# 2030 Space Logistics

## Debris Removal

- Clean up LEO

## Maneuver Without Regret

- Dominate the AOR's from Earth to Moon
- Maneuver and reposition assets with impunity
- Protect and defend US gov't, civil and commercial interests
- Enable resilient, persistent occupation at lower cost

## xGEO/Cis-lunar Operations

- Enable and protect commercial shipping lanes
- Support civil exploration of deep space

## Manned Operations/ Propellant Production

- Extract fuel from lunar surface

## Responsive Launch

- Launch to any orbit from any location
- NEVER launch ballast again

## On-Orbit Assembly and Manufacturing

- Assembly and construction of large structures

## Novel Orbits

- Learn how novel, low-energy orbits can be exploited



VLEO - MEO

GEO - 2x GEO

3x GEO - L1/L2

UNCLASSIFIED



# Space solution compendium





# Space economy and digital transformation



# 2.7

**billion people offline  
in the world in 2022**

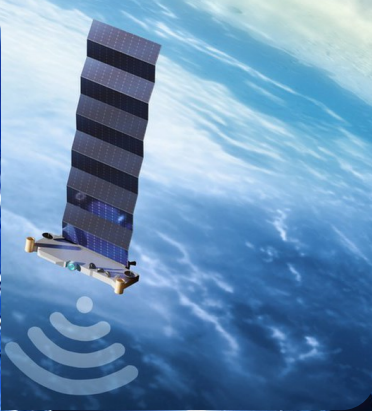
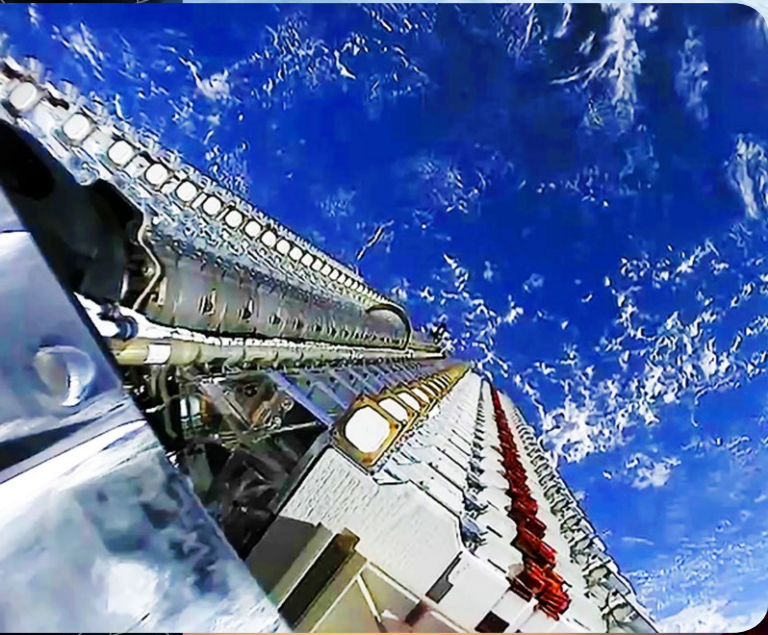
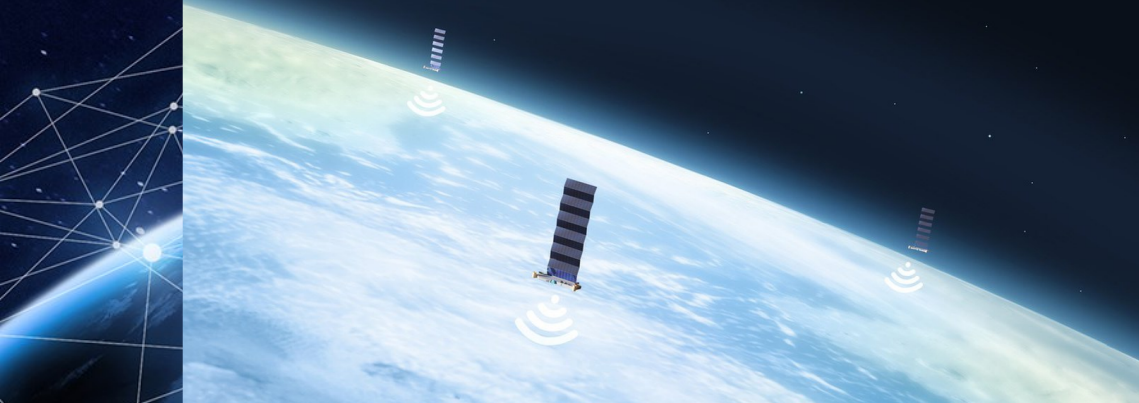
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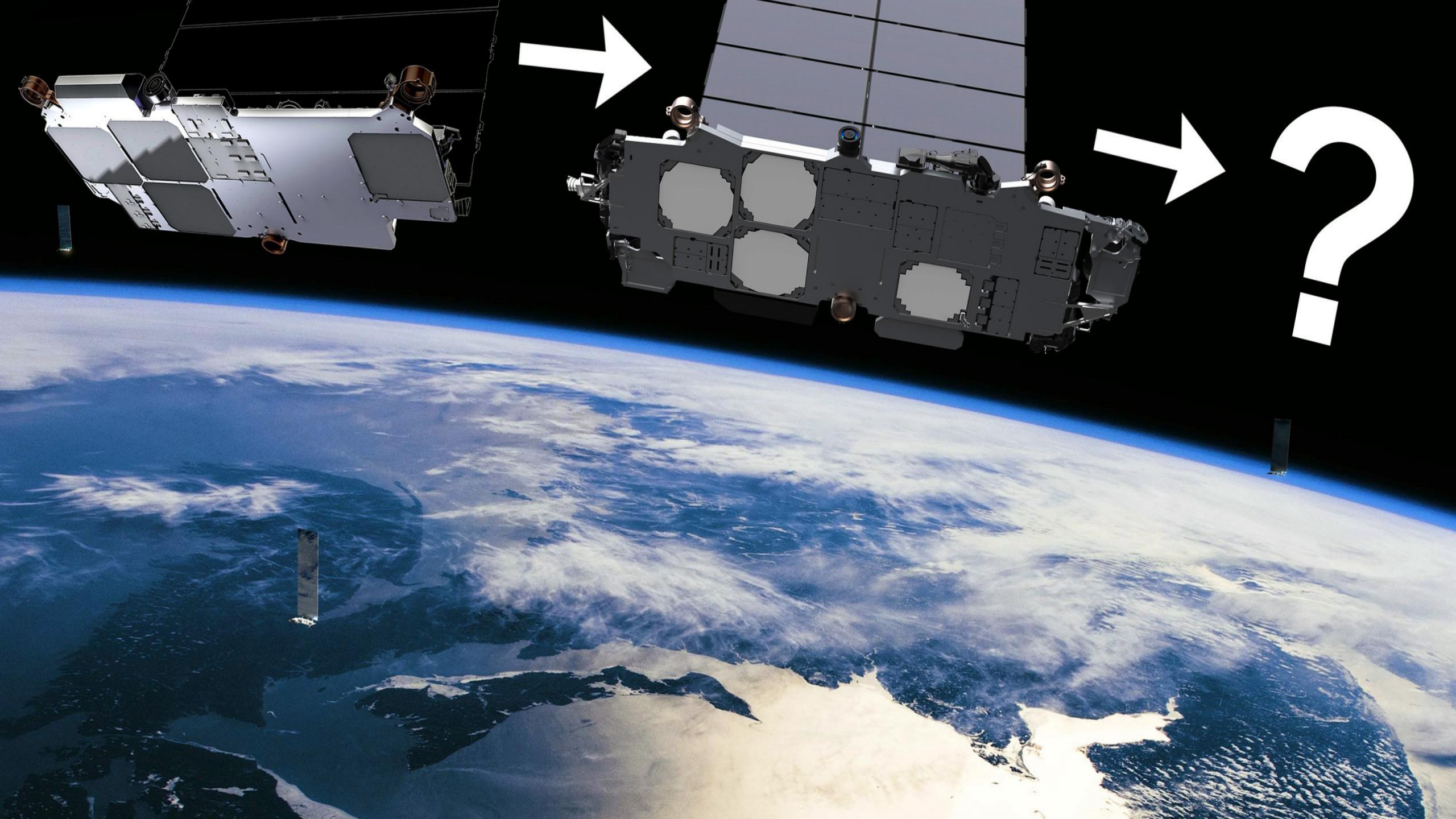
**billion people online  
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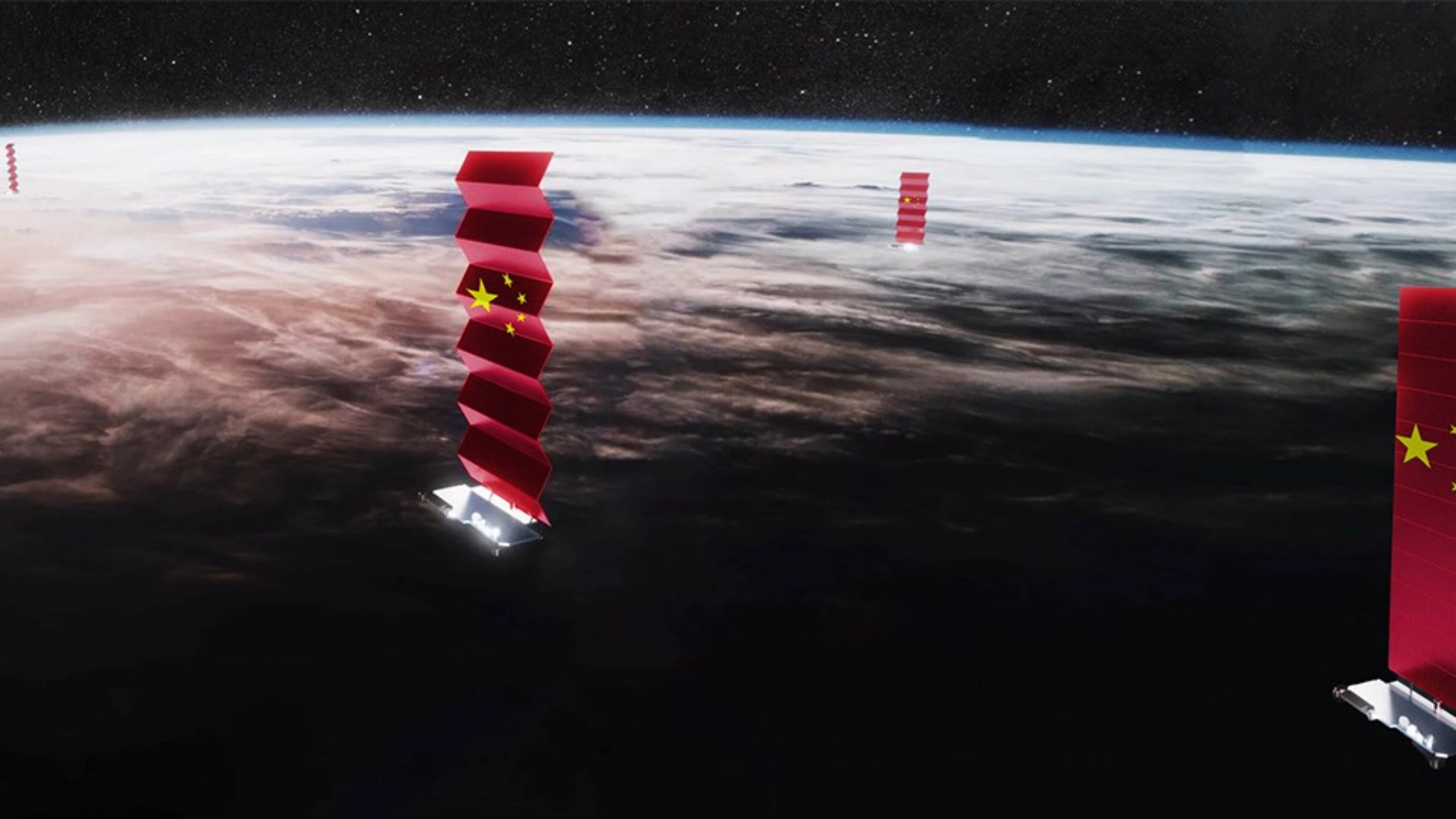
Source : ITU, *Facts and Figures 2022*

Note : being *online* means having used  
the Internet in the last three months









# Potential solutions for the space debris problem

## Mitigation guidelines

*Resolution A/RES/62/17, United Nations, December 2007*

Mitigation guidelines refers to a list of recommendations to be followed in the whole mission construction, development, management and operations.

## Long-term sustainability guidelines

*Report of the Committee on the Peaceful Uses of Outer Space, sixty-second session, United Nations, June 2019.*

21 guidelines divided in 4 sections:

- Section A: **Policy and regulatory framework for space activities**
- Section B: **Safety of space operations**
- Section C: **International cooperation, capacity-building and awareness**
- Section D: **Scientific and technical research and development**

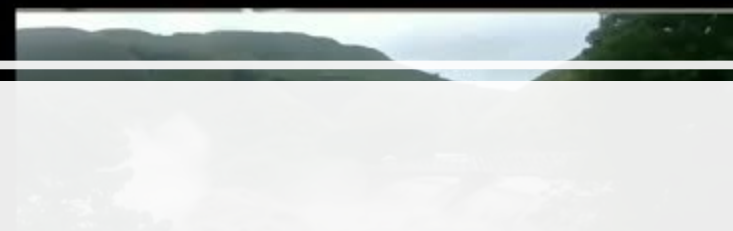
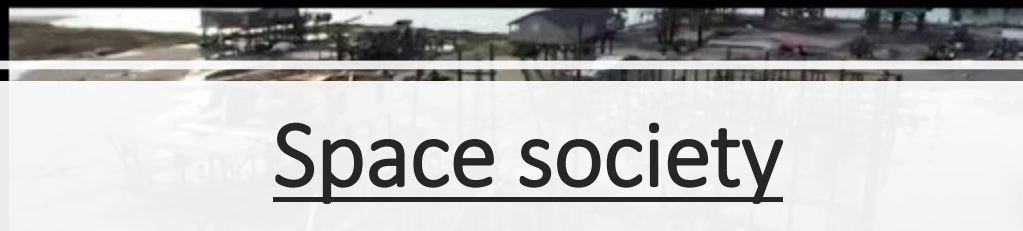
## Space Traffic Management (STM)

STM is referred to as the practice to let a satellite operate its specific purpose without being disturbed by other spacecrafts or debris on a collision course.

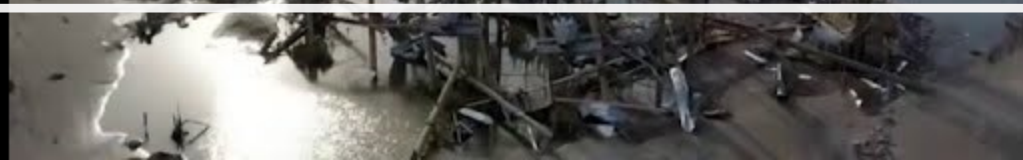
## Active Debris Removal (ADR)

ADR technologies enable a given spacecraft to physically capture space debris, in order to de-orbit or destroy them. ADR is currently in a testing phase, with several technologies under investigation:

- **Robotic arms**
- **Magnetic traps**
- **Nets**
- **Hook, harpoons**



Space society





# SUSTAINABLE DEVELOPMENT GOALS

<b>1</b> NO POVERTY 	<b>2</b> ZERO HUNGER 	<b>3</b> GOOD HEALTH AND WELL-BEING 	<b>4</b> QUALITY EDUCATION 	<b>5</b> GENDER EQUALITY 	<b>6</b> CLEAN WATER AND SANITATION 
<b>7</b> AFFORDABLE AND CLEAN ENERGY 	<b>8</b> DECENT WORK AND ECONOMIC GROWTH 	<b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE 	<b>10</b> REDUCED INEQUALITIES 	<b>11</b> SUSTAINABLE CITIES AND COMMUNITIES 	<b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION 
<b>13</b> CLIMATE ACTION 	<b>14</b> LIFE BELOW WATER 	<b>15</b> LIFE ON LAND 	<b>16</b> PEACE, JUSTICE AND STRONG INSTITUTIONS 	<b>17</b> PARTNERSHIPS FOR THE GOALS 	 <b>SUSTAINABLE DEVELOPMENT GOALS</b>



Credit: Getty Images/AFP/J. Laet



Credit: Michael Kodas



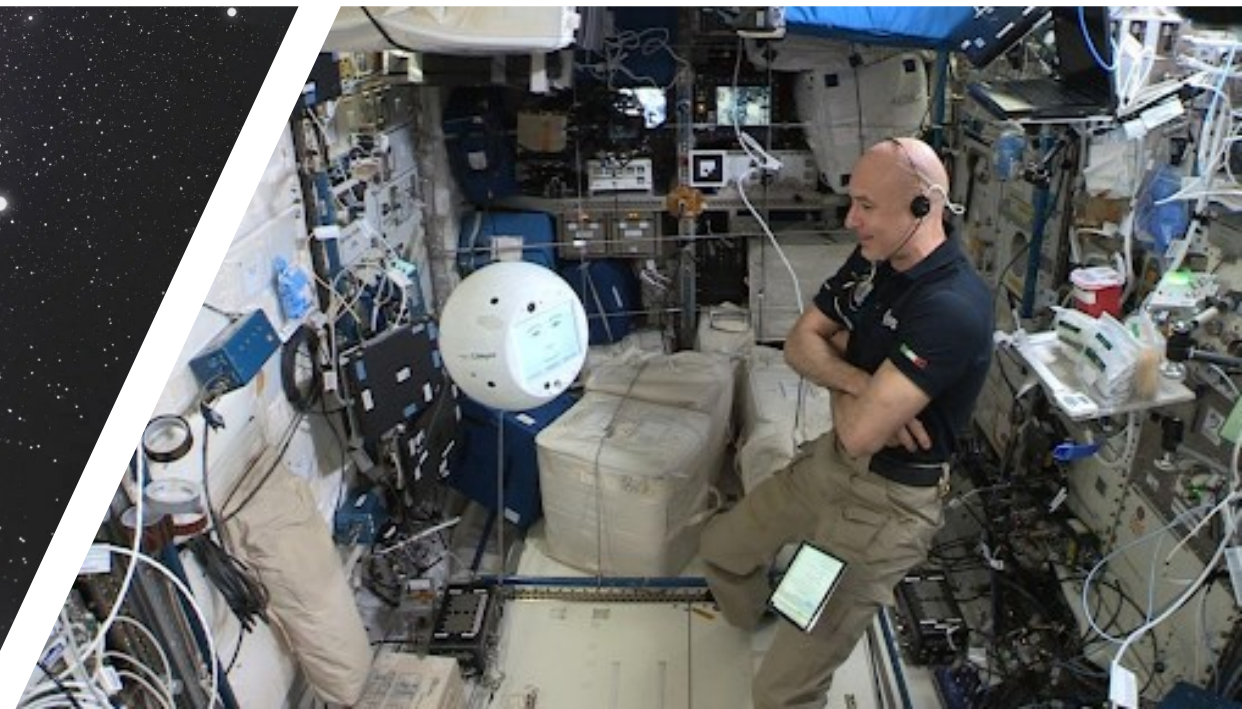
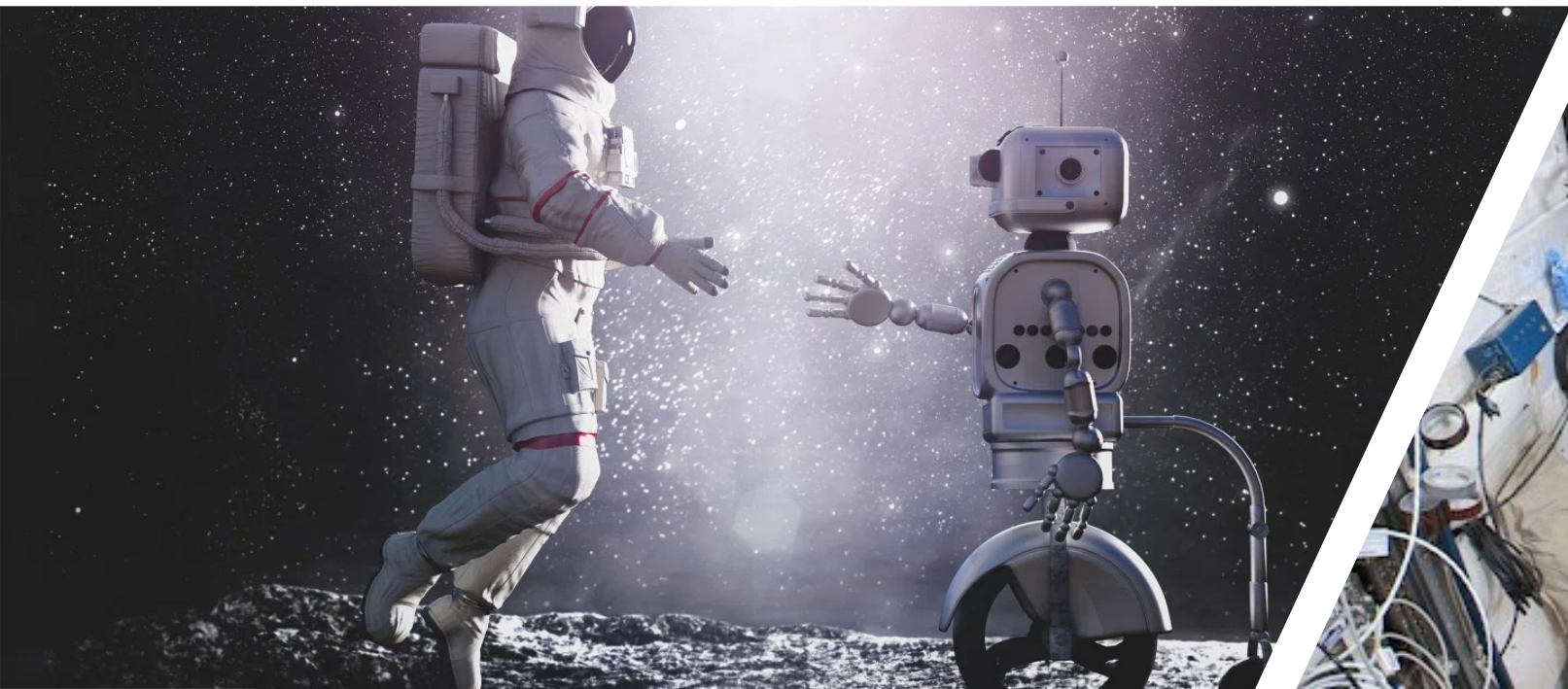
Credit: Dan Bennett

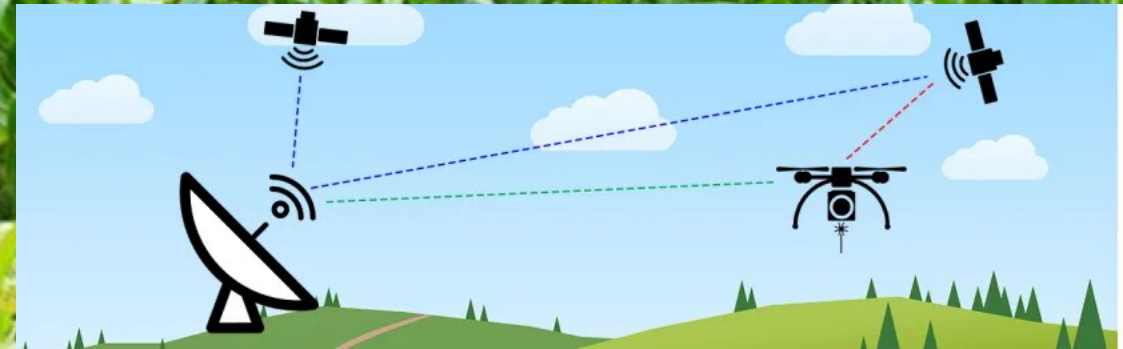
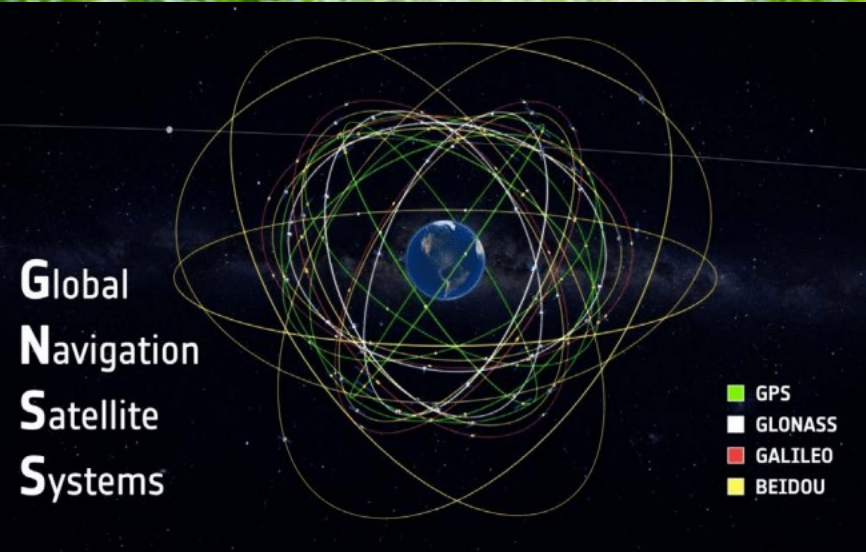


Credit: Kevin Frayer/Getty Images









A low-angle photograph of the United Nations Secretariat Building, a tall, modern skyscraper with a glass facade, set against a clear blue sky. In the foreground, a row of flags from various countries is displayed on tall poles. The text "Space diplomacy and Global Governance" is overlaid on the image in a white banner.

# Space diplomacy and Global Governance



Our Common Agenda  
Policy Brief 7

**For All Humanity –  
the Future of  
Outer Space  
Governance**

MAY 2023

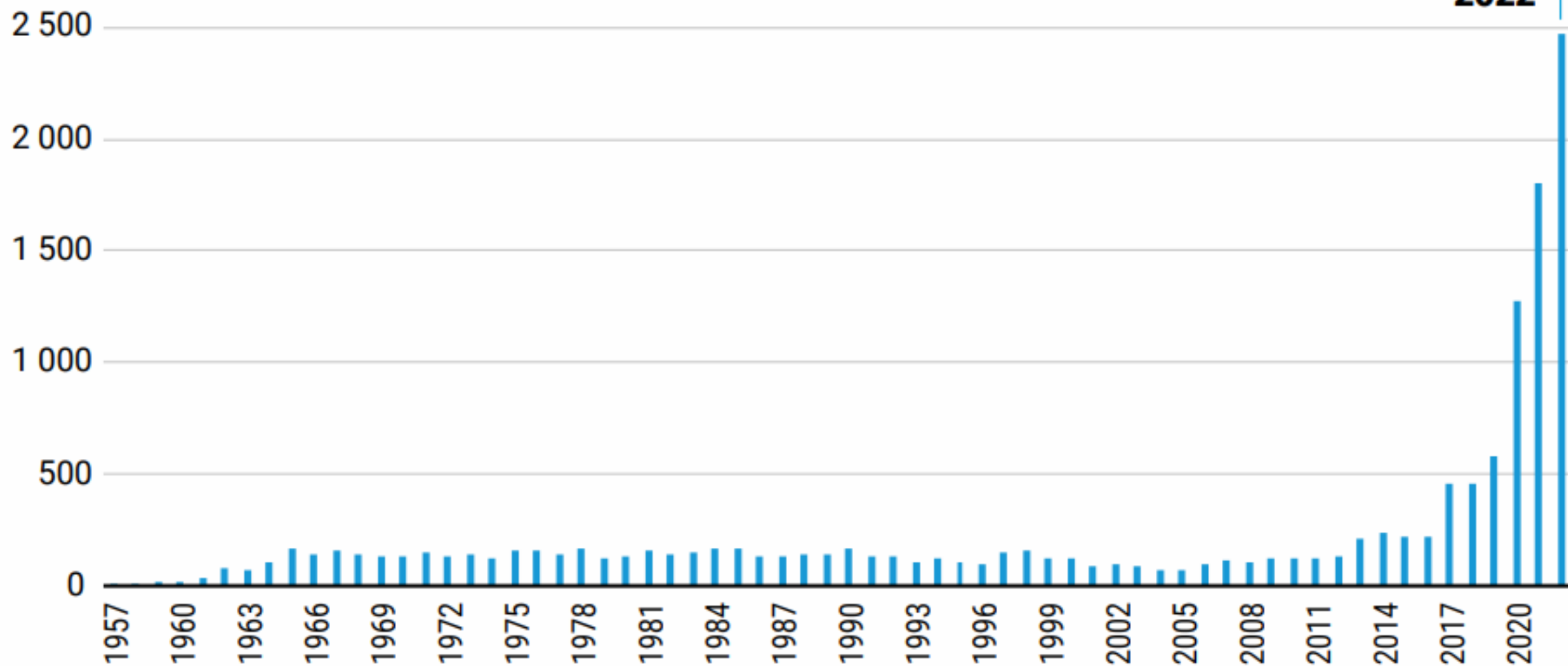
# FIGURE I

## SATELLITES LAUNCHED IN THE PAST

Satellites launched to space annually



**2 470**  
**2022**

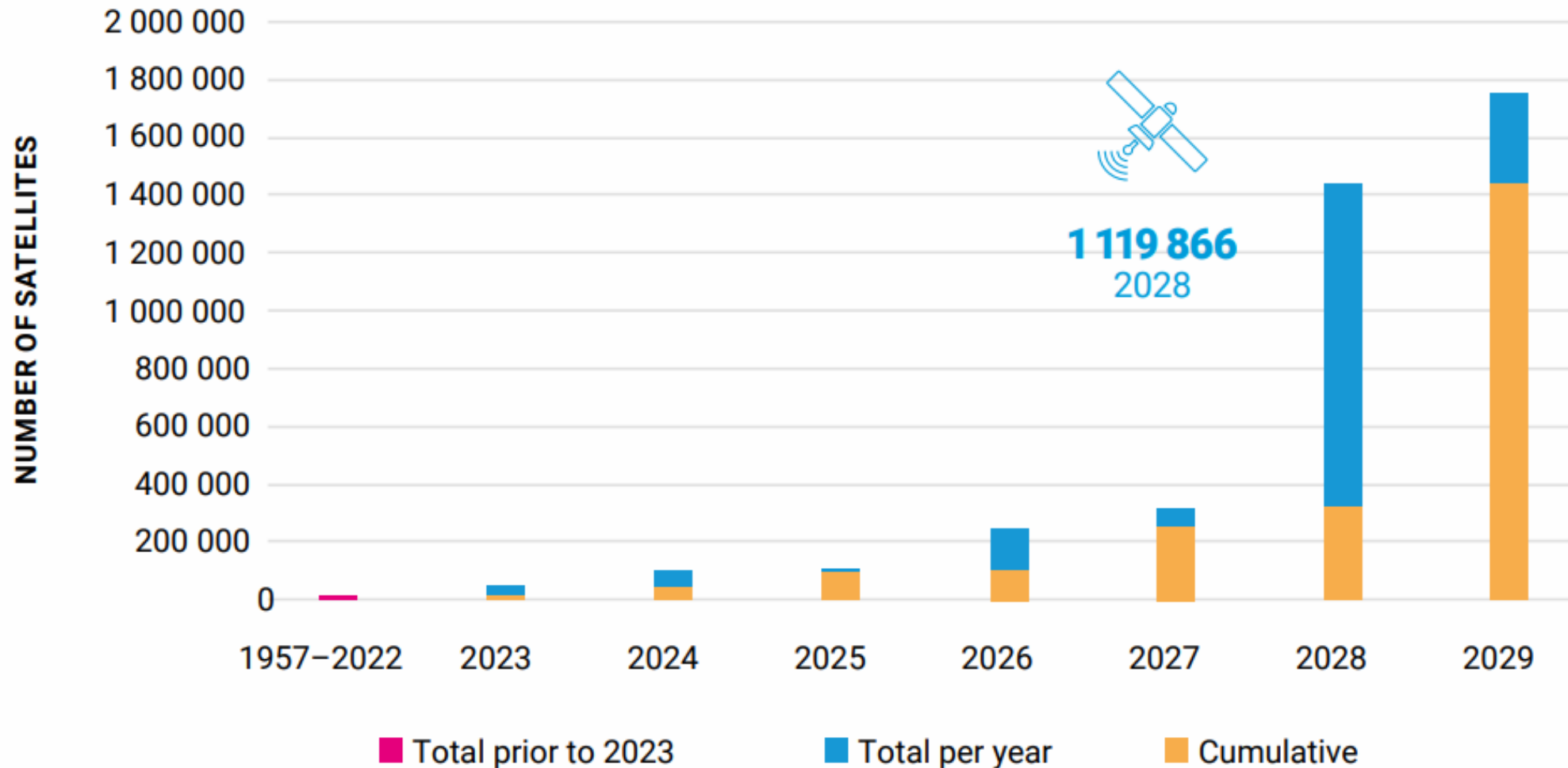


Source: Office for Outer Space Affairs

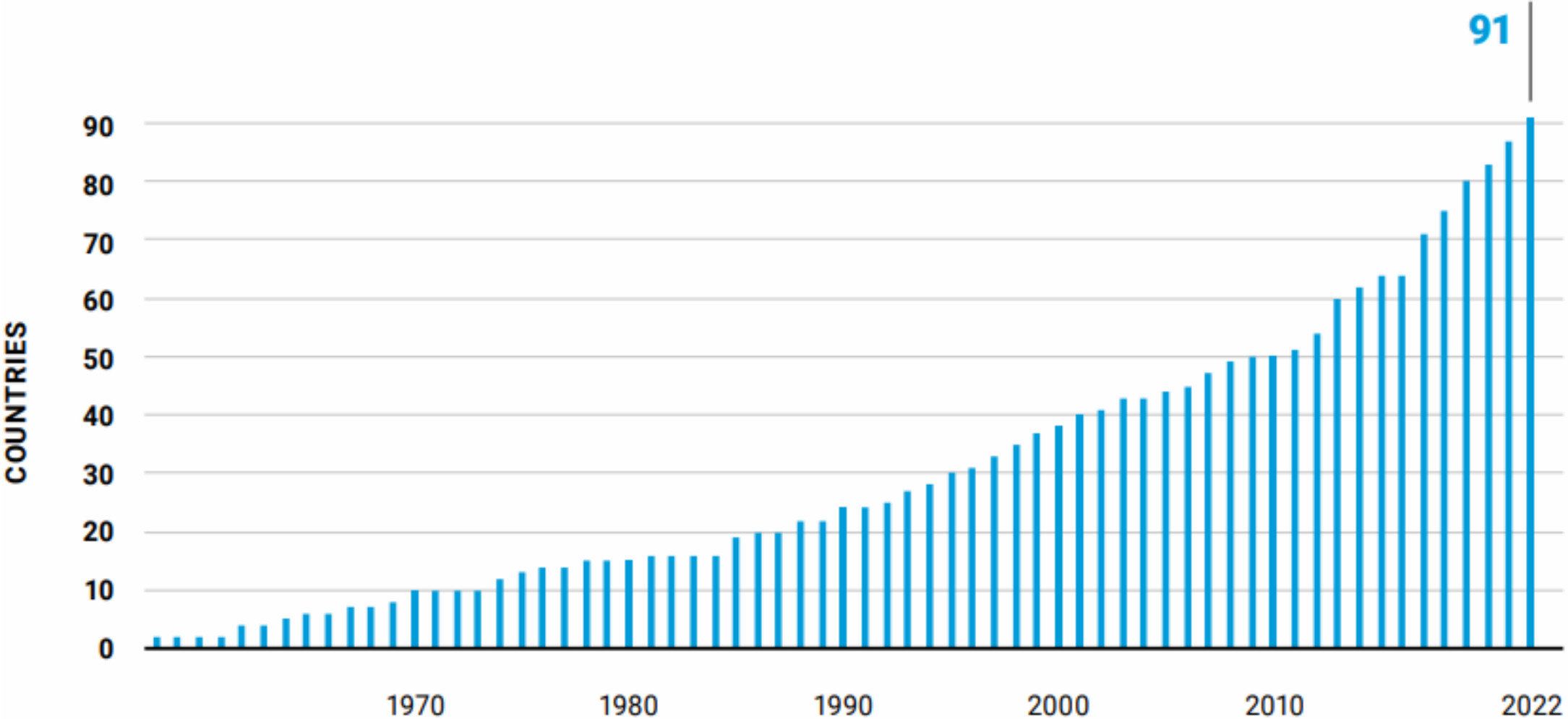
## SATELLITES REGISTERED TO LAUNCH IN THE FUTURE

Number of non-geostationary satellites for which states have registered radio frequencies with the International Telecommunication Union (by year and cumulative)

For past launches, see figure 1.



# COUNTRIES WITH AT LEAST ONE SATELLITE



Source: United Nations Office for Outer Space Affairs.

# Summit of the Future

- In September 2021, the UN Secretary General issued the «Our Common Agenda» report, in which he announced the forthcoming **Summit of the Future** to be held in September 2023. N.B. The Summit of the Future will take place in September 2024.
- The Summit is meant to «advance ideas for governance arrangements in the areas of international concern» and stands upon seven pillars. One of these is **space**.
- The report main goal is to lead the way towards a new **global deal** to enhance the **governance** of the global commons and global public goods.







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Grazie!!!!



**Space Economy Evolution Lab**