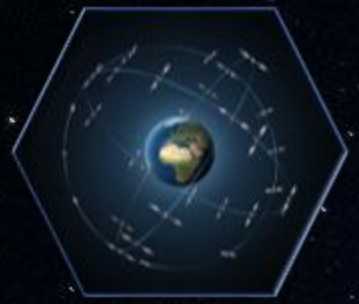
Agenzia Spaziale Italiana

Un Conto Satellite per misurare la Space Economy

Roma, 4 luglio 2024

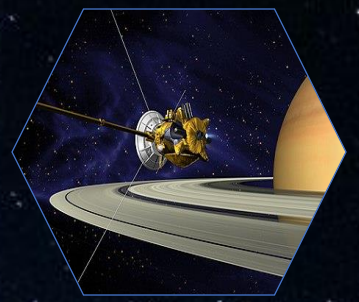
Augusto Cramarossa
Responsabile dell' Unità Coordinamento Area Strategica e New Space Economy

Telecommunication



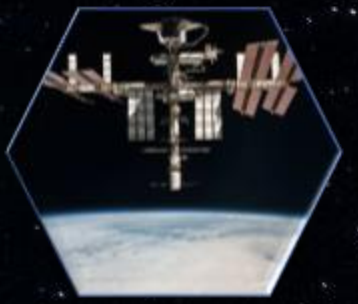
Navigation

Earth Observation

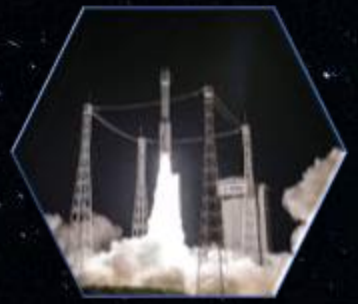


Science & Research

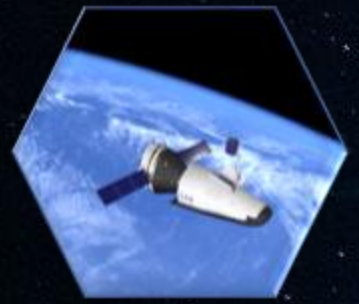
Robotic Exploration



Human Exploration



Space Transportation



In-Orbit Servicing

ASI

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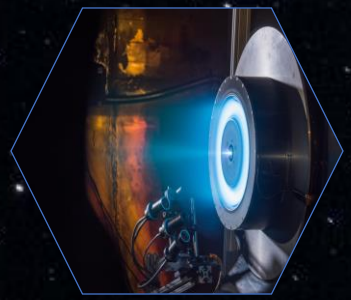
SSA/SST

Sub-orbital Flight



Enabling Technologies Development

Space Economy

Downstream Services

Security

ASI main areas of activities and Italian Space capabilities

ASI

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Satellites can observe our planet from a **unique and highly privileged point of view** because they:

- ✓ have continuous access to remote areas;
- ✓ can cover wide areas or be pointed to specific locations;
- ✓ are independent from some limitations peculiar of competing ground or aircraft-based solutions (e.g. air traffic, permission to fly).

These are highly recognized competitive advantages for creating value for all kind of stakeholders: Governments, companies, consumers.

Advantages provided by the use of satellites in orbit

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Why "SPACE ECONOMY"

1. **Satellite data** are of great value in the current global economy driven by **digital** and increasingly **data-driven services**;
2. More cutting-edge perspectives see the possible use of natural **resources from space** for the production of **energy** and **materials**.

Space is perceived as a **sector** that can provide **unique** and **precious benefits to other economic sectors, public administrations and citizens**.

Space has attracted the **interest and investments of private operators** and promises significant economic growth in this and the next decade

"Space Economy" has been using for some years as **a more complete and exhaustive name for the Space Sector**, which has seen its horizons broaden in terms of **operators (public + private)**, **users (public + private)** and **variety of benefits and value propositions**.

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SPACE RUSH

PUBLIC BUDGET increase

asi esa EUSPA

TECHNOLOGICAL TRENDS (satellite big data, HW miniaturization, AI, computing capacity, …)

PRIVATE RESOURCES increase from FINACIAL PLAYERS

ENTREPRENEURS focused on MARKET, ROI, ECONOMICAL SUSTAINABILITY

NEW GLOBAL SPACE DRIVERS influencing the evolution of the space sector

From a scientific-strategic *SPACE RUSH* to a wider **SPACE ECONOMY** scenario

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NEW SPACE DRIVERS

COST REDUCTION

- Dramatic reduction in launch costs
- Increasing trend to re-use rockets
- Small cubesat/nanosatellite trend

NEW INVESTORS

- Top VCs investing in Space Tech
- New Space «Barons»
- Late stage Global Investors

NEW APPLICATIONS

- Easier access to Space for Commercial Players
- Key role in the digital economy
- Integrated Applications
- In-Orbit Servicing

NEW GEOPOLITICS

- Ukrain/Russia conflict
- China as main global actor
- New moon and mars space race
- National Security
- Sustainability

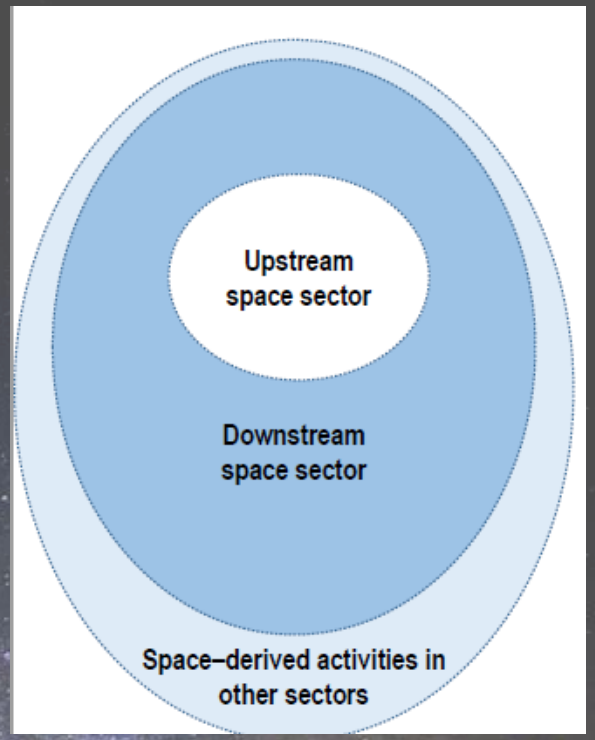
PUBLIC ENTITIES ARE UPGRADING THEIR ROLE…

BUT WHAT DOES IT MEAN

SPACE ECONOMY..?

OECD, 2014

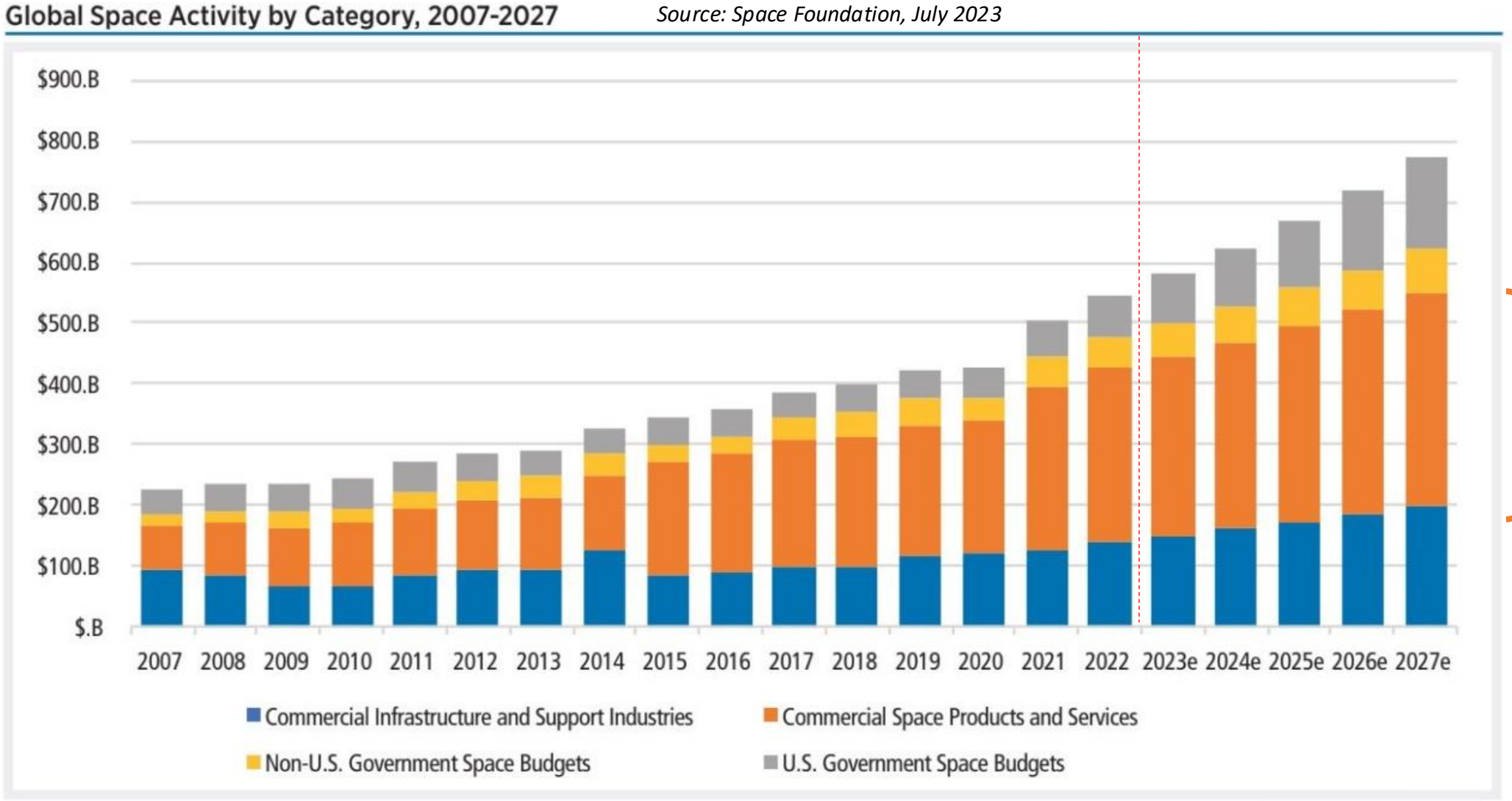
The Space Economy is defined as the full range of activities and the use of resources in the course of exploring, researching, understanding, managing, and utilizing Space.



US BUREAU OF ECONOMIC ANALYSIS, 2020

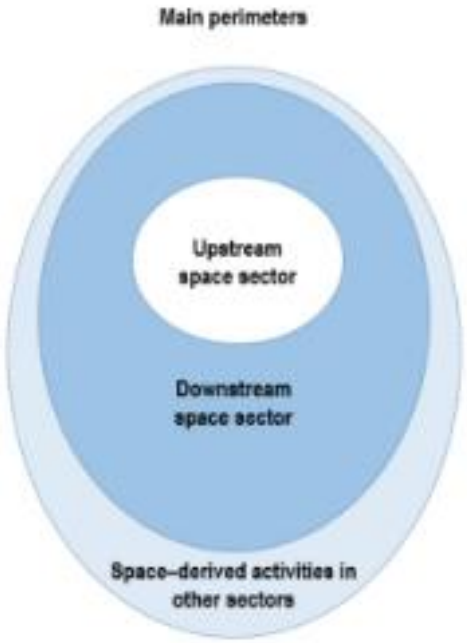
The Space Economy consists of space-related goods and services, both public and private. This includes goods and services that:

- Are used in space, or directly support those used in space
- Require direct input from space to function, or directly support those that do;
- Are associated with studying space



Commercial Space Products and Services has been leading and will lead GROWTH

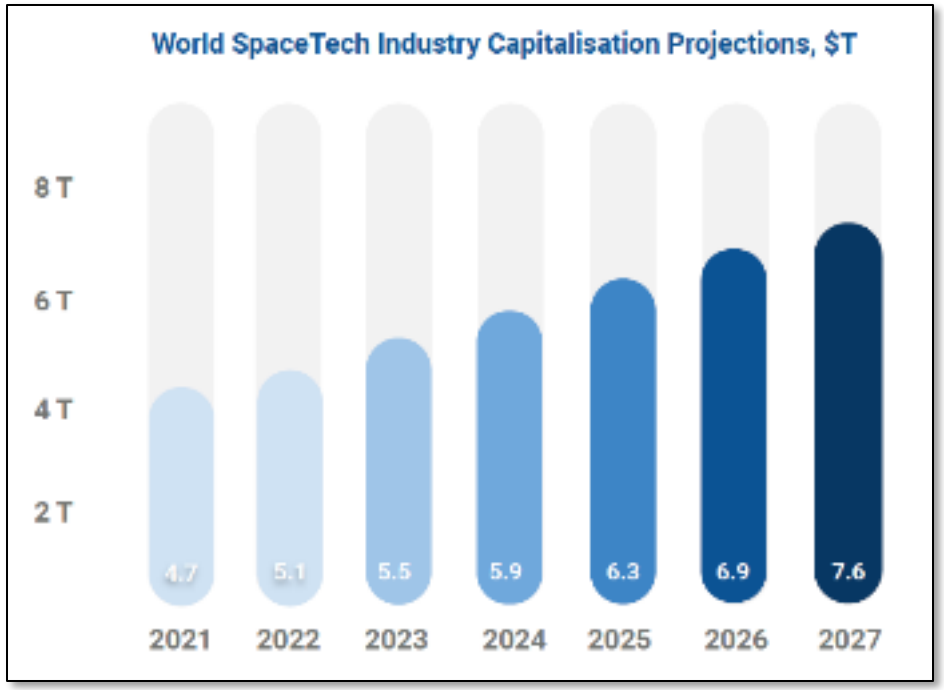
Space Economy: past and future growth, split by category



Source: OECD (forthcoming), *Handbook on Measuring the Space Economy*, second edition.

The space economy can be defined as ***"the full range of activities and the use of resources that create and provide value and benefits to human beings in the course of exploring, understanding, managing and utilising space"*** (OECD, forthcoming).

It goes well beyond the space manufacturing sector, also comprising the increasingly pervasive impacts of space-derived products, services and knowledge on economies and societies.



**Source: SpaceTech Industry Report*

GLOBAL SPACE ECONOMY ANNUAL «VALUE» - ESTIMATES

SPACE FOUNDATION	Euroconsult	BRYCE	esa European Space Agency	WORLD ECONOMIC FORUM
424 B$ - 2019 *546 B$ - 2022*	*394 B$ - 2019* *464 B$ - 2022*	*366 B$ - 2019* *384 B$ - 2022*	*368 B$ - 2019* *383 B$ - 2022*	*630 B$ - 2023* *SUPPOSED TO GROW TO 1.790 B$ IN 2035*

Space Economy: forecast from different sources

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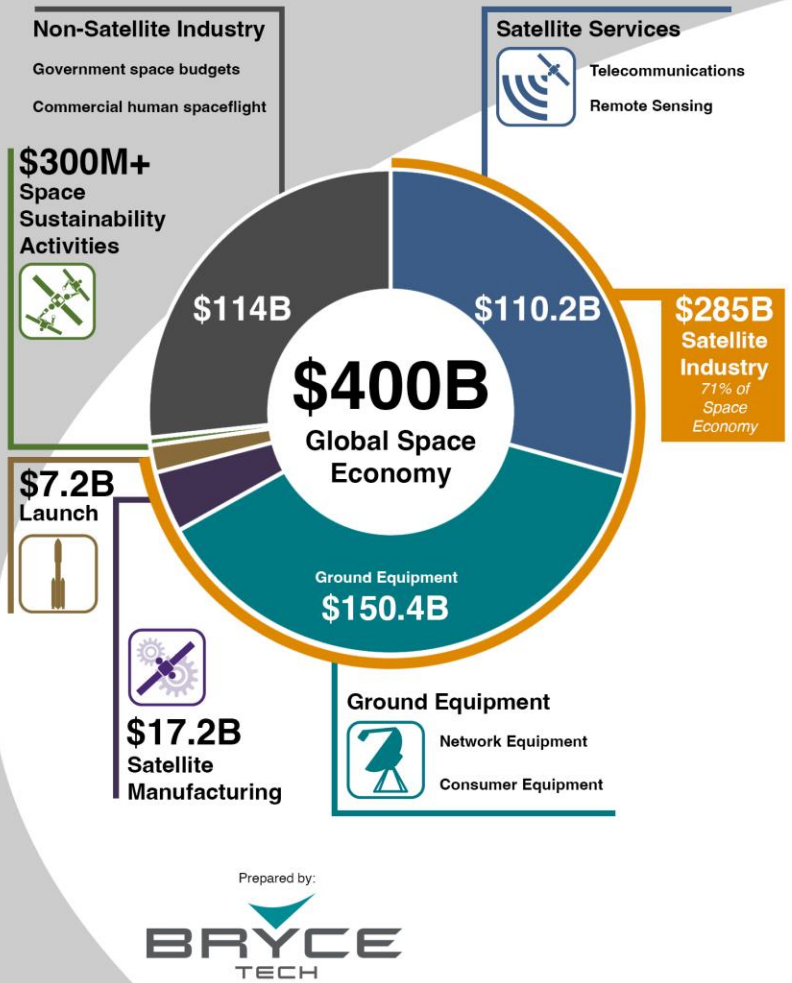
2023 Global Satellite Industry Revenues

SIA

The Satellite Industry in Context

(2023 revenues worldwide in billions of U.S. dollars)



Prepared by: BRYCE TECH

Satellite Services

2023 Revenues: $110.2B

$65.7B | $44.5B

Consumer	$88.8B
Satellite TV (DBS/DTH) Satellite Radio (DARS) Satellite End-User Broadband	
Enterprise	$18.2B
Transponder Agreements Managed Services Over FSS Bands Mobile Voice and Data Over MSS Bands	
Remote Sensing	$3.2B

Ground Equipment

2023 Revenues: $150.4B

$18.2B Consumer Equipment (Satellite TV dishes, etc.)

$115.5B GNSS Equipment (GNSS devices/chipsets)

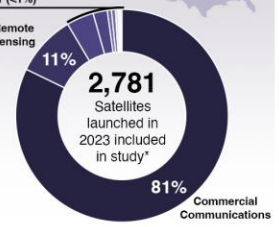
$16.7B Network Equipment (VSATs, gateways, etc.)

Satellite Manufacturing

2023 Revenues: $17.2B

$9.3B | $7.9B

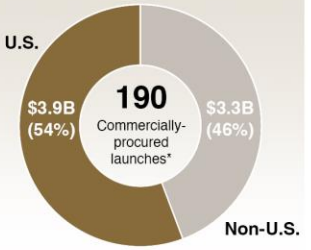
R&D (4%)
Military Surveillance (2%)
Navigation (1%)
Civ/Mil Communications (<1%)
Scientific (<1%)
SSA/Satellite Servicing (<1%)
Other (<1%)



Satellites Launched by Mission Type

Launch Industry

2023 Revenues: $7.2B



* 190 commercially procured launches from 221 total orbital.

Commercial Launch Revenues by Region

Changing Industry Dynamics: Increasing Affordability and Productivity, New Capabilities

Satellite Manufacturing
- Improved capability, innovative application of smallsats
- New applications, new models
- More capable, lower cost GEO satellites

Launch
- Increased launch activity
- Changing launch landscape

Satellite Services
- Massive telecom constellations of smallsats delivering service
- More GEO satcom capacity enabling new services
- More commercial remote sensing choices, capabilities

Space Sustainability Activities
- Debris removal
- Moving satellites
- Life extension
- SSA
- Servicing
- In-orbit assembly

New satellite activities contributing to in-orbit sustainability

Ground Segment
- Growing on-the-move connectivity
- 5.6B GNSS satellite-enabled smartphones, other devices
- Sat to cellphone capability deploying
- Broadband, satellite radio installations on the rise
- Television viewership changing from traditional models

Changing industry dynamics provide increased end user benefits
- Increasing productivity
- Increasing affordability
- New capabilities
- New space sustainability concepts
- Greater resiliency
- Economic growth

End Users

Consumer, industry, government, and non-profits

All sectors of the economy

Global

Space Economy: revenues 2023

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Space Economy: Value of Global Space Economy in 2022

GLOBAL SPACE ECONOMY

464 B€

COMMERCIAL MARKET
362 B€

PUBLIC SPENDING
102 B€

UPSTREAM
3%

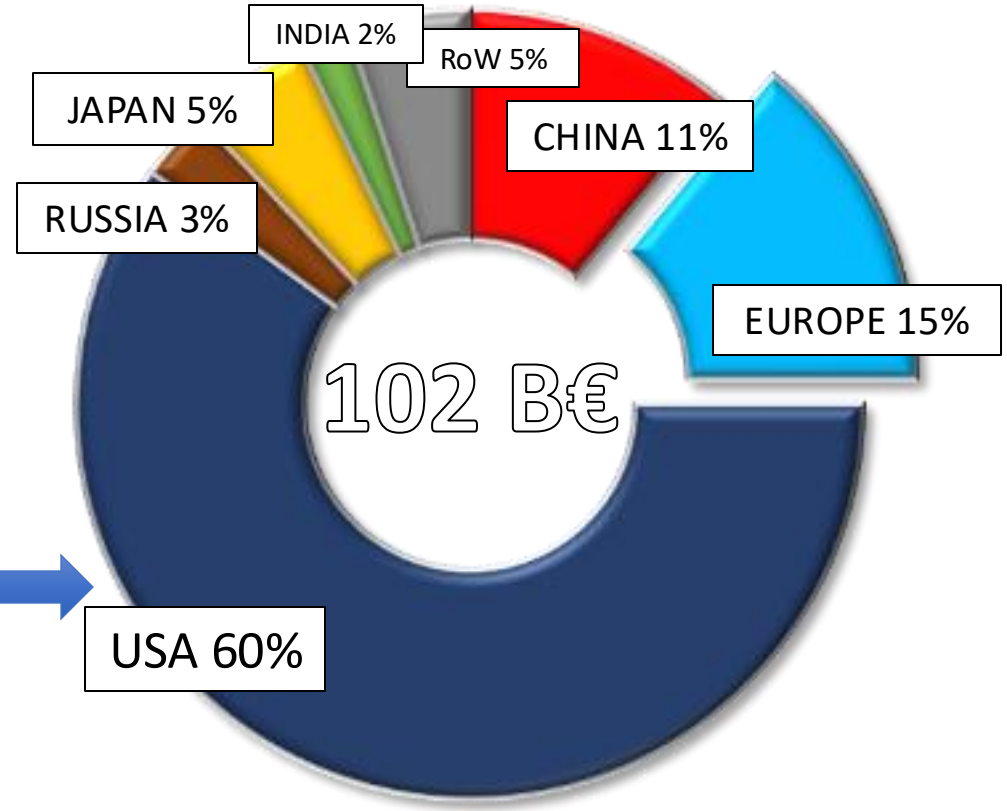
DOWNSTREAM
97%

GOVERNMENT: CIVIL + DEFENSE
60%

NOT CONTRACTED (Gov. activities: internal/R&D costs)
40%

*Source: **EUROCONSULT** – Space Economy Report 2022*

PUBLIC INVESTMENT IN SPACE (CIVIL + MILITARY)

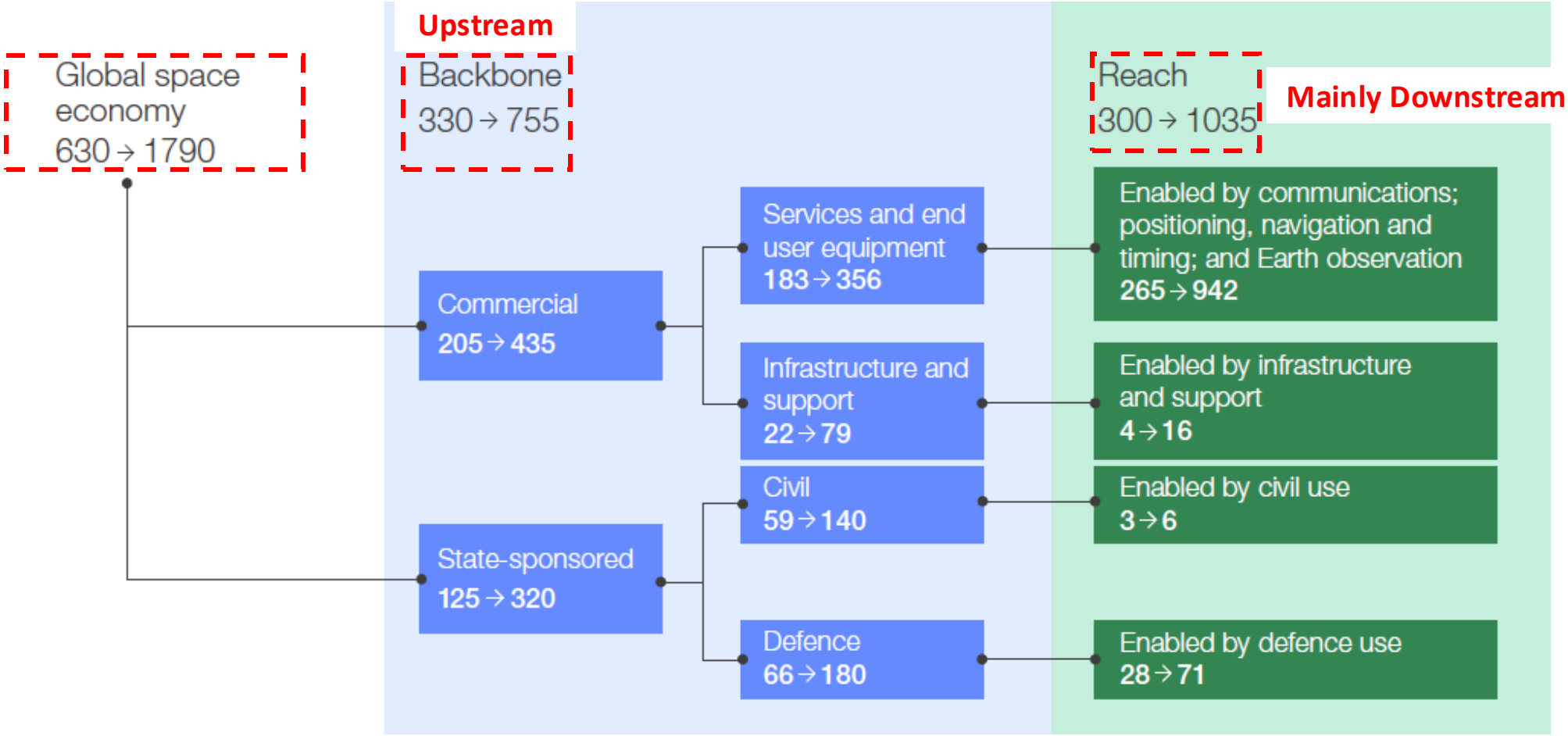


*Source: **EUROCONSULT** – Government Space Programs 2022*

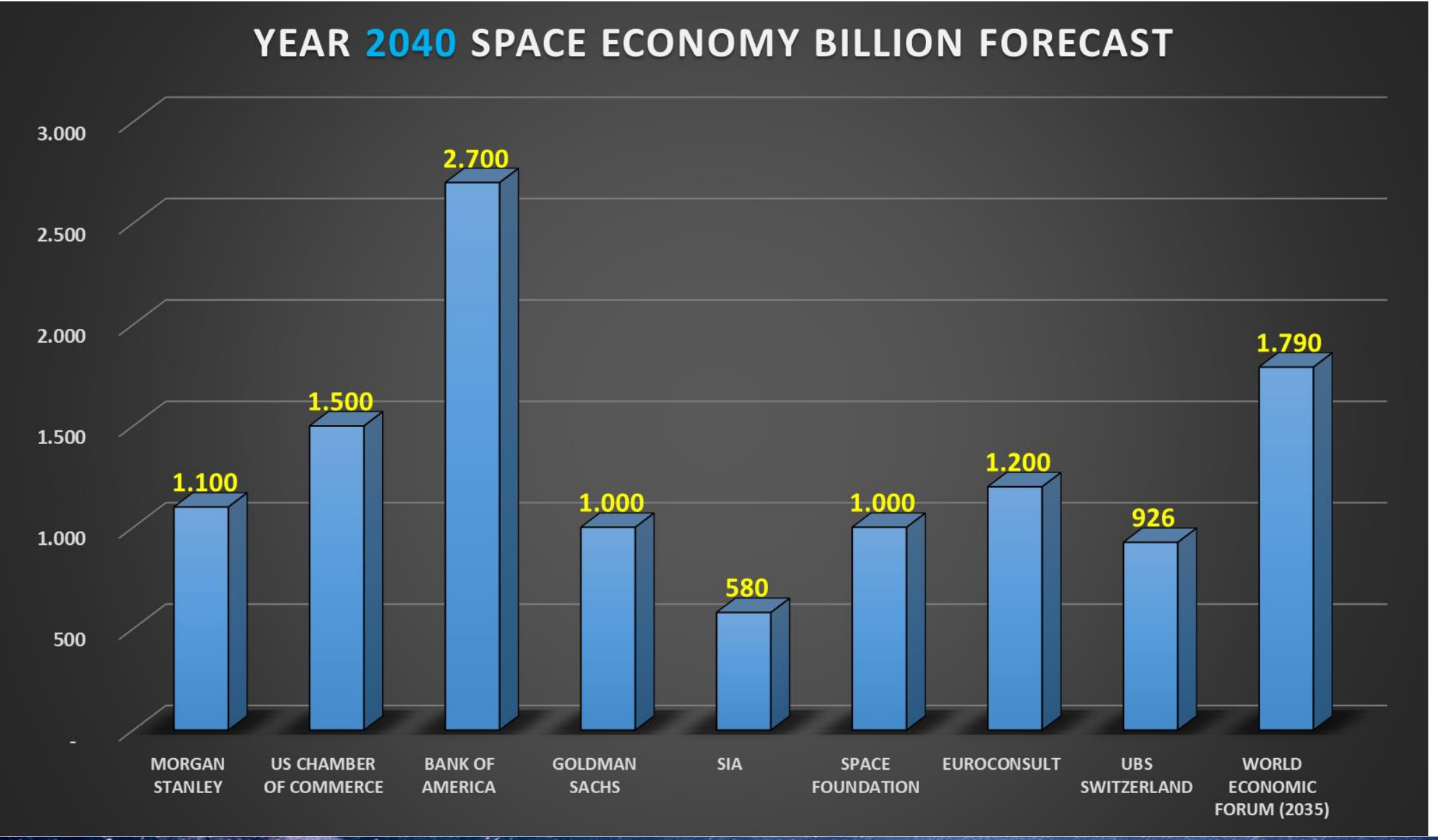
WORLD ECONOMIC FORUM

The GLOBAL SPACE ECONOMY 2023 value is **630 B$** and will reach **1.790 B$** by 2035

The growth will be enabled by DOWNSTREAM APPLICATIONS and EO



SOURCE: Space: The $1.8 Trillion Opportunity for Global Economic Growth, April 2024



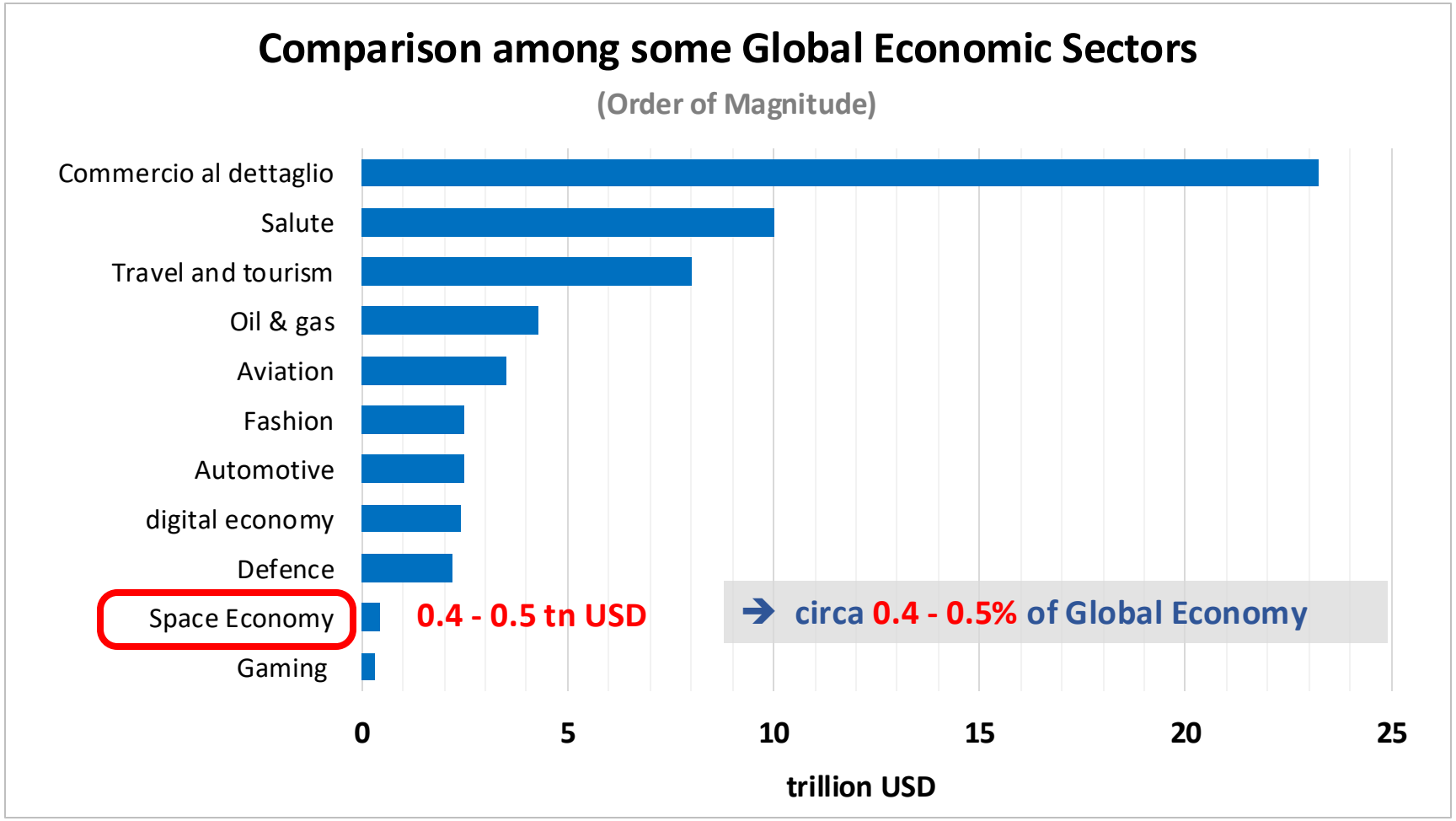
Main Space consultant actors agree on **SPACE ECONOMY REACHING 1Triollion $ BY 2040.**

Too many numbers but everyone agree on a **EXTRAORDINARY GROWTH**

**Source: ESA, 2023*

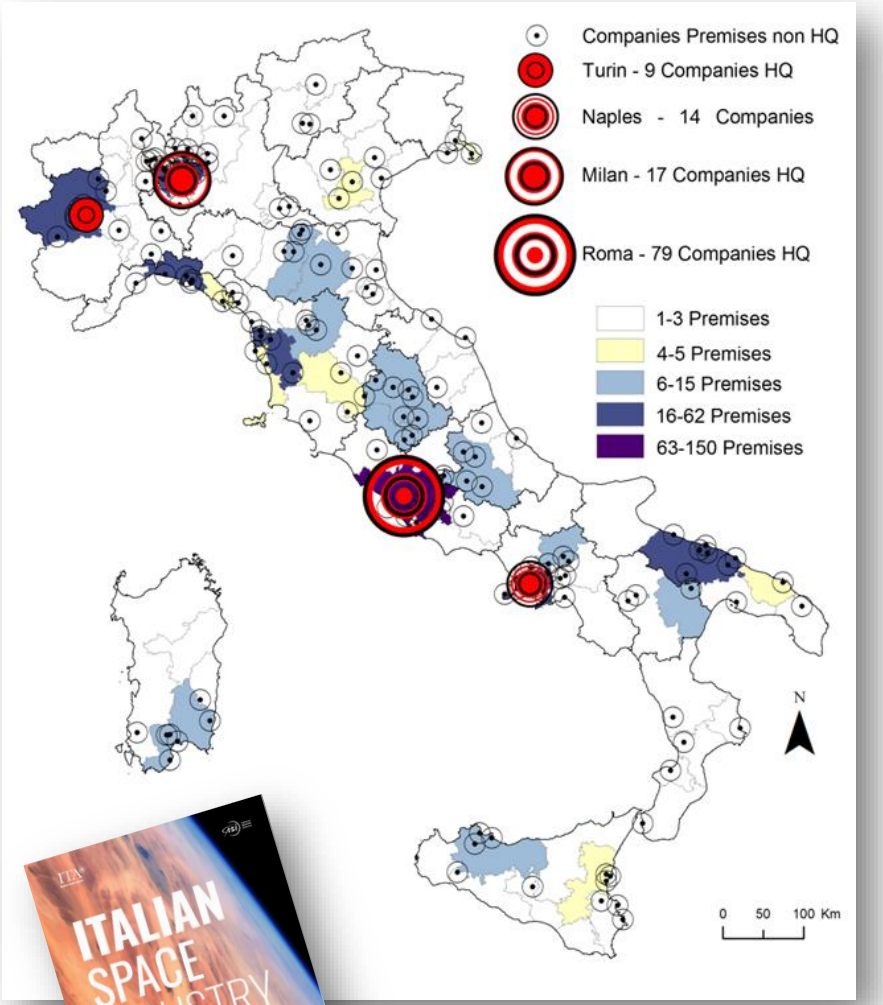
Space Economy: year 2040 forecast

Global Economy (GDP): **105** trillion USD in 2023 (*source* FMI)

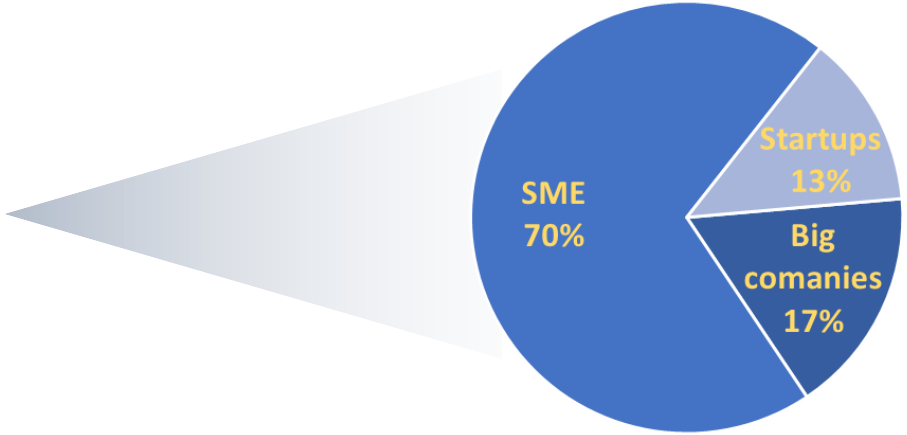


European Space Economy:
87-97 bn EUR

Comparison among different global economic sectors



~ **300** companies



~ **8.000** employees

3 business associations:

- AIAD (Italian Industries Federation for Aerospace, Defence and Security)
- AIPAS (Association of Italian Companies for Space Activities)
- ASAS (Association for Space-Based Applications and Services)

15 Regional Technology Districts

1 National Aerospace Technology Cluster (CTNA)

5 ESA BIC (Business Incubation Centers)

Italian Space Value Chain

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WE NEED A CLEAR
QUANTIFICATION AND
PERIMETER OF
ITALIAN SPACE ECONOMY

2021

UNIMI & ASI – Studio di Impatto Economico: Bottom-Up UPSTREAM

2004-2018 copertura anni
4.726 contratti industriali ASI ed ESA
676 fornitori industriali
461 imprese che riportano dati finanziari/brevettuali (ORBIS)

UNIVERSITÀ DEGLI STUDI DI MILANO

2023

UNIMI & ASI – Studio di Impatto Economico

DOWNSTREAM & DERIVED ACTIVITIES

UNIVERSITÀ DEGLI STUDI DI MILANO

2024

COLLABORAZIONE CON ISTAT PER LA QUANTIFICAZIONE E PERIMETRAZIONE DELLA SPACE ECONOMY

ASI e ISTAT hanno avviato una collaborazione per la creazione del primo *Satellite Account* dedicato all'Economia dello Spazio: il Satellite Account, o Co Satellite, è uno strumento statistico internazionalmente riconosciuto e raccomandato per valutare la dimensione economica di una determinata Industria, e che offre una rappresentazione congiunta del settore sia dal lato della domanda che dell'offerta.

Istat
Istituto Nazionale di Statistica

ISTAT collaboration for the Space Economy

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- **Authorization procedure by Public Institution (Space Agencies)** for the private space operations and object to be developed and launched;
- **Registration of all the space objects** for an effective traceability and monitoring by an unique ID label; to be retroactive;
- Obligation of an **insurance** for managing possible catastrophic accidents and relevant economic liability issues;
- National Plan for Space Economy (about 300 M€), including measures in favor of innovative SME's and Startups

Lines of actions of the draft National Space Law

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