NOVASPACE

Key Market Trends and Opportunities in the NGSO Market

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About Novaspace

Novaspace, formed from the merger of Euroconsult and SpaceTec Partners is positioned as an international leader in decision support and development in the space sector.

1,200
Clients Worldwide

1,000
Successful Consulting Missions

130+
Trusted Professionals

10+
Global Locations

40+
Years of Space Expertise

- Comprehensive, integrated service offerings to meet the evolving needs of the global space sector, offering **strategic and technical perspectives for private and public decision-makers**
- Unique capability to meet **local requirements** and support stakeholders **across the global space industry**
- Unparalleled reach and expertise anchored by six highly experienced Partners and an extended leadership team, ensuring a **culture of unique diversity and entrepreneurial spirit**
- Remaining **privately owned and fully independent**, ensuring continuity of the legacy while fostering an environment of innovation

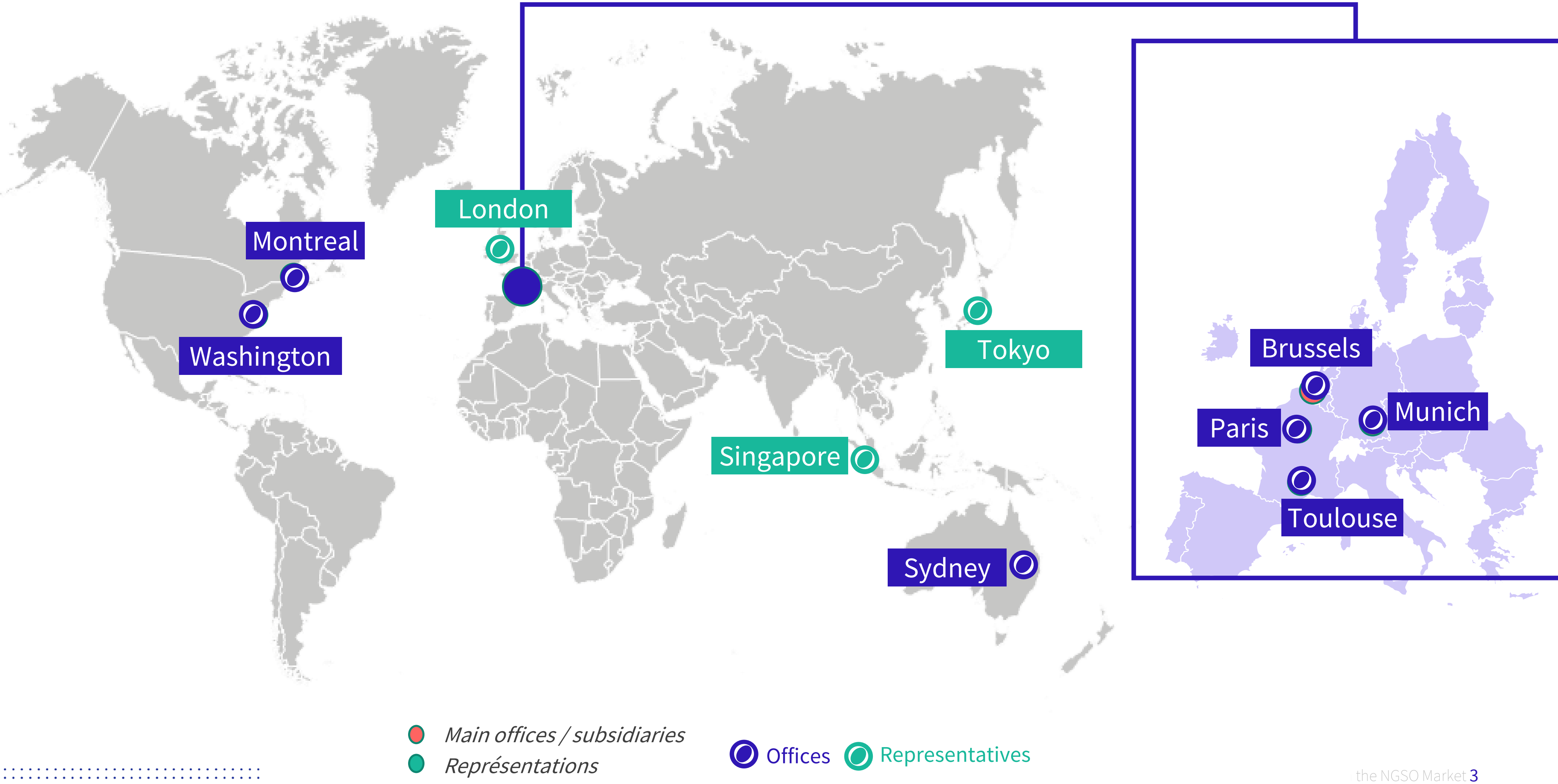
Novaspace emerges as a global leading powerhouse of professional services, dedicated to shaping the future of the space sector with unparalleled expertise and strategic insights.

With our Global Reach we Serve 1,200 Clients across 60 Countries

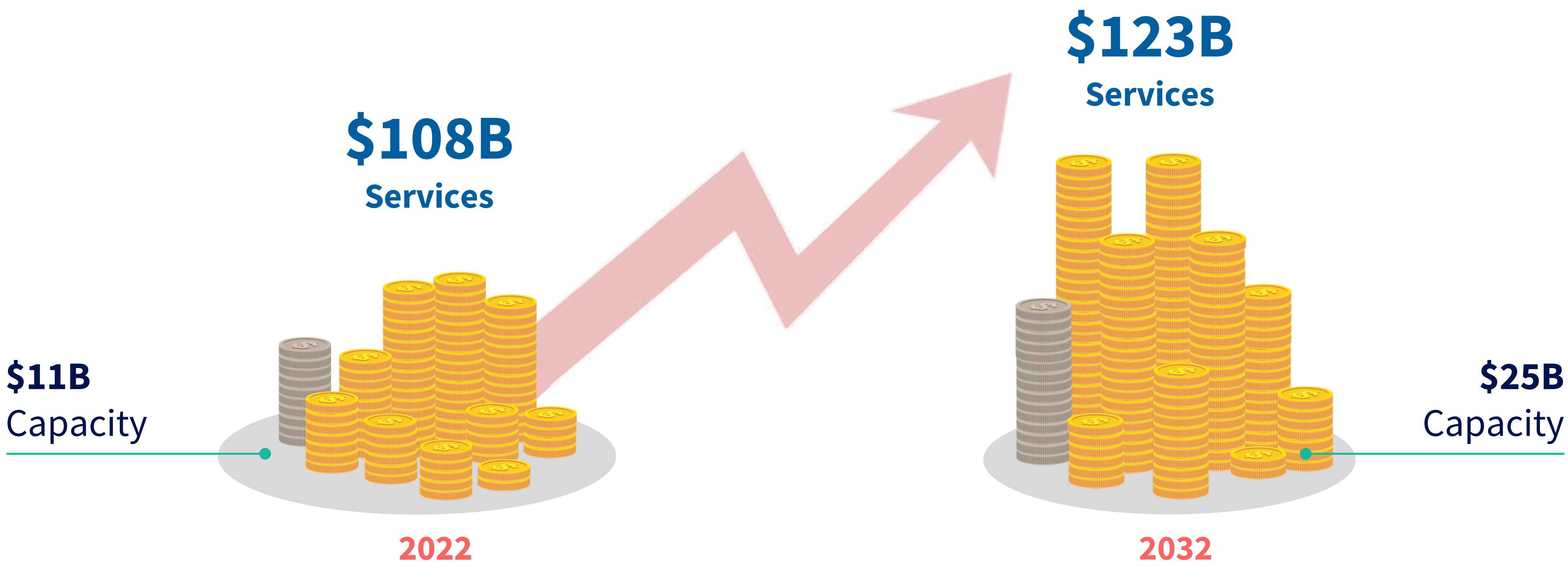
Our Clients

- Governmental & international organizations
- Financial institutions & insurance
- Service providers and end users
- Satellite operators
- Launch service providers
- Satellite & equipment manufacturers

Our Geographic Footprint



Satellite connectivity : a $123 Billion Market



DRIVERS

- Increasing Vertical Integration
- Data-centric businesses
- New economics & capacity pricing

Source: Euroconsult, Satellite Connectivity and Video Market, 30th edition

A mix of solutions

Numerisation

Software defined satellites

50% of GEO satellites ordered in the last 3 years

Cloud computing and AI

Constellations

New industrial process

Design standardization

Commercial off the shelf products (COTS)

Serie production

New resources

New frequencies

Q-band/ V-band/ E-band, Optical links…

New business models

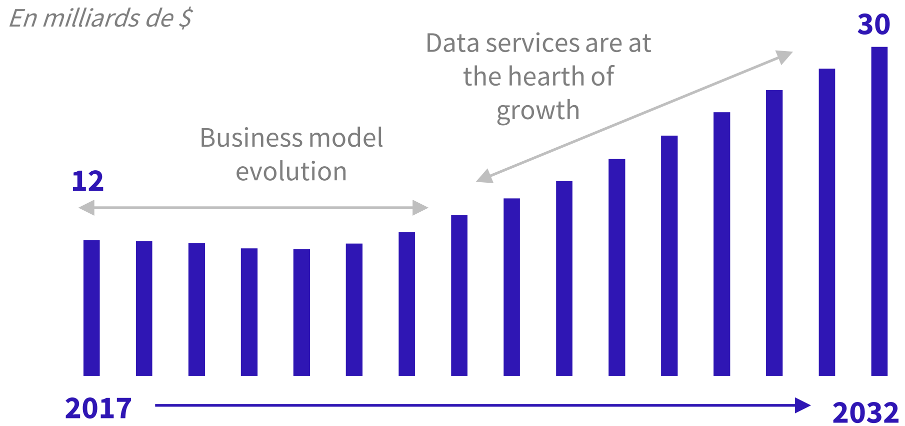
Space as a service

Launcher reusability

90% of SpaceX launches in '23 used a previously flown booster

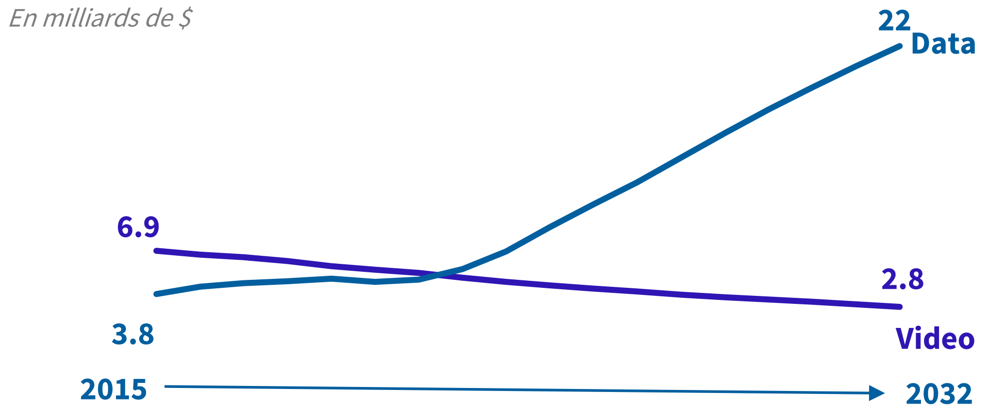
The radical transformation of satellite connectivity

Satcom operators revenues



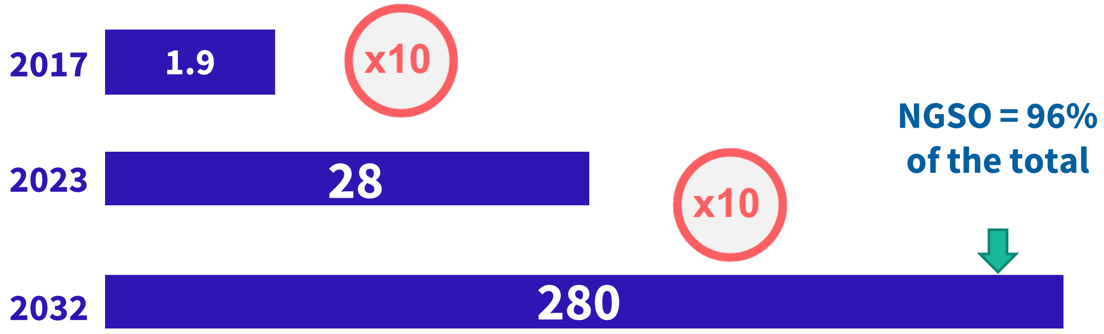
Source: Euroconsult, Satellite Connectivity and Video Market, 30th edition

Video Revenues vs. Data revenues



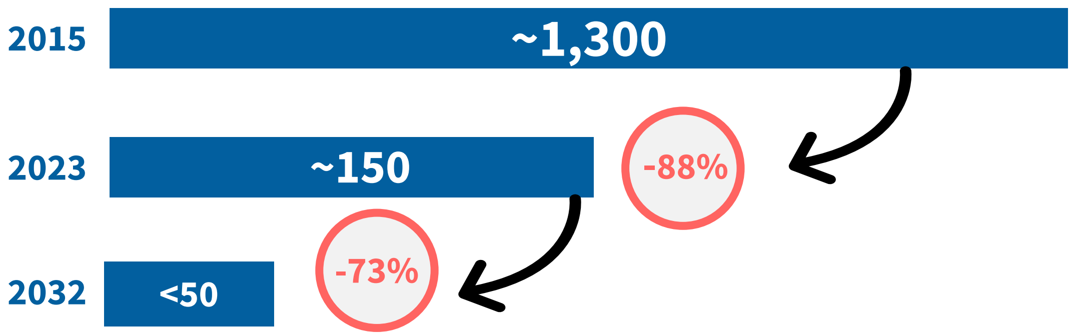
Source: Euroconsult, Satellite Connectivity and Video Market, 30th edition

Available satellite capacity (Tbps)



Source: Euroconsult, Satellite Connectivity and Video Market, 30th edition

Capacity price ($/Mbps/month) – Global average



Source: Euroconsult, Satellite Connectivity and Video Market, 30th edition

GEO/MEO/LEO positioning

	GEO	MEO	LEO	LEO/GEO
Coverage ubiquity	High	Medium	Very High	Very High
Capacity densification	Very High	High	Medium	Very High
Resilience/availability	High	High	High	Very High
Latency	Low	High	Very High	Very High
Ease of installation / bulkiness	Medium	Low	Very High	Very High

- ● **Very High**
- ◕ **High**
- ◑ **Medium**
- ◔ **Low**

Source: Eutelsat, Eutelsat to combine with OneWeb, a leap forward in Satellite Connectivity, October 12th, 2022

Vertical market fit by vertical infrastructure

Market	Widebeam	GEO-HTS	NGSO-HTS
Consumer broadband	◔	●	●
Backhaul & Trunking	◑	◑	●
Enterprise Networks	◑	●	◑
Maritime	◑	●	●
Aero IFC	◑	●	●
Land Mobility	◔	●	●
Milsatcom	◑	◑	●
Video distribution	●	◑	◔
Video contribution	●	◑	◔

Market fit ◔ Low ◑ Medium ● High

Source: Eutelsat, Eutelsat to combine with OneWeb, a leap forward in Satellite Connectivity, October 12th, 2022

- NGSO constellations are poised to be competitive in most verticals served by the legacy GEO-widebeam and GEO-HTS solutions except for video services.
- Multiple differentiators include:
  - Low latency: One of the key differentiators for NGSO (<50ms) vs. GEO (600ms)
  - Capacity: NGSO systems have much higher capacity than most GEO-HTS systems given their scale, however, with a caveat of low usability esp. in the absence of flexible beams.
- However, complex & expensive ground terminals can be an inhibitor for the NGSO constellations compared to incumbent GEO HTS players.

Starlink's deployment in vertical segments redefines the market

STARLINK	FOCUS/ PRIORITY	CUSTOMER BASE (YE 2022)	CUSTOMER BASE (YE 2023 estimate)
RESIDENTIAL	Primary	**~1m** subscribers	**~2m** subscribers
BUSINESS	Primary	**~155K** businesses	**320K+** businesses
ROAM	Secondary	**~110K** users	**~230K** users
MOBILITY (MARITIME)	Primary	**~500** vessels	**~3,500** vessels
AERO	Secondary	**~50** aircrafts	**~160** aircrafts

MARKET FOCUS/PRIORITY: Primary Secondary

First mover with **attractive "price reductions"** to increase customer base

Polar coverage & ISLs to improve market fit aided by tailored business plans

Strategic partnerships: Microsoft Azure, US military, Deployments in Ukraine

Avoidance to implement SLAs but adaptive in certain cases

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Focus on multi-orbit strategies

The strong growth in capacity available in LEO (Starlink) is impacting a satcom market historically dominated by services provided via GEO satellites. This paradigm shift is accompanied by technological innovations in the space segment (HTS satellites, flexible payloads, software-defined satellites, active antennas ....).

These technological innovations pave the way for the provision of multi-orbit services, making the most of each of the orbits (GEO, LEO, MEO and HEO). The multiple benefits of multi-orbit services (such as coverage, redundancy, traffic management, capacity density, quality of service) apply to both service providers and end-users.

To date, nearly 30% of the ~50 active satellite operators have a multi-orbit strategy in place, either through their own multi-orbit capacity or through partnerships with other operators. Two operators currently have multi-orbit capacity in flight: Eutelsat and SES. The most popular partner for GEO operators is Starlink, which accounts for 2/3 of the partnerships announced to date.

As for service providers, the vast majority have NGSO partnerships for services with global coverage. To date, a limited number of companies have GEO/MEO/LEO partnerships and most focus on LEO/GEO services.