BROCHURE

SATELLITES TO BE BUILT & LAUNCHED BY 2026

World Market Survey

The industry's landmark analysis & forecast of satellite manufacturing & launch services worldwide

2017 Edition | A Euroconsult **Research Report**

This report, in its 20th edition, provides an exhaustive analysis of the worldwide satellite demand merging customers, applications & orbits.

- **Customers:** Civilian government, military government, commercial companies
- **Applications:** Fixed & mobile communications, TV & radio broadcasting, navigation, Earth observation, meteorology, data relay, science, IMINT/ELINT/SIGINT…
- **Orbits:** LEO, MEO/HEO, GEO, Deep Space

According to the 20th edition of the report, Euroconsult anticipates that 300 satellites with a mass over 50 kg will be launched on average each year by 2026 for government agencies and commercial organizations worldwide. This is a threefold increase over the past decade as the satellite market experiences a paradigm shift with the rise of small satellites and mega constellations, such as that of OneWeb.

The space industry is undergoing a massive change in volume as cubesats/nanosats and the large constellations of small satellites have begun to revolutionize satellite design, testing and production, and launch as well, as illustrated by OneWeb. However, it remains to be seen how these new satellite concepts will incentivize demand for satellite services on Earth through lower costs, especially considering that, ultimately, the cost of ownership for satellite services also includes a large investment on the ground.

The 3,000 satellites over 50 kg to be launched over 2017–2026 should represent a market of $304 billion for the space industry in terms of building and launching, an average of $30 billion per year (up 25% over past decade). A price decrease is visible in this core market of the space industry, driven by 23 commercial constellations launching a total of 1,800 small satellites (of which about 1,000 for OneWeb) into low or medium Earth orbits for communications or Earth observation.

Over three quarters of the future space market remains with Governments; the 1,000 satellites to be launched for civilian and military agencies in 60 countries will represent a market of $239 billion. Over 85% of the government market will remain concentrated in the 10 countries with an established space industry (the U.S., Russia, China, Japan, India and the top five European countries). Still, the other 50 countries engaged in space activities will launch almost 200 satellites, twice the number they launched over the past 10 years.

In the commercial space sector, Euroconsult believes that about 2,000 satellites will be launched over the decade, of which about half solely for OneWeb. Almost two-thirds of the commercial space market of $65 billion will remain concentrated in geostationary orbit, the destination of 150 new satellites for communications and broadcasting services. The 1,800 satellites to be launched into non-geostationary orbits for the 23 constellations to collect or transport data should represent a market of $2 billion per year on average over the decade.

ABOUT SATELLITES TO BE BUILT & LAUNCHED BY 2026

ABOUT

Satellites to Be Built & Launched by 2026, **World Market Survey** is a required reading for anyone interested in the business generated by satellite systems and their launches. The report is fully updated, providing all the key figures and analysis needed to understand the global space market, and the future opportunities & challenges.

NEW IN THE 2017 EDITION:

✓**Retrospective analysis of Euroconsult's forecast matching with satellite reality over the past 17 years**
✓**Market share of the satellites of the report relative to the cubesat and mega-comsat constellations**
✓**New data series in Excel files**
✓**New format & layout**

KEY TRENDS, DRIVERS & FORECASTS

- Exclusive 10-year forecasts including breakdown by customer & by orbit, with number & mass of satellites to be manufactured & launched, plus market value (manufacturing & launch services)
- Review of strategic issues from both supply (industry) & demand (customers) perspectives
- Detailed demand database for commercial (order book) and government satellites (forecasts) including: application, launch date, launch mass, satellite platform, manufacturer, launch provider

WHO WILL BENEFIT FROM THIS REPORT?

✓ Satellite & launch vehicle integrators
✓ Satellite & launch vehicle parts manufacturers
✓ Launch & service providers
✓ Banks, investors & insurers
✓ Satellite operators
✓ Space & other government agencies

TRUSTED BY KEY INDUSTRY PLAYERS

Admin & Political: European Commission, EUMETSAT, IctQATAR, Industry Canada, Institut d'Estudis Espacials De Catalunya, Japanese Office of National Space Policy, Ministère de la Défense - Etat Major de l'Armée de l'Air, NCRD-Ministry of Science and Technology of Israel…

Banks: Credit Suisse, Export Development Canada, Goldman Sachs International, HSBC, Morgan Stanley…

Manufacturers: 3D Plus, Aerojet, Air Liquide, Alcantara Cyclone Space, Alliant Techsystems Inc. (ATK), Arianespace, Ascent Solar Tech, Airbus D&S, Astrotech Corporation, Atmel, Boeing Integrated Defense Systems, Carlisle Interconnect Technologies, China Aerospace Science And Technology Corp., China Great Wall Industry Corporation, Cobham Microwave, COM DEV International Ltd., Comtech EF Data, Dynetics Inc., E2V Technologies, Finmeccanica, Gilat Satellite Networks, Harris Corporation, iDirect Technologies, IHI AEROSPACE, ILS, International Rectifier, ISS Reshetnev Company, ITT Corporation, Khrunichev State Research & Production Space Center, Korea Aerospace Industries, L-3 Communications, Lockheed Martin, MDA, Microsemi, Mitsubishi Electric Corporation, Mitsubishi Heavy Industries, MT Aerospace, NGC Aerospace, Northrop Grumman Aerospace Systems, OHB-System AG, Orbital Sciences Corporation, Rakon France, Raytheon, Reliance, RSC Rocket Space Corporation Energia, RUAG Schweiz AG, Russian Space Systems(Niir), Rymsa - Radiacion Y Microondas Sa, SAFT, Satrec Initiative, Sea Launch, Smiths Interconnect, SNECMA Groupe SAFRAN Moteurs, Sofradir, Space Flight Services, SpaceX, SSL, STMicroelectronics, Sumitomo Corporation of America, Surrey Satellite Technology Ltd., Tesat-Spacecom, Thales Alenia Space, TMServices, Trak Microwave Limited, Turkish Aerospace Industries, Umicore, United Technologies Corp., Yuzhnoye SDO, Zodiac Data Systems…

Space Agencies and R&D Centers: AEB, Azercosmos, Brazilian Institute of Aeronautics and Space (IAE), CSA, CAST, CNES, DLR, ESA, INPE, JAXA, KISTEP, KARI, NSO, SANSA, SNSB, Tekes Technology Development Center of Finland, UK Space Agency…

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- Financial performance of the space transportation industry
- The GEO launch industry
- The LEO launch industry

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  - Arianespace
  - ILS
  - SpaceX

03\ COMMERCIAL SATELLITE DEMAND

ASSUMPTIONS FOR COMMERCIAL SATELLITE DEMAND

DEMAND CONTEXT FOR COMMERCIAL SATELLITES

- The three orbits (GEO, MEO, LEO) are now commercial and working together
- Commercial space still means communication satellites (ComSat) in GEO orbit

THE COMMERCIAL MARKET BY APPLICATION

- A mature GEO ComSat market driven by replacing in-orbit capacity
- Future GEO ComSat demand highly uncertain in the short term
- GEO ComSats are unique for broadcasting and broadband communications
- ComSat market driven by consolidation of operators & new entrants
- In-orbit servicing of ComSats systems
- Eight constellations for low latency broadband communications
- Earth observation at just over 10% of commercial space

04\ GOVERNMENT SATELLITE DEMAND

ASSUMPTIONS FOR GOVERNMENT SATELLITE DEMAND

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- Market hierarchy between customers, applications & regions
- Growth in future government demand is driven by civilian satellites
- Earth observation dominant for both civilian and military satellites
- Asia dominates by far for civilian satellites and the USA for military satellites
- Newcomer space countries at 11% of market value

MARKET DYNAMICS BY ORBIT

MARKET DYNAMIC BY APPLICATION

05\ SATELLITE BACKLOG & FORECAST

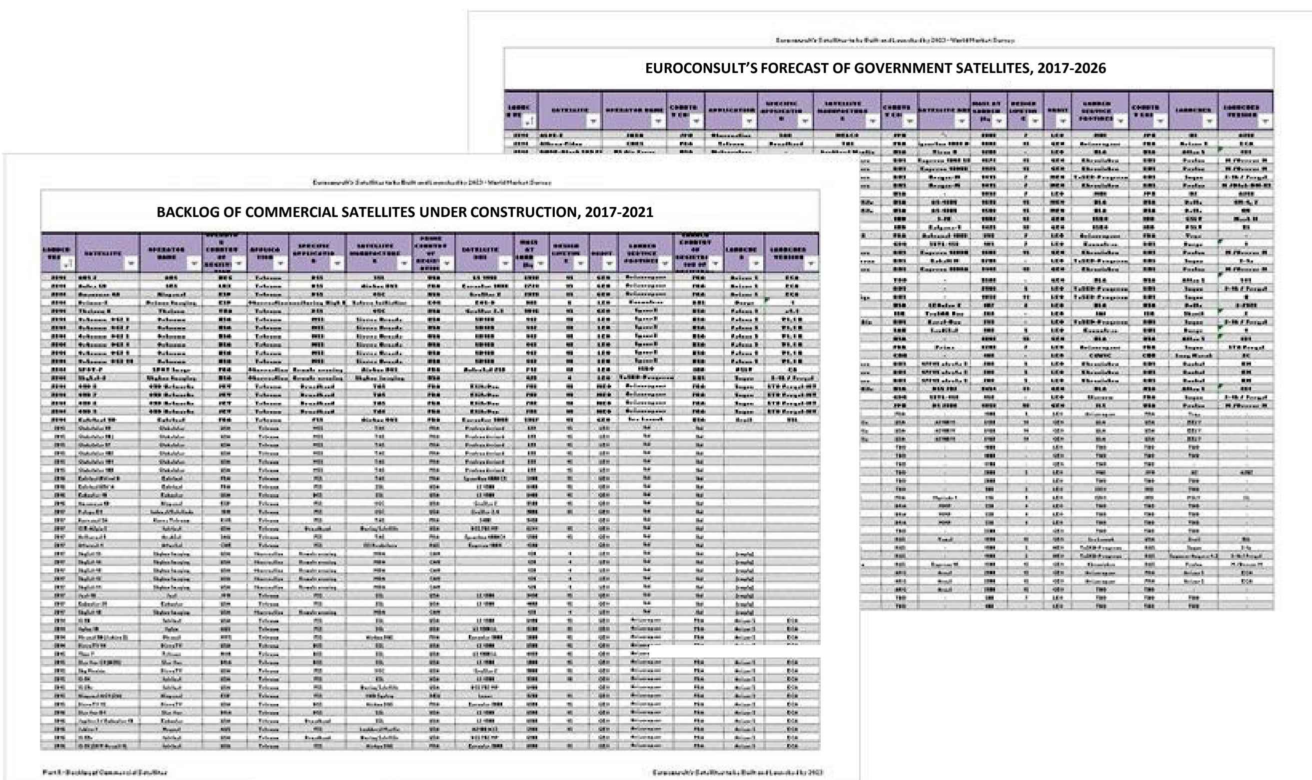
TWO DATABASES EXCLUSIVE TO EUROCONSULT

Backlog of 1,300 commercial satellites under construction for launch over 2017-2021 is a complement to the market forecast established by Euroconsult on the number and types of commercial satellites to be manufactured for launch.

Euroconsult's forecast of 1,000 government satellites to be launched over 2017-2026, including the nominative satellites (under construction as of January 2016), and those that are planned to be launched by 2026 as a follow-on to existing systems or as new systems.

For each satellite, the following information is provided :

- Name of the satellite
- Year of launch
- Name and country of the operator
- Application of the satellite
- Orbit of the satellite
- Satellite manufacturer
- Satellite bus
- Design lifetime of the satellite
- Launch mass of the satellite
- Launch service provider
- Launch vehicle


EUROCONSULT'S FORECAST OF GOVERNMENT SATELLITES, 2017-2026

BACKLOG OF COMMERCIAL SATELLITES UNDER CONSTRUCTION, 2017-2021

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