

### 36. United States

#### Institutional framework

The United States has the largest space programme in the world, involving several civilian and defence-related organisations. Major organisations with space missions include the National Aeronautics and Space Administration (NASA), the Department of Defense, the Department of Energy, the Department of Transportation (Office of Commercial Space Transportation), the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA) and the Department of the Interior's Geological Survey (USGS).

The main priorities of the US space programme are set in the 2010 National Space Policy, which covers commercial, civil, and national security space activities. It is completed by other sector-specific policies, such as the November 2013 National Space Transportation Policy. The institutional budget covering both public civilian and military space activities amounted to about USD 39 billion (current) in 2013. It did not include classified military programmes on space, which has been historically an important source of contracts for the US industry. NASA has 18 centres and facilities in 13 states. The Agency had a budget request totalling USD 17.7 billion in 2013, down from USD 18.7 billion requested in 2012 (actual spending amounted to USD 17.8 billion), and employs some 17 480 civil servants. NASA's budget is divided in different key segments. The biggest budget lines comprised in 2013 the science programme (particularly the earth and Planetary Science programmes), space operations (mainly the International Space Station), and exploration, which included commercial spaceflight. In terms of major procurement for US agencies, launching governmental satellites is a key item. The US government is expected to spend around USD 44 billion in launch costs over the next 5 years (GAO, 2013). Procurement for launch related activities is trending upward with annual funding increasing nearly 19% from 2014 to 2018, although some savings were achieved

through multi-year block buy acquisition strategy. Procurement of commercial launch services is expected to represent about USD 28 billion (65% of total) for all agencies (e.g. this includes NOAA funds to procure launch vehicles for weather satellites), while Research, Development, Test, and Evaluation funding represents about USD 11 billion (26% of total) with NASA investing in the Space Launch System (SLS). Other costs include civil service and military personnel, operations and facilities construction and maintenance.

#### US space industry

Industry-wise, the US space sector is part of a much larger aerospace and defence manufacturing base. In terms of geographical distribution, the space industry is located throughout the United States, with a particularly large presence in California, Texas, Florida, New Mexico, Colorado and Alabama. As for other countries, disentangling statistics specifically on the space industry remains challenging. In the wake of the end of the space shuttle era, the Department of Commerce (DoC) with NASA and other agencies conducted in 2011-13 a large US Space Industry "Deep Dive" Assessment. Surveying a large sample of organisations, the DoC found that some 348 000 full time employees were dependent in 2012 on US government space programmes. This includes personnel in US governmental agencies, commercial companies (including subcontractors to the space manufacturing industry, providing electronics, engineering and other services, etc.), universities and non-profit organisations. This is usefully complemented by data from the US Bureau of Labor Statistics/Aerospace Industry Association (AIA) which encompass the "core" or "pure-play" space manufacturing sector, representing some 73 000 full time equivalent employees (see graph and note below).

#### Key facts for the United States

Space budget as a share of GDP in 2013: 0.23%.

Space budget per capita in 2013: USD 123.2 (PPP).

Number of regional clusters including space industry: ~+15 states with space industry presence.

Share in scientific production in satellite technologies (2013): 28.2%.

Share of space-related patent applications filed under PCT (2009-11): 33.58%.

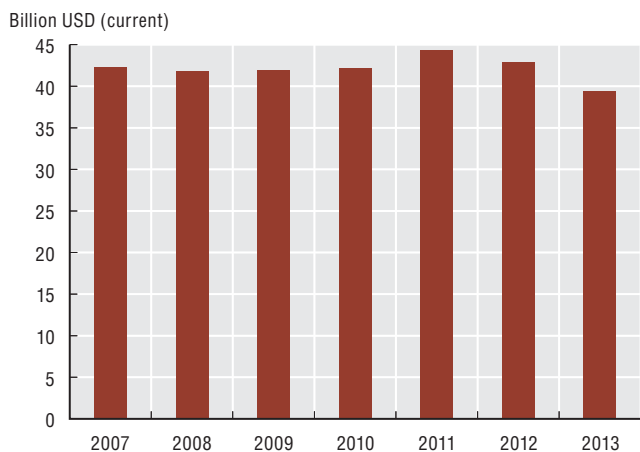
Subscribers of Direct-to-home (DTH) satellite services (2011): 34 million (29.56% of television households).

Number of operational satellites: 415.

Student performance in science: 497 (OECD average - mean score 501).

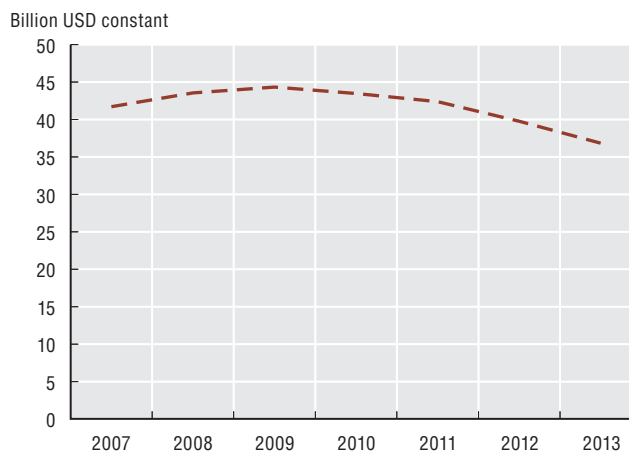
**36.1. US space budget estimates**

In billion USD (current), 2007-13



**36.2. US inflation-adjusted space budget**

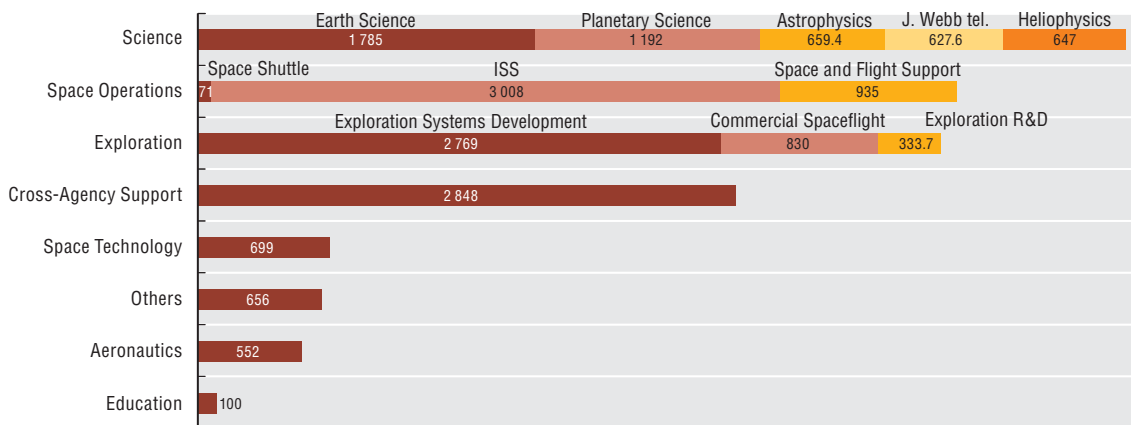
In billion USD (constant), 2007-13



Source: OECD calculations based on relevant space-related budgets from NASA, Department of Defense, Department of Commerce (NOAA), Department of Transportation (Federal Aviation Administration), Department of the Interior (US Geological Survey), and OECD consumer prices (all items), extracted from MEI database, June 2014.

**36.3. NASA budget, breakdown by main programmes**

In million USD (current), 2013



Source: Adapted from NASA, 2014. Note: "Others" include the budget lines: Construction, Environmental Compliance and Restoration, and Inspector General.

StatLink <http://dx.doi.org/10.1787/888933142197>

## V. COUNTRY PROFILES: ACTORS IN THE SPACE ECONOMY

### 36. United States

Employment numbers could be higher if other statistical categories are included (e.g. the category: Navigational, measuring, electromedical, and control instruments instruments manufacturing). In terms of revenues, the AIA reports space industry sales of around USD 43 billion in 2012. With its wider scope, including all commercial companies providing services to the core space industry, as well as the space manufacturing industry itself, the DoC found sales of around USD 52.1 billion in 2012. In terms of customers, these sales are distributed amongst US governmental defense programmes (41%), US governmental civilian programmes (33%) and commercial customers (25%) (U.S. Department of Commerce, 2013).

#### US Aerospace industry

Finally, a brief overview of the US aerospace sector provides the broader industry context for many space-related activities, since many of the large aerospace groups are involved in both aeronautics and space systems. Based on BLS data, some 3 100 commercial companies are active in the US aerospace sector, with around 497 000 employees in 2013 (BLS, 2014). In terms of revenues, when aggregating civilian and defence-related activities, sales amounted to some USD 222 billion in 2012, and USD 220 billion in 2013 (AIA, 2013). As of end-2013, the backlog for the US civil transport aircraft sector totalled some 4 700 aircraft, worth USD 344 billion (this is equivalent to production of around seven years), with 66% of those orders from foreign carriers. This can also be seen in terms of exports, as data coming from OECD databases show main US aerospace customers

located in Japan, France, China and the United Arab Emirates, all homes to major airlines. In terms of major US imports, Japan, the United Kingdom and Germany are producing many components for the industry, while in the case of France and Canada, they have manufacturers of aircraft regularly purchased by US airlines. In 2012, the United States exported aerospace goods for a total value of USD 106 billion (more than a third of total OECD aerospace exports) and imported goods for USD 40 billion.

#### Sources

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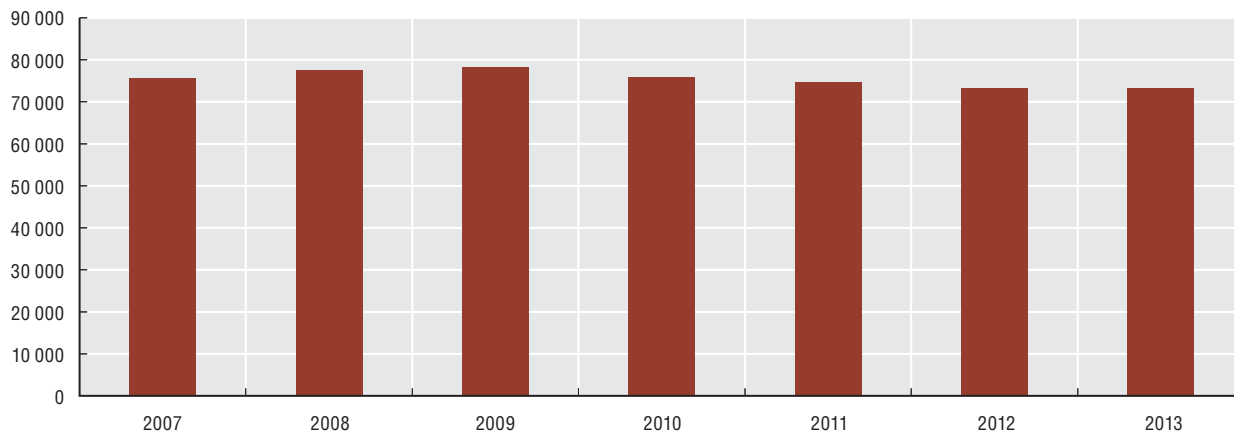
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US Department of Labor, *Career Guide to Industries: Aerospace Product and Parts Manufacturing*, [www.bls.gov/oco/cg/](http://www.bls.gov/oco/cg/).

**36.4. Space manufacturing employment in the United States**

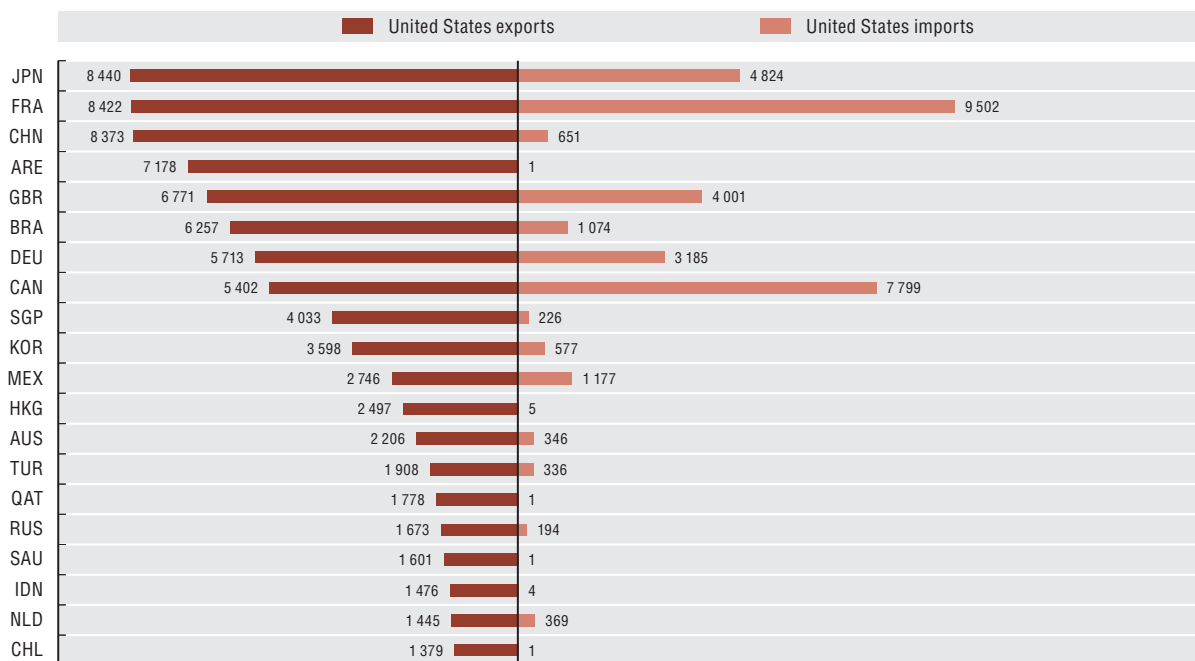
Number of full time equivalents, 2007-13



Source: Adapted from Aerospace Industry Association (AIA), 2013 and previous, based on data from the U.S. Bureau of Labor Statistics. Three industry groupings from the North American Industrial Classification System (NAICS) are used, which cover more than only space manufacturing: 336414 (Guided missiles and space vehicle manufacturing), 336415 (Guided missiles and space propulsion unit and propulsion unit parts manufacturing), and 336419 (Other guided missile and space vehicle parts and auxiliary equipment manufacturing).

**36.5. United States' main aerospace partners**

In million USD (current), 2012



Source: OECD STAN Database, 2014, [www.oecd.org/sti/btd](http://www.oecd.org/sti/btd).

StatLink  <http://dx.doi.org/10.1787/888933142206>



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