

29. Germany

Institutional framework

Germany is a major actor in the European space sector, as the largest funder to the European Space Agency (ESA) in 2013, as well as an important location for space manufacturing. Germany's space policy focuses on the sustainable use of space for the benefit and needs of the population (Federal Ministry of Economics and Technology, 2010). The latest government space strategy was published in 2010 and identified ten priorities: expanding strategic space expertise; sustainably reinforcing Germany's position in space research; tapping new markets and establishing a unified legal framework; using space for purposes of whole-of-government security preparedness; shaping the distribution of roles in the European space sector; defining German and European roles in exploration; securing technological independence; retaining human spaceflight; maintaining the Moon as a target for exploration; and ensuring the sustainability of space activities (Federal Ministry of Economics and Technology, 2010).

Space policies are carried out by the German Aerospace Centre (*Deutsches Zentrum für Luft- und Raumfahrt* – DLR), under the main responsibility of the Federal Ministry of Economics and Technology. Germany's institutional space budget amounted to roughly EUR 1.3 billion in 2013 (USD 1.8 billion), about half of which (EUR 766 million/USD 1 billion) was allocated to ESA and other European space programmes (figure 1), while the rest was dedicated to the national research programme, as well as to the EUMETSAT and METimage programmes. The budget is funded by three ministries – Ministry of Economics and Technology (BMWi) and the Ministry of Transport and Digital Infrastructure (BMVI) (Galileo). The Ministry of Defence funds military research conducted in DLR. In both constant EUR and USD, the German budget as a whole increased by more than 20% compared to 2007, with the national programme growing by 30%.

In 2013, combining funds allocated both at the national and European level, Germany allocated the highest amount of funds to earth observation, EUR 311 million (USD 414). This fed into the ESA earth observation programmes (Copernicus and “the Living Planet”, covering among others the Sentinel and MetOp missions). In its national earth observation programme, Germany operates 15 satellites (8 of which are in civil use), for environmental mapping and remote sensing. Germany allocated a total of EUR 205 million to launcher development (USD 274 million) and EUR 168 million (USD 224 million) to Space Sciences.

German space industry

The German space industry is characterised by the production of high-technology components and systems, with a particular emphasis on satellite manufacturing. The largest space companies, estimated at about 80 in number, are located all over the country. The bulk however is concentrated in the two southern-most federal states of the country, Bavaria and Baden-Wuerttemberg, where the University of Stuttgart and other research organisations are also found. There are also companies represented in the north-western part of the country (Bremen). German industry is active in many segments of space activities, but looking only at space manufacturing, 6 837 full-time equivalents were employed in 2013 (Eurosapce, 2014). The space sector's sales amounted to about EUR 2.4 billion (USD 3.1 billion).

Note

29.3: This category includes Robotics, Technology support, Space Situational Awareness.

Key facts for Germany

Space budget as a share of GDP (2013): 0.046%.

Space budget per capita (2013): USD 19.5 (PPP).

Number of regional clusters including space industry: 3 (Bremen, Bavaria, Baden Württemberg).

Share in scientific production in satellite technologies (2013): 8.16%.

Share of space-related patent applications filed under PCT (2009-11): 10.4%.

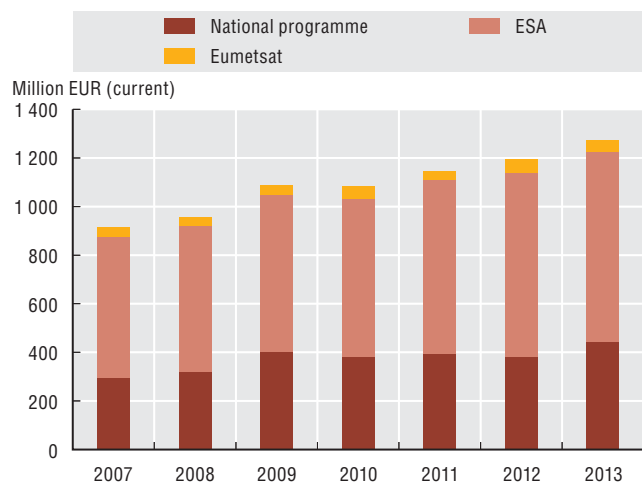
Subscribers of Direct-to-home (DTH) satellite services (2011): 13.5 million (38.80% of television households).

Number of operational satellites (2013): 15 (+3).

Student performance in science (PISA 2012 mean score): 524 (above the OECD average).

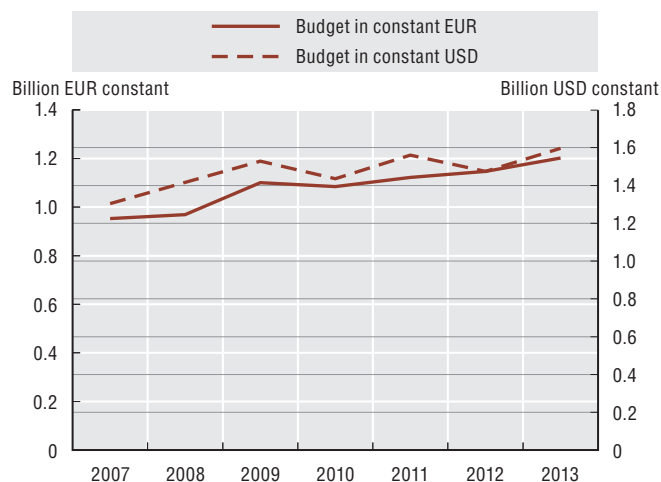
29.1. Germany's space budget

In million EUR (current), 2007-13



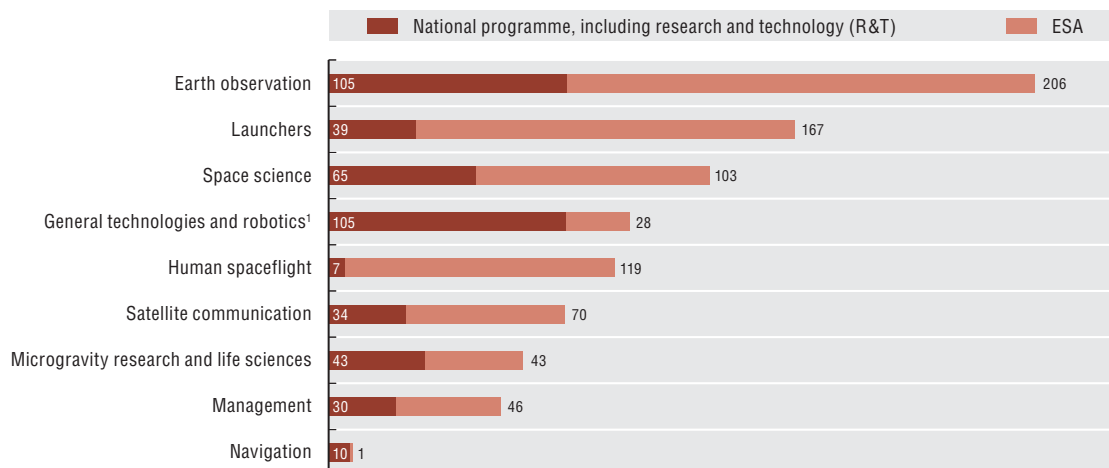
29.2. Germany's inflation-adjusted space budget

In billion EUR and USD (constant), 2007-13



29.3. DLR's space budget by main programmes

In million EUR (current), 2013



Source: OECD calculations based on DLR, 2014 and previous years.

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German aerospace industry

The aerospace sector is an important source of innovation, employment and economic growth in Germany, with several clusters of activity located in different parts of the country. Hamburg (main German Airbus location) and Bavaria have the highest numbers of employees in aerospace, followed by Niedersachsen, Hessen and Baden-Wuerttemberg (Biermann et al, 2013). The manufacture of aerospace systems accounts for about 50% of employment and 60% of sales (BDLI, 2013). Aerospace manufacturing companies employed 100 700 people in 2012, according to the German trade organization BDLI, with sales amounting to EUR 28 billion. According to the German Statistical Office, there were 95 major aerospace firms in Germany in 2012 (German Federal Statistical Office, 2012). BDLI, with its larger circle of actors in defence and electronics, reports membership of about 150 manufacturing companies (of their 200 members, about 50 are “supporting” members). According to OECD data, Germany exported aerospace goods for about USD 50 billion in 2012 primarily to France, a key partner for Airbus industrial manufacturing, China, the United Arab Emirates and the United States. The country imported aerospace goods for USD 30 billion, with more than a third coming from France, followed by the United Kingdom and the United States (OECD, 2014).

Methodological notes

The Federal Statistical Office collects aerospace manufacturing data monthly and yearly. The monthly survey covers companies with more than 50 employees; the yearly survey covers companies with more than 20 employees. Reporting is mandatory. The statistical code for manufacture of air and spacecraft is NACE Rev. 2/WZ 2008 3030 (Luft- und Raumfahrzeugbau). The Federal Statistical Office publications cover the employment and turnover of manufacturers, including mining. The German aerospace industry association BDLI issues an annual factsheet with the major space industry statistics (employment and turnover). Eurospace conducts yearly surveys that also cover German companies.

Sources

Bundesverband der Deutschen Luft- und Raumfahrtindustrie e.V. (BDLI), German aerospace industry association, www.bdli.de.

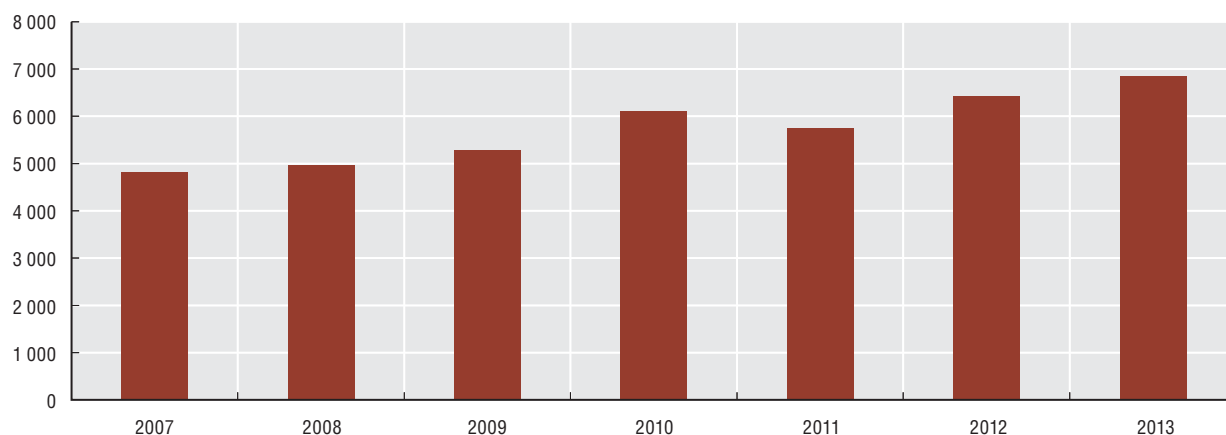
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Federal Ministry of Economics and Technology (2010), Making Germany's space sector fit for the future: The space strategy of the German Federal Government, Bonn, November.

OECD STAN Bilateral Trade Database by Industry and End-use (BTDixE), data extracted April 2014, www.oecd.org/sti/btd.

OECD, Main Science and Technology Indicators database, www.oecd.org/sti/msti.

29.4. German space manufacturing industry employment*Number of full time equivalents, 2013*

Source: Eurospace, 2014.

29.5. Germany's main aerospace trade partners*In USD million (current), 2012*Source: OECD STAN Database, 2014, www.oecd.org/sti/btd.StatLink  <http://dx.doi.org/10.1787/888933142083>



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