In relation to the sales of the entire industry, the export share was 72%.



## 3333333

for research and development

The industry's investment in research and development is still very high, amounting to Euro 4 billion. This number represents a share of 11% while the labor force grew by 5.7% to 8,900 emof total industry sales.

for research

**VE INVEST TWICE** AS MUCH IN THE FUTURE DUSTRIES

## SALES BY INDUSTRY SECTORS 2.9 bn. 7.5 bn. 27.1 bn. 37.5 bn.

CIVIL AVIATION still is the largest single sector

The MILITARY AVIATION sector showed an incre-Euro 7.5 bn. The number of employees rose by 3% to 23,800 employees.

Compared to the previous year, sales in the PACE SECTOR rose by 17.3% to Euro 2.9 bn.,

**WORKERS DIRECTLY EMPLOYED** IN THE AEROSPACE INDUSTRY



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**INDUSTRY FIGURES OF THE GERMAN AEROSPACE INDUSTRY** 

2016

37.5 bn.

€€€€€ 8 %\_ growth in sales

108,000 🛉

The German aerospace industry performed very well in the past business year (2016). Sales growth for the entire industry amounted to 8%, with total sales reaching an all-time high of Euro 37.5 billion (previous year: Euro 34.7 bil-

Overall employment rose slightly, by 1%, with 08,000 workers being directly employed in the aerospace industry (previous year: 106,800). This number marks the highest level of em-

The German aerospace industry continued on the road to success in 2016. This holds equally true for all our industry sectors. The major manufacturers and our efficient, highly specialized medium-sized companies all contributed equally to this result. This positive development is owed to innovation, entrepreneurial vision, targeted political support and the qualification and commitment of our employees.

Germany and Europe are among the leaders in the global aerospace industry. Our industry is increasingly becoming a strategic factor for Germany as an industrial location: we invest heavily in research and development. When it comes to issues relevant to the future such as Industry 4.0, 3D printing and the factory of the future, our industry is playing a pioneering role - with spill-over effects in other industries.

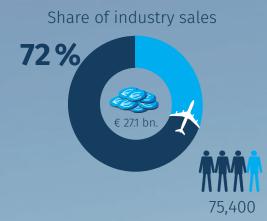
**EXTENDS TO ALL THREE IN-DUSTRY SECTORS** 



But we can't afford to rest on our success. Given the growing competition worldwide, the first priority in the coming years will be to make the German aerospace industry competitive and thus secure the industry's future. We will only achieve this goal if all stakeholders from industry, politics and research join forces. The federal government should step up its efforts to ensure fair competition (a level playing field) worldwide. Regulations must be implemented globally to avoid disadvantages for Germany as a center of business and industry.

THE GERMAN AEROSPACE **CLUSTER IS INCREASINGLY ECOMING A STRATEGIC** FACTOR FOR GERMANY AS AN INDUSTRIAL LOCATION

### LARGEST SECTOR OF THE NATIONAL AEROSPACE INDUSTRY



The forward-looking and targeted support and funding of the federal government still has played a major role in the positive development of this industry segment. At the same time, the range of funding by the Federal Ministry for Economic Affairs and Energy (BMWi), from the funding of basic research at the German Aerospace Center (DLR) and the aviation research program (LuFo), the loan program, and the aircraft equipment program up to the market development trips and the foreign trade fair program, makes an indispensable contribution to improving the competitiveness of our companies in the tough environment of the global market. Subsidies from the aviation research program are made available on a long-term basis and are therefore predictable for industry and research. The aircraft equipment program in particular enables our medium-sized suppliers to take part in risky development programs.

CIVIL AVIATION: The increasing global demand 
The continuing round table discussions inifor mobility and the replacement of older air-tiated by the BMWi with major players in the craft marked by high fuel consumption with the industry also take up issues relevant to the fulatest quieter, more fuel-efficient generation ture, such as Industry 4.0, civil UAV traffic and of aircraft continue to be the key engines for Work 4.0. We need this support so that in the future many ,made in Germany' innovations can be integrated into high-tech products and become market successes.



Full order books and the rise in production rates at all aircraft manufacturers also contributed to the increase in sales in 2016. Based on today's production rates, the order backlog corresponds to around 10 years of work and ensures jobs over the long term. This is also benefiting our engine manufacturers and medium-sized suppliers. This order backlog is a key feature of our industry.

The development work for important civil and also military aircraft programs is largely completed. Our industry continues to invest heavily in new technologies and products with respect to the development of the next generation of aircraft and product development for ongoing aircraft programs – especially in comparison to other industries. An important area is also the introduction of Industry 4.0 and digitization in development, production and services. These investments in key technologies will also form the basis of our industry's global market success in the future.

Airbus Helicopters managed to build on its leading market position in 2016 with a share of 47% in the civil and semipublic market worldwide.

CIVIL AVIATION SUPPLY INDUSTRY: The German This also means that Germany must invest more supply industry is participating in the ramp-up of civil aircraft programs. Our supply industry, After a quarter century of defense cuts, a conwhich mainly consists of medium-sized businesses, continues to win contracts for programs of non-European aircraft manufacturers.

HIGH TECH , MADE IN GERMA-NY' IS IN ALL 1,800 AIRCRAFT OR SO DELIVERED WORLDWIDE EVERY YEAR.



Our companies, located in a high-wage country like Germany, achieve their worldwide success in a tough international competition by proving themselves on the basis of their strong market position in technology, quality and reliability. The Supply Chain Excellence (SCE) initiative under the auspices of the federal government's coordinator for the aerospace industry, together with the German Aerospace Industries Association (BDLI) and our regional associations, makes an important contribution to the strategic positioning of our suppliers. Internationalization, business cooperation, improved access to financing and increased operational efficiency are the key words here!

MILITARY AVIATION INDUSTRY: After the last few years, which were marked by a decline in sales and employment in this strategically important industry sector, we now see a turnaround. This is due to the changing security situation worldwide. As a NATO partner, Germany is increasingly committed to protecting our Western values, our democracy and freedom.

in defense again.

tinued increase in the defense budget is now required to still be able to take on this responsibility in the future. The federal government is on the right track. The development and later procurement of the Future Combat Air System (FCAS) with its Nukleus Next Generation Weapon System (NGWS) as a joint European development is essential here. This system makes a lasting contribution to the preservation and expansion of industrial competence in Germany. It is also necessary to continue the work on the development project MALE UAS, together with France and Italy.

Only by consistently developing these competences can the necessary know-how and the system capability of the German aerospace industry be ensured in the long term. This is the only way to ensure national sovereignty and the ability to act.

In particular, the development of new programs and the establishment of a military technology roadmap is essential for the continuity of this sector in Germany. If there are no new programs, the development and manufacturing capabilities in this high-tech segment are at great risk! The BDLI is ready for a structured dialogue here.

# Share of industry sales € 7.5 bn.

## COMPETITIVE FUTURE-PROOF.

SPACE INDUSTRY: In December 2016, resolutions pointing the way were adopted in the ESA Ministerial Council, which are decisive for the future of the space industry. One of the most important decisions taken there was the strong emphasis on space applications and technology programs, as well as the agreement to continue the international cooperation on the International Space Station (ISS) until 2024. Germany is the leading space nation in the ESA and a driver of European integration in this high-tech field. Thanks to the federal government for its continuous support!

The following highlights must be underlined in the different aerospace segments:

The European launch vehicle Ariane 5 again proved its reliability with seven successful launches last year. To date, the Ariane 5 has had 77 successful launches in a row. The Ariane 5 has a 50% market share in the commercial launch-vehicle business worldwide. At the same time, ESA pressed ahead with the development of the new Ariane 6 launch vehicle, which is scheduled for first launch in 2020.

In the areas of navigation, Earth observation and telecommunications, innovative satellites with major German contributions were launched. One highlight was the successful launch in 2016 of four Galileo satellites with an Ariane 5. At the end of 2016, the first services of the Galileo satellite system were put into operation.

The global WorldDEM 3D-elevation model of the Earth, which is based on data from the satellite mission TanDEM-X, was also completed in 2016. In addition, the first commercial data-relay service, "SpaceDataHighway," was launched.

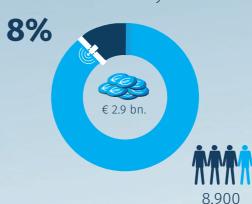
Based on "made in Germany" optical data transmission, a new era in satellite communication was introduced.

The construction, startup and successful commissioning of the SmallGEO satellite H36W-1 at the beginning of 2017 impressively demonstrated that Germany is once again able to develop and build complete communication satellites. Recovering this system capability was a major goal of the national space strategy.

Finally, the launch of the Sentinel 2B satellite marked an important milestone for the European Copernicus Earth Observation Program, which has been operational since mid-2016. Together with its sister satellite Sentinel 2A, Sentinel 2B now provides up-to-date images of the Earth's surface every five days, thus making an important contribution to climate protection and disaster control.

To ensure the continuing successful development of Germany as an aerospace location, the BDLI will continue to pursue strategic dialogue on the long-term focus of German space policy. Among other things, it is also a matter of working together to meet the challenges that arise from the changing landscape of the space industry worldwide. This can only be achieved by developing a long-term German space strategy with clear objectives and a stringent program while taking the new markets into account.

#### Share of industry sales



## Sales and employment development

over five years



German Aerospace Industries Association (BDLI) Responsible for the purposes of German media law: Cornelia von Ammon Layout: Katja Zehe Photo: ©Pixabay April 2017

The BDLI represents a strategically important high-tech sector in which Germany and Europe play a leading role in the world.

The German aerospace industry in many ways keeps on driving the German economy as an engine for job creation, sales and the technology sector. It is one of the essential keys to solving urgent societal challenges.

With over 230 members, the BDLI represents the interests of an industry that is marked by international technological leadership and worldwide success. The German aerospace industry is not only a lifeline and driving force of the economy but also an important employer for mainly highly qualified employees.

The association owns the trademark for the International Aerospace Exhibition ILA Berlin Air Show, which will take place from April 25 to 29, 2018, at the Berlin ExpoCenter Airport.