



Bosch's electromobility strategy at a glance

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Pillar #1: Systems expertise is a USP

Bosch believes the key to leading the electromobility market lies in its comprehensive systems approach. When it comes to components, the company relies on its comprehensive systems expertise. "Our customers benefit from our expertise in intelligently linking all the components in the powertrain. This broad-based systems expertise is our USP. It is a source of huge business potential for Bosch," says Dr. Mathias Pillin, who is responsible for electromobility activities at Bosch. The Bosch portfolio includes key components of the electrical powertrain, such as the electric motor, power electronics, and battery systems. The production of a new [48-volt battery](#) for hybrid vehicles started at the end of 2018.

Pillar #2: Energy efficiency as the prime development objective

To further increase electric vehicles' range, Bosch has been working for many years to improve the energy efficiency of individual components and the system as a whole. "Our electric motors and electric axle drive are already the benchmark for energy efficiency. In the end, affordable range is the key to helping electromobility achieve a breakthrough. Achieving this depends on smart interaction among all the components of the powertrain," Pillin says. The reasoning behind this is the less electricity the motor and other components consume, the longer the battery charge will last, and the greater the range. This is an area in which the company's engineers are working on new generations of electric motors, inverters, and battery systems. Modified thermal management systems can increase electric cars' range by up to 20 percent. And special battery-management systems allow the best possible management of batteries. In this way, the efficiency of individual cells can be further increased.

Pillar #3: Standardization means speed

Bosch is certain that the electromobility market will grow rapidly in the years ahead. The company's latest forecasts assume that some 20 percent of all newly registered passenger cars and light duty vehicles will be plug-in hybrids or electric cars by 2025. By 2030, it will be more than 25 percent. About 70 percent of vehicles will then still be driven by combustion engines, some of them with

electrical support from 48-volt systems. It is in this volatile environment that today's diverse providers of electromobility operate – from classic OEMs via auto start-ups to companies from completely different industries. Bosch is capable of meeting diverse development times and requirements. Bosch believes one main driver will be the standardization of components and systems. For the company, this is the basis for making mass-market electromobility scalable and affordable. Bosch is currently demonstrating this with its [eAxle](#), the next-generation electrical powertrain. Bosch sells this electric axle drive to a wide range of customers – to established automakers and start-ups alike. Here, Bosch customers also benefit from the company's global research and engineering network. The latter allows the company to carry out projects flexibly and close to its customers, whether in China, Europe, or North America.

Bosch expertise relates to the entire electromobility ecosystem

In the electromobility business, no other automotive supplier is as broadly diversified as Bosch. Bosch electrical powertrain components already feature in more than one million vehicles around the world. The supplier of technology and services has carried out more than 30 production-related projects together with established automakers and start-ups around the world. It is the market leader in China, the world's biggest and fastest-growing electric-vehicle market. Bosch technology can be found in practically every class of vehicle: the supplier of technology and services develops and manufactures components for electric bicycles, scooters, passenger cars, and commercial vehicles. Bosch covers the entire electromobility ecosystem. Bosch is partnering with various automakers to give drivers of electric vehicles access to some 40,000 charge spots in eight European countries – with the help of charging apps, for example.

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Mobility Solutions is the largest Bosch Group business sector. In 2017, its sales came to 47.4 billion euros, or 61 percent of total group sales. This makes the Bosch Group one of the leading automotive suppliers. The Mobility Solutions business sector pursues a vision of mobility that is accident-free, emissions-free, and stress-free, and combines the group's expertise in the domains of automation, electrification, and connectivity. For its customers, the outcome is integrated mobility solutions. The business sector's main areas of activity are injection technology and powertrain peripherals for internal-combustion engines, diverse solutions for powertrain electrification, vehicle safety systems, driver-assistance and automated functions, technology for user-friendly infotainment as well as vehicle-to-vehicle and vehicle-to-infrastructure communication, repair-shop concepts, and technology and services for the automotive aftermarket. Bosch is synonymous with important automotive innovations, such as electronic engine management, the ESP anti-skid system, and common-rail diesel technology.

The Bosch Group is a leading global supplier of technology and services. It employs roughly 402,000 associates worldwide (as of December 31, 2017). The company generated sales of 78.1 billion euros in 2017. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT company, Bosch offers innovative solutions for smart homes, smart cities, connected mobility, and connected manufacturing. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is to deliver innovations for a connected life. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life." The Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiary and regional companies in 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. The basis for the company's future growth is its innovative strength. At 125 locations across the globe, Bosch employs some 64,500 associates in research and development.

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