

## Press release

### **Bosch to invest billions in climate-neutral technology**

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A successful business year in 2021 – Uncertainties and increases cloud the outlook for the current year

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- ▶ 2021: Sales: \$93.1 billion/EBIT: \$3.7 billion.
- ▶ Entering the \$16.6 billion market for hydrogen electrolysis – Bosch to invest nearly \$591 million in this new area of business by 2030.
- ▶ Electromobility orders exceed \$11.8 billion for the first time.
- ▶ Stefan Hartung: “Electrification is the fastest route to climate neutrality.”
- ▶ Dr. Markus Forschner: “The Bosch Group rose well to the challenges of 2021, yet the pressure on result is intensifying.”
- ▶ Filiz Albrecht: “In times of change, social responsibility means taking as many associates as possible with us into new areas of business.”
- ▶ Dr. Christian Fischer: “Bosch will be investing \$355 million in the heat-pump business by 2025.”
- ▶ Rolf Najork: “Connected energy management opens the door for energy efficiency in factories.”
- ▶ Dr. Markus Heyn: “Bosch is the number one supplier for electrical powertrains on the road.”

Stuttgart and Renningen, Germany – In the 2021 business year, Bosch achieved significant growth in sales and result despite a difficult environment. Sales revenue generated by the supplier of technology and services rose by 10.1 percent to \$93.1 billion, and operating result (EBIT from operations) increased by more than half to reach \$3.7 billion. The EBIT margin from operations improved by 4 percent, compared with 2.8 percent in the previous year. “The successful outcome of the 2021 business year bolsters our confidence as we tackle the challenging environment of the current year,” said [Dr. Stefan Hartung](#), chairman of the board of management of Robert Bosch GmbH, at the presentation of the company’s annual figures.

One of the considerable uncertainties is the war in Ukraine and all its implications. The company takes its responsibility for its associates very seriously. At the same time, it has been providing extensive humanitarian assistance since day one, especially to relieve the suffering of refugees. “Where people are fighting to survive, our thoughts go out to them and we share their fears,” the Bosch chairman said. He added that war cannot solve political conflict. In his view, the current situation highlights the pressure on policymakers and society to become less dependent on fossil fuels and to vigorously pursue the development of new sources of energy. For this reason, he said, the Bosch Group is systematically continuing its efforts to mitigate global warming, despite the challenging economic environment. In addition, Hartung announced Bosch will be investing some \$3.5 billion over three years in climate-neutral technology such as electrification and hydrogen.

Hartung believes the war will slow progress in reducing carbon emissions in the short term. Over the long term, however, it will accelerate the technological transformation in Europe. “Policymakers could take this as their cue to act with more determination – whether in providing incentives to make existing buildings more energy efficient, or in massively expanding renewable power generation,” Hartung said. He believes electrification is the fastest route to climate neutrality, provided it is based on green electricity. That is why Bosch is driving [sustainable mobility](#) forward: in 2021, the company’s orders relating to electromobility exceeded \$11.8 billion for the first time. But Hartung also stressed that hydrogen is needed as well. “Industrial policy should focus on making all sectors of the economy hydrogen-ready,” he said. “Electricity-based solutions have priority, but hydrogen-based solutions also need to gain more momentum. We’ll need both if we are to live sustainably on our blue planet.” At the same time, the Bosch chairman announced that, over the next three years, the company will be investing another ten billion euros in digitally transforming its business. “Digitalization also has a special role to play in sustainability – and our solutions start from this premise,” Hartung said. Examples of such solutions in the [Bosch portfolio](#) include the smart home energy manager and the connected manufacturing energy platform.

### **Outlook for 2022: High level of uncertainty in a challenging environment**

The Bosch Group increased its sales by 5.2 percent in the first quarter. “We got off to a solid start in 2022. At present, we expect to exceed the 6 percent sales growth forecast in our annual report,” said [Dr. Markus Forschner](#), member of the board of management and chief financial officer of Robert Bosch GmbH.

“However, the considerable uncertainties we face mean it is still difficult to give a more accurate estimate for the current year as a whole.” According to Forschner, the company will not quite achieve its target of matching last year’s EBIT margin. Despite an expected increase in sales, this should be in the range of 3 to 4 percent. “The burden on our result is growing considerably, primarily due to increases in the cost of energy, raw materials, and logistics.” In the Mobility Solutions business sector in particular, cost pressure is currently very high – prices for certain raw materials have roughly tripled since 2020. “We must prepare for continued high prices and very volatile markets,” Forschner said. “It’s not just automakers that have to pass on price increases, but suppliers as well.”

In light of the current situation, Bosch has already significantly revised its expectations for the global economy. The company expects it to grow by just under 3½ percent this year – at the start of the year, it was still expecting roughly 4 percent. Its previous forecast for automotive manufacturing of some 88 million vehicles and the expected year-on-year increase of 9 percent will probably not be met either. Forschner sees the reasons for this in the resurgence in adverse effects from the coronavirus pandemic in China and the ongoing chip shortages. Overall, however, he remains confident: “Bosch will rise to the challenge of this difficult phase as well. What’s important here is to have pioneering products and a clear long-term strategic focus – and we have both.”

### **Hydrogen electrolysis: Entering a \$16.6 billion market**

In the interest of effective climate action, Bosch is entering the components business for hydrogen electrolysis. The company plans to invest nearly \$591.5 million in this new [area of business](#) by the end of the decade, half of it by the time of market launch, which is planned for 2025. “We have a broad basis from which to develop hydrogen technologies and want to advance hydrogen production in Europe,” Hartung said. “We expect the global market for electrolyzer components to amount to some \$16.6 billion by 2030.” Bosch is supplying the stack – the core of the hydrogen electrolysis system – which combines with power electronics, sensors, and a control unit to create a smart module. The stacks for H<sub>2</sub> generation are expected to go into production as early as 2025.

### **Sustainability: Social responsibility during shift to new energy sources**

Bosch supports the European Union’s Green Deal and sees itself as bearing a special responsibility regarding sustainability: with its 400 company locations worldwide, Bosch has been [carbon neutral](#) since 2020. As for the quality of its carbon neutrality, the company is making better progress than anticipated. Bosch has already realized one-third of the energy savings that it set out to achieve by the end of the decade. “Sustainability is no longer a peripheral topic; it has to be part of the core business of every company,” said [Filiz Albrecht](#), member of the board of management and director of industrial relations at Robert Bosch GmbH.

Bosch's corporate social responsibility encompasses the trio of economic, social, and ecological concerns. "It's not easy to keep these three things in balance. In times of change, social responsibility for us means taking as many associates as possible with us into new areas of business." As Albrecht pointed out, Bosch is developing climate-neutral technology primarily at locations that had previously produced combustion systems. Reskilling programs and the in-house job placement platform mean that a full 1,400 associates in powertrain operations have already taken on new jobs in fields such as software and electromobility. "By the end of the year, nearly 2,300 associates will be working on mobile and stationary fuel cells – with almost all of them recruited internally," Albrecht said, adding: "This is transformation – made by Bosch." She also reported that the company intends to take on 10,000 new software engineers around the world this year."

### **Thermotechnology: \$355 million for the heat-pump business**

"More than one-third of carbon emissions comes from buildings, so climate action has to take place in people's homes as well," said [Dr. Christian Fischer](#). As deputy chairman of the board of management of Robert Bosch GmbH, he is also responsible for consumer goods and for energy and building technology. "The transition to alternative heating starts with the heat pump, ideally powered by green electricity." More and more, the legal requirements for new buildings around the world reflect this: in Germany alone, for example, 65 percent of new [heating systems](#) will have to be powered by renewables by 2024. "Bosch will invest an additional \$355 million in the heat-pump business by mid-decade," Fischer said, adding: "The market will grow by an annual 15 to 20 percent between now and 2025. We aim to grow twice as fast as the market." Bosch wants to do its part in existing buildings as well: with its hydrogen-ready gas-fired boilers, the company is easing the switch from natural gas heating systems to hydrogen ones. Moreover, by connecting and integrating [building systems](#), Bosch is simultaneously moving closer to its goal of generating a greater share of recurring revenue from [services](#). "In the building systems business, services already account for almost half of all sales," Fischer said. "Our strategic objectives – helping shape climate action with technology and expanding our service business – complement each other."

### **Industrial Technology: Energy efficiency through digitalization**

In industrial production, Bosch is stepping up efforts to improve energy and cost efficiency in its [factories](#). "Digitalizing industrial production makes a contribution to climate action," said [Rolf Najork](#), the member of the board of management of Robert Bosch GmbH who oversees the Industrial Technology business sector. "Thanks to connected energy management alone, we are reducing the annual energy consumption of our manufacturing operations by an average of 5 percent." The Energy Platform from the Industry 4.0 portfolio is already in use in

80 customer projects and at 120 Bosch locations. At the same time, the Bosch Group is embracing electrification in its industrial technology, Najork added. The company expects 30 percent of mobile machinery to be electrified by 2030. This translates into an additional market volume for high-voltage systems worth \$1.8 billion. Bosch also wants to advance electric driving through its industrial technology. “In a [project unit](#) with VW, we are working to establish a company that will equip battery-cell factories in Europe,” Najork said. “Our common objective is to be the cost and technology leader in systems for the volume production of batteries.” Experts expect [battery-cell production technology](#) to reach a cumulative market volume of \$59 billion worldwide by 2030.

### **The transition to alternative mobility: Electrification with battery and fuelcell powertrains**

Bosch expects the EU’s Green Deal to provide a decisive boost to the [electrification](#) of road traffic. “All automakers are eager to secure the greatest possible share of the growing electric vehicle market,” said [Dr. Markus Heyn](#), member of the board of management of Robert Bosch GmbH and chairman of the Mobility Solutions business sector. “Bosch sees itself as the number one supplier for electrical powertrains on the road.” A key technical task, he said, is to keep the powertrain, including the battery, at the right temperature and to provide the necessary climate comfort in the passenger compartment. Intelligent thermal management alone can increase the electric driving range by 25 percent, he pointed out. To this end, Bosch has developed a pre-integrated solution: the flexible thermal unit, or FTU. With the FTU, Bosch is tapping into a market that it expects will reach a volume of 3.5 billion euros by the end of the decade. For electric mobility based on [fuel cells](#), this year Bosch will start production of fuelcell powertrains for trucks. “At the Bamberg site, we aim to be producing stacks with a gigawatt output no later than the middle of the decade,” Heyn said. “By 2030, it should cost no more to operate a fuel-cell truck than a diesel – that’s our goal.” Bosch has once again increased its capital expenditure for mobile fuel cells, to almost \$1.2 billion between 2021 and 2024.

### **The 2021 business year: Challenges overcome – despite cost pressure**

“Overall, the Bosch Group rose well to the challenges of 2021,” Forschner said. “We were able to grow sales by 10.1 percent and increase our EBIT from operations by more than 50 percent.” Bosch achieved all this despite the ongoing coronavirus pandemic, continued supply bottlenecks for semiconductors, and raw materials prices that were already significantly higher. “In addition to our good sales figures, our extensive cost-cutting measures have also paid off,” Forschner said. “Our orientation to the future is also reflected in our sound financial result.” The Bosch Group’s research and development cost held steady at \$7.2 billion (2020: \$7 billion) and capital expenditure rose slightly to \$4.6 billion (2020: \$3.9 billion). Research and development cost focused on electromobility and driver

assistance systems, as well as on electrification in industry and heating technology. The equity ratio improved further by 1.3 points, rising to 45.3 percent.

### **The 2021 business year: Development by business sector**

All business sectors contributed to this positive business development. The **Mobility Solutions** business sector, which generates the highest sales, recorded an increase in sales of 7.6 percent to reach \$53.6 billion. After adjusting for exchange-rate effects, this was equivalent to 7.9 percent growth. Following the previous year's loss, the business sector achieved a slightly positive result with an EBIT margin from operations of 0.7 percent. "Mobility Solutions is particularly exposed to chip shortages and is having to prepare for profound changes in mobility," Forschner added. "At the same time, the sector is making substantial upfront investments in electromobility and automated driving, and has already had to assume significantly higher costs for raw materials and logistics." He said that the **Industrial Technology** business sector benefited from the recovery of key mechanical engineering markets and was able to increase sales by 18.9 percent to \$7.2 billion. After adjusting for exchange-rate effects, this was equivalent to 19.4 percent growth. Its EBIT margin came to 8.4 percent. After a strong showing last year, the **Consumer Goods** business sector was able to increase its sales again, this time by 12.7 percent (14.4 percent after adjusting for exchange-rate effects) to \$24.8 billion. The sector again achieved a doubledigit (10.2 percent) EBIT margin from operations. The **Energy and Building Technology** business sector grew its sales by 7.8 percent, or 8.8 percent after adjusting for exchange-rate effects. With total sales of \$7 billion, the sector's improved EBIT margin amounted to 5.1 percent. As Forschner pointed out: "Our climate-friendly heating technology made a major contribution to those successful numbers."

### **The 2021 business year: Development by region**

The Bosch Group recorded an increase in sales revenue in all regions. In **Europe**, sales totaled \$48.9 billion, an 8.9 percent increase over the previous year. Adjusted for exchange-rate effects, this is an increase of 10 percent. In **North America**, sales revenue increased by 6.5 percent (9.3 percent after adjusting for exchange-rate effects) to \$13.5 billion. Sales in **South America** totaled \$1.6 billion, rising 32 percent, or by as much as 45.1 percent after adjusting for exchange-rate effects. In **Asia Pacific**, including other regions, sales reached \$29 billion. This is an increase of 13.1 percent, or 11.7 percent after adjusting for exchange-rate effects.

### **Headcount 2021: Growth across all regions**

As of December 31, 2021, the Bosch Group employed 402,614 people worldwide – 7,580 more than the previous year. This increase was seen in all three regions:

Europe, the Americas, and Asia. Headcount in Germany remained stable at 131,652. In research and development, headcount grew by 2,949 to 76,121 associates.

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### About Bosch

Having established a regional presence in 1906 in North America, the Bosch Group employs 35,300 associates in more than 100 locations, as of December 31, 2021. According to preliminary figures, Bosch generated consolidated sales of \$13.6 billion in the U.S., Canada and Mexico. For more information, visit [www.bosch.us](http://www.bosch.us), [www.bosch.ca](http://www.bosch.ca) and [www.bosch.mx](http://www.bosch.mx).

*The Bosch Group is a leading global supplier of technology and services. It employs roughly 402,600 associates worldwide (as of December 31, 2021). The company generated sales of \$93.1 billion in 2021. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT provider, Bosch offers innovative solutions for smart homes, Industry 4.0, and connected mobility. Bosch is pursuing a vision of mobility that is sustainable, safe, and exciting. 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 facilitate connected living with products and solutions that either contain artificial intelligence (AI) or have been developed or manufactured with its help. 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 some 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. With its more than 400 locations worldwide, the Bosch Group has been carbon neutral since the first quarter of 2020. The basis for the company's future growth is its innovative strength. At 128 locations across the globe, Bosch employs some 76,100 associates in research and development, of which more than 38,000 are software engineers.*

*The company was set up in Stuttgart in 1886 by Robert Bosch (1861–1942) as "Workshop for Precision Mechanics and Electrical Engineering." The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant upfront investments in the safeguarding of its future. Ninety-four percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The remaining shares are held by Robert Bosch GmbH and by a corporation owned by the Bosch family. The majority of voting rights are held by Robert Bosch Industrietreuhand KG, an industrial trust. The entrepreneurial ownership functions are carried out by the trust.*

Additional information is available online at [www.bosch.com](http://www.bosch.com), [www.iot.bosch.com](http://www.iot.bosch.com), [www.boschpress.com](http://www.boschpress.com), [www.twitter.com/BoschPress](https://www.twitter.com/BoschPress)

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