

**Opening remarks from Klaus Meder, President and Representative Director
of Bosch Corporation, Japan**

June 17, 2021

- Hello, everyone. Thank you for joining our press conference today.
The coronavirus still requires us to keep our distance. But still, we are happy to have the opportunity to share our business performance and future prospects with you.
- The year 2020 was an unexpected year, due to the global spread of the coronavirus. It changed how we live, how we work and how we travel. In the face of various constraints, there has been a lot of difficulty in continuing as before, both in private and in business life.
- From the beginning of the pandemic, Bosch's priority has been the health and safety of our associates. We encourage associates to work from home whenever possible. We believe that maximizing working from home is the best way to continue our business, while protecting the health of our employees as much as possible. At one time, the percentage of those working from the office at our head quarter in Shibuya was down to about 10%. For those who need to come to the office to work, we have also reduced the core-time for flex-time-work, from 4 hours to as short as 2 hours. With such a flexible work style, associates could avoid commuting during the rush-hour. In our factories, laboratories and offices we have quickly and consequently introduced all necessary countermeasures to make the work place a safer place than the outside world.
- We are hopeful that the pace of vaccinations will pick-up speed and help to contain the coronavirus situation in Japan. As a member of society, we would like to provide maximum support for the vaccination efforts in Japan. There

are two things that we have already started at one of our locations in Higashimatsuyama city, Saitama. First, the medical clinic of the Bosch Health Insurance Society has already been assigned as a vaccination site to administer doses to local residents. Second, nurses from the clinic are also helping with the administering of doses at mass vaccination sites organized by the city. In efforts to further support the cause, we are also planning the vaccination of our associates at the workplace from June 21 on. We are currently examining how to make it possible.

- In order to maintain the continuity of our business, we will continue to take thorough measures to prevent infection and always prepare for unforeseen situations.
- Christian Mecker, Executive Vice President and Member of the Board of Directors of Bosch Corporation, Japan, will now present our figures for 2020.

Introduction of Christian Mecker, the Executive Vice President and Member of the Board of Directors of Bosch Corporation

- Hello, everyone. I would also like to welcome you to the press conference today. My name is Christian Mecker. I have been appointed as the Executive Vice President and Member of the Board of Directors of Bosch Corporation as of November 2020. I am responsible for sales of Bosch Automotive sector for Japan and South East Asia.
- I started my career in 1992, at Bosch France, and have worked at Bosch in Japan from 2007 to 2010. So this is the second time for me to work in Japan.
- It is my mission to ensure that Bosch is able to best serve the needs of Japanese automakers and expand our business in Japan and worldwide.

Bosch Global sales in 2020

- Now, before sharing the 2020 results for Bosch in Japan, I would like to first touch upon the Bosch Group's worldwide results.
- In the 2020 business year, the Bosch Group achieved a positive result despite the effects of the coronavirus crisis and the decline in automotive production. Bosch performed better than initially expected.
- Total Bosch Group sales amounted to 71.5 billion euros. It was down by - 6.4% compared with the previous year. Earnings before interest and taxes (EBIT) amounted to some 2 billion euros.
- As of December 31, 2020, the Bosch Group employed some 395,000 associates worldwide. This shows that despite the crisis, Bosch was able to keep our workforce largely stable.

Bosch Group sales in Japan in 2020

- In 2020, the global and the Japanese economy were devastated by the coronavirus pandemic. Even today, the automotive industry is facing the challenge of simultaneously responding to the difficulties brought by the coronavirus pandemic and the global semiconductor shortage.
- Bosch is also in the midst of a major transformation, the first since its founding.
- We must overcome competition in an increasingly challenging market environment.

- Third-party sales for Japan in 2020 was about 269 billion in Japanese yen. It was down by 16%¹ compared with the previous year, significantly impacted by the coronavirus pandemic.
- With regard to EBIT, even though the Japanese automotive market declined by 17%, Bosch in Japan achieved a positive EBIT, thanks to our broad portfolio.
- In 2020, our business went through a large decline in the spring, and bottomed in May, mostly due to the effects of the coronavirus pandemic. However, when restrictions were eased in the second half of the year, economic activity picked up again. This enabled Bosch to make up the loss in sales. In the end, we were able to achieve much better results than predicted in the beginning of the year, even in such a challenging situation.
- In 2021, we still have several risks. The coronavirus and the delay of vaccinations are definitely the risks what we face in everyday life. In the automotive production, there is a global shortage of semiconductors.
- We estimate that automotive production will remain considerably below the level of 92 million vehicles in 2019.
- Against this backdrop, we currently expect a double-digit sales increase for Bosch in Japan in 2021, with a good start in the first quarter of this year.

Bosch has kept stable business with JOEMs

- Though the semiconductor shortage poses challenges, we still expect the recovery of the global automotive market. We also see that the Japanese automakers will keep its 30% share in the global market, not only in 2021, but

also maintain at this level for the next 10 years. We would like to play an important role by further supporting the global expansion of Japanese automakers.

- This year marks our 110th anniversary since we started our business in Japan in 1911. It is our pleasure to have been able to support Japanese automakers through the years with our presence in Japan. We believe that being close to our customers enables us to better support and serve their needs. We have been doing business in Japan for 110 years. It shows that we have earned trust for our technologies and have built a lasting relationship with Japanese automakers. We will continue to support Japanese automakers in their transition and in their strategy of manufacturing attractive cars both domestically and globally.
- Now, Klaus will talk about how Bosch will work for future growth while helping to realize a sustainable society.

Bosch achieved carbon neutrality in 2020

- Firstly, I would like to talk about carbon neutrality. Despite the uncertainty and challenges brought by the coronavirus, Bosch maintained its long-term strategic course. We did not give up on our responsibility as a company.
- As promised in 2019, Bosch achieved Scope 1 and 2 carbon neutrality since spring 2020 at all of its over 400 locations, including in Japan. This has already been confirmed by independent audits. This is earlier than planned with fewer offsets, and realized more cost effectively than expected. Bosch is

now the first global industrial company whose own locations no longer leave a carbon footprint.

- But our climate action does not stop there. Until 2030, we intend to further improve the ecological quality of our carbon neutrality by investing in energy efficiency and renewable energies at our own locations.
- We are also stepping up our climate actions relating to emissions from the goods we purchase to the products we sell, the so-called Scope 3. By 2030, we aim to reduce these emissions along the entire supply chain, from suppliers to customers, by 15 % compared to our 2018 level. This will mean a reduction of 67 million metric tons of carbon dioxide emissions.
- It is a challenging task, but we are committed to achieving this goal.
We know that our efforts in climate action will incur financial efforts, but doing nothing will cost even more.
- New approaches such as heat and electricity from hydrogen are also part of the energy supply. At the Bosch location Wernau in Germany, a fuel cell pilot plant based on solid-oxide fuel cell (SOFC) technology was commissioned in June last year. We estimate that the market for solid-oxide fuel cell systems will reach a volume of 20 billion euros by 2030. In Japan, we have established a dedicated team for solid-oxide fuel cells. They are currently searching for the possibility to cultivate business in Japan. A demo of the Bosch SOFC is on display at our showroom on the first floor of the Shibuya office until the beginning of September. If you have the opportunity to visit our office in Shibuya, please drop by.

Bosch is shaping mobility of the future with PACE

- Now, I would like to talk about how our largest business sector, Mobility Solutions, sets strategies for future growth.
- Bosch has introduced numerous innovations for over 130 years since 1886. Over the years, we have established ourselves as a leading global provider of automotive hardware. However, the automotive industry is in the midst of a technological transition centered on PACE. PACE means Personalized, Automated, Connected and Electrified. Amid these changes, the importance of software in vehicles has been increasing year by year. We have been developing software in vehicles in-house for nearly four decades. But traditional software engineering in individual, discrete units is increasingly coming up against its limits.
- In January this year, we established the Cross-Domain Computing Solutions division. This is our response to the growing importance of software and electronics in vehicles. With this division, Bosch is paving the way to becoming a leading software company as well.
- Now, I would like to introduce Edwin Liebemann, who leads this division in Japan.

Cross-Domain Computing Solutions division leads the software first development

- Hello everyone. My name is Edwin Liebemann.
- I am the Regional President of Cross-Domain Computing Solutions in Japan.
- The Cross-Domain Computing Solutions division has 17,000 associates worldwide, half of whom are software engineers. To form this new division,

Bosch has assigned software, electrical and electronics engineers from the area of driver assistance and automated driving, car multimedia, powertrain and body electronics to the new unit.

- In the automotive market, PACE functions will be key factors for automakers to differentiate their vehicles, instead of pure driving performance. This accelerates the move towards ever more sophisticated electronics and software. It means that software-intensive vehicle electronic systems are becoming the industry's core enabler.
- Software will play a key role to make cars intelligent, up-to-date and also provide drivers tangible benefit. We see the market for software-intensive electronic systems is worth some 20 billion euros today. We are expecting to see annual growth of the market, up to 15 percent until 2030.
- This trend also brings challenges to the industry, in particular considerable increase in the complexity of automotive engineering. Smooth interaction of vehicle computers, control units and sensors is crucial in the future. This will be a challenge for today's E/E architectures with many individual ECUs. Therefore, centralized architecture and also perfectly compatible electrical and electronic components are very important.
- Bosch is setting the course for this transformation with new E/E architectures and vehicle computers. We are developing new E/E architectures which reduce complexity in future vehicle systems. At the center of this development is the shift away from today's domain-specific E/E architecture toward a cross-domain, centralized E/E architecture. That uses only a few

very powerful vehicle computers instead of a great many individual control units.

- Therefore, vehicle computers are central to Bosch's efforts to extend its leading role in software-intensive electronic systems. Cross-domain vehicle computers provide greater flexibility in the allocation of functions, and also simplify the integration and control. This makes the ever faster growing range of functions much more manageable, because all the major software functions are consolidated on just a few computers.
- Not only in realizing software functionality in vehicles, we have to consider how software interacts with the cloud to exchange data, amid the expansion of connected services. The combination of IT technologies with automotive requirements lead to unprecedented software complexity.
- Thus, we have set up a collaboration with Microsoft, to develop a software platform to seamlessly connect cars to the cloud. It will contribute to manage complexity of the end-to-end vehicle software ecosystem. With this collaboration, we are able to provide solutions from deeply embedded vehicle software, over middleware up to cloud-based software services.
- With Cross-Domain Computing Solutions, Bosch will be able to offer customers vehicle electronics and software from a single source. In Japan, we cover with strong local and global presence, all four areas of driver assistance and automated driving, connected information solutions, advanced network solution and E/E architecture as in Germany. Therefore, we are able to provide powerful system solutions, software and services for Japanese automakers.

- Now I would like to hand over to Christian, to introduce our strategies in Electrified mobility.

Bosch is realizing sustainable mobility with electric powertrain

- Now let's focus on sustainable mobility with electrification. In recent years, automakers have been rapidly moving toward electrification. Bosch has been preparing for electric mobility. We will invest some 700 million euros this year on the road to electromobility, after 500 million euros last year. In total, we have already made upfront investments of a good 5 billion euros. Electromobility is becoming one of Bosch's core businesses.
- But electrification does not mean relying only on battery electric vehicles. We are also readying fuel-cell solutions for large-scale production. We are developing a variety of components necessary for fuel cell systems, and are ready to bring products to market, from components to integrated systems.
- Mobility needs differ from country to country, and depending on the individual. That is why we are taking an open and broad approach to technologies and focusing on various powertrain concepts for a sustainable, individual and affordable mobility.
- We are taking two approaches: on the one hand, we are developing powertrain components for hybrid, battery-electric, and fuel cell vehicles. On the other hand, we are still improving the efficiency of combustion engines and also encouraging the use of synthetic fuels, so called eFuel.

A diesel engine or gasoline engine can also become CO₂ neutral by using eFuel. We see that more than 1.3 billion vehicles worldwide can be CO₂ neutral with the use of eFuel. We will only achieve ambitious climate protection targets if we drive every vehicle with renewable energy.

Introduction of connected and personalized solution related to electrification

- So far, I have talked about our strategy in electromobility.
- We see the rapid expansion of electrification in the global market, especially in China, the U.S. and Europe. To ensure further expansion of electromobility, a comprehensive and easy-to-use charging infrastructure is an essential requirement. Bosch is not only providing a comprehensive and flexible portfolio of electrification systems or components. We also offer intelligent solutions for end consumers, companies and charging station operators, to support a charging infrastructure.
- With charging services from Bosch, drivers of electric cars can easily search for and find publicly accessible charging stations. Now, more than 200,000 charging points throughout Europe are already part of the constantly growing charging network from Bosch.
- With the connected charging spots, we will realize more convenience and personalized experiences for drivers. Convenience charging is one of the solutions. With Convenience charging from Bosch, drivers of electric vehicles know at all times the effective range of their battery and where they can charge on their planned route. The driver receives recommendations for the route, charging stops and for services during charging. These are all tailored

to the driver's individual preferences. In Japan, we are searching for potential partners to realize the service together with us, and have attracted interest from several players.

- Now Klaus will talk about Automated Mobility.

Start production of iBooster in Japan

- Now I would like to announce a great milestone that increases our local competency in Japan.
- To meet increasing demands to achieve more fuel-efficient powertrains and safer driver assistance functions, cars need to be equipped with modular and scalable vacuum-independent solutions for the braking system.
- Component that plays an important role in responding to these demands is the iBooster. The iBooster is a modern electro-mechanical brake booster. It enables high levels of braking functionality such as vacuum independence, customized pedal feel, improved automatic emergency braking performance and brake redundancy under automated driving. The iBooster can build up brake pressure independently, up to three times faster than a normal ESP®. A fast pressure build-up enables short stopping distances for automatic emergency braking, and it covers future NCAP requirements.
- Bosch introduced its first generation electro-mechanical brake booster ahead of other companies in 2013. So far, more than 10 million iBoosters have been produced.
- We see the market of electro-mechanical brake boosters to grow at a compound annual growth rate of over 20% from 2020 until 2027. This

expectation is brought by several market drivers for automation and electrification. In automation, actuator redundancy and stricter requirements set by consumer tests such as NCAP and legislation are contributing to the market expansion of the electro-mechanical brake booster. In electrification, hybrid and electric vehicles need an electro-mechanical brake booster capable of coping with no or less vacuum. Even in vehicles equipped with internal combustion engines, there is a clear trend towards reduced availability of vacuum. This makes an electro-mechanical brake booster the right choice for many automakers.

- It is of course possible to meet the more stringent requirements for AEB and vacuum-less powertrain without the iBooster. However, to achieve higher braking performance without iBooster, high-end ESP[®] is required. Also, an electric vacuum pump is required as an additional component to generate vacuum in hybrid and electric vehicles. As a result, the installation effort increases and the benefits of a redundant brake system for the increasing number of driver assistant functions are not available. Therefore, the iBooster is already well established and installed in many vehicles that meet the demands of modern cars.
- Japanese automakers, who are at the forefront of automation and electrification, are customers with a strong affinity for the key benefits of the iBooster. Thus, we have decided to start manufacturing iBoosters in Japan from the second half of 2022 on. We believe that this will enable us to react to Japanese customers' demands with stronger focus on a Monozukuri

culture. This decision shows our strong commitment to the Japanese market as well as to Japanese automakers.

- In addition to starting iBooster manufacturing in Japan, we have developed a smaller variant, the iBooster Compact, to meet Japanese automakers' demands for compact vehicles. The iBooster Compact will be ready for the market in 2022 and the assessment with various automakers is ongoing at this time. In addition to iBooster, we will also manufacture the iBooster Compact in Japan.
- We are sure that as the number of cars equipped with the iBooster increases, more cars will be able to stop more quickly in emergencies. This will lead to a safer road traffic.
- We believe that the iBooster will become our next-generation flagship product. We will invest 3 billion yen in plant and equipment for producing iBoosters in Japan.

Bosch as the leading technology company

- Lastly, I would like to explain how Bosch is realizing our “Invented for life” ethos in areas other than the mobility solutions business sector.
- In fighting against the coronavirus, Bosch developed the rapid PCR test to be used on the Bosch Vivalytic testing device at the start of the pandemic. In the beginning, it delivered results in two and a half hours. But now, it is able to deliver results even more quickly, in under 30 minutes for detecting positive samples. It shows that Bosch has been improving its technologies to contribute for a better life and society.

- One of the new technologies is “Crowd Detection” developed by Bosch’s Building Technologies division. The company has more than 10 years of experience in built-in video analytics.
- Around the world, the coronavirus pandemic has changed the way people and businesses function. Organizations now face new challenges that center around how to open up to the public or to keep operations running while maintaining a safe environment for both employees and customers. Security, safety, and communications technology can help in both traditional and non-traditional ways.
- Bosch’s Building Technologies division has developed “Crowd Detection”. It is a solution which utilizes the camera based Bosch Video Analytics algorithm to detect and alert abnormal and critical crowd levels in a given area. It uses an intelligent camera, which obtains location information, and eliminates the need for video analysis software. For example, it can measure the occupancy of people in certain areas, such as shopping malls and airports, and allows owners to communicate warning messages.
- The division also developed “People Counting,” as a solution to track the actual number of people who stay in certain areas such as stores. Bosch Security Systems Ltd. in Japan together with Philips launched in November 2020 “People Counting Visualization System.” It combines the Bosch “People Counting” and Philips display for digital signage. It is designed to inform people and to manage crowds efficiently and effectively.
- “People Counting Visualization System” uses Bosch’s intelligent cameras to count the number of people entering and leaving the place. And the digital

signage from Philips displays a warning when the number exceeds a preset value. The owner of the places or stores can freely change the design of how the warning signs are displayed onscreen.

- Bosch camera with built-in Video Analytics sends people count data directly to the Philips display. And then, information is shown in the display to customers or relevant people to manage crowds and support social distancing.

Bosch to become the AI-driven company

- A major pillar of our strategy is AIoT, the combination of artificial intelligence and the internet of things. We view that AIoT will create growth opportunities in markets worth billions of euros.
- Bosch is on track to becoming a leading AIoT company. We have already sold some ten million connectivity-enabled power tools, home appliances, and heating systems, and the number of active users is growing. Altogether, more than 90 percent of all Bosch electronic products already feature connectivity. Moreover, from 2025 at the latest, every Bosch product will either contain AI or has been developed or manufactured with its help. Work done at the Bosch Center for Artificial Intelligence (BCAI) is now bearing fruit. Just three years after it was set up, our initial investment had paid off. Its projects have now achieved a contribution to result of some 300 million euros.
- One of the AIoT examples is fitness tracking. With the fast-growing market segments of wearables and hearables such as fitness trackers, end

consumers have increasingly demanding requirements. Besides ease of use, one of the most essential aspects for end users is a long battery life of the devices. This is without having to compromise on always-on applications such as accurate step detection, activity recognition, fitness tracking or calorie counting.

- To meet the demand, Bosch Sensortec has developed the world's first self-learning AI sensor for wearables. The sensor provides an ideal all-in-one solution for always-on sensor applications such as fitness tracking, navigation, machine learning analytics and orientation estimation. The biggest feature of this self-learning AI sensor is that it can be customized on a personal basis. In other words, after end-users buy a product, personalization can be tailored to the individual physique and purpose.
- You can see some example in this video. The self-learning AI software is available with a standard set of more than fifteen pre-learned fitness activities, so no training is required before use. The device can count users' actions automatically. Also, users can add new fitness activities that were originally not supported, enabling them to customize the device to their individual needs. Once users train the device with new activities and register, it automatically tracks fitness activities on the device.
- In addition, the sensor can be used to support instructions like a coach. For example, in rehabilitation, patients record the training patterns with the instructor in the hospital. When patients are back at home, the sensor in the device can be their coach. The sensor automatically counts the number of rehabilitative movements, only when patients make the correct movements.

- And more, since the AI runs on the sensor itself, no connectivity to the cloud is needed. This keeps the data private and activities can be continuously tracked and analyzed, without the need for an internet connection.
- The global wearables market is expected to be on the rise due to increasing health consciousness. We are already in discussions with manufacturers about this sensor, and have attracted interest from a major Japanese manufacturer.
- Bosch Sensortec develops another AI sensor which features the ability to customize individual recognition algorithms. That is the new gas sensor, BME688. Together with AI Studio Software, manufacturers can train the gas sensor on their specific application, like in home appliances, IoT products or Smart Home. The gas sensor is ideal for the latest, customized applications, such as food spoilage detection and timely forest fire detection by detecting the gases present, and tracking temperature and humidity changes.
- For example, a customer may want to develop a sensor-based product that can detect spoiled food, which would be indicated by the volatile sulfur compounds produced by bacteria in the food. Similarly, bad breath or body odor could be detected by the sensor. It is also expected to be used as a sensor to check health conditions, such as detection of periodontal diseases, baby diapers, and excrement at nursing sites.
- Artificial intelligence is particularly beneficial in manufacturing as well. Bosch has developed an AI-based system that detect anomalies and malfunctions in the manufacturing process at an early stage. This AI solution will be rolled

out at some 50 Bosch powertrain plants worldwide in 2021, and connected to more than 800 production lines.

- On June 7, we opened our new 300mm semiconductor fab in Dresden, Germany. Not only the biggest investment in our 135 years company history – Dresden is our first fully integrated AIoT factory.
- We are sure that AI solutions will make factories more efficient, more productive, more eco-friendly and make our products better.
- As such, we are counting on AIoT to benefit people and the environment with technical solutions. We want to be a leading AIoT company in every area that we operate in.

Bosch pursues its strategic objective “Invented for life”

- Today, we have explained how Bosch is investing in areas of future importance, such as sustainable society and mobility, the internet of things, and artificial intelligence.
- We expect a challenging year also in Japan due to the current situation. But we remain committed to the Japanese market and its long-term potential. We will further expand our portfolio in Japan according to our slogan ‘Invented for life,’ and provide innovative technologies that benefit people and society.
- Thank you for your attention.

¹ Compared with a previous-year figure that has been adjusted for the effect of the divestment of the packaging machinery business.