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- Ladies and gentlemen, thank you for watching this year's Bosch Group Japan annual press conference. In order to prevent spreading of the novel coronavirus, we are live streaming this year's press conference.
- This virus is impacting people all across the globe. We hope that you and your loved ones are healthy and stay safe. We offer prayers to those who have lost their lives, and our most sincere wishes to those currently in treatment. We also offer our heartfelt respect to the health care professionals for their efforts.
- “We are Bosch” and our products are “Invented for Life”. For us that means as well working to halt this virus in its tracks. We have developed a rapid COVID19 testing system for the molecular laboratory testing platform Vivalytics. The fully automatic system takes just two-and-a-half hours to deliver a result. Now the rapid test is available to use in European countries. Furthermore, we have nearly completed the development of an extra-rapid test that delivers results in less than 45 minutes.
- Additionally, we are making efforts to prevent our associates from being infected. This includes to manufacture facial masks for our associates. The design of our mask production line according to Bosch's special-purpose machinery unit is available for free for other companies. Bosch is also producing hand sanitizers in Germany and the U.S. for associates working in plants.
- For us, the health of our associates is the top priority. To ensure that our associates in Japan are not infected, we have swiftly introduced various preventive measures of the highest standards from an early stage on.

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- These include hygienic measures such as providing sanitizers and general safety instructions, body temperature checks, and provision of facial masks for all associates to wear when they work at a Bosch location. We make sure that our associates avoid or reduce the 3C situations, for meetings, trainings and even at our cafeteria. Both domestic and international business trips have been reduced to the absolute minimum and online meetings are the norm.
- Measures are not confined to a Bosch location. Working from home is encouraged wherever possible. During the peak of the crisis, over 3,000 of our 6,700 associates worked from their home offices. We are also providing our associates with special paid leave for child care and elderly care.
- With the spread of the coronavirus, the way we work has drastically changed. We have experienced that we were quite well prepared for such a change and managed the change smoothly. Some of these measures will remain in place as a new normal. For instance, we will lift the upper limit for telework from 25% to 50% of the working hours per month, starting in August this year.
- No matter what we face, we at Bosch never forget our slogan, Invented for Life. We strive to improve the lives of people and the society through innovative technology. Our approximately 400,000 associates in over 60 countries and regions are unified in our determination to fight back against the novel coronavirus.

CO2 neutrality: Carbon neutral to be achieved worldwide in 2020

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- In addition to the novel coronavirus, there are other pressing global threats that we need to confront. Climate change is one of them. According to the World Meteorological Organization, global warming is still progressing, and levels of carbon dioxide in the atmosphere, ocean temperatures and sea levels continue to rise. Unless we maintain a healthy planet and environment, we will not be able to maintain long-term business success. To stop global warming, companies must lead the way and engage in initiatives to reduce greenhouse-gas emissions.
- As an example of one such initiative, during our 2019 press conference we announced that our more than 400 locations, worldwide, will be carbon-neutral by 2020. Today we can report the result: We achieved carbon-neutrality for all locations in Germany, in 2019. We will achieve carbon-neutrality for all other locations worldwide in 2020. To make carbon neutrality a reality, Bosch is applying four levers: one, increase energy efficiency; two, expand our own generation of renewable energy; three, procure more green electricity; and last, offset the remaining carbon emissions with certificates of the highest standards.
- In the years up to 2030, the first two levers will enhance the quality of our CO₂ neutrality. The latter two levers are measures that will be effective for the immediate future. That said, the share of carbon offsets will be significantly lower than planned in 2020, at just 25 percent instead of nearly 50 percent. In other words, we are making faster progress than we expected in improving the quality of the measures we take.

Investing in AI

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- Regarding investments for the future, we are proactively investing in artificial intelligence. AI is the key to future technologies. We want to create an AI that is safe, robust, explainable, and always under human control. For that reason, we have adapted our Bosch code of ethics for AI in January 2020. By 2025, we aim all Bosch products to either contain AI or have been developed or manufactured with its help. We established the Bosch Center for Artificial Intelligence in Germany in 2017, as our main AI headquarters. We currently operate in seven AI locations worldwide.
- In Japan, in addition to our own independent research on AI, we are also currently pursuing collaborative research partnerships. These are with Japanese universities, research institutes and with other companies. Furthermore, we will increase the number of AI proficient associates to around 20,000 people globally in two years. This is 20 times the current level. The training program, being rolled out globally, will also be implemented in Japan in the latter half of this year.
- From now on, Executive Vice President Alexandre Riesterer will discuss our financial results of the year 2019 for Bosch worldwide and Bosch Japan.

2019 Global Results

- Before sharing the 2019 results for Bosch in Japan, I would like to first touch upon the Bosch Group's worldwide results. Despite the sluggish automotive market, we maintained the same level of sales as in 2018, at 77.7 billion euros. EBIT was 3.3 billion euros. In 2019, we invested 6.1

billion euros, approximately 8% of sales, in research and development.

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These include up-front investments into PACE, which stands for Personalized, Automated, Connected, and Electrified, as well as into future growth fields such as IoT and AI. As of December 31, 2019, Bosch employs approximately 400,000 associates worldwide. It includes approximately 73,000 associates in research and development, thereof roughly 30,000 software engineers.

Financial results of Bosch Corporation

- Turning now to our results in Japan, third party sales in Japan for 2019 were 330 billion yen. Despite contraction of the global automotive market and difficult business conditions, we were able to make progress in Japan in 2019. Our sales in Japan increased approximately by 1.0% compared to previous year. The Asia-Pacific region, with a share of 30% of Bosch Group Sales, remains an important pillar for the group.
- Bosch's business activities are divided in four sectors. Globally the Mobility Solutions accounts for 60% of business by sales bases. In Japan, the Mobility Solutions accounts for 90% of the totality of the business. Sales for mobility solutions increased approximately by 1.5% compared to previous year. The sales increase came mainly from safety system products, such as electronic stability control (ESC) and advanced driver assistance systems, and infotainment products.
- Furthermore, annual global Bosch sales with Japanese automakers, have increased on average by a double-digit percentage year-on-year, since 2013. The 2019 year-on-year increase was 10.2%, once again showing double digit growth. Sales include those for manufacturers of motorcycle,

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agriculture and construction machinery and tier suppliers. Considering that worldwide vehicle production for Japanese automakers decreased slightly over the previous year, this indicates that our sales with Japanese automakers have increased over proportionally.

- Japanese automakers have a strong presence in the global market. 30% of automobiles worldwide are produced by Japanese automakers. Our mission is to provide the parts and solutions for Japanese automakers to produce attractive automobiles both for domestic and global markets.
- We expect 2020 to be a very challenging year for the automotive industry. As the situation remains very dynamic, we are not able to make a forecast for the year at this point of time.
- Klaus will now discuss some of the specific highlights of our businesses in Japan.

Automation: Passenger vehicle accidents at intersections reduced by up to 41 percent with addition of driver assistance systems using corner radar

- First, I would like to introduce some highlights of the Mobility Solutions sector, the main business in Japan. At Bosch, we are pursuing sustainable, safe and exciting mobility through PACE, which includes elements of Personalization, Automation, Electrification and Connectivity. Today, I will introduce highlights in the area of Automation, Electrification and Connectivity.
- Firstly, I would like to introduce our efforts in automated mobility. One of the most important reasons to pursue automation is to reduce road accidents to as close to zero as conceivably possible. Every year,

the lives of approximately 1.35 million people are lost in road traffic accidents, according to the World Health Organization. Between 20 to 50 million more people suffer non-fatal injuries. Fatalities from road accidents are declining in Japan, but still over 3,000 precious lives are lost each year.

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- From the beginning, Bosch has always emphasized car safety. The electronic stability program (ESP®) saved 15,000 lives*¹ in the European Union since its introduction in 1995. This year marks the 25th anniversary of ESP®. Bosch has produced over 250 million ESPs to date and of this 21 million in Japan alone!
- Bosch calculates that ESP® in combination with SAE level 1 driver assistance systems could prevent or could reduce collision damage up to 45 percent*^{1,3} of today's road accidents*² in Germany. Additionally, we estimate that 26 percent*^{1,3} of road accidents can be prevented or can have reduced collision damage with partly automated driving beyond SAE level 2.
- We assume a similar impact in Japan. The research by ITARDA (Institute for Traffic Accident Research and Data Analysis) confirmed that the accident rate is 52.9 percent*⁴ lower for vehicles equipped with advanced emergency brake systems than vehicles without.
- Today, those systems are equipped with only forward looking sensors. Other driver assistance systems that could further reduce accidents include those that use corner radar. Corner radar, with its detection range 15 degrees wider to the left and right than front radar, is effective for preventing road accidents at intersections. Car accidents at intersections are a common issue all around the world. For example, approximately 25

percent of crashes*² occur at intersections in the European Union and the United States. The number is even higher in Japan, reaching 37 percent*⁵. That is why evaluation of automatic emergency braking (AEB) at intersections is expected to be added to Euro NCAP (The European New Car Assessment Program) assessments this year, and to JNCAP (Japan New Car Assessment Program) assessments in 2023.

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- Systems that utilize Bosch corner radar include not only AEB but also additional functions such as start prevention. To further increase the effectiveness of these corner-radar-based assistance systems, Bosch has conducted research in Germany, which investigates to what degree they can prevent collisions at intersections.
- According to our accident research, up to 41 percent*^{3,6} of relevant passenger car collisions at intersections could be prevented or could have reduced collision damage by corner-radar-based AEB and the start prevention function. The research has also revealed the effectiveness of each function. The start prevention function is very effective to prevent collisions at lower speeds which often involves two-wheeled vehicles such as bicycles and motorcycles. This means it can help protect road users who are more vulnerable and thus at greater risk of fatality. It is estimated that one out of four of the relevant collisions can be prevented by the start prevention function. On the other hand, AEB is able to avoid collisions with vehicles at higher speeds, especially against other passenger vehicles.
- In addition to compliance with NCAP requirements, the installation of corner radars will be further driven by the increasing number of convenient functions such as SAE level 2 hands-off automated driving.

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Installing corner radars at four locations left and right in the front and the back of the vehicle, allows for 360-degree sensing. Bosch estimates that the market for corner radars will grow by 15% per year from 2020 to 2027. In 2027, it will reach 2.6 times the current market size of 2020.

- Bosch will begin series production of our new generation of corner radar this year. This 77 GHz band, high frequency radar will allow for more sophisticated sensing, complementing our existing surround sensor portfolio.
- For many years, Bosch has carried out everything from the development to the manufacturing of sensor technology for automated driving, such as ultrasonic, radar and camera sensors. In 2019, ADAS related sales reached 2 billion euros globally, a 12% increase over the previous year, making Bosch a market leader in the field of automated driving.
- Bosch develops advanced assistance systems that use front and rear radars, not only for four-wheeled vehicles but also for two-wheelers. These are known as Advanced Rider Assistance Systems, or ARAS. ARAS includes Adaptive Cruise Control (ACC), forward collision warning and blind-spot detection. This system achieved a major milestone last year, when the Japanese motorcycle manufacturer, Kawasaki Heavy Industries, announced that ARAS will be included in a part of their motorcycle line-up starting in 2021. Furthermore, the development of ARAS is proceeding on its way towards start of series production this year. As part of this effort, we have expanded the area for the public road testing of Advanced Rider Assistance Systems for two-wheelers in Japan, which began in March last year. Now the area is expanded to Saitama, in addition to the original highway roads in Tokyo, Kanagawa and Tochigi to

ensure that the systems more accurately respond to the Japanese road environment.

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※1 Figures from Bosch Accident Research 2019/2020

※2 Passenger car accidents with personal injuries

※3 All values assuming a full penetration of the systems in the vehicle fleet (100 percent installation rate).

※4 Analysis result of the collision damage reduction brake (AEB) for reducing the rear-end collision accident with a four-wheel vehicle, ITARDA 2018

※5 EU: ERSO-CARE national data from 11 EU countries; US: NHTSA Traffic Safety Facts 2017, DOT HS 812 384; JP: Traffic accidents in 2017(平成 29 年中の交通事故の発生状況) MAME report 2017

※6 Bosch Accident Research study 2019/2020: GIDAS database (2005-2019) and data from Federal Statistical office Germany 2018 (DESTATIS F8 R7)

Electrification: Launch of Japanese automaker's model, equipped with

Bosch's components for 48V mild hybrid

- Now I would like to introduce our efforts in electrified mobility. Currently, there are over 1.3 billion vehicles on the road, worldwide. To provide sustainable mobility that has minimum impact on global climate change and urban air quality, it is important to focus on reducing emissions. We expect that two out of every three newly registered vehicles in 2030 will still run on diesel or gasoline, with or without a hybrid option. To make decisions that are geared towards sustainability requires transparency and in-depth consideration of the entire impact chain for all powertrain types. We must consider CO2 neutrality from well to wheel. To make full use of all possibilities, Bosch is taking an open approach to the future of powertrain technologies. This is why Bosch develops powertrains ranging from highly efficient internal combustion engines to electromobility and fuel cells, with a focus on providing them at affordable prices. Over the past few years, Bosch has invested around 400 million euros annually in emission-free mobility. Bosch has already realized more than 50

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powertrain projects for electromobility, tailored to the needs of each individual country. Japanese automakers are proactively pursuing electrification, and Bosch's components for 48V mild hybrids have entered series production for a Japanese automaker. The components are included in models released in Europe in Spring 2020.

- In recent years, many new players have entered the automotive market, using electric vehicles to offer new mobility services. In response, we have seen growing demand, not only for components but also for solutions that incorporate components and systems. In addition to Bosch's role as a conventional automotive parts and systems supplier, we aim to be a leading company in the overall mobility business, including providing solutions to Mobility Service Providers.
- As one example of electrification solutions, Bosch began to demonstrate its Rolling Chassis in 2019. In electromobility, no other company is as broadly diversified as Bosch. Rolling Chassis is a drivable platform with electric powertrain, electric braking system, electric steering and others from Bosch. Bosch has been developing Rolling Chassis, together with the chassis and automotive technology expert Benteler. As you can see in this movie, the fact that we provide the chassis in ready-to-drive condition, helps to reduce time and improve efficiency during vehicle development.
- In addition, Benteler and Bosch have closed a strategic collaboration with Pininfarina S.P.A. Benteler, Bosch and Pininfarina S.P.A. can cover the entire development process for an electric vehicle, all the way to the start of production, including the building of prototypes. The advantage for electric-vehicle manufacturers is their ability to quickly implement their

prototypes in many different variations and designs, saving them both time and money.

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- Bosch is also proactively pursuing development of fuel cell powertrains. We expect that one in eight newly registered heavy trucks could be powered by fuel cells as early as 2030. We aim to position ourselves as a market leader. Bosch and its partner Powercell are already working to commercialize fuel-cell stacks for use in vehicles, and plan its market launch in 2022. In addition to the fuel-cell stack, we develop fuel cell systems together with our partner Nikola in the U.S. We will start series production of fuel cell systems first for trucks. Development for some components other than stack is being carried out for Japanese application and market needs. These are: Electric air compressor, hydrogen injector, recirculation blower, and control units. These are examples of fuel cell components in our product portfolio.

Connectivity: Creation of Connected Mobility Solutions Division

- Let us turn to our efforts in connected mobility. It is expected that there will be more than 470 million connected vehicles on the world's roads by 2025. There are growing expectations that connectivity will provide invaluable business opportunities. In order to take advantage of this business opportunity, Bosch Japan established the Connected Mobility Solutions division in 2020 by reinforcing a team dedicated to automated valet parking. The division is capable of providing comprehensive connected services by integrating Bosch's connected solutions. One of the solutions is the Over the Air framework. It provides software and firmware distribution and updates via Internet to vehicles, similar to how

they are provided to smartphones. Others include Battery in the Cloud - a solution extending service life of batteries in electric vehicles by up to 20% - and Perfectly Keyless - a solution turning the smartphone into a car key.

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- Regarding Perfectly Keyless, during our 2019 annual press conference we demonstrated the use with Bluetooth to connect vehicles and smartphones. Now in 2020, Perfectly Keyless can also be provided in combination with ultra wideband (UWB) wireless communication, which is already available on some smartphones. Use of UWB allows us to more accurately pinpoint the smartphone's location, improving the security of transmissions.

Connectivity: Bosch offers parking lot sensors starting in February 2020

- Bosch and Daimler obtained approval from the relevant authorities for the world's first SAE level 4 driverless valet parking in the Mercedes-Benz Museum parking garage in Stuttgart. From platforms to search for parking spaces to automated valet parking, Bosch provides a variety of connectivity solutions to reduce the hassle of parking for drivers. In Japan, as well, we are developing a variety of parking-related connectivity solutions. As one example, we began to offer parking lot sensors, or PLS in short, from February 2020.
- Active Parking Lot Management systems make searching for parking spaces easier for drivers and support more effective use of parking spaces for parking garage operators. The key to these systems is PLS. It transmits real-time network information on which parking spaces are

open. PLS is already being used in smart city projects in Germany, France and Italy.

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- PLS can now be provided in Japan as well. Bosch, which began pilot projects in February 2020, offers the sensors; the French company Kerlink and Synox offer gateway servers, network servers and applications; and MIRAIT Corporation handles services, including maintenance and operation.
- When parking spaces are installed with PLS, sensors detect whether spaces are open. Then the sensors transmits that information wirelessly to a server where it is incorporated into real-time map data. Drivers can access this map data via internet and reserve a space. This simplifies searching for a parking space and shortens time for drivers. This also helps to reduce CO2 emitted while searching for a space, thus helping to conserve the environment.
- Additionally, PLS can be attached to the ground using special adhesives, which makes installation extremely easy. Compared to parking construction that requires drilling, construction time is shorter and construction and maintenance costs are greatly reduced. This lowers the burden on parking lot management.

Connectivity: SBI Insurance Co., Ltd to provide service featuring

Bosch's Telematics eCall Plug

- Also on the topic of connectivity, Bosch develops a telematics eCall retrofit plug for automatic emergency call systems. The "Telematics eCall Plug," incorporates a triaxial acceleration sensor, microcontroller and an algorithm to calculate the data detected by the sensor, enabling it to

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detect the impact of a collision. In addition, the plug has another unique function of detecting driving behavior such as braking, acceleration and deceleration, and steering operations. This information can be used by insurance providers to enable mobility services. Bosch has been conducting a pilot project with SBI Insurance from 2019. SBI Insurance has now officially decided to use this device for its insurance service^{※7}.

- Policyholders of SBI Insurance can use the devices upon request and can receive services to support safe driving by linking with smartphone apps. Services are expected to be provided one after another to help ensure the safety of the driver. One of the services is when the device detects the impact of a collision, the emergency contact will be automatically displayed on the drivers' smartphone apps. It allows drivers to make an emergency call and to contact the towing service immediately by just tapping the screen.

※7 SBI Insurance is expected to release the service within 2020.

IoT: Growing into a World-Leading IoT Company Leveraging AI

- So far I have been discussing progress in connectivity as it relates to the Mobility Solutions business. But Bosch's efforts toward connectivity are not limited to mobility, alone. From mobility to manufacturing, logistics, smart homes and even agriculture, we are developing businesses in a wide range of fields. We are pursuing innovative projects as well as new business opportunities in digital services, and aim to grow into a world-leading AI-driven IoT company.
- To further solidify that momentum, Bosch established Bosch.IO in January 2020. It is a new subsidiary that consolidates activities centered

on the internet of things. With some 900 associates, Bosch.IO collaborates with Bosch's approximately 30,000 software engineers and AI experts.

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- In Japan, Bosch.IO is expanding its business as a division that includes items such as new businesses using sensing, IoT and AI; connected building; and Plantect. Plantect is a unique smart agriculture service that utilizes Japan's first disease prediction AI. Today, I would like to talk about Plantect, which has shown particular progress and growth over the previous year.
- In Japan, labor shortages, due to the dwindling number of farmers, is becoming an increasingly serious issue. At the same time, the agricultural industry is finding it difficult to deal with changes in diseases brought about by the effects of global warming. In order to address these issues, Bosch released Plantect in 2017. It is an environmental monitoring and AI-driven disease prediction service for greenhouse cultivation. In 2019, we made three major advancements related to Plantect. The first is faster disease prediction development. Bosch has developed disease prediction algorithms by using data from approximately 200 greenhouses as well as Bosch's advanced AI technologies. We can now develop new algorithms for new diseases in around 1 year. Bosch currently boasts disease prediction for 8 types of diseases in 3 categories.
- Second, we have also made great strides in advancing the Japanese market. Expansion of the market in Japan includes not only an increase in end customers, but also introduction to corporations and organizations holding large number of green houses. Additionally, we have begun sales

at major home centers such as Komeri and Nafco, as well as through Amazon.

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- Third, we have also expanded Plantect overseas. We expanded to South Korea at the end of 2019, and have already sold 300 units. This April, we exchanged a memorandum of understanding with the government in Gaoling, China, for development of agricultural digitalization platforms. Also, we have begun monitoring tests at Australian companies in May. In addition to Plantect, which originates in Japan, Bosch.IO owns other products to promote digital transformation in agriculture. Some examples are smart irrigation sensors, which originates in Spain, and outdoor cultivation and frost prevention monitoring, which originates in Germany. We are now looking for partners or investors, inside and outside of Japan, to accelerate the comprehensive digital transformation of agriculture.
- Today we have introduced some of the many activities being developed by Bosch in Japan. At the beginning of 2020, Bosch predicted that production in the automotive industry would hit a slump, with production falling to around 89 million vehicles. And we anticipated that this difficult trend would continue until 2025. After that prediction, the novel coronavirus began spreading across the world. This has brought a drastic economic downturn that neither we nor anyone else could have predicted. This is placing the automotive industry into an even more difficult downturn than before. Even under the current challenging situation, we remain committed to our local customers in Japan and believe in Japan's long term potential. Additionally, we have remained committed to our values of initiative and determination and have produced a variety of

innovations for a better environment. Moving forward, we will continue to provide a range of solutions for a better society and the lives of people in Japan, guided by our slogan: Invented for Life.

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In closing, I offer my sincere prayers for everyone's health and safety.

Thank you for listening.