Investor Relations Release

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Daimler Trucks invests half a billion Euros in highly automated trucks

- World premiere of the new Freightliner Cascadia with partially automated driving features (level 2)
- Start of series development of highly automated driving (level 4), enabling automated driving mode on specific routes without required user intervention
- Increasing safety, boosting transportation performance and significantly cutting costs per mile
- New R&D center for automated trucks fosters knowledge transfer for accelerated speed of innovation
- Martin Daum: “As a leader of our industry, we've been pioneering automated trucking. In 2015, our Freightliner Inspiration Truck got the first road license ever for an automated commercial vehicle. Now we take automated trucking to the next level: we're ready to launch the first partially automated new Freightliner Cascadia in 2019 – and next, we tackle highly automated trucks. Highly automated trucks will improve safety, boost the performance of logistics and offer a great value proposition to our customers – and thus contribute considerably to a sustainable future of transportation.”

Stuttgart / Las Vegas. Today at the Consumer Electronics Show (CES) in Las Vegas, Daimler Trucks announced that it will invest EUR 500 million (around 570 million USD) over the next years and create more than 200 new jobs in its global push to bring highly automated trucks (SAE level 4) to the road within a decade. Highly automated driving is characterized as automated travel in defined areas and between defined hubs without any expectation of the system that a user will respond to a request to intervene. In commercial trucking, level 4 is the natural next step after level 2, increasing efficiency and productivity for customers, cutting costs per mile significantly. In doing so, Daimler Trucks is skipping the intermediate step of conditionally automated driving (level 3). Level 3 automated driving does not offer truck customers a substantial advantage compared to the current situation as there are no corresponding benefits to compensate for the technology costs.

The new Freightliner Cascadia offers partially automated driving features (level 2), making it the first-ever partially automated series production truck on North American roads. It also made its world premiere during today’s presentation of Daimler Trucks at CES.
Daimler Trucks has been a pioneer of automated truck development for years. In 2014, the world’s leading truck manufacturer presented the Mercedes-Benz Future Truck 2025, the world’s first automated truck, and was the first to demonstrate the technological opportunities and great potential that automated trucks have for the economy and society.

Martin Daum, Member of the Board of Management of Daimler AG with responsibility for Daimler Trucks & Buses: “As a leader of our industry, we’ve been pioneering automated trucking. In 2015, our Freightliner Inspiration Truck got the first road license ever for an automated commercial vehicle. Now we take automated trucking to the next level: we’re ready to launch the first partially automated new Freightliner Cascadia in 2019 – and next, we tackle highly automated trucks. Highly automated trucks will improve safety, boost the performance of logistics and offer a great value proposition to our customers – and thus contribute considerably to a sustainable future of transportation.”

**Level 2 automated driving now a reality in the new Freightliner Cascadia**

With Active Drive Assist (Mercedes-Benz Actros, FUSO Super Great) and Detroit Assurance 5.0 with Active Lane Assist (Freightliner new Cascadia), Daimler Trucks is already bringing partially automated driving features into series production. The new system can independently brake, accelerate and steer. Unlike systems that only work above a certain speed, Active Drive Assist / Detroit Assurance 5.0 make partially automated driving possible in all speed ranges for the driver for the first time in a series production truck. Active lateral control and the connection of longitudinal or lateral control in all speed ranges are new thanks to the fusion of radar and camera information.

**Daimler Trucks reassessing the benefits of platooning**

Moving forward with its innovation roadmap, Daimler Trucks is reassessing its view on platooning. Daimler Trucks defines platooning as the electronic coupling of two or more trucks with significantly reduced distance between them to, in theory, improve aerodynamics and therefore save fuel. Daimler Trucks has tested platooning for several years, especially in the U.S., where benefits would be expected to be the most substantial. Results show that fuel savings, even in perfect platooning conditions, are less than expected and that those savings are further diminished when the platoon gets disconnected and the trucks must accelerate to reconnect. At least for U.S. long-distance applications, analysis currently shows no business case for customers driving platoons with new, highly aerodynamic trucks. Daimler Trucks will, of course, remain committed to all partner projects that are still ongoing.

**Level 4 automated driving improves safety, efficiency and competitiveness**

Highly automated trucks (level 4) offer enormous advantages in many areas. In today’s society, there is a growing desire for safer roads and more sustainable transport solutions –
and level 4 trucks can considerably contribute to that. They enhance safety in traffic thanks to a redundancy of systems and a multitude of sensors and systems that never get tired or lose attention – because today, a great majority of accidents are still due to human error. Level 4 highly automated trucks also improve efficiency and productivity, among other things, through higher utilization of the vehicles – practically around the clock. They also make it possible to travel during light traffic times, for example at night, and thus avoid traffic jams by intelligent route management. This has positive effects for truck customers and for the entire economy: the competitiveness of an economy is strongly correlated with the efficiency of logistics. This aspect becomes more and more relevant as global road freight volume is expected to more than double between 2015 and 2050.

200 new jobs for engineers or robotics specialists with IT and programming skills

Daimler Trucks is creating 200 new jobs in the area of highly automated driving (level 4). The newly created positions and roles are to be filled primarily by mechatronics engineers or robotics specialists with IT and programming skills. The main location is Daimler Trucks & Buses new Automated Truck Research & Development Center in Portland (Oregon, U.S.). The center’s experts are dedicated to all aspects of developing, testing and validating automated vehicles. In addition, the engineers in Portland work in close cooperation with their colleagues in the research and development centers at Daimler Trucks locations in Stuttgart (Germany) and Bangalore (India), thus forming a global network. Interested talents can apply at https://daimler-trucksnorthamerica.com/lead/ or directly to innovateDTNA@daimler.com.

Requirements for highly automated driving of cars and trucks differ considerably

A crucial success factor for the development of a safe and reliable level 4 highly automated truck is a closely coordinated system of engineering and technology development. Daimler Trucks uses the extensive knowledge from many years of experience in developing driver assistance systems. And the transfer of knowledge within the Daimler Group forms the basis of a high speed of innovation. Thanks to its overall portfolio ranging from passenger cars and vans all the way to buses and trucks, the Daimler Group is ideally positioned for all relevant application scenarios of automated driving. Scalable solutions are therefore available. Across all divisions, the company is guided by a clear philosophy which is based on introducing a safe, dependable and mature system.

Developments from the Mercedes-Benz Cars division suitable for haulers and their transport needs will also be used at Daimler Trucks. Level 2 systems now available will be raised to level 4 through innovation and the re-definition of existing systems. Despite all the similarities, the requirements for highly automated driving of cars and trucks differ considerably from one another. The sheer size of a truck makes higher demands on the technology than in the passenger car sector as do moving systems on an articulated system,
for example. In addition, the driving behavior due to a greater mass or other deceleration values as well as other driving characteristics, for example in curves, place much higher demands on the system. The operating conditions in the transport industry are also much tougher. In order to enable efficient delivery cycles and to meet customer requirements for fast delivery, the vehicles must be operated for as long as possible. This must not lead to any restrictions in durability or reliability, for example under a wide variety of weather conditions and extreme vibrations. Finally, public acceptance is a key factor to successfully integrating level 4 systems into the value chain.

Two sensors are currently in use at level 2. In the next development step at level 4, there will be significantly more, all also higher performing. This leads to a completely new level of data volume but also places extremely high demands on the quality of data processing. The goal: the driver’s perception is recreated by the holistic recording of the traffic and vehicle situation by different sensor technologies. With their specific strengths, each sensor makes a contribution to the overall performance and safety. Three different technological approaches form the basis: radar, camera and lidar.

The safety, precision and durability of the systems will already play a leading role at launch. As in aircraft, all safety-relevant functions will therefore be equipped with a redundant system that is capable of seamlessly taking over in case the primary control system malfunctions.