

Press Release

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Volvo 360c concept calls for universal safety standard for autonomous car communication

With its new 360c autonomous concept, Volvo Cars tackles one of the main challenges around the introduction of autonomous technology and calls for a new, global standard in how autonomous vehicles can safely communicate with all other road users.

Autonomous drive and safety are closely linked and the technology has the potential to deliver the most significant improvement in traffic safety since Volvo Cars invented the three-point safety belt in 1959.

However, autonomous technology will be introduced gradually rather than overnight. As a result, fully autonomous cars will be introduced in a mixed traffic situation where driverless cars without a human driver will share the road with other road users.

In such a traffic situation, it will no longer be possible to make eye contact with and learn about another driver's intentions, a central element of today's everyday traffic interaction.

As part of the development of the 360c, Volvo Cars safety engineers decided to tackle this challenge of how to establish a safe means of communication between fully autonomous cars and other road users.

Additionally, the focus was to create a universally applicable standard, so that other road users do not have to consider the make or brand of individual autonomous cars.

The 360c addresses this challenge with a system comprising external sounds, colours, visuals, movements, as well as combinations of these tools, to communicate the vehicle's intentions to other road users. This means it is at all times clear what the car will do next.

Crucially, while the design of the 360c safety communication technology focuses on making the car indicate its own intentions to other road users, it will never issue directions or instructions to other road users.

"We strongly believe this communication method should be a universal standard, so all road users can communicate easily with any autonomous car, regardless of which maker built it," said Malin Ekholm, vice president at the Volvo Cars Safety Centre. "But it is also important that we do not instruct others what to do next, in order to avoid potential confusion. Our research shows this is the safest way for fully autonomous cars to communicate with other road users."

The 360c represents Volvo Cars' vision for a future of travel that is autonomous, electric, connected and safe – and which may allow Volvo Cars to enter new growth markets.

It presents four potential uses of autonomous driving vehicles – a sleeping environment, mobile office, living room and entertainment space – which all reimagine the way people travel.

Inside the sleeping environment, Volvo Cars' safety engineers have also looked at the future of safety technology and how a different passenger positioning could influence safety. A special safety blanket included in the sleeping environment envisions a future restraining system that

works just like the three-point safety belt, but is adjusted to people lying down while travelling.

The 360c also envisions a range of new potential customer groups for the company's business and considers the possible implications for the future of city planning, infrastructure and modern society's environmental footprint.

Volvo Car Group in 2017

For the 2017 financial year, Volvo Car Group recorded an operating profit of 14,061 MSEK (11,014 MSEK in 2016). Revenue over the period amounted to 210,912 MSEK (180,902 MSEK). For the full year 2017, global sales reached a record 571,577 cars, an increase of 7.0 per cent versus 2016. The results underline the comprehensive transformation of Volvo Cars' finances and operations in recent years, positioning the company for its next growth phase.

About Volvo Car Group

Volvo has been in operation since 1927. Today, Volvo Cars is one of the most well-known and respected car brands in the world with sales of 571,577 cars in 2017 in about 100 countries. Volvo Cars has been under the ownership of the Zhejiang Geely Holding (Geely Holding) of China since 2010. It formed part of the Swedish Volvo Group until 1999, when the company was bought by Ford Motor Company of the US. In 2010, Volvo Cars was acquired by Geely Holding.

In 2017, Volvo Cars employed on average approximately 38,000 (30,400) full-time employees. Volvo Cars head office, product development, marketing and administration functions are mainly located in Gothenburg, Sweden. Volvo Cars head office for China is located in Shanghai. The company's main car production plants are located in Gothenburg (Sweden), Ghent (Belgium), Chengdu and Daqing (China), while engines are manufactured in Skövde (Sweden) and Zhangjiakou (China) and body components in Olofström (Sweden).

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