Semiconductors are becoming the neurons of our cars

- **Audi and Volkswagen Board Members discuss semiconductors as a critical innovation component in cars**
- **On behalf of the Volkswagen Group, Audi holds third Semiconductor Summit titled “Innovation needs Coopetition”**
- **Top players in the semiconductor industry and the Volkswagen Group are working together on the future of mobility**

Munich, June 14, 2024 – Semiconductors can be found throughout modern cars, from the engine control and driver assistance and safety systems such as proximity radar and ESP to the infotainment system. An electric Audi or Volkswagen today contains up to 8,000 of them. These essential chips are a critical component of innovation in the automotive industry. Hand in hand with the Volkswagen Group and technology leaders from the microelectronics industry, Audi is shaping the future of mobility. To this end, the company held the third Semiconductor Summit, under the title “Innovation needs Coopetition” on June 11. In this interview, Audi Board Member for Procurement Renate Vachenauer and Volkswagen Member for Procurement Dirk Große-Loheide discuss coopetition, whether the Group’s semiconductor strategy has been successful, and why much remains to be done for Europe as a center for automotive semiconductors.

Mr. Große-Loheide, a few months ago everyone was talking about the shortage of chips. Are you struggling with that? And how important is the automotive industry to the semiconductor industry?

Dirk Große-Loheide: Following the COVID-19 pandemic, we faced a lot of pressure on our existing supply chains, as did most manufacturers. We learned from that and were able to draw important conclusions. Since then, the situation has greatly improved. But, having developed a procurement strategy for semiconductors, we are also in a completely different position today. Among other changes, we now work much more closely with our direct suppliers and directly with semiconductor manufacturers. Our direct contractual relationships with chip manufacturers are proof of that – since early 2023, the Group has signed more than ten direct contracts with semiconductor manufacturers. Through direct communication, we closely coordinate our needs and technical roadmaps with them. We maintain a contingency reserve of critical components, to name just a few of the many measures we have taken to increase our resilience. At the same time, the automotive industry has also now become one of the fastest-growing markets for semiconductors. With the rapidly advancing digitalization and electrification of our vehicles, semiconductor sales will triple to approximately $150 billion in the decade to 2030. And so we, as a strategic customer for the semiconductor industry, will also have an important role.

What does the title of the Semiconductor Summit "Innovation needs Coopetition" mean, and what exactly is coopetition, Ms. Vachenauer?

Renate Vachenauer: Coopetition is a well-balanced harmony between competition and cooperation, an approach that we also promote in the automotive semiconductor sector. Semiconductors are becoming the neurons of our cars. We are making our technical and commercial policies transparent, disclosing our technology strategy, and taking a much stronger position along the value chain. This enables our tier-one and tier-two partners to zero in on our needs and compete for innovation. It also provides planning certainty through close partnerships. I am therefore particularly pleased to have welcomed these top players from the microelectronics industry to Munich, where we worked out the details of our future cooperation under the leadership of the Volkswagen Group. At the Summit, we and our partners made significant progress on these goals.

When will Audi or Volkswagen customers begin to benefit from the innovations you mentioned?

Renate Vachenauer: Semiconductors already power Vorsprung durch Technik. They are a critical component that help make cars unique. Take our fully electric Audi Q6 e-tron, for example. One of its highlights is the use of our second-generation digital OLED technology in the rear lights. For the first time, this technology allows us to communicate with other road users, for example by displaying warning symbols in hazardous situations. This feature relies on powerful semiconductors. We are also bringing Vorsprung to life in other areas, such as electric mobility, efficiency, connectivity, and driver assistance systems. Our upcoming model launches will introduce a number of new features to get our customers excited about the holistic driving experience.

Given the needs of the automotive industry and competition from Asia, is Europe resilient when it comes to microelectronics, Mr. Große-Loheide?

Dirk Große-Loheide: In recent years, there have been a lot of efforts to address this issue in Europe. One example is the recently ratified EU Chips Act. But despite this, most innovation continues to take place outside Europe. This is in part due to the cost drawbacks of developing and manufacturing semiconductors in Europe. Therefore, we need to step up our efforts and invest more in research and development in the semiconductor industry, and in the education and training of semiconductor professionals. At the same time, geopolitical instability is threatening the benefits of globalization. We all need to find the right answers, especially our political leaders. Because even if we rely more on localization in certain parts of the world, as we do in China, that cannot be the sole solution to the growing geopolitical issues we face.

What is the vision that you and the technology leaders in the semiconductor industry are trying to realize?

Renate Vachenauer: Basically, we need to build on three pillars. First, we need to work with the microelectronics industry to further improve the resilience of the supply chain. This means, among other things, that we as a car manufacturer have to be more transparent about our needs. At the same time, it is crucial to build up reserves of critical semiconductors. Second, our goal is to increase profitability through universal standards and the improved interchangeability of different semiconductors. And third, of course, we are committed to driving innovation by aligning the roadmaps of both industries.

Dirk Große-Loheide: As is the case with all our products, the desires of our customers are our starting point. We are therefore working to drive the development of customer features and innovations along our roadmap, and cooperating closely with our partners to this end. We are also moving towards the software-defined vehicle (SDV) – a completely new approach to product development. This means working with our partners to develop a common understanding of future vehicle needs, leading to strategic collaborations such as the co-design and co-development of semiconductors. The upshot is that we will also significantly increase the pace of development, I am sure of that.

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