Mobility Minds Blog

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Crisis? What Crisis?

The automotive industry between renewed chip crisis and geo-economic tensions

Chip crisis? That rings a bell. In 2020, the global pandemic brought the supply of urgently needed semiconductors to the automotive industry, especially from Asia, to a standstill. The result was a drastic shortage in the supply of new vehicles. Even though OEMs were able to temporarily push through high prices on the market, the bottom line was a GDP loss for the German automotive industry of €100 billion over three years – not including secondary effects such as task forces and a reprioritization of production. We show this in our study “Von Chips und Chancen” (On Semiconductors and Opportunities), which we conducted together with the German Electrical and Electronic Manufacturers' Association (ZVEI).

A year later, due to Russia's invasion of Ukraine, the cable harnesses broke. Many European manufacturers sourced these relatively simple components to a large extent from Ukrainian manufacturers. At this point at the latest, it had become evident that globalization had reached its limits. Above all, the complex network of global supply chains, which car manufacturers in particular had woven to perfection over decades, was overstretched and broke. Margin-optimized offshoring led to increased vulnerability in the supply chain. Manufacturers and suppliers had to recognize that control and security of the supply chain trump cost savings in purchasing. The bursting of the dot-com bubble and the Fukushima disaster were already critical stress tests for supply chains, but the double crisis of 2021 to 2023 led to a significantly greater amplitude.

Déjà vu at an inopportune moment

Today, in the fall of 2025, the industry is experiencing a painful déjà vu due to the renewed disruption of the semiconductor supply chain: Once again, missing components costing only a few euros are bringing an entire production line to a standstill – because even a missing chip for ABS or electric motor control can slow down the entire car. The current crisis has caught many manufacturers off guard, as they are optimizing their inventories to preserve liquidity in the economically tense situation. As a result, sudden peaks in demand can hardly be cushioned. It is obvious that risk mitigation is not yet at the level it should be for all manufacturers. There is room for improvement here. The next, much more threatening crisis scenario is already looming on the horizon: with the announced restrictions on the export of critical raw materials/rare earths, there may once again be drastic production restrictions. Around 90% of the gallium required for chip production comes from China.

Even though the events of 2020/2021 and today appear similar at first glance, there is one significant difference. The pandemic was a kind of natural disaster that was not intentional. And even the war in Ukraine, although started by Russia, did not initially aim to hit European industry.

The current crisis may have been triggered by a manufacturer whose sudden change of ownership to Chinese hands prompted the Dutch government to take control. However, the case highlights how strongly the industry is subject to deliberate geopolitical or geoeconomic moves, which have their roots in the growing political and economic rivalry between the US and China. In the case of chips, as with rare earths, the Chinese government has changed course toward open dominance and raised the stakes in the power politics poker game. This can be understood as a signal to Europe not to lean too heavily on the US.

Reassess and hedge risks

As with other core issues of transformation, we do not have a knowledge problem with supply chains, but rather an implementation problem: Companies must therefore implement the path taken in 2020 more consistently than before. When it comes to risk mitigation for chips, the basic assumptions should be readjusted. What is needed now is a mix of market intelligence, diversification of suppliers, and larger buffers and reserves to cushion the spontaneous failure of suppliers. However, this must be managed in a differentiated manner. A standard stockpile of 12 weeks is not necessary for some parts, while for others, 12 weeks is not enough. The most glaring risks should be addressed first. This may require more than just 12 weeks. Fundamentally, the primacy of cost efficiency must be questioned. This mindset has been embedded in the DNA since the 1990s through appropriate incentives. In quiet times, this may have been for the good of the company. In times of crisis, new KPIs are needed to counter pure purchasing efficiency.

To respond to global changes at an early stage, transparency about dependencies and weaknesses in one's own supply chain is crucial: if you want to unbundle your supply chains in the way that US companies are currently doing, you need to know them inside out. Real-time transparency forms the basis for forward-looking risk management and maintains the ability to act in crises. The complexity of the analysis can be significantly reduced by software solutions such as PwC's “Check Your Value Chain”: This audit-proof supply chain compliance software performs a fully automated risk analysis of the entire business partner portfolio on a daily basis, continuously evaluating numerous data sources such as macroeconomic indices and media sources. On this basis, companies can proactively respond to risky business partners with measures, adapt structures and processes, and thereby strengthen the resilience of their supply chains.

Finally, companies in the automotive industry must internalize a new understanding of their own role. They are both the subject and object of a new geo-economy in which everything is connected and the boundaries between politics and economics are blurred. Bilateral relationships characterized by loyalties and alliances are being replaced by multilateral and multipolar networks.

In this context, semiconductor technologies are becoming increasingly important as drivers of sustainable business practices. They form the technological basis for resource-efficient and sustainable mobility solutions. Securing resilient supply chains for these semiconductor technologies is therefore not only a question of economic efficiency, but also of the future viability of the automotive industry.

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