

TOP 100 SUPPLIER STUDY 2025

THE NEXT SETBACK FOR THE SUPPLIER INDUSTRY

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1 | CHALLENGES RECOGNIZED AND ACCEPTED



Dr. Alexander TimmerBerylls by AlixPartners

You hear it everywhere in the corridors of automotive suppliers: the buzzwords are the same, only the order might change slightly depending on their strategic relevance. That's right – we're talking about overcapacity, import tariffs, job cuts, and business model diversification.

The number of people employed in Germany's automotive supplier industry is declining sharply. According to current figures, the industry employs 267,000 people, i.e., 14% fewer than in 2019. The employment figures in the supplier industry thus vividly illustrate the situation facing Germany as an automotive nation. Whereas 4.9 million vehicles were still made in Germany in 2019, the figure had fallen to just 4.2 million by 2024 - a downturn of 14% - and there's no sign of a turnaround in the foreseeable future. The anticipated production site relocations by manufacturers, alongside further export restrictions, could cause automotive manufacturing in Germany to decrease by a further 20% by 2030. The already low capacity utilization of around 70% at German plants would thus be further exacerbated, with serious consequences for Germany as a business location and its supplier industry.

For this reason, structural adjustments and flexibility will remain vital for the automotive supplier sector going forward. The previously announced cuts of over 20,000 jobs in Germany are likely to be just the tip of the iceberg. In light of this development, it is

hardly surprising that suppliers are being forced to rethink their business models and corporate strategies. A growing number of companies are turning away from their original industry, making acquisitions in other sectors and thus diversifying their business model. The figures underline this trend: since 2023, the proportion of revenue generated by suppliers in the traditional automotive business has fallen by over 6%.

The good news is that the importance and far-reaching implications of the current situation were recognized early on by management teams and their boards of directors. The experience gained in dealing with the various crises that have arisen since the outbreak of the pandemic is now paying off for the supplier industry. It is difficult to predict which further challenges and unknowns the industry is likely to face in the coming months, but there is no question that they will come. The continued rigorous implementation of efficiency programs already launched, combined with an open-ended strategy debate, will determine the success or failure of automotive suppliers in dealing with these crises.

I hope you enjoy reading it, Yours

Dr. Alexander Timmer

Partner & Managing Director Bervlls by AlixPartners



Structural adjustments and flexibility will remain vital for the automotive supplier sector going forward.

2 | COST PRESSURE, MARKET UNCERTAINTIES, AND RISING DEBT LEVELS ARE DRIVING THE NEED FOR RESTRUCTURING AMONG AUTOMOTIVE SUPPLIERS



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The top 100 automotive suppliers are currently facing a challenging combination of short-term pressure and structural headwinds. The latest protectionist measures taken by the USA – particularly the increase in import tariffs on auto components and vehicles – are impacting an industry already burdened by fragile supply chains and considerable geopolitical uncertainty. At the same time, market conditions in China are becoming increasingly fierce, as international OEMs are rapidly losing ground to fast-growing, highly innovative local manufacturers.

These developments are hitting the industry at a time of financial hardship. Many suppliers have significantly increased their debt ratios in recent years, while profitability has suffered from rising input costs, high levels of investment, and declining sales volumes.

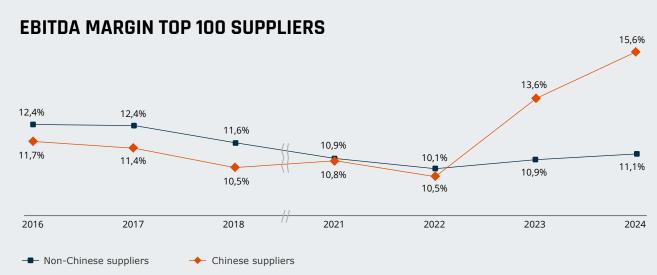
Consequently, pressure is mounting on established suppliers to adapt to the new market conditions.

Causes of the crisis

The following factors can be identified as causing the crisis:

 Technological transformation. The speed of transition toward electric vehicles varies considerably in the major markets of the USA, Europe, and China. In Europe, significantly lower sales of electric vehicles than anticipated by OEMs and suppliers are leading to overcapacity, insufficient cost coverage, and growing uncertainty with regard to planning. In China, however, the trend is completely contrary, with local OEMs and suppliers benefiting most from rising sales volumes. Other major trends such as automated driving and connected vehicles are putting pressure on suppliers due to high investment requirements, which are proving increasingly challenging to finance.

- Higher factor and cost pressure. The sharp rise in factor costs in the wake of the coronavirus pandemic and the crisis in Ukraine has led to declining margins, particularly among European suppliers, as long-term price agreements meant that only some of these increases could be passed on to OEMs. Although variable costs are now showing some signs of returning to normal, they remain above prepandemic levels.
- Geopolitical risks and volume shifts. The US government's current tariff policy poses a substantial threat to the country's automotive market due to rising vehicle prices. Tariffs on imported vehicles and automotive components will also have an impact on production volumes in Europe. Added to this are potential disruptions to supply chains between Canada, the USA, and Mexico, which will again drive up costs. These risks are hitting an industry that has already been suffering from a significantly weakened market since the coronavirus pandemic. Markets in North America and Europe have been unable to return to precrisis levels, and even China, once a guarantee of growth, remains well below its pre-pandemic position. Furthermore, upand-coming Chinese OEMs are increasingly dominating their home market. Within just a few years, these companies have managed to grow their market share from less than 50% in 2021 to around 65% in 2024 - and the trend is set to continue.
- **Growing competitive pressure.** New suppliers, particularly from China, are entering the market and setting themselves apart from their competitors with innovative technologies, shorter development times, and competitive cost structures. Chinese suppliers among the global top 100 were able to more than double their revenue between 2018 and 2024 and significantly increase their margins, while established players grew by only around 16% and recorded slightly declining margins (see Figure 1).
- Rising capital costs. Due to shrinking margins and gloomy market prospects, many financiers are reducing their lending volumes in the automotive industry, making access to financing more difficult and expensive. Significant investments in the transformation of business models combined with lower profits have led to a near doubling of the net debt ratio among established suppliers (see Figure 2). As of April 2025, over 40% of the top 100 suppliers with an S&P credit rating had a poorer credit rating than before the outbreak of the coronavirus pandemic.



N=64 Suppliers: Group key financial figures of the top 100 suppliers with published financial report financial year 2024 Source: Capital IQ, AlixPartners Analysis

Success factors for restructuring programs

There is no definitive answer to the challenges outlined above. Established suppliers are advised to develop and implement the approach that is right for them. Nonetheless, some general success factors for effective and efficient restructuring programs can be identified:

- Early recognition and acknowled-gment of the need for action. Many restructuring strategies fail because the players involved recognize crises at too late a stage and are too slow to take decisive action. Simply hoping that the market will pick up again is rarely a good plan. The causes of crises need to be openly discussed and dealt with accordingly.
- Timely involvement of key stakeholders. In times of crisis, successful restructuring requires both the support and the input of many key stakeholder groups, particularly customers, financiers, trade credit insurers, owners, and employees. Providing relevant information in a timely and transparent manner is crucial to building trust among key stakeholders.
- Companies often lack the necessary expertise when it comes to crisis management, while external stakeholders bring experienced restructuring managers on board to take the helm. At the same time, the existing management team must maintain day-to-day operations, especially during the crisis. Tried-and-tested experts, who can also be deployed in management as Chief Restructuring Officers (CROs) if necessary, can fill these gaps, relieve the pressure on management, and ensure consistent implementation.

- Strong focus on liquidity. During difficult times and acute crises, transparency regarding the available liquidity is absolutely crucial. Short-term liquidity measures are essential in order to gain the time needed to define and implement the necessary course of action. These include, for example, working capital measures, spending freezes, and CAPEX optimizations.
- Make cost structures more flexible and adaptable. For most suppliers, it is essential to optimize and streamline their cost structures, which usually involves adjustments to production capacities and the manufacturing network. The current uncertainties in the industry demand a high degree of flexibility and short response times, both within one's own organization and across the entire supply chain.
- Coherent strategy and future business model. Ensuring long-term competitiveness in a globally aggressive market environment requires a sharp focus on strategic core areas (including products, technologies, and markets). To achieve this aim, automotive suppliers need to critically examine their current business model and consistently fix, sell, or close strategically irrelevant business areas and activities.
- Systematic implementation of restructuring measures. The measures must be broad enough to restore long-term competitiveness in a sustainable manner in terms of costs, technology, and strategy. The ability to consistently and systematically implement these measures is decisive in this regard.

Particularly during prolonged crises, there is a risk that day-to-day business operations will be neglected, thus exacerbating the existing causes of the crisis. In order to regain competitiveness, both technologies and products need to be further developed. Successful sales and the acquisition of new orders are key to the long-term effectiveness of the restructuring process.

Summary

There is an overwhelming need for action and transformation. After several difficult years, the industry is now facing additional pressure to act due to changing market conditions in China, growing competition from Chinese suppliers, tougher financing conditions, geopolitical uncertainties and, last but not least, US tariff policy. It is crucial to tackle the necessary transformations and restructuring measures consistently and at an early stage. The early involvement of key stakeholders is a vital factor for success.

NET GEARING RATIO (NET DEBT / EBITDA) AND NET DEBT



N=53 Suppliers: Group financial key figures Top 100 suppliers excl. China with published financial report financial year 2024 Source: Capital IQ, AlixPartners Analysis

3 | SEISMOGRAPH INSTEAD OF BLACK BOX: HOW AGENTIC AI WILL SET NEW STANDARDS FOR STRATEGIC PLANNING AT AUTOMOTIVE SUP-PLIERS





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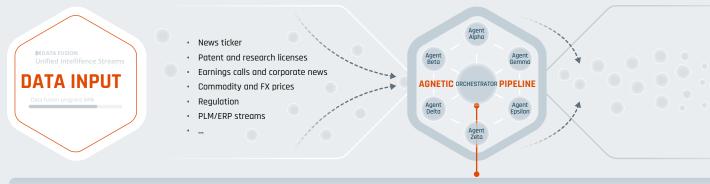
Developing strategy in the VUCA era - why act now?

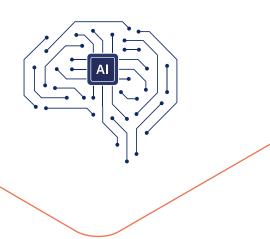
Volatility, uncertainty, complexity, ambiguity – no matter which letter of the VUCA equation you pick, the result remains the same: since the beginning of the year, strategic long-term plans for automotive manufacturers and suppliers have been overturned

faster than conventional planning cycles can respond. High **tariffs** imposed within a matter of days, the threat of bans on Chinese connectivity components due to **ICTS rules**, and geopolitical flashpoints all show that **response times** are shrinking dramatically. At the same time, however, uncertainty is growing and intensifying at **every stage of the supply chain**.

STRATEGIC AI SEISMOGRAPH BLUEPRINT

Designed for adaptation to customer-specific situations and step-by-step implementation.





For suppliers, therefore, one thing is certain: the consequences of **ignoring market signals** and long response times have never been greater. The crucial question is therefore, how can supplier strategy teams effectively scan their market environment and swiftly draw the right conclusions from a multitude of parallel developments?

Our projects and observations provide insights into a promising answer, i.e., suppliers are beginning to abandon the "traditional path" and gradually turning to the intelligence of large language models (LLMs) in the hope of **identifying changes earlier** and then **taking decisive action** to safeguard their business. When used correctly, these LLMs are capable of far more than the well-known tasks of creating text, summarizing, or generating images.

In practice, LLMs are used as "thought partners" and autonomous analysts to support strategy decision-makers. Their uses may

include answering questions on the vulnerability of one's own sales market, upcoming investment requirements, or negotiation strategies with suppliers and customers. To successfully use LLMs in questions of this nature, it is important to have high-quality models; freely available models not only lack the necessary precision, they also harbor risks when used in a business environment. Furthermore, a model needs to be controlled by the right prompt.

Equipped with the right data, questions, and users, agentic Al works with rapid feedback loops until the desired goal is achieved; it independently searches for answers, analyzes sources, fills knowledge gaps, and completes follow-up tasks. As a result, scenario analyses that would otherwise take days to complete manually can sometimes be accelerated to such an extent that a **decision recommendation** is available before the proverbial morning coffee has been made.

- Strategic (per quarter/year)
 Updates with relevance for corporate strategy
- >>> Tactical (per week/month)

 Updates on changes in the market
- Operational (daily/immediately)
 Reports on risks and acute need for action



The concept is based on strategic Al seismographs – a network of autonomous agents that continuously scan both public and proprietary data streams, quantify relevance, and report only those "shocks" that are actually relevant to a supplier's prospects of success. It is important to ensure a sound basis that enables suppliers to work successfully without becoming technologically dependent. At the same time, however, freedom for Al agents may not be seen as a blank check. Three key guidelines are therefore emerging for their practical acceptance and compliance:

- Role and rights routing: Information must be provided to the relevant decision-makers according to urgency and responsibility, not exclusively to the specialist functions that created it, which is often not standard practice.
- Gatekeepers: In the event of mixed signals or low confidence, people will continue to make the final decisions; the Al agent will initially act more as an advisor than an active participant.
- Transparency log: Every data point, prompt, and step in the decision-making process is stored in a traceable manner – auditable and compliant with audit requirements.



Decision-making speed - a new competitive factor

The tariff shock on "Liberation Day" was not an isolated incident. In future, therefore, the decisive factors will be whether the relevant data were available and whether a company was able to detect the seismic wave in good time. The vision is that forward-thinking OEMs and suppliers will collaborate with AI to shape the next generation of strategy cockpit solutions.



Suppliers are beginning to abandon the 'traditional path' and gradually turning to the intelligence of large language models. zu setzen.

4 | INDUSTRY IN TRANSITION, TALENT **GETTING LOST ALONG THE WAY?**







Dr. Carolin Köppel Berylls by AlixPartners



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The automotive supply industry is under considerable pressure, as is clearly reflected in employment trends. In 2024, the size of the workforce in Germany's supply industry fell further to around 267,000.1 In the same year, the sector announced the cutting of around 54,000 jobs across Europe, with German locations expected to be hit hardest. Strategic HR planning is particularly crucial right now, as some of the talented people urgently needed to transform the industry are also being lost.

Automotive suppliers are faced with numerous challenges, including weak demand in the e-mobility sector, high energy and raw materials costs, geopolitical risks, and fragile supply chains. Companies are responding with rigorous restructuring measures, while at the same time nearly 60 automotive suppliers in Germany filed for bankruptcy in 2024 - almost identical to the number of insolvency proceedings triggered by the coronavirus pandemic.3 Alongside the wave of redundancies, a wave of insolvencies is also emerging. Transformation is taking a back seat as companies operate in crisis mode - with drastic consequences for the workforce.

More crisis than transformation

Competing for one's own talents

Just a few years ago, automotive suppliers were competing for the best talent. Specialists with expertise in software development and artificial intelligence were particularly in demand. However, despite sustained demand, many companies currently lack the budget and prospects to retain these talented individuals. At the same time, high-growth industries such as tech and energy are an attractive proposition. The automotive supplier industry is therefore confronted with some tough choices: Who has to go and who should remain? Apart from introducing short-term cost cuts, ambidexterity is now called for, i.e., the ability to manage efficiency and innovation at the same time. It requires some farsighted HR decision-making and a clear understanding of the skills that matter both now and in the future.

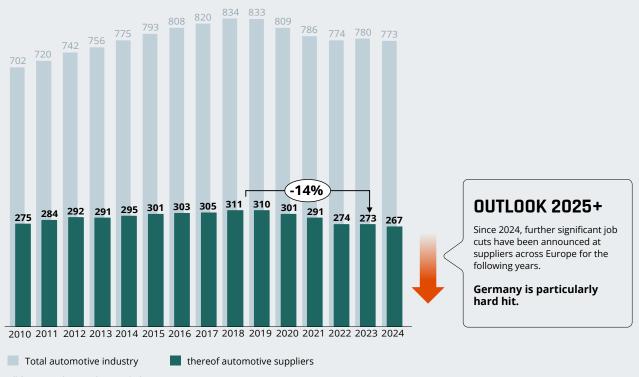
- 1) Source: Statistisches Bundesamt (March 14, 2025): Anzahl der Beschäftigten in der Automobilzulieferindustrie in Deutschland in den lahren 2005 bis 2024.
- 2) Source: European Association of Automotive Suppliers (January 15, 2025): Job losses escalate as demand stays below expectation.
- 3) Source: Statistisches Bundesamt (May 8, 2025): Insolvenzverfahren (Unternehmen nach ausgewählten Positionen - WZ08-29; WZ08-292; WZ08-293; Jahr 2024).

Identifying key talents, assigning roles effectively

The transformation requires both the steady expansion of current operations and the development of future-proof lines of business. A combination of operational excellence and innovative strength is called for. The talents needed to achieve these aims may have different profiles, but they all share key skills:

- An innovative spirit, adaptability, and initiative
- Interdisciplinary thinking and teamwork skills to deliver integrated, practical solutions
- Cultural impact and strong networking skills – driving forces of dynamism and cooperation
- Expertise in future-oriented sectors (e.g., e-mobility, software, artificial intelligence)

EMPLOYEES IN THE AUTOMOTIVE SUPPLIER INDUSTRY VS. AUTOMOTIVE INDUSTRY AS A WHOLE IN GERMANY



All figures in thousands, rounded.

Source: Analysis by Berylls by AlixPartners based on: Federal Statistical Office (March 14, 2025): Number of employees in the automotive supply industry in Germany in the years 2005 to 2024 and Number of employees in the automotive industry in Germany in the years 2005 to 2024.

How to retain 'the right people'

Recognizing these talents, deploying them in a targeted manner, and supporting them throughout the entire transformation process is a key management task. Talents stay when uncertainty decreases, which requires some concrete measures:

- Targeted leadership: Clear development paths, individual advancement opportunities, and early, transparent involvement in key strategic projects promote trust, motivation, and loyalty among employees.
- Participation models, bonus payments, or special benefits (such as research collaborations) often have a greater impact than conventional salary increases. Key talents also need to be developed for future leadership roles. This helps fill skill gaps and boosts loyalty as well as openness to future growth opportunities.
- Enable flexibility where operational capacity allows: Part-time work, working from home, and shared management responsibilities promote work-life integration. Differentiated remuneration systems and an agile corporate culture enhance the company's attractiveness as an employer

Talent retention is most likely to fail due to weak leadership (reluctance to make decisions and resolve conflicts, tolerance of low performers), a lack of consistency in terms of corporate culture, and too little financial headroom. However, those who prioritize talent retention and allocate resources intelligently can achieve great results, even under difficult conditions.

Financing talent retention

In view of the drastic cost-cutting measures, promoting talent initially seems like a contradiction. However, investing in key talent is an important means of minimizing risk and securing long-term competitiveness. Instead of blanket bonuses or standard training, it is worth developing strategically selective programs for precisely those skilled people who are crucial to creating value and driving innovation as the company moves forward. These programs can be implemented, for example, by reinvesting efficiency gains in strategic HR initiatives. Similarly, promising, goal-oriented collaborations (e.g., with universities to develop the relevant skills for future technologies) help to establish lean talent development programs. Targeted investment reduces costs in the long term regaining lost talent is usually more expensive and difficult. According to the Federal Employment Agency, the average vacancy costs in Germany in 2023 were around 49,500 euros and the average vacancy period was 138 days.4

Talent as a success factor amid pressure for efficiency and transformation

The success of automotive suppliers in the coming years will depend on their ability to boost efficiency and safeguard their future at the same time. Those who recognize, promote, and retain key people now will gain a clear advantage in the long term. So it's not just a question of who has to go – it's above all a question of who companies cannot afford to lose.

⁴⁾ Source: Bundesagentur für Arbeit (2023). Arbeitskräftenachfrage: Nachfrage sinkt vor dem Hintergrund der schwachen Wirtschaftsentwicklung merklich.



So it's not just a question of who has to go - it's above all a question of who companoes cannot afford to lose.

5 | WILL CLAIMING BECOME THE NEW BUSINESS MODEL? HOW COMMERCIAL RENEGOTIATI-ONS CAN LEAD TO SUSTAINABLE STRENGTH FOR BOTH SIDES



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Many suppliers are currently under considerable economic pressure. Operating margins, i.e. profit margins, have fallen to an unhealthy level of often less than 5% since the coronavirus pandemic. While automotive manufacturers (OEMs) were able to boost their earnings during the pandemic, suppliers are struggling with significantly higher costs. Materials prices, energy costs, and wages in particular have risen remarkably, driven by a combination of inflation and geopolitical crises such as the war in Ukraine. These factors are compounded by claims from sub-suppliers, who are also confronted with rising costs. Additional volume reductions, including in the e-models, which appeared so promising at the time, have been the proverbial last straw over the past two years.

However, products that were negotiated and priced before the crisis years (i.e. around 2020), but are only now going into series production, pose a particular challenge. Prices calculated at that time were based on economic conditions that differ from those of today. As a result, many of these products

are now highly unprofitable. Business cases that previously seemed lucrative are no longer viable at the present time.

In order to remain economically competitive, suppliers now need to take action. The first step is to systematically review profitability at the product and order level. It is not sufficient to consider overall cost-effectiveness - each individual product needs to be financially viable in its own right. Offsetting losses from one product with profits from another in a process of cross-subsidization entails major risks and is not sustainable in the long term. For this reason, all relevant corporate functions, such as sales, controlling, purchasing, quality, and production, should regularly analyze the profitability of individual products on a joint basis.

Once the causes of the margin losses have been clarified internally, these should be communicated to the OEM in a constructive and transparent manner during negotiations. Ensuring plausibility is a key factor for success in order to enter price renegotiations with the OEM well prepared and with a transparent line of argumentation. The necessary level of disclosure must always be assessed on a case-by-case basis and in line with the specific circumstances of the company.

For a structured and well-founded approach, we recommend using digital tools such as ClaimCubesM from AlixPartners. The tool provides a structured overview of the current cost situation and compares it with the original assumptions made during the nomination phase. ClaimCubesM is fed with the pricing sheets (cost breakdowns, CBDs) that were provided to the OEM when the order was placed and which form the contractual basis of the supply relationship; the tool then compares them with the actual costs at the start of series production and the actual costs at the present time. Differences in volumes are also taken into account. The analysis clearly shows where and why losses have occurred. The digital approach is particularly suitable when there are multiple items in a CBD and a wide range of products and variants.

The **ClaimCubesM** tool calculates the claim potential. When defining a so-called walk-in item, the dates agreed in the contract and the figures specified in the CBD must also be carefully taken into account. A thorough review of the contractual basis is essential in order to build a strong case.

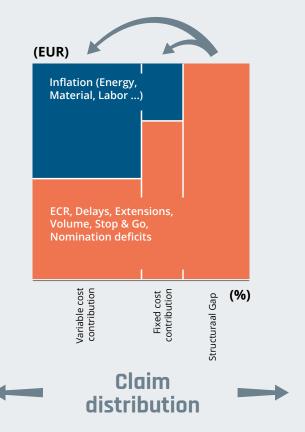
The aim of renegotiation is either to protect existing margins (e.g. by taking inflation-related cost hikes into account) or to reprice heavily loss-making products in a margin restructuring process. In many cases, there is no contractual basis to do so. The claim categories are based on the legal interpretation and logic of the part price breakdown. There are typical inflation claims (such as higher energy or wage costs), volume claims (such as lower quantities purchased than planned), and structural claims (such as incorrect assumptions, poorly negotiated change requests, or production delays).

In a concrete negotiating situation, it is important to prepare your claims toward the customer carefully and back them up with

TYPICAL CLAIM ITEMS AND THEIR SHARE IN THE TOTAL CLAIM

Margin protection

Margin restructuring



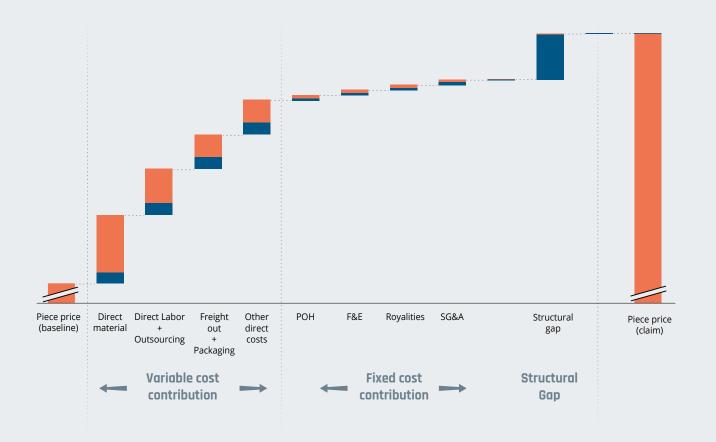
firm evidence. The information that is actually disclosed should be carefully considered from a strategic perspective. In some cases, it may be useful to submit anonymized wage statements or machine data, for example, to substantiate the additional costs. Joint workshops with the customer on site – for example, to validate cycle times or efficiency indicators – can also help to build trust in the data presented. The important thing is to provide transparency only to the extent necessary – and specifically limited to so-called key products.

If an agreement is reached, it can be documented in the form of subsequent contractual amendments. The aim is to agree new

part prices that give both OEMs and suppliers the required planning security.

For suppliers in financial difficulty, a restructuring or forward-looking strategy can be developed in collaboration with the OEM. The concept includes clearly defined milestones and regular reports to document progress in a transparent manner and ensure a sustainable turnaround.

IMAGE: TYPICAL ITEMS FOR PRESENTING ADDITIONAL COST





A clear governance structure is needed to ensure that the process runs smoothly within the company. A Chief Commercial Officer (CCO) can play a pivotal role in this process, as the person responsible for ensuring that all claims are handled in a consistent manner. The CCO is supported by a cross-functional team from Controlling, Purchasing, and Sales. Controlling should also introduce continuous margin tracking throughout the entire product life cycle in order to identify economic risks at an early stage. Purchasing also plays an important role by regularly providing current inflation data to supplement calculations.

Despite the challenges, however, recent developments also offer opportunities. The current market dynamics are compelling all those involved to rethink their processes, contracts, and pricing logic, which will result in new standards and operating rules in the medium term. Companies that adapt their business models well in advance will be able to enhance their competitiveness and emerge from the crisis stronger in the long term. At the same time, the market will undergo a process of consolidation – only economically robust and adaptable suppliers will be able to survive.

Market participants should seize this opportunity to develop a sustainable, resilient supply relationship based on a renewed spirit of partnership. .

6 | ASSESSMENT OF GERMANY AS A LOCATION FOR AUTOMOTIVE SUPPLIERS



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Germany's automotive supply industry is under pressure: production relocations, high wage and energy costs, and weak economic growth are posing a threat to Germany as a business location. Forecasts indicate declining vehicle production and a lack of political support, while international competitors are offering more attractive conditions. Suppliers need to rethink their role, while policymakers are called upon to develop long-term strategies that help foster future-oriented technologies.

Site closures and cutbacks dominate the headlines

At present, the prevailing view is almost unanimous that Germany is under considerable pressure as a location for the automotive industry, particularly for suppliers. This fact is evident in the regular announcements of production relocations, plant closures, and comprehensive cost-cutting measures at existing sites. Even family- and foundation-run enterprises that have been reluctant to take such measures in the past are now responding and implementing large-scale cost-cutting programs. This therefore raises the question as to what has caused this development, which indicators it is based on, and whether there is any sign of improvement in the medium term.

Germany's decline as a business location in figures

We are currently observing a number of indicators that have contributed to the negative trend. Germany has fallen behind in a number of respects, as various examples show. This is particularly evident in the development of gross domestic product (GDP). In 2024, the

German economy contracted by 0.2% for the second consecutive year. The forecast for 2025 is zero growth, with an increase of 1.1% expected only in 2026, which puts Germany among the lowest-ranked countries in the EU. To compare: in 2024, the US economy grew by 2.8% and predictions for the years to come are also far more positive.

However, with regard to the automotive supply industry, it is also necessary to consider specific factors influencing the location apart from general indicators such as GDP. Three main factors can be identified here, supplemented by incentive systems in other countries: relevant automotive production and therefore demand (driven in particular by domestic production figures), labor costs, and energy prices.

Historical and future development of key indicators

Figure 1 shows the projected development of vehicle production and GDP for selected automotive manufacturing locations. It is clear that Germany is in a very precarious position, with only Japan showing an even less favorable trend. Both economic growth and the develop-

ment of domestic vehicle production are weak by international standards and have deteriorated perceptibly since the beginning of 2024. Particularly noteworthy is the fact that in early 2024, forecasts for vehicle production in 2030 were still at 5.3 million units. In February 2025, however, the figure was revised downwards to 4.2 million units – a 20% decline within one year.

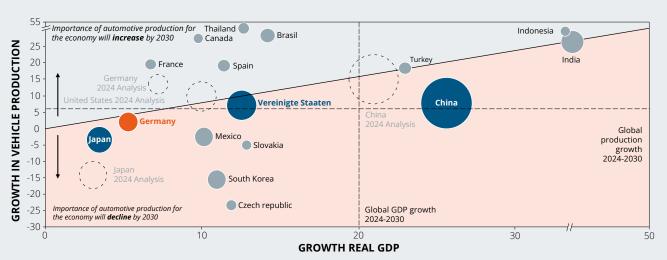
The outlook regarding energy costs is also critical. Figure 2 shows the development of these costs in an international comparison using market prices for electricity as an example. The structural differences in energy costs between Europe and the US in particular remain unchanged. Government relief mechanisms for large-scale industry, such as those introduced in some European countries, cannot permanently offset the significant price differences for

electricity and gas, above all due to the high costs involved. As over 80% of all energy consumption for auto production occurs outside OEM plants, suppliers are particularly hard hit in this regard. Moreover, wage costs are also showing an unfavorable trend. While wage rises in Germany in recent years have been in line with the EU average, the increase compared to the US has been 1.5% higher per year on average. In addition, the political debate over raising the minimum wage does not bode well for Germany as a business location.

GRAPH 1: COMPARISON OF VEHICLE NUMBERS AND GROSS DOMESTIC PRODUCT

Development of real gross domestic product and number of vehicles

Forecasts for real GDP and number of vehicles 2024-2030, cumulative in %



- O 2024 Analysis (2023-2028)
- 2025 Analysis (2024-2030)
- 1.000.000

Note: Countries with over 1 million production volumes

Source: S&P Global Mobility (Light Vehicle Production Forecast, February 2025), IMF, Berylls by AlixPartners

Continued increase in competitive pressure for Germany

Further developments in other countries are placing added pressure on Germany as a business location. Although there is currently a great deal of turmoil in international trade, tax breaks and tax cuts, for example in the US, as well as business-friendly conditions, are exacerbating the situation for Germany. The Inflation Reduction Act can be seen as a highly successful measure in this respect. Other relevant indicators include the costs generated by bureaucracy and government regulations, which continue to rise steadily in Germany. The German economy, for example, is losing out on potential savings of around 146 billion euros each year due to the failure to cut down on bureaucracy.

Consequences for Germany as a supplier location

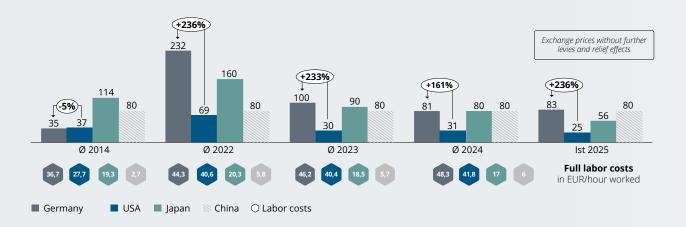
Neither is any substantial support to be expected from policymakers. The measures announced in the recent coalition agreement to support the automotive industry do not point to any significant improvements. To date, concrete, effective political initiatives are sorely lacking. The term "automotive (industry)" is only mentioned in general announcements without naming any specific measures. It can therefore be assumed that the negative trend will continue in the medium term, making a further decline in the production of supplier parts in Germany virtually inevitable.

GRAPH 2

Historical development of electricity prices and labor costs in selected markets

Electricity prices

Ø 2014 - Actual 2025 in EUR/MWh Day Ahead Base



Data points: May 2025

Note on electricity prices: Price differences possible due to different products in the individual markets. Representative region for several price zones in one country. Exchange prices without additional levies, China incl. levies but limited comparability due to regulation and no historical availability/Note Full labor costs: Labor costs refer to the average labor costs in the manufacturing industry per hour worked (employer gross). The values for China and Japan were estimated for 2024 using the respective average growth rate of labor costs since 2018.

Source: Bloomberg, JEPX, statistical publications of the countries, Berylls Strategy Advisors



Even if general conditions remain stable, stagnating or declining vehicle manufacturing figures will lead to a further reduction in output capacity. Improved conditions in terms of energy prices as well as subsidy schemes may weaken this trend, but they will not be able to prevent it. The number of automotive suppliers that have grown historically within Germany but will only retain central administrative functions here in the future is set to increase. Substantial support from the defense sector, as currently being discussed, can only be expected to a limited extent.

Need for suppliers and policymakers to take action

More than ever, suppliers have to ask themselves which functions can and should remain in Germany in the long term with regard to their current core business. Policymakers need to target their efforts on making Germany a more competitive place to do business, with a sharp focus on efficiency, effectiveness, and future-oriented technologies. Measures that merely delay the relocation of production sites by a few years should be secondary to those that make the location sustainable in the long term.

7 | THE NEXT SETBACK FOR THE SUPPLIER INDUSTRY



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After three years of recovery, the global supplier industry faced another setback in 2024. Declining vehicle production figures, sluggish electric vehicle sales, and mounting pressure on automotive manufacturers have brought the upward trend of recent years to a halt. Although many suppliers are managing to keep their margins stable, the 4.6% revenue decrease to 1,085 billion euros shows how tense the situation is. This becomes especially noticeable at the upper end of the rankings, as only one of the 20 largest supplier companies reported any growth at all in 2024.

The year marked a period of crisis for the automotive industry worldwide. At the end of 2024, 69 of the world's 100 largest automotive suppliers recorded lower revenue in their annual financial statements. Overall, the revenue of the Top 100 companies fell by 4.6% from 1,135 billion euros to 1,085 billion euros, ending the post-coronavirus growth phase that had recently seen new records set every year. The main reason for the difficulties faced by automotive suppliers is the lack of revenue generated by their customers. As a result, the ten largest OEMs also recorded a revenue downturn in 2024. Their total revenue fell from 1,770 billion euros to 1,731 billion euros, a drop of 2.2%. Above all, the lack of demand for electric vehicles led to revenue shortfalls right along the supply chain. Whereas battery manufacturers had consistently posted the highest growth rates in recent years, they trailed behind in 2024 with revenue declines of 12.7% (CATL), 28.3%

(LG), and 41.5% (Samsung SDI). The situation is also highlighted by looking at the Top 100 companies excluding battery manufacturers, which showed a downswing of only 3.1% instead of 4.6%.

A year-on-year comparison of the revenueweighted margin shows only a slight drop from 5.9% to 5.8%, which is more than remarkable given the significant decrease in revenue and demonstrates the effectiveness of the cost-cutting measures implemented. While many companies actually managed to expand their margins, around half saw them fall year on year. The front-runners of recent years (from the semiconductor industry) in particular showed signs of weakness in 2024. The Top 10 OEMs also saw their margins come under pressure. While the revenue-weighted margin was still at 8.5% in 2023, it fell by 20% to 6.8% in 2024. This presented a very mixed picture among OEMs: at VW, the margin fell by 16.2%, at BMW by 32.0%, at Mercedes by 27.6%, and at Stellantis by as much as 80.1%. GM and Honda, on the other hand, were able to increase their margins by 26.0% and 14.7% respectively.

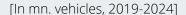
Altogether, three trends defined the year 2024 for the automotive industry: a slump in demand for electric vehicles, poor financial performance by the former front-runners in batteries and semiconductors, and the extremely fraught financial situation among automotive manufacturers, particularly in Germany.

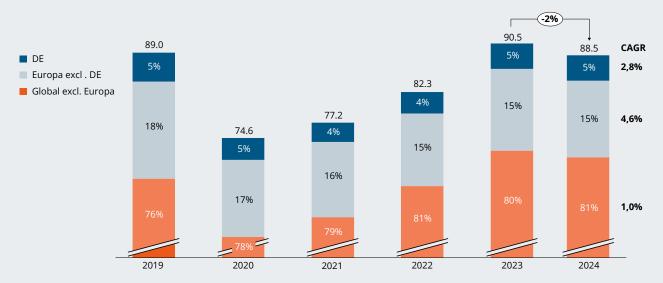
Moreover, international competition intensified, driven by a combination of lower-cost production sites and protectionist trends. European suppliers in particular were under twofold pressure, as falling demand in the domestic market was compounded by structurally weaker local conditions. .

Declining vehicle production and economic uncertainty puts pressure on suppliers worldwide – Europe especially hard hit

The year 2024 was a difficult one for the automotive industry worldwide, with a palpable effect on OEMs and suppliers alike. This was particularly evident in the lower vehicle production figures, which decreased globally by 2.2% from 90.5 to 88.5 million units. Europe was particularly impacted by the downturn. Overall, 5% fewer vehicles were produced on the continent year on year, equivalent to the pre-pandemic level of 2019. The three largest German OEMs, i.e., Volkswagen, BMW, and Mercedes-Benz, also suffered an overall production decline of around 4.7% worldwide.

ANNUAL VEHICLE PRODUCTION OF OEMS BY REGION





Source: S&P Mobility

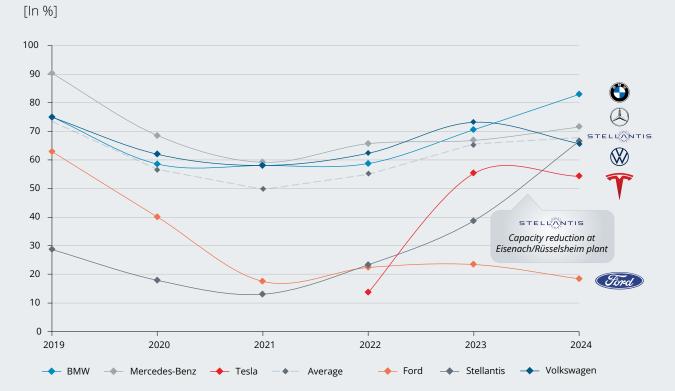
However, this drop in production volumes merely masks a deeper structural problem, i.e. the underutilization of manufacturing capacity. In Germany, average plant capacity utilization in 2024 was only 68% – well below the threshold of around 85% considered economically viable. To compare: prior to the coronavirus pandemic in 2019, capacity utilization still stood at 73%. Ongoing pressure on production volumes is forcing both OEMs and suppliers to fundamentally rethink their site and manufacturing strategies, as factor costs are rising due to low capacity utilization, thus intensifying competition.

These structural challenges are also reflected in the economic performance of suppliers, particularly in Europe. Of the 34 European suppliers in the Top 100 ranking, 27 reported a year-on-year revenue decline. Nonetheless, the average contraction of around 1.5% was far more moderate than the global average decline of 4.6%.

An international comparison also shows that suppliers in traditional automotive manufacturing nations are struggling considerably to adapt. Between 2019 and 2024, Japan, the US, and Germany recorded the greatest losses of companies in the Top 100 ranking -Japan lost five, while the US and Germany each lost three listed suppliers. Although Germany's GDP has grown by 19% since 2019, the country's suppliers have been unable to reflect this growth to the same extent, as their cumulative revenue growth was only 8%. This is a clear indication that the traditional strength of German suppliers in global competition is coming under increasing pressure.

The situation in Japan is even more serious, where nominal GDP fell by 20% between 2019 and 2024. The revenue share of the Top 100 suppliers based in Japan fell by 7% during the same period. These figures illustrate how deeply the Japanese supplier industry has been impacted by economic sta-

CAPACITY UTILIZATION OF GERMAN OFM PLANTS



Source: S&P Global Mobility LV Produktion (11/24), Inovev, Berylls by AlixPartners Analyse



gnation and structural challenges. In a shrinking economic environment, companies have only a limited amount of scope to take countermeasures.

In the US, on the other hand, GDP grew by an impressive 35% between 2019 and 2024, although here too, suppliers were unable to keep pace. The revenue share of the country's automotive suppliers rose by only 15%. This gap between overall economic growth and the performance of the supplier sector shows that the automotive industry is no longer an economic driver in many countries. It also points to structural problems such as tougher international competition, particularly from Asian rivals, and the accelerated pace of technological change in the global automotive market.

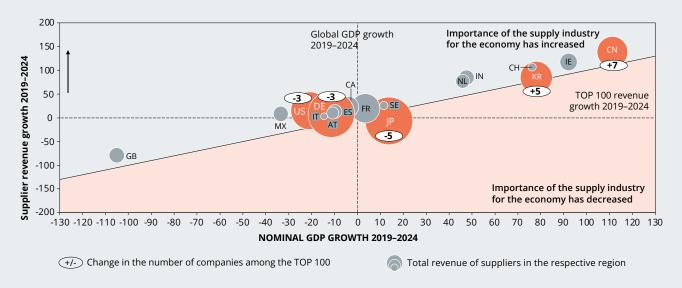
However, the picture is different in countries that have managed to better position their suppliers. In Korea, China, France, Ireland, Sweden, Spain, India, Switzerland, and the Netherlands, revenue among the Top 100 suppliers grew faster than GDP between 2019 and 2024. These countries benefit greatly from their specialization in high-growth technology sectors and from consistent industrial policies that promote innovation and internationalization. Prominent companies include Autoliv from Sweden, Aptiv and Adient based in Ireland, NXP Semiconductors from the Netherlands, and Motherson in India.

China stands out in particular. While only three new Chinese suppliers were listed in the global Top 100 ranking between 2018 and 2023, four new companies were added in 2024 alone. These are Huizhou Desay, a supplier of cockpit electronics and infotainment systems; Ningbo Tuopu, which specializes in chassis and NVH components; Huawei, a technology group that is particularly active in the automotive sector with connectivity and software solutions; and NBHX, an interior equipment and decorative components group. These recent additions have contributed greatly to Chinese Top 100 suppliers surpassing their national GDP growth of 27% between 2019 and 2024, with a remarkable 139% jump in revenue. Their rapid rise underlines the dynamism of the Chinese automotive industry and the growing influence of Chinese technology companies at a global level.

Overall, it is evident that the lower volume of vehicle production and the sluggish economic climate are weighing heavily on large parts of the global supplier industry, particularly in the traditional European automotive manufacturing countries and Japan. While Japan and Germany still occupy the top two rankings in terms of revenue, their lead over Chinese suppliers is rapidly shrinking. At the same time, new fields of technology and high-growth regions are opening up opportunities for those suppliers who have focused early on innovation, specialization, and global presence.

DEVELOPMENT OF TOP 100 REVENUE AND NOMINAL GROSS DO-MESTIC PRODUCT PER COUNTRY

[cumulative in %, 2019-2024]



DEFERRED FINE PAYMENTS AND DELAYED BEV PROGRAMS PROVIDE BREATHING SPACE - BUT NO PLANNING SECURITY

The postponed payment of fines originally due for 2025 by three years as part of the EU's "Fit for 55" initiative will have come as a considerable relief to many boardrooms. The ruling, which would have imposed heavy fines on manufacturers for exceeding fleet CO₂ limits, would have been an extremely tough test for high-volume manufacturers. Based on current estimates, Volkswagen

would have had to pay the largest fine of some 1.92 billion euros, followed by Stellantis with 1.09 billion euros, and Ford with 749 million euros. BMW and Mercedes show that a different approach is possible, as the fleet emissions of both premium manufacturers are below the future limits and would have been exempt from sanctions even if the timetable had remained unchanged.

SELECTED OEMS: EXPECTED EU EMISSIONS FINE PAYMENTS IN 2025 FINE IN MILLIONS OF EUROS [Fine in €mn.]

OEM POOL	FINE (IN € MILLION)
BMW	-
Ford	749
Hyundai	241
Mercedes	-
Renault	237
Stellantis	1.092
Toyota	524
vw	1.920
	Total

However, despite this regulatory reprieve, pressure on the industry remains high - particularly in view of the slow ramp-up of electric mobility. Project delays in the BEV segment are increasing significantly and causing more operational uncertainty. Of the 26 allelectric vehicle programs offered by German OEMs in the ranking that were originally scheduled to launch between January 2024 and December 2025, 88% had already been postponed to early 2025. The average delay has more than quadrupled to 245 days, compared to 53 days at the end of 2023. One particularly prominent example is the Volkswagen ID.2, whose SOP at the Martorell plant has now been postponed from October 2025 to June 2026.

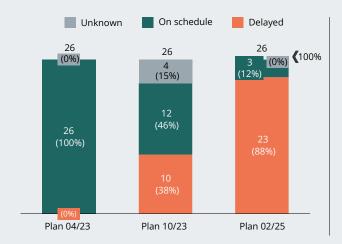
For automotive suppliers, delays of this kind are far more than just an operational inconvenience. They result in delayed call-offs of production volumes, postponed cash flows, and major planning uncertainty for investments in tools, production equipment, and capacities. Medium-sized suppliers in particular, operating in an environment of rising interest rates, tight budgets, and restrictive lending, are thus coming under increasing pressure. Although the deferred payment of fines will give the industry some financial breathing space in the short term, the structural challenges involved in the transformation process remain.

BEV SOP DELAYS

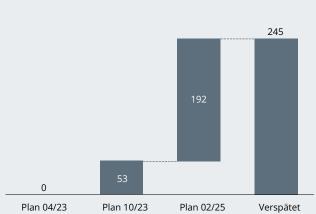
TOP 3 GERMAN OEMS: BEV PROGRAMS WITH AN SOP

BETWEEN 2024 AND 20251

Number of programs, (% of programs)



TOP 3 GERMANS OEMS: AVERAGE DELAY OF BEV PROGRAMS WITH SOP BETWEEN 2024 AND 2025¹ Delay in days



¹⁾ Only programs with SOP date in 2024 and 2025 (as of 04/2023) and only programs with complete data in 04/2023 and 02/2025. Matching of dates versus planned SOP from S&P mobility from 04/2023

Source: S&P global mobility LV production (02/25), (10/23), (04/23); Only programs with SOP date in 2024 and 2025 (as of 04/2023) and only programs with complete data in 04/2023 and 02/2025

TENSION EASES ON PRODUCER PRICES - COMPETITIVE PRESSURE GROWS

Producer prices, on the other hand, are showing a positive trend. In Germany, the US, and China, prices for key production factors such as electricity, natural gas, steel, and aluminum fell significantly, providing some short-term relief in the cost structures of manufacturing companies. The fall in gas prices was particularly pronounced in the US, while electricity and base metals became cheaper in Germany.

However, the cost trend also has a downside, as China is benefiting greatly from lower input costs and thus becoming a more attractive production location. Furthermore, Chinese suppliers are increasingly exploiting their favorable cost structure aggressively on global markets, particularly in the fields of electric mobility and battery technology. The outcome is tougher price competition, placing European suppliers under even greater pressure.



EVOLUTION OF PRODUCER PRICES SINCE 2021 [in %]

After a strong increase in 2022, the producer prices decreased in Germany, China and the USA in 2023 and 2024. For Germany, the level of producer prices is still significantly above 2021.



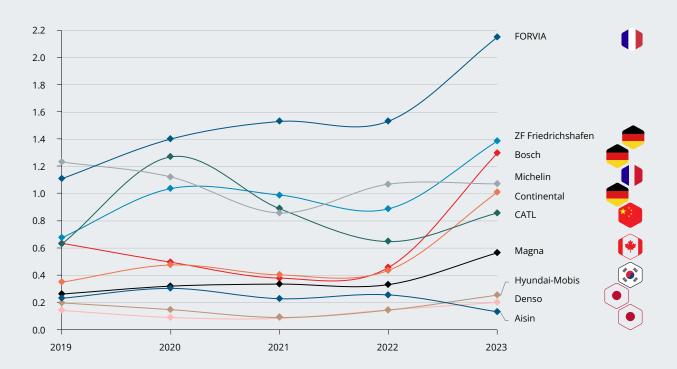
HIGH INTEREST EXPENSES, VOLATILE CURRENCIES, AND AGGRESSIVE RESTRUCTURING ARE PUTTING EUROPEAN SUPPLIERS TO THE TEST



A key factor in the poor profitability of many German suppliers is the considerable rise in interest expenses in their domestic market. While the debt ratio of the Top 10 automotive suppliers remained stable overall between 2019 and 2024, with no structurally higher debt apparent, there are significant differences in interest expenses. At Bosch, Continental, and ZF, interest expenses have more than doubled since 2019 and now account for over 1% of revenue – a high figure by international standards. To compare: the

Asian competitors Aisin, Denso, and Hyundai Mobis have average interest expenses of only 0.2% of revenue, despite recording double-digit growth rates in some cases. Within the Top 10, only French suppliers FORVIA (2.2%) and Michelin (1.1%) reported figures either higher than or similar to their German counterparts. The increased cost of capital is limiting investment headroom, particularly in an environment where spending on transformation would be a necessity.

INTEREST EXPENSES IN RELATION TO REVENUE [in %]



Source: Company statements, Berylls by AlixPartners analysis

In addition to the pressure from high interest rates, exchange rate fluctuations are also affecting the strategic positioning of suppliers, albeit with a time lag. The euro lost value against the Chinese yuan, making Chinese suppliers more competitive on the global market.

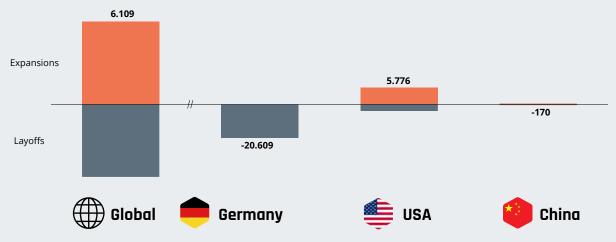
In this already tense environment, many companies have resorted to restructuring measures to reduce their cost base and boost operational efficiency. The question of whether the job cuts and performance programs initiated at the end of 2023 are already having an effect can only be answered to a limited extent. Although the number of people employed by the Top 100 suppliers rose by more than 6,000 in total in 2024, the growth hides significant regional differences. In the US, net growth of over 5,700 jobs was announced, most likely attributable, among other things, to protectionist measures such as punitive tariffs and a nationally focused industrial policy. Companies are increasing their production capacities there in order to adapt to new trade conditions.

However, the situation in Germany is quite different. Over 20,000 job losses have been announced, with almost 17,000 of these due to plant closures – for example at ZF, which alone intends to lay off 14,000 employees in

Germany. Alongside other German companies such as Bosch and Continental, foreign companies are also shedding jobs at their German branches. Adient, Michelin, and Toyo Tire Corp., for example, plan to lay off around 1,600 workers in total, which led to an overall drop in employment of around 2%. One of the reasons is that plants are operating at an average capacity 5% lower than prior to the coronavirus pandemic. To optimize their cost base, many companies are opting for significantly tighter schedules in their performance programs, with the aim of completing their restructuring measures within around 18 months. However, it remains to be seen whether these ambitious targets can actually be met in practice. Especially in Germany, stringent labor laws and strong employee representation make rapid implementation a challenging prospect. .

The market in India is a positive offsetting factor for developments in Europe, as more than 11,000 new jobs were created there during the same period. Companies such as ZF, Michelin, Renesas, Panasonic, and Borg-Warner are investing heavily in local production facilities, emphasizing India's growing importance as a cost-effective and strategically relevant manufacturing location for the global supplier industry.

ANNOUNCED STAFF EXPANSIONS AND LAYOFFS AT THE TOP 100 SUPPLIERS BY SPECIFIC LOCATIONS [In FTEs, 2024]



STRATEGIC DIVERSIFICATION - NONAUTOMOTIVE GAINS IMPORTANCE

In the face of contracting margins and stagnating sales markets, many suppliers are focusing on strategic diversification. The share of revenue generated outside the core automotive business rose to 17.5% in 2024, up from 16.8% in the previous year. Future-oriented industries with steady demand and high technological integration are particularly sought after.

The preferred target sectors are heating and air conditioning, industrial automation and robotics, medical technology, and sustainable construction methods. The expansion is frequently achieved via acquisitions, here are two prime examples from the Top 100:

Bosch acquired Johnson Controls' heating and air conditioning business for 7.4 billion euros – the largest takeover in the company's history. Saint-Gobain is expanding its portfolio with the acquisition of Australian construction materials manufacturer CSR for 2.7 billion euros.

The strategic message is loud and clear: suppliers not only want to, but need to, become less dependent on the traditional automotive market. In an environment where production volumes fluctuate and technology paths are uncertain, resilience is best achieved through diversification.

OUTLOOK: TRANSFORMATION CALLS FOR ADAPTABILITY

2024 was a challenging year that once again demonstrated how sensitive the supplier industry is to external shocks. However, it also revealed how great the differences between business models are and how strong the dependence on technological developments such as the transformation to e-mobility is.

No fundamental easing of the situation is expected for 2025. Electric mobility will continue to develop, but the breakthrough (such as by achieving ultra-fast charging with cycles of less than 5 minutes) will be a long time coming. At the same time, the overall environment remains challenging, with geopoliti-

cal tensions, growing protectionism, increasing financing costs, and global competition for technological leadership and talent.

Suppliers who proactively adapt their strategy now, diversify their portfolios, and expand their regional presence will be among the winners. In an environment that is becoming increasingly unforgiving, adaptability is becoming the most important asset. The automotive suppliers of the future will not be distinguished by their size or tradition, but by their agility, technological relevance, and ability to make resilient decisions in uncertain times.

TOP 100 SUPPLIER RANKING

As of May 30, 2025

		Rar					venue					Profitabilit	•		
Company	Country	2024	2023	Δ	2024	2023	∆ absolute	Δ relative	Type	2024 in €	2024 in %	2023 in €	2023 in %	Δ	Note
Bosch	DE	1	1	0	55.795	56.167	-372	-0,7%	EBIT	2.041	3,7%	2.380	4,2%	-0,6%	A, 1, AU
Denso	JP	2	2	0	42.522	45.714	-3.192	-7,0%	OI	3.263	7,7%	2.545	5,6%	2,1%	B, 2, AU
Continental	DE	3	5	2	39.719	41.421	-1.702	-4,1%	EBIT	2.287	5,8%	1.854	4,5%	1,3%	B, 1, GU
Magna	CA	4	6	2	39.575	39.579	-4	0,0%	EBIT	2.152	5,4%	2.070	5,2%	0,2%	A, 1, GU
Hyundai Mobis	KR	5	4	-1	38.794	41.939	-3.144	-7,5%	OI	2.083	5,4%	1.625	3,9%	1,5%	A, 1, GU
ZF Friedrichshafen	DE	6	3	-3	38.097	42.897	-4.800	-11,2%	EBIT	192	0,5%	1.385	3,2%	-2,7%	B, 1, AU
CATL	CN	7	7	0	32.493	37.239	-4.746	-12,7%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 1, AU
Aisin	JP	8	8	0	28.442	31.478	-3.037	-9,6%	OI	1.011	3,6%	797	2,5%	1,0%	B, 2, AU
Michelin	FR	9	9	0	27.193	28.343	-1.150	-4,1%	OI	2.631	9,7%	2.652	9,4%	0,3%	B, 1, GU
FORVIA	FR	10	10	0	26.974	27.248	-274	-1,0%	OI	1.400	5,2%	1.439	5,3%	-0,1%	B, 1, GU
Cummins	US	11	11	0	22.960	26.665	-3.705	-13,9%	EBIT	2.285	10,0%	2.982	11,2%	-1,2%	B, 1, AU
HASCO	CN	12	14	2	21.682	22.010	-327	-1,5%	OI	1.055	4,9%	1.151	5,2%	-0,4%	B, 1, GU
Lear	US	13	15	2	21.532	21.702	-171	-0,8%	EBIT	1.013	4,7%	1.036	4,8%	-0,1%	A, 1, GU
Valeo	FR	14	13	-1	21.492	22.044	-552	-2,5%	OI	919	4,3%	838	3,8%	0,5%	B, 1, GU
Bridgestone	JP	15	12	-3	21.414	22.396	-982	-4,4%	OI	2.076	9,7%	2.174	9,7%	0,0%	B, 1, AU
Schaeffler	DE	16	29	13	19.651	12.025	7.626	63,4%	EBIT	-/-	-/-	567	4,7%	-/-	B, 1, AU
Aptiv	IE	17	16	-1	18.212	18.543	-331	-1,8%	OI	1.702	9,3%	1.442	7,8%	1,6%	B, 1, GU
Tenneco	US	18	18	0	17.381	18.067	-686	-3,8%	K.A.	-/-	-/-	-/-	-/-	-/-	D, 1, GU
Goodyear	US	19	17	-2	16.975	18.125	-1.150	-6,3%	OI	1.218	7,2%	895	4,9%	2,2%	B, 1, AU
Sumitomo Electric	JP	20	19	-1	16.495	16.562	-67	-0,4%	OI	1.001	6,1%	913	5,5%	0,6%	B, 2, AU
Adient	IE	21	22	1	13.417	14.201	-784	-5,5%	EBIT	300	2,2%	481	3,4%	-1,1%	B, 2, GU
Yazaki	JP	22	25	3	13.174	12.932	242	1,9%	K.A.	-/-	-/-	-/-	-/-	-/-	A, 4, AU
BorgWarner	US	23	24	1	13.014	13.130	-117	-0,9%	OI	504	3,9%	1.073	8,2%	-4,3%	B, 1, GU
Astemo	JP	24	23	-1	12.746	13.788	-1.042	-7,6%	K.A.	-/-	-/-	-/-	-/-	-/-	D, 2, AU
Panasonic	JP	25	20	-5	12.439	16.211	-3.772	-23,3%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 2, AU
Motherson Group	IN	26	33	7	12.051	10.365	1.686	16,3%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 1, AU
Gestamp	ES	27	28	1	12.001	12.274	-273	-2,2%	OI	582	4,9%	680	5,5%	-0,7%	B, 1, GU
Toyota Boshoku	JP	28	27	-1	11.774	12.541	-767	-6,1%	OI	329	2,8%	630	5,0%	-2,2%	B, 2, GU
Mahle	DE	29	26	-3	11.681	12.818	-1.137	-8,9%	EBIT	423	3,6%	304	2,4%	1,2%	B, 1, GU
OP Mobility	FR	30	30	0	11.647	11.399	248	2,2%	OI	440	3,8%	395	3,5%	0,3%	B, 1, GU
LG Energy Solution	KR	31	21	-10	11.030	15.391	-4.360	-28,3%	OI	-563	-5,1%	511	3,3%	-8,4%	B, 1, AU
Marelli	IT	32	31	-1	10.488	10.573	-85	-0,8%	K.A.	-/-	-/-	-/-	-/-	-/-	D, 1, GU
Weichai Power	CN	33	32	-1	9.894	10.562	-668	-6,3%	OI	1.312	13,3%	1.046	9,9%	3,4%	B, 1, AU
Autoliv	SE	34	35	1	9.599	9.687	-88	-0,9%	OI	904	9,4%	638	6,6%	2,8%	B, 1, GU
SK on	KR	35	38	3	9.512	9.128	384	4,2%	OI	-736	-7,7%	-412	-4,5%	-3,2%	B, 1, GU
Dana	US	36	34	-2	9.501	9.761	-260	-2,7%	EBIT	209	2,2%	292	3,0%	-0,8%	B, 1, GU
Clarios	US	37	39	2	9.303	9.050	253	2,8%	K.A.	-/-	-/-	-/-	-/-	-/-	E, 3, AU
ВНАР	CN	38	42	4	8.989	8.525	464	5,4%	K.A.	-/-	-/-	-/-	-/-	-/-	E, 1, GU
TE Connectivity	CH	39	54	-3	5.639	6.537	-897	-13,7%	OI	-/-	-/-	2.075	31,7%	2,6%	A, 1, AU
Infineon	DE	40	43	3	8.257	8.455	-198	-2,3%	OI	1.964	23,8%	2.412	28,5%	-4,7%	B, 2, AU
Flex-N-Gate	US	41	45	4	8.222	7.676	547	7,1%	K.A.	-/-	-/-	-/-	-/-	-/-	D, 1, GU
Brose	DE	42	44	2	7.700	7.900	-200	-2,5%	K.A.	-/-	-/-	-/-	-/-	-/-	E, 1, GU
JTEKT	JP	43	41	-2	7.566	8.673	-1.108	-12,8%	OI	149	2,0%	391	4,5%	-2,5%	D, 4, AU
Benteler	AT	44	46	2	7.368	7.331	37	0,5%	EBIT	251	3,4%	249	3,4%	0,0%	B, 1, AU
Thyssenkrupp Automotive	DE	45	65	20	7.342	5.458	1.884	34,5%	EBIT	182	2,5%	234	4,3%	-1,8%	B, 2, AU
LG Electronics	KR	46	48	2	7.198	7.182	16	0,2%	OI	78	1,1%	94	1,3%	-0,2%	B, 1, AU
Joyson	CN	47	47	0	7.173	7.275	-102	-1,4%	OI	257	3,6%	231	3,2%	0,4%	B, 1, GU
Hanon Systems	KR	48	51	3	6.777	6.766	12	0,2%	OI	65	1,0%	196	2,9%	-1,9%	B, 1, GU
Pirelli	IT	49	52	3	6.773	6.650	123	1,9%	EBIT	903	13,3%	808	12,2%	1,2%	A, 1, GU
NXP Semiconductors	NL	50	49	-1	6.607	6.921	-315	-4,5%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 1, AU
Sumitomo Rubber Ind.	JP	51	53	2	6.386	6.631	-245	-3,7%	OI	465	7,3%	418	6,3%	1,0%	B, 1, AU
Hankook Tires	KR	52	56	4	6.379	6.327	52	0,8%	OI	1.194	18,7%	940	14,9%	3,9%	B, 1, GU
Toyoda Gosei	JP	53	50	-3	6.303	6.798	-495	-7,3%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 2, AU
HL mando	KR	54	59	5	5.997	5.940	57	1,0%	OI	243	4,1%	198	3,3%	0,7%	B, 1, GU
Mitsubishi Electric	JP	55	58	3	5.710	6.031	-321	-5,3%	OI	249	4,4%	-33	-0,5%	4,9%	B, 2, AU
American Axle	US	56	61	5	5.659	5.622	36	0,6%	OI	223	3,9%	136	2,4%	1,5%	B, 1, GU
ST Microelectronics	CH	57	40	1	8.562	8.973	-410	-4,6%	OI	1.677	19,6%	1.523	17,0%	-/-	B, 2, AU
Koito Manufacturing	JP	58	57	-1	5.557	6.212	-655	-10,5%	OI	229	4,1%	416	6,7%	-2,6%	B, 2, GU
	-														



	Rank				Revenue			Profitability							
Company	Country	2024	2023	Δ	2024	2023	Δ absolute	Δ relative	Туре	2024 in €	2024 in %	2023 in €	2023 in %	Δ	Note
Samsung SDI	KR	59	36	-23	5.547	9.483	-3.936	-41,5%	OI	61	1,1%	677	7,1%	-6,0%	B, 1, AU
Harman	US	60	60	0	5.508	5.805	-297	-5,1%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 1, AU
Dräxlmaier	DE	61	62	1	5.500	5.600	-100	-1,8%	K.A.	-/-	-/-	-/-	-/-	-/-	E, 1, GU
Citic Dicastal	CN	62	67	5	5.491	5.336	154	2,9%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 1, GU
Eberspächer	DE	63	55	-8	5.333	6.349	-1.016	-16,0%	EBIT	114	2,1%	58	0,9%	1,2%	C, 1, GU
Hyundai WIA	KR	64	64	0	5.311	5.484	-173	-3,2%	OI	130	2,4%	155	2,8%	-0,4%	B, 1, AU
Texas Instruments	US	65	63	-2	5.058	5.509	-451	-8,2%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 1, AU
Linamar	CA	66	70	4	5.053	4.856	197	4,0%	EBIT	15	0,3%	215	4,4%	-4,1%	C, 1, AU
ZC Rubber	CN	67	78	11	5.041	4.602	439	9,5%	OI	503	10,0%	351	7,6%	2,4	B, 1, GU
Fuyao	CN	68	79	11	5.040	4.329	711	16,4%	OI	1.068	21,2%	833	19,2%	1,9	B, 1, GU
Leoni	DE	69	71	2	4.980	4.657	323	6,9%	K.A.	-/-	-/-	-/-	-/-	-/-	D, 1, AU
Dowlais	GB	70	66	-4	4.910	5.364	-454	-8,5%	OI	19	0,4%	-346	-6,5%	6,8%	B, 1, AU
Freudenberg	DE	71	68	-3	4.909	4.998	-89	-1,8%	OI	-/-	-/-	-/-	-/-	-/-	B, 1, AU
Alps Alpine	JP	72	69	-3	4.566	4.971	-405	-8,1%	OI	63	1,4%	54	1,1%	0,3	B, 2, AU
Nemak	MX	73	72	-1	4.533	4.618	-84	-1,8%	OI	134	3,0%	163	3,5%	-0,6%	B, 1, GU
Webasto	DE	74	74	0	4.300	4.600	-300	-6,5%	EBIT	-/-	-/-	20	0,4%	-/-	A, 1, GU
Renesas	JP	75	76	1	4.289	4.573	-284	-6,2%	OI	1.358	31,7%	1.571	34,3%	-2,7%	B, 1, AU
NTN	JP	76	77	1	4.262	4.560	-299	-6,6%	OI	-/-	-/-	115	2,5%	-/-	B, 2, AU
Yokohama Rubber	JP	77	80	3	4.208	4.204	4	0,1%	OI	608	14,5%	478	11,4%	3,1%	B, 1, AU
Grupo Antolin	ES	78	73	-5	4.191	4.617	-426	-9,2%	EBIT	80	1,9%	93	2,0%	-0,1%	B, 1, GU
Jabil	US	79	Neu	Neu	4.169	4.089	80	2,0%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 4, AU
Sailun	CN	80	97	17	4.084	3.391	692	20,4%	OI	604	14,8%	459	13,5%	1,3%	B, 1, GU
CIE-Automotive	ES	81	85	4	3.961	3.960	1	0,0%	EBIT	538	13,6%	528	13,3%	0,3%	B, 1, GU
Nexteer Automotive	US	82	86	4	3.951	3.890	60	1,5%	OI	106	2,7%	57	1,5%	1,2%	B, 1, GU
Futaba Industrial	JP	83	75	-8	3.946	4.577	-631	-13,8%	OI	73	1,8%	121	2,6%	-0,8%	B, 2, AU
Knorr-Bremse	DE	84	81	-3	3.842	4.180	-338	-8,1%	EBIT	350	9,1%	398	9,5%	-0,4%	B, 1, AU
Brembo	IT	85	87	2	3.841	3.849	-9	-0,2%	EBIT	393	10,2%	414	10,8%	-0,5%	B, 1, GU
Mann + Hummel	DE	86	83	-3	3.839	4.047	-208	-5,1%	K.A.	-/-	-/-	-/-	-/-	-/-	D, 1, AU
Tokai Rika	JP	87	82	-5	3.711	4.076	-364	-8,9%	OI	142	3,8%	280	6,9%	-3,0%	B, 2, GU
Saint-Gobain	FR	88	89	1	3.633	3.692	-59	-1,6%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 1, AU
Onsemi	US	89	84	-5	3.604	3.969	-365	-9,2%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 1, AU
Visteon	US	90	91	1	3.572	3.657	-85	-2,3%	EBIT	273	7,7%	244	6,7%	1,0%	A, 1, GU
Flex	US	91	98	7	3.567	3.360	208	6,2%	OI	-/-	-/-	161	4,8%	-/-	B, 2, AU
Huizhou Desay SV	CN	92	Neu	Neu	3.546	2.860	686	24,0%	OI	270	7,6%	201	7,0%	0,6%	B, 1, GU
Sumitomo Riko	JP	93	93	0	3.483	3.598	-115	-3,2%	OI	242	6,9%	232	6,4%	0,5	B, 2, AU
Toyo Tire	JP	94	92	-2	3.450	3.637	-187	-5,1%	OI	574	16,6%	506	13,9%	2,7%	B, 1, GU
Jatco	JP	95	Neu	Neu	3.435	3.709	-274	-7,4%	OI	-/-	-/-	91	2,5%	-/-	D, 3, GU
Ningbo Tuopu	CN	96	Neu	Neu	3.416	2.572	844	32,8%	OI	439	12,9%	323	12,6%	0,3%	B, 1, GU
Huawei	CN	97	Neu	Neu	3.384	599	2.785	465,0%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 1, AU
Martinrea International	CA	98	90	-8	3.383	3.659	-276	-7,5%	OI	84	2,5%	184	5,0%	-2,6%	B, 1, GU
NBHX Group	CN	99	Neu	Neu	3.380	3.017	363	12,0%	OI	200	5,9%	229	7,6%	-1,7%	B, 1, GU
SL Corporation	KR	100	96	-4	3.371	3.425	-54	-1,6%	OI	268	7,9%	273	8.0%	0,0%	B, 1, GU

A = press release B = annual or financial report C = corporate outlook D = own outlook E = website

AU = only automotive GU = Complete company

1 = calendar year 2 = conversion of fiscal year to calendar year 3= Fiscal year 4 = approximation of fiscal year to calendar year

Note: without OEM's own suppliers (e.g. Hyundai-Transys) and suppliers of raw materials and semi-finished products (e.g. BASF, Arcelor-Mittal); growth partially inorganic via M&A activities

CONVERSION RATES:

1 Euro	0,9239 USD	1,1812 GBP	0,0061 JPY	0,0007 KRW	0,1284 CNY		
0,0875 SEK	1,0498 CHF	0,1716 BRL	0,0110 INR	0,0504 MXN	0,6747 CAD		

9 | FAMILY- AND FOUNDATION-OWNED COMPANIES: A RECIPE FOR SUCCESS OR MORE SUSCEPTIBLE TO CRISES?





Dr. Jürgen Simon Ch Berylls by AlixPartners Be



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Family- and foundation-owned companies characterize the German automotive supply industry like no other form of enterprise. They are considered the firm backbone of Germany's medium-sized industrial companies, with a long tradition, closely knit customer relationships, and a high degree of technological expertise. However, in the current transitional phase of the industry, it is becoming apparent that the merits of the conventional family-managed model are increasingly being called into question. Between long-term thinking and growing pressure to adapt, the question arises: is the successful family business model still viable today, or is it becoming a strategic liability?

Yes to growth - but at what price?

At first glance, family-run companies look impressive with their striking growth figures. Between 2013 and 2024¹, they increased their revenue by an average of 7.3% per annum – significantly more than their non-family-run competitors (+2.6%) or the Top 100 (+4.3%). They have also proven remarkably resilient in times of crisis, such as during the

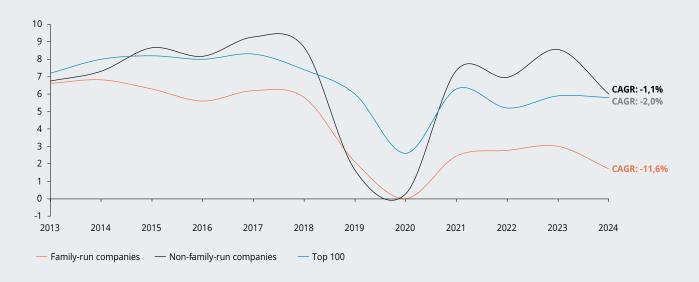
coronavirus pandemic. The revenue decline between 2019 and 2021 remained relatively low at –1.5% compared to non-family businesses, whose revenue decreased by around 10% over the same period. This momentum is fueled by typical family strengths: entrepreneurial proximity to the business, swift decision-making, early internationalization, and long-term customer loyalty.

INDEXED REVENUE GROWTH AND YEAR-ON-YEAR REVENUE GROWTH RATES OF SELECTED FAMILY BUSINESSES AND NON-FAMILY BUSINESSES IN THE DACH REGION AND TOP 100 SUPPLIERS [in %]



WEIGHTED AVERAGE EBIT MARGIN OF SELECTED FAMILY AND NON-FAMILY COMPANIES IN THE DACH REGION AND TOP 100 SUPPLIERS

[in %]



However, the high growth rate conceals certain structural weaknesses. Despite their dynamic nature, family-run companies have found themselves in a deep profitability crisis, especially in the wake of the coronavirus pandemic. Their average EBIT/operating income margin² was only 4.1% during the period under review, compared with 6.6% for non-family-run companies. The long-term trend is particularly alarming, as since 2013, margins have fallen by an average of 11.6% per annum, while non-family businesses have remained far more stable, with an average annual decline of only 1.1% and the Top 100 with an average of 2.0%. The current profit margin of 2 to 3% is therefore at an extremely critical level.

When success factors become a burden

The root causes of this erosion lie not only in the operational business, but also in the system itself. Qualities that used to be competitive advantages are now increasingly becoming a hindrance. Customer loyalty can sometimes become a weakness if price ne-

gotiations or claims are not rigorously followed through. Loyalty to the location and staff retention make restructuring more difficult – especially in high-cost countries such as Germany. Financial independence goes hand in hand with higher capital costs and limited scope for investment – for example in research and development – where family-run businesses spend around 25% less on average than similar competitors.

Warning signs are accumulating

The consequences are now clear to see, as plant closures, mass layoffs, and insolvencies are on the rise. Three of the largest German family-run automotive suppliers alone announced the loss of over 30,000 jobs worldwide.

Three key levers can be identified to ensure that family businesses are well equipped to face the future:

 Boost operational efficiency: In the short term, companies need to rigo-

¹⁾ Figures for 2024: for 21 companies based on data available for 2024, for the remaining companies approximated based on average annual growth.

²⁾ For the purposes of this analysis, the sample comprises 31 companies due to data availability, with the exception of 2024, which only included 16 companies in the calculation.

rously safeguard their margins. The strategy includes claim management, optimized purchasing, critical portfolio analyses, site consolidations, and automation initiatives – also with the help of Al technologies. The sacred cows of the past may no longer remain unscathed.

- tainable profitability: Processes and management tools must be geared toward achieving target margins. At the same time, governance structures are needed to ensure clearly defined responsibilities and professional monitoring, for example through independent advisory bodies or supervisory boards. Open-mindedness towards leveraging external capital, such as private equity, can also help to enable investments for future expansion.
- Safeguard the future through growth: Sustainable profitability will not be possible without adopting new lines of business. That means strategic portfolio development, targeted M&A strategies, market entry into related industries, and forging new alliances for example with technology suppliers or international partners. Focused expansion in promising markets such as China or electric mobility also offers potential.

Yes to growth - but at what price?

At first glance, family-run companies look impressive with their striking growth figures. According to the Berylls by AlixPartners study, the family businesses surveyed increased their revenues by an average of 7.3% annually between 2013 and 2024 - significantly more than their non-family-run competitors (+2.6%) or the Top 100 (+4.3%). They also proved remarkably resilient in times of crisis, such as during the coronavirus pandemic. The revenue decline between 2019 and 2021 remained relatively low at 1.5% compared to non-family businesses, whose revenue decreased by around 10% over the same period. This momentum is fueled by typical family strengths: entrepreneurial proximity to the business, swift decision-making, early internationalization, and long-term customer loyalty.



'Family business 2.0'
– mindful of its
traditions, but
capable of adapting.

10 | TRANSFORMATION IN EUROPE -CHINA IS THE CATALYST





AlixPartners

Authors:

Dr. Jürgen Simon Berylls by AlixPartners

Europe's automotive industry is in the midst of a radical transformation unprecedented in this century. Electric mobility, software-defined vehicles, and new customer requirements are challenging OEMs and suppliers alike. But while many debates are being conducted internally, the real disruption is increasingly coming from outside – namely from China. Not only Chinese OEMs are making their presence felt on the European market with growing strength. Suppliers from China are also targeting specific links in the value chain and challenging the established power structures. Europe, the birthplace of the automotive industry and the world's leading market for the past 100 years, has become a playing field for both new and traditional competitors. Are the rules of the game now being rewritten?

China's ascendancy: from domestic market to export powerhouse

China remains by far the world's largest automotive market – and it is common knowledge that a leading industry needs a strong domestic market. With a 63% share of new vehicle registrations coming from domestic manufacturers (in previous years the figure was chronically below 25%), a new milestone was finally reached in 2024.

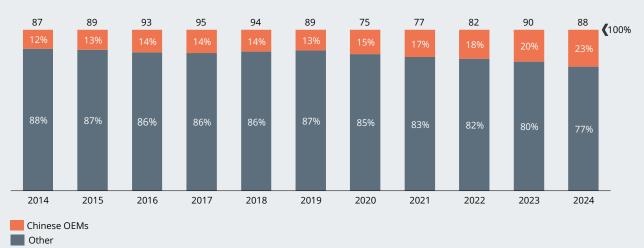
The rise of the Chinese automotive industry in the electric vehicle era is no coincidence, but rather the result of long-term industrial policy involving massive investments by private and public stakeholders alike. While European players profited from the Chinese market for decades – frequently with double-digit EBIT contributions – Chinese manufacturers utilized this time to establish an independent and, in many respects, highly competitive industry. Today, there are over

100 automobile brands in China, more than 80 of which have emerged in the last seven years alone – so-called disruptors that are not only challenging traditional industry norms, but actually changing them fundamentally. Market leaders such as BYD, Geely, and SAIC are no longer purely domestic companies, but export their products worldwide. In 2024, over one million electric vehicles manufactured in China by Geely, BYD, and SAIC were exported abroad – a 40% increase year on year.

At the same time, Western manufacturers are losing market share in what was once a growth market. In 2018, German OEMs still had a market share of 26% in China, which shrank to below 18% last year. Due to the traditionally above-average profit contribution in China, this decline has tangible consequences for global investment options and competitiveness in other regions.

SHARE OF CHINESE OEMS IN GLOBAL PRODUCTION VOLUME





Source: S&P

China goes on the offensive in Europe

China's entry into the European market has not yet lived up to expectations, given the low unit sales figures, evolving distribution models, and constant changes at management level. However, following the first iteration of market entry, which presented a steep learning curve, Chinese OEMs are now working on the next wave. In the process, they are focusing not purely on exports, but also on local production. With this strategy, OEMs such as BYD, Chery, and MG are increasingly building up local manufacturing capacities. Over ten new plants have already been announced, mainly in Eastern European countries such as Hungary, Poland, and Serbia. At the same time, strategic joint ventures and acquisitions are being established. In doing so, Chinese OEMs are generally pursuing one objective, i.e. to gain control over the entire value chain. Accordingly, Chinese suppliers are also being targeted for expansion into these markets.

The advance of Chinese suppliers into the European market is particularly remarkable. Whereas in 2012 only one Chinese company was represented in the global Top 100 ran-

king, by 2023 there were already nine – with further potential for growth. Industry leader CATL is dominating the global battery market, while other players such as Joyson Safety Systems (passive safety), NBHX Group (interiors), Sailun (tires), and Tuopu (chassis) are systematically expanding westward. Between 2024 and 2026, 17 new production facilities are scheduled to be built in Europe by Chinese suppliers alone.

European suppliers under pressure from two sides – but also with opportunities

These developments are putting Europe's automotive suppliers under pressure in two ways. On the one hand, they are losing market share among their traditional OEM customers, whose business models are being undermined by Chinese competition. On the other hand, they themselves are coming under pricing pressure from Chinese suppliers, who are gaining ground with high volumes, cost advantages, and growing innovative strength.

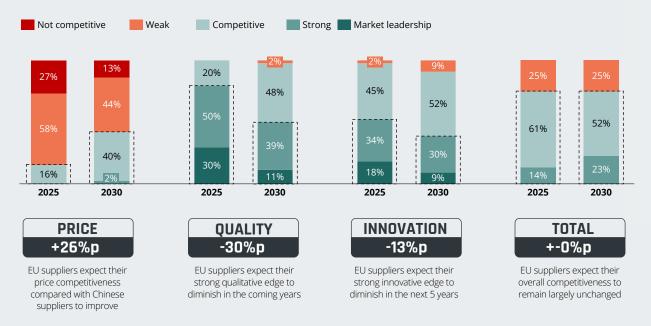
Consequentially, while in 2023 only 7% of European suppliers surveyed in a study were generating more than a quarter of their revenue with Chinese OEMs within China, the figure is expected to rise to 18% by 2030. On a global level, 23% of respondents saw opportunities to generate more than 10% of their revenue with Chinese OEMs outside China by 2030 – a market that is still marginal today. These results clearly show that despite the growing competition, these are signs that the supply chains of Chinese OEMs are becoming increasingly globalized.

Diese Zahlen deuten auf einen ParadigmenThese figures point towards a paradigm shift. Those who previously believed they could focus exclusively on Western OEMs will need new partners and be compelled to accept new market rules going forward. This also means gaining a better understanding of Chinese OEMs and building up "China expertise" in terms of sales and project management.

Recommended approach: don't avoid China, just strive to understand it

A simple decoupling strategy is neither realistic nor effective. China is already the dominant supplier, particularly with respect to commodities and key technologies such as battery and electronics manufacturing. When it comes to price, European suppliers often struggle to compete in today's market. Although they still consider themselves as being at the forefront in terms of quality and innovation, they expect this lead to gradually diminish by 2030.

COMPARISON OF THE COMPETITIVENESS OF EUROPEAN SUPPLIERS COMPARED TO CHINESE SUPPLIERS [In %, today and in 5 years]





It is therefore important to actively shape the transformation – and that means, first and foremost, preparing strategically for China. It is essential to begin with an initial assessment that reveals the extent of the impact on one's own company and identifies potential courses of action (see Berylls by AlixPartners' Rising China Preparedness Assessment). When doing so, strategic core issues must be assessed both realistically and objectively, e.g.:

- How dependent is the company on Chinese OEMs or Tier-1 customers today and how stable are these relationships in light of geopolitical risks and increasing localization strategies?
- Which components of the product portfolio can still differentiate the company in a market dominated by Chinese manufacturers? And where is there a risk of substitution by Chinese suppliers?
- Which dependencies exist along the supply chain – and where are there opportunities to bolster resilience, for example through regionalization?
- How does the company compare directly with Chinese competitors in terms of technology, costs, and time to market?

- Is the company organizationally and culturally capable of matching the speed and flexibility of Chinese competitors?
- How robust is the business model in the face of market changes or political intervention?

From reacting to creating

China is not just a challenge – it is a catalyst for transformation in Europe. Those who continue to cling to old structures risk being left behind. However, those who harness this momentum, enter into partnerships, and consistently gear their organization toward competitiveness can turn the current threat into a strategic opportunity.

Change is inevitable, and the automotive industry is becoming more "Chinese" outside China as well. The question is not whether European suppliers will respond, but how swiftly and whether they are prepared to view China as an integral part of their future.

11 | R&D EFFICIENCY IN THE AUTOMOTIVE INDUSTRY



Berylls by AlixPartners

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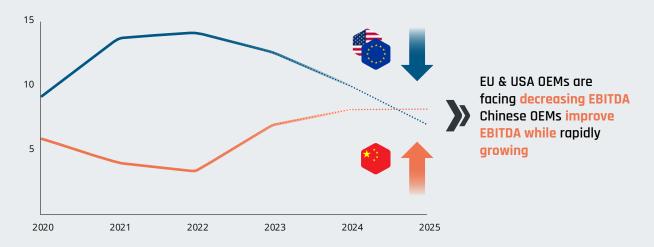
Changing customer requirements, new technologies, and geopolitical challenges are driving change in the automotive industry. Instead of generating new sources of revenue through the software-defined vehicle (SDV), efficiency gains of 30% to 40% must be achieved in terms of costs and time – a necessity that applies to Western OEMs as well as first-tier suppliers. With respect to product development, the SDV is making the greatest contribution to fulfilling the overall corporate mission.

Traditional measures and strategies such as procurement through best-cost-country sourcing, optimizing material costs, and isolated process adjustments are increasingly proving insufficient. Therefore, the need for a holistic approach to boosting R&D efficiency is gaining ever-greater acceptance. Key to achieving the desired level of efficiency and competitiveness is to master software development and integration. To do so, core

competences and in-house R&D activities need to be relocated in order to keep the product competitive on a continuous and highly cyclical basis until the end of its life cycle by adapting both technological and organizational structures. The strategy involves not only adopting a modular product structure and consistent architecture management, but also the continuous deployment of software products.

AVG. EBITDA MARGIN BY OEM ORIGIN

[in % of total units]



Chinese OEMs (BYD Company Limited, Great Wall Motor Company Limited, Li Auto Inc., Wuling Motors Holdings Limited, Geely Automobile Holdings Limited):
Risk Assessment – E/E Architecture Variance | AUDI | Proposal - Source: Berylls Strategy Advisors, AlixPartners (confidential), S&P Light Vehicle Sales, Capital IQ

This transformation is critical in order to effectively manage the growing complexity and deliver more advanced products at lower prices going forward. In concrete terms, this means that functions and features – ultimately a major part of the customer experience – need to become more digital. As a result, hardware variants can be reduced to a minimum and differentiated via software – to the extent possible.

The shift to an SDV-enabled product structure demands new skills. To master software development, the operating model of the automotive companies, i.e., governance, processes, employees, organization, and infrastructure, needs to be adapted.

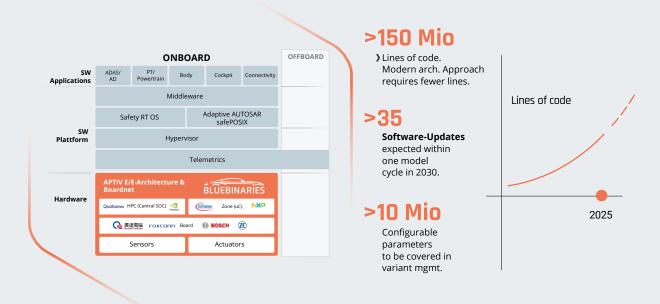
Next step: software first. According to the rules of systems engineering, the requirements and functional architecture must be designed at the outset, followed by a coherent, modular software architecture. Based

on this approach, suitable processes and roles need to be created, which also requires a change in mindset and management structures regarding how decisions are made. An SDV cannot thrive in a hardware-dominated enterprise. The same is true for the organizational structure, which must break free from hardware-oriented silos.

All this is supported by an adequate infrastructure that enables the necessary branching, high-frequency testing/integration, and release management.

In order to measure the necessary skills and software readiness, Berylls by AlixPartners and the Institute of Technology Management at the University of St. Gallen have jointly developed a maturity model. It not only provides the necessary KPIs, but also guidance on how to improve the existing operating model in line with SDVs.

SOFTWARE DEFINED PRODUCT STRUCTURE



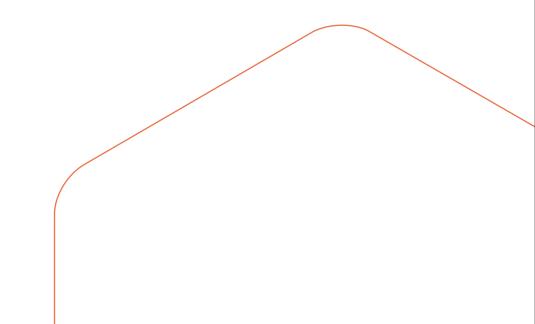
To enable a transformation of this kind and ensure success in this new era of automotive development, the shift in skills already needs to have begun. Software architects, data scientists, simulation experts, etc. do not have niche skills, but are fundamental components of the future-proof talent pool going forward. Greater reliance on these digital profiles means that traditional processes such as planning and budgeting need to be viewed differently. Growing proportions of software bring with them standardized components or libraries that are used throughout the tech stack of many OEMs, which indicates a shift from contract-based to modular development.

This strategy can help to set up and manage digital and cross-company collaboration models more effectively. With this point in mind, cost estimates can be considered separately from previously defined project budgets and carried out cyclically from the base or aligned more strictly with customer functions. Both measures are intended to help make costs more transparent and planning horizons more cyclical and binding.

To summarize, achieving R&D efficiency requires a transformative approach that encompasses all the organizations involved.

With the introduction of the SDV, the changes go beyond the product and impact the core of the company-specific operating model (process and organizational structure, including methods and tools), as described in the maturity model developed by Berylls by AlixPartners.

The necessary transformation requires the approval and support of the entire management board so that, in addition to CTO-specific issues, changes to company-wide governance structures can also be implemented.





The software-defined vehicle is changing the automotive industry more than anything else. The impacts affect the product – and the entire company.

12 | WARRANTY COSTS FOR OEMS RISING DUE TO SOFTWARE ERRORS







Fritz Metzger Berylls by AlixPartners



Frederik Ruhm Berylls by AlixPartners

The growing importance of software-defined vehicles (SdVs) makes it clear that software is no longer merely a feature of modern-day vehicles, but a key component. Software problems are often a major factor in delays to product launches. However, one aspect that has received less attention to date is the impact of these problems on warranty costs – and precisely these are steadily increasing.

In recent years, the automotive companies Ford, GM, and Tesla have seen their warranty expenses rise to record highs. Ford and GM were even compelled to recognize additional provisions to cover unexpected warranty claims. In 2023, the average claim rate for original equipment manufacturers (OEMs) was 1.98%, while the provision rate was 2.52%. The figure suggests that manufacturers also expect warranty costs to remain high going forward.

In the past, when hardware was still the most critical component in a vehicle, it was possible to identify and resolve errors prior to market launch. However, problems with software can be far more difficult to remedy. On average, commercial software contains 20 to 30 errors per 1,000 lines of code. Even with well-established development teams, around one to three errors remain per 1,000 lines. With 20 to 100 million lines of code per vehicle, the figure adds up to between 20,000 and 300,000 potential sources of error.

INCREASING WARRANTY COSTS AT AN OEM (FORD)



This means that apart from taking preventive measures during development, OEMs also rely on strong reactive processes to address errors in the field as swiftly as possible. And this is where the problem lies – especially with Western OEMs. The percentage of software-related warranty costs is continually increasing, placing growing pressure on margins.

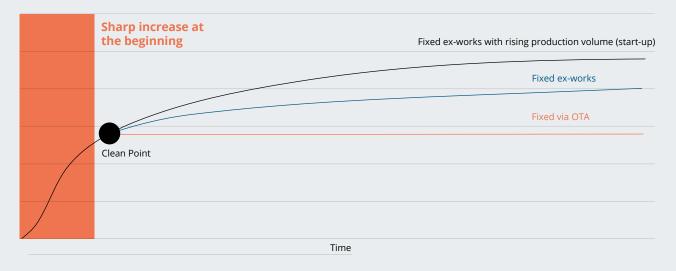
An underestimated factor

For many OEMs, significantly reducing the time between detecting and fixing an error – known as round-trip time – is quite a challenge. Therefore, the sooner an error can be corrected, the less damage it causes.

In the phase following the start of production, it is particularly important to act quickly. As production volumes continue to rise, OEMs can take early countermeasures at their plants to avoid a great many problems in the field and reduce misunderstandings in their communication with workshops.

This is especially critical for software problems that occur after vehicle delivery. Initially, workshops often misinterpret errors in the field as hardware defects and then replace components, which is not only expensive but also ineffective.

CUMULATIVE WARRANTY CLAIMS



Courses of action

Basically, the following courses of action are open to OEMs and their suppliers when it comes to reducing software-related warranty expenses.

Quick error analysis and root cause identification

An effective, clearly structured approach is essential for rapidly identifying the causes of errors, which includes clearly defining structures and processes. OEMs, workshops, and suppliers alike require a common understanding and standardized processes for error detection, analysis, and prioritization. Moreover, suppliers need to define their own escalation paths and responsibilities to ensure fast processing.

It is equally important to provide data promptly and in the high level of quality required. Error descriptions must be precise and easy to follow, and should include relevant diagnostic data. This not only speeds up the transmission process, but also the analysis. Ideally, all those involved should provide this information as promptly as possible. Suppliers can contribute significantly to speedy analysis by providing structured feedback, standardized formats, and complete data sets.

Clear responsibilities also play a pivotal role, i.e., designating a responsible feature owner for each software and hardware component prevents problems being passed back and forth between teams. Close collaboration between those responsible for software and hardware helps to identify causes more quickly and develop sustainable solutions.

In addition, fixing errors should be feature-based. Instead of processing individual tickets in isolation, it is more efficient to organize problem-solving across the affected functions – always with the customer in mind. Suppliers can be helpful in this respect by grouping their own internal tickets by feature and providing consolidated feedback.

The use of centralized tools also makes for greater efficiency. Commonly used systems for tracking and analysis create transparency and promote cooperation, especially with suppliers. They should be prepared to migrate to common tools, develop interfaces, and give their analytics teams direct access to these.

Binding service level agreements (SLAs) with suppliers are also a crucial factor. Clearly defined timelines for analysis and feedback help to avoid delays. Suppliers should actively help develop these SLAs and ensure they are implemented internally.

Last but not least, it is important to work with foresight right from the development phase. Aspects such as error logging, digital trouble codes (DTCs), and exception handling need to be considered at an early stage to facilitate subsequent error analysis.

Speeding up troubleshooting and rollout

The rapid rollout of software fixes is essential for minimizing costs and maximizing customer satisfaction. A well-designed, over-the-air (OTA)-enabled vehicle architecture provides the necessary basis for quickly fixing software errors in the field without costly trips to the workshop. Critical control units need to be reliably updated so that errors can be resolved efficiently, customer-friendly, and on a scalable basis.

Customer service and workshop processes also need to be adapted accordingly. A clear allocation of roles is crucial and any problem that can be resolved over-the-air (OTA) should not end up in the workshop. This strategy helps conserve resources and reduce overall complexity. Especially in the period following a vehicle launch, rapid response teams are invaluable for reacting quickly to problems in the field. Suppliers can make an important contribution in this regard by providing specialized, skilled personnel.

There is further potential in the area of tools and automation, as automating CI/CD processes (continuous integration/continuous deployment) enables updates to be rolled out faster and more reliably – also on the supplier side. Suppliers should establish their own build-and-deploy pipelines and define smooth interfaces to the OEM process.

Furthermore, comprehensive simulations and tests are required to identify errors prior to rollout. Suppliers can support OEMs by maintaining their own simulation and testing environments and providing appropriate models. Implementing smaller but more frequent updates significantly lowers the risk of update errors and makes the rollout process more flexible.

Strengthening first-level support

An intelligent OTA strategy transfers more responsibility to first-level support while simultaneously reducing the overall effort. Many problems can be solved directly in this way – often without needing to visit a workshop. This not only minimizes the inconvenience for the customer, but also reduces the workload for second- and third-level support.

Conclusion

Rising warranty costs due to software errors are a major challenge for OEMs – with a direct impact on both their profitability and their reputation. In 2023, car manufacturers worldwide paid US \$51 billion in warranty claims and recognized provisions of US \$65 billion, an increase of 17% compared with 2022. The key to the solution lies in better cooperation with suppliers, clearly defined responsibilities, and intelligent processes.

Companies that now invest in transparency, automation, and OTA capability will be rewarded in the long term with lower costs, satisfied customers, and a stronger competitive position. Highly successful OEMs embrace agile, collaborative software strategies because they acknowledge that there will always be errors. The deciding factor is how quickly and efficiently they can be remedied.

13 | THE AUTOMOTIVE AND MOBILITY START-UP SCENE IN EUROPE: REBOUND FROM THE VALLEY OF TEARS?





Authors:

Dr. Matthias Kempf
Managing Partner, Leap435

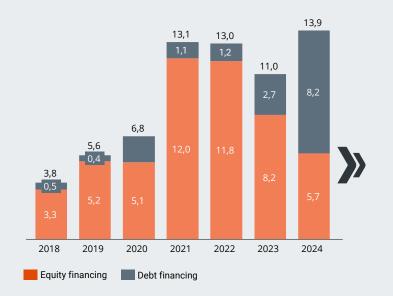
Dr. Tobias von Wiesentreu Managing Partner, Leap435

1. From boom to crisis - and back?

Europe's automotive and mobility start-up scene has been on a rollercoaster ride in recent years. The investment boom of 2021 was followed by a drastic slump, which reached its lowest point in 2023. But now there are some signs of recovery – both in Europe and globally.

MOBILITY START-UP FINANCING EU 2018-2024

[In € billion]



Source: Dealroom (2025), Leap assumptions and analysis

Financing volumes and rounds

Bolstered by huge rounds of financing for companies such as Northvolt, Arrival, and Volta Trucks, mobility start-ups in Europe recorded equity investments of over 12 billion euros in 2022. Subsequently, the volume fell to 9 billion euros in 2023 and even lower to 6 billion euros in 2024. The number of financing rounds decreased by approximately 50% during the same period. While early-stage investments decreased by only around one quarter during that time, equity financing in the late stages slumped by almost 65%.

Is Europe now on the decline? If debt financing is included in the analysis the picture changes considerably, as it increased sixfold from approximately 1.3 billion euros to 9 billion euros during the same period. Above all, the financing of capital-intensive battery technology start-ups shifted significantly from venture capital to venture debt in 2024,

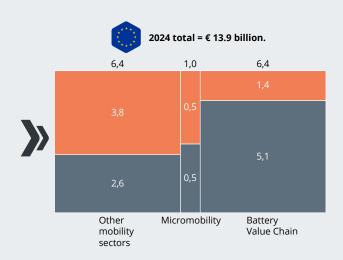
mainly provided by banks or government institutions such as the European Investment Bank. The total investment volume for mobility start-ups in Europe thus rose slightly from a good 13 billion euros to around 14 billion euros.

Mobility investment volumes in Europa¹

The lack of appetite for equity investments was not an isolated phenomenon in the mobility sector. Rather, it reflected a global trend driven by an interest rate turnaround and restrictive monetary policy, declining risk appetite among institutional investors, and market overheating in 2021, which led to unrealistic valuations in many cases.

SECTOR ALLOCATION FUNDING 2024

[In € billion]



1) Data based on Dealroom (2025), Leap435 analysis

Europe's role in the global mobility start-up industry

In 2024, European start-ups accounted for around 21% of investments in mobility worldwide. Europe is traditionally far better positioned in the early stages (pre-seed/seed/Series A; >30% market share), while the US and China dominate in the field of growth investments (> Series B). This fact once again reveals Europe's structural weakness resulting from a lack of investors with significant capital resources.

2. Industry classification: Where are we headed?

- Software-defined vehicles: Numerous start-ups are developing new approaches to the topics of middleware/vehicle OS (driven by the trend toward RUST), OTA update platforms, and cybersecurity areas that traditional Tier-1 suppliers to OEMs often do not cover themselves.
- Engineering tech: A real boom is emerging in new business models aimed at enhancing efficiency and accelerating processes in engineering. Above all, the potential of generative artificial intelligence (GenAl) (both vertical and horizontal) is being exploited to its full extent here.
- Autonomous driving tech: In the wake of the billion-dollar investment in the young Al company Wayve (United Kingdom), numerous new technologies and business models have been financed, including in the fields of sensor and perception technology, B2B logistics, specialized transport shuttle systems, works transportation, and remote driving.

- Battery and charging infrastructure: From cell chemistry to recycling/upcycling technologies and second-life applications to fast-charging platforms (cars, trucks), extensive financing continues to be provided, particularly in Germany, the United Kingdom, France, and Scandinavia.
- Micromobility and logistics: From a safety perspective, a new dynamic is emerging in the micromobility segment, while intelligent fleet management for electric vehicles, sustainability, and platform integration are major topics in (urban) logistics.

Collaboration with OEMs and suppliers: Progress with obstacles

Whereas there used to be a significant gap between start-ups and automotive companies, today there is a far more open attitude toward collaboration. A growing number of corporate venture capital units are being formed (BMW, JLR, Bosch, Stellantis, Renault, etc.), and OEMs and larger suppliers are increasingly turning to partnerships with start-ups with the aim of gaining faster access to innovations and testing them in proof-of-concept studies (PoCs). It can be assumed that this trend will continue to gain momentum due to the steadily increasing proportion of software components in vehicles, the widespread and often disruptive use of AI, and the growing prevalence of groundbreaking technologies (deep tech) from other sectors in the automotive industry (e.g., in the form of innovative materials, chemical processes and procedures, and the expansion of value creation to include upcycling and recycling).

However, barriers do still exist. Slow decision-making processes, unclear procedures for dealing with intellectual property (IP), tentative scaling after successful PoCs, and increasingly complex legal requirements as

well as internal organizational demands continue to pose major challenges for start-ups.

The new reality of global bloc formation: tasks for Europe

In the new reality of political bloc formation, not only the mobility industry, but Europe as a continent is called upon to exploit the tremendous potential of start-up innovations. Thanks to prestigious mega funds such as Andreessen Horowitz and Tiger Global, an opportunity-oriented culture, and a long-term strategic economic policy, start-ups in the US and China frequently enjoy higher political and financial status.

Europe, on the other hand, is (still) relying more heavily on market-based instruments. Due to the generally restrictive investment guidelines for major investors, there continues to be a serious shortage of high-volume investors in the Series B+ segment. Many start-ups therefore deliberately plan partnerships with OEMs or exit options at an early stage, which limits the potential for independent "European champions." However, a change is emerging, as Germany strives to significantly improve framework conditions through the Germany Fund and the Initiative for Growth and Innovation Capital (WIN Initiative), with a volume of 1 billion euros and 12 billion euros respectively, as well as through the streamlining of bureaucracy announced in the coalition agreement. France is pushing ahead with targeted industrial policy in the clean tech and industrial tech sectors (7-billion-euro "Tibi 2" fund), and Italy is offering companies massive tax breaks as of 2025 if they invest at least 5% of their portfolio in venture capital. .



3. Outlook: where are the opportunities - and what needs to be done?

In 2025, Europe's automotive start-up scene is clearly on its way out of the valley of tears. A further upswing can be achieved – if policymakers, industry, and investors all act in concert.

Europe has a great many structural advantages that benefit industry and start-ups alike. These include excellence in engineering and deep tech, an established technological focus on sustainability and ESG (environmental, social, and governance) criteria, and a strong domestic market. Start-ups have high growth potential, whether in the areas of vehicle software (applications, middleware, OS), battery recycling and reusability, or smart city solutions; even in the field of autonomous driving development and technology, the train has clearly not yet left the station.

Companies in the mobility industry have recognized that collaborating with start-ups is more than just effective brand building now it is important to transform selective cooperation into effective, adaptive, and easily accessible ecosystems with promising scaling options.

In addition to the establishment and expansion of a European growth fund for mobility and deep tech scale-ups, the wish list for policymakers includes, first and foremost, cutting through the red tape when it comes to subsidy programs, forming new companies, recruiting employees from abroad, and licensing processes. The creation of an "innovation fast track" for start-up projects in public mobility initiatives could also provide new momentum for innovative systems solutions.

14 | DOUBLE INTERVIEW



Dr. Alexander TimmerPartner & Managing Director
Berylls by AlixPartners



Dr. Jan DannenbergPartner & Managing Director
Berylls by AlixPartners

Does the supplier industry have more critical months ahead of it? Jan Dannenberg and Alexander Timmer from Berylls by AlixPartners on the key findings of the "Global Top 100 Automotive Suppliers" study.

Dr. Dannenberg, what are your key findings regarding the Top 100 suppliers' ranking for 2024?

Dannenberg: The year 2024 was a time of crisis for the automotive supply industry worldwide, on a par with 2020/21 during the pandemic. Of the 20 largest suppliers, Schaeffler was the only company to actually increase its revenue. However, Schaeffler's growth was also due to the successful acquisition of Vitesco and therefore unfortunately the exception rather than the rule. Even though there were few changes among the highest ranked enterprises, there was a great deal of movement in the lower reaches of the year's Top 100 rankings, as six new suppliers made it into the list for the first time. Four of these companies are based in China, i.e., Ningbo Tuopu, Huawei, NBHX Group, and Huizhou Desay SV. With year-on-year revenue growth of almost 15%, China's automotive supply industry is growing considerably faster than the established market leaders Japan and Germany.

Dr. Timmer, what is the biggest problem currently facing suppliers: sluggish car sales, the transformation, or import tariffs?

Dr. Timmer: The extent of protectionist trade policies, including the accompanying import tariffs, is, in my view, a temporary effect that will return to normal levels in the medium term over the course of this year. The end customer is losing out, as the additional costs incurred by suppliers and manufacturers alike are either passed on or certain

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The year 2024 was a time of crisis for the automotive supply industry.

vehicles are no longer sold in specific markets. The technological transformation toward electric mobility and the software-defined vehicle is nothing new for automotive suppliers. Large investments, low volumes, and complex SOPs have become part of everyday business life for suppliers and although the challenges remain unresolved, at least they are not unknown. The ongoing downturn in vehicle unit sales and production volumes across all drivetrain types, especially in Germany, is posing new challenges for the industry. Further consolidation and plant closures will be unavoidable by the end of the decade. It is entirely realistic to expect the global market share of autos manufactured in Germany to fall well below 4%.

Which suppliers were particularly successful in 2024 – and why?

Dannenberg: Successful suppliers were few and far between in 2024. Only 30 suppliers in this year's Top 100 ranking saw year-onyear revenue growth - a historic low in the 14-year history of the Top 100 ranking, surpassed only by the figure recorded during the coronavirus crisis. However, even in the current challenging situation, some suppliers have managed to assert themselves successfully. The Chinese technology companies Huawei and Huizhou Desay SV are particularly striking examples in this respect, having benefited from the digitalization of the interior and the trend toward softwaredefined vehicles. Huawei, for example, increased its automotive revenue by over 400% compared with one year earlier. In terms of profitability, semiconductor and tire manufacturers stand out as ever, albeit with narrower margins in some cases. These include suppliers such as Renesas, Infineon, Hankook Tyres, and Sailun.

Which suppliers were particularly hard hit?

Timmer: Battery manufacturers based in Japan and South Korea were heavily impacted by sharp revenue declines of over 20%, including well-known players such as Samsung SDI, LG Energy Solution, and Panasonic. CATL, the market leader from China, also reported a drop in revenue, although to a far lesser extent. The margins of battery manufacturers have also come under increasing pressure recently. The reasons for this are the current overcapacity in the market and the lack of demand for electric cars, which in turn is driving down prices for high-voltage batteries.

Of the German "Big Three," Continental and ZF are having a really tough time, as whole divisions are being either sold or spun off, plants closed, and employees laid off. Bosch also plans to cut several thousand jobs within Germany. What mistakes were made, and how do you assess current developments in the country?

Dannenberg: Like all the other players, it's not surprising that the three big German suppliers are having a difficult time navigating the transformation and the market shake-up. However, not only the duration, but also the enormous effort involved in the transition were underestimated. The situation resulted in too many major projects being tackled at once, which in turn led to high levels of expenditure on innovation and the development of new skills as well as immense transformation costs. This can at times overwhelm even the biggest and strongest of players.

How are European suppliers generally performing compared to their international counterparts?

Timmer: They are still world leaders in many fields – but no longer in all of them, as was the case in the past. They are lagging behind in the innovation-driven fields of battery technology and artificial intelligence. The same applies to cost leadership and time-to-market, which are key success factors. European suppliers are also losing ground in global growth markets.

Chinese suppliers are once again among the winners in the ranking. What makes these companies so successful?

Dannenberg: Their success is attributable to three factors:

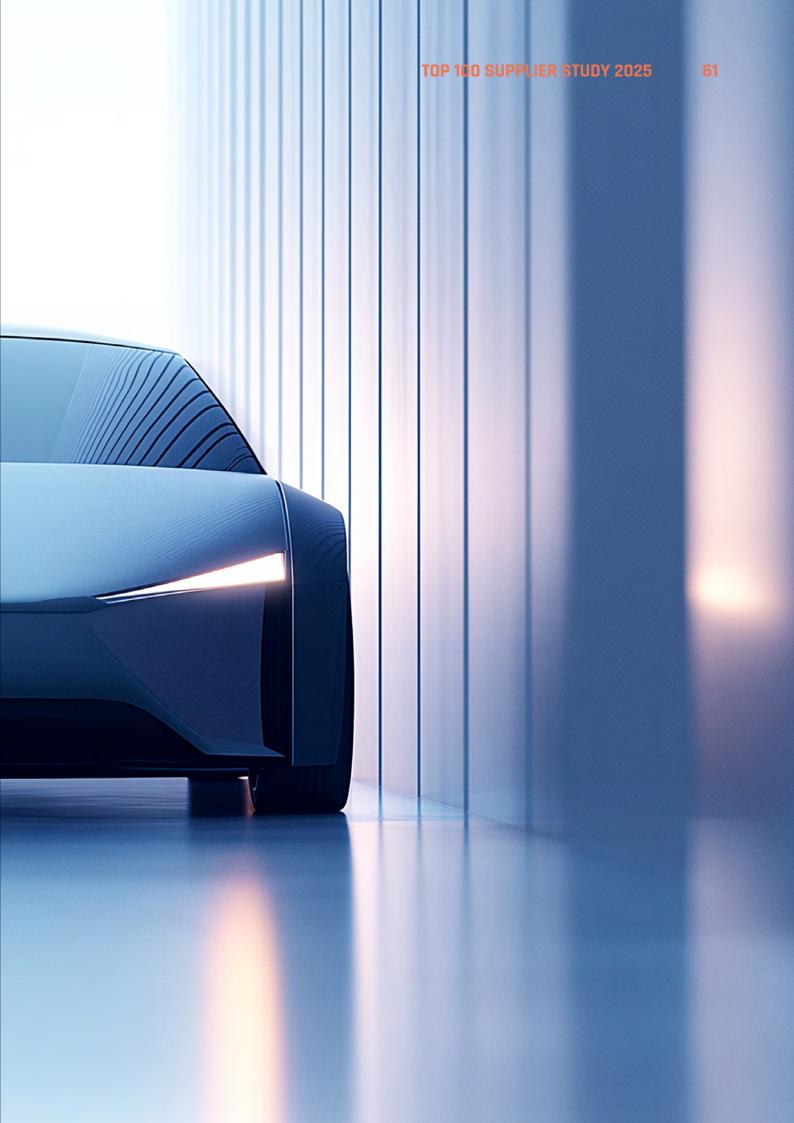
- 1. Chinese car manufacturers and their local suppliers are seeing exceptional growth because they are currently best placed to satisfy customer requirements in the most comprehensive way possible.
- 2, The fastest-growing automotive suppliers in China also have technologies that Western players are unable to match take battery expertise, for example.
- 3. Working together with local OEMs, the entire product development process has been simplified and, above all, made faster and more cost-effective. Chinese suppliers score highly in terms of both speed and costs.

From the other perspective, what opportunities do Chinese OEMs offer European suppliers, for example, as they expand into European markets?

Timmer: Chinese auto manufacturers can provide good market opportunities for large, globally operating European players. Leading companies based in Europe are familiar with local conditions, have well-established production capacities, and have already built up trust through their existing supply relationships in China. Small and medium-sized enterprises, on the other hand, will benefit less.

What is your forecast for the 2025 fiscal year? Can German automotive suppliers expect to face more critical months ahead?

Dannenberg: Yes, that will most likely be the case, especially in their home country of Germany. As mentioned at the beginning, the market share of autos made in Germany could fall below 4% by 2030. Depending on the scenario, we are talking about an annual production volume of 3.2 to 3.7 million vehicles manufactured in this country, i.e. a decline of 12% and 24% respectively. We are currently in the midst of a transformation process and hope to have reached the lowest point in the course of this year. Nonetheless, the short-term risk of supply chain disruptions in the rare earth sector cannot be ruled out. It could lead to shortages during the summer break due to export restrictions from China. Production interruptions and further revenue losses are inevitable.





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