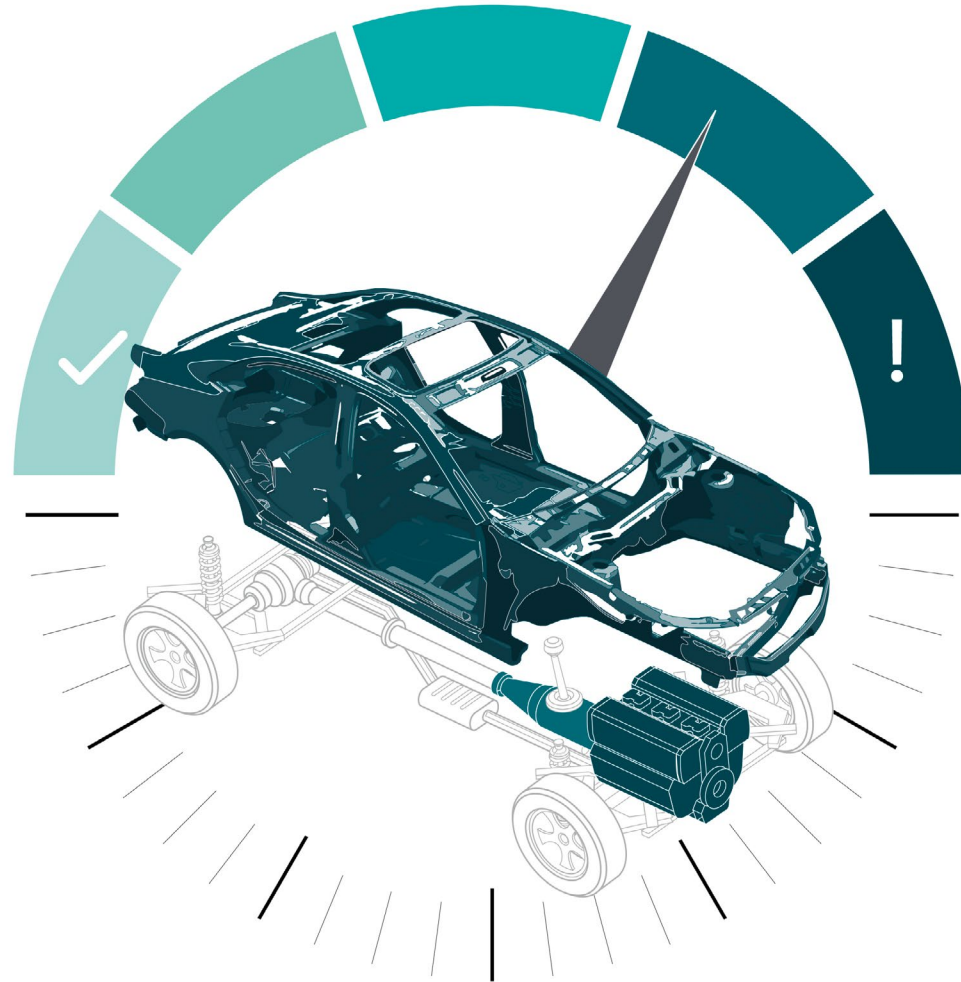


# The Future of the Automotive Value Chain

## Supplier Risk Monitor 2023

Traditional technologies at the crossroad



**Deloitte.**

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IMPACT THAT  
MATTERS  
*since 1845*



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# Preface

It is certainly fair to say that the automotive industry is still in the middle of their largest transformation ever and in challenging waters. The transformation need is driven by increasing demand for alternative drivetrains – mainly electrified vehicles – in combination with the need to comply with legislative requirements pushing the industry towards sustainability in addition to the ongoing digitalization and high customer expectations for advance connected technical solutions.

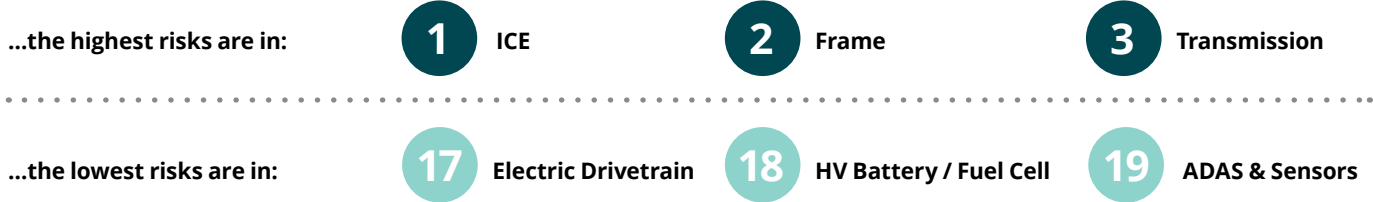
Although production and sales figures are recovering after the COVID-19 pandemic, supply chains remain unstable, due to additional external shocks like the Ukraine war and the chip crisis. The cost pressure that already existed has been further exacerbated, above all by high energy prices (at least in some regions) and logistics costs. Uncertainty regarding future sales and (raw material) cost developments is still high, making planning more difficult. The proportion of vehicles with alternative drive-trains is increasing and along with it the pressure to transform – always considering sustainability aspects. The costs of the transformation are borne to a large extent by the supplier industry. All these circumstances have severely weakened the balance sheets of suppliers and many have hardly any financial cushion to meet the ongoing challenges of transforming the automotive value chain and still generate adequate margins. The combination of transformation, volume development in ICE related supplier parts, cost increases and uncertainty (worries about a recession are still there) is leading to difficult times for many suppliers.

Knowing the various corporate and market risks in this challenging environment is essential to be able to initiate countermeasures at an early stage and transform in a targeted manner. Especially as not all suppliers are equally affected by these circumstances. Deloitte's Supplier Risk Monitor provides an overview of which supplier clusters tend to be more affected by current risks and which are less affected. This analysis serves automotive suppliers and their stakeholders, original equipment manufacturers (OEMs) and capital providers equally, and contributes to the transparency of the prevailing risks in the automotive sector.

“OEMs have recently been able to increase their profit margins - despite the Covid slump - while medium-sized and small suppliers in particular have seen their profitability decline. Balance sheets are often permanently weakened, and many suppliers have little financial cushion to meet future transformation challenges. Creating a strong awareness and best possible knowledge of (further) risk factors must therefore be a high priority for each supplier.”

**Dr. Harald Proff, Partner, Global Automotive Sector Lead Deloitte**

Across the 19 analyzed component clusters...



Selected risk driving indicators



**Market volume development**  
 Future market revenue is expected to be +40% until 2030. This is especially driven by growth in component clusters such as Electric Drivetrain, HV Battery / Fuel Cell and ADAS & Sensors.



**M&A attractiveness**  
 M&A activity of Technologies related to ICE is driven by consolidation. In contrast the market for New drivetrains indicates a high level of deals characterized by investors buying a target outside their own component cluster, implying diversification.



**Market capitalization**  
 Even after the market correction in recent months, listed suppliers of HV Battery / Fuel Cell and Electric Drivetrain components greatly outperform those of other segments in terms of market capitalization development since 2018.



**Environmental pressure**  
 Not surprisingly HV Battery / Fuel Cell followed by Body and Frame are the biggest CO<sub>2</sub> driver in material extraction. Lowest upstream CO<sub>2</sub> footprint can be seen for Brakes, Suspension and Axles.



**Earnings**  
 Axles suppliers have the lowest EBIT margin (3.0%), followed by Frame suppliers (3.9%). ADAS & Sensors has the highest EBIT margins (10.1%). Nearly all component cluster experience at least minor margin erosions. Margins of ICE and Climate Control are deteriorating the fastest.



**Financial stability**  
 In terms of earnings and debt repayment capacity 13% of the companies under review are in a critical zone. More than 23% show critically low earnings and 3% low capacity to repay debt. Only 56% of the suppliers can be deemed as financially sound.



**R&D and investments**  
 R&D expenses range from 1.7% of sales on average in the Frame industry to 8.9% for Infotainment & Communication and 8.3% for ADAS & Sensors supplier. Investment appetite for Traditional technologies and Technologies related to ICE is below average.



**Debt risk premium**  
 Suppliers of Suspension parts have the highest interest rates to pay (475 bps above the reference rate). Suppliers of ADAS & Sensors can take on new debt with the lowest risk premium indicating that debt investors see low risk levels.

# Current challenges

## The overall automotive market environment



### **Economic**

- Decreasing demand
- Currency fluctuations and interest rate increases
- ...



### **Geopolitical**

- Russia-Ukraine war leads to rising energy prices and supply chain disruptions
- Additional political tensions, e.g. Taiwan, foster uncertainty
- ...



### **Environment**

- Weather extremes as a result of climate change
- ESG related regulations
- ...



### **Resources**

- Semiconductor crisis
- Increasing raw material prices
- ...

“When voting on the CO<sub>2</sub> targets for cars and vans in plenary next week, we urge MEPs [Members of the European Parliament] to look at the big picture, and not just a single link in the whole chain.”

**Eric-Mark Huitema,**  
**Director General of European Automobile Manufacturer’s Association (ACEA)**

“We need commodity partnerships [...]. We now urgently need trade agreements. We urgently need agreements with Africa that not only secure raw materials, which [...] reduces our dependence on China, but also generate land for energy.”

**Hildegard Müller,**  
**President of Automotive Industry Association (VDA)**

“There is a risk of a very serious economic crisis due to the sharp rise in energy prices, due to supply chain problems, due to inflation.”

**Christian Lindner, German Minister for Finance**

“Although some of those pressures seem to be mitigating, the developments in China exacerbate those supply chain pressures.”

**Janet Yellen,**  
**United States Secretary of the Treasury**

“There is not a single supply chain shortage with a greater impact on the U.S. economy than the shortage of automotive-grade semiconductors.”

**American Automotive Policy Council, press release**

“The gas issue may become worse than the Corona pandemic.”

**Robert Habeck, German Minister for Economic and Energy**

# Volume development

Global light vehicle production volume decreased significantly in 2020 due to COVID-19, the semiconductor crisis and supply chain disruptions.

Decreasing overall sales volume intensifies competition between OEMs and thus the entire automotive market.

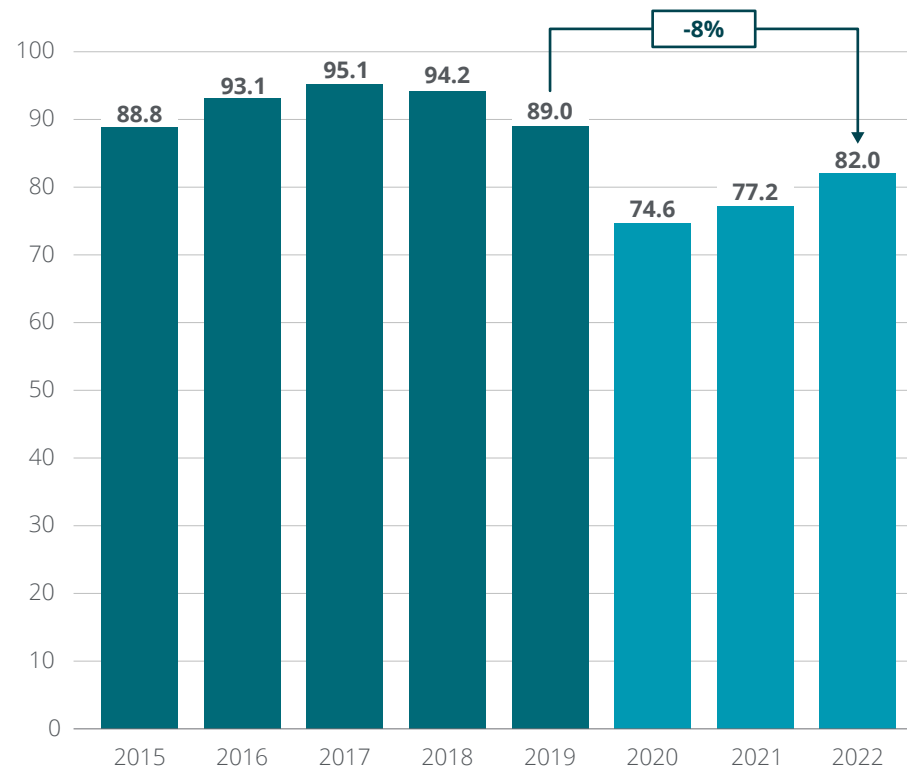
After reaching its minimum in 2020, production volumes have recovered in 2021 and 2022ff.

Managing volume recovery in combination by transforming from internal combustion engine vehicles to battery electric vehicles remains a key challenge for the sector.

**Fig. 1 - Volume development**



**Global production (in million light vehicles)**



**Key Challenge**  
Volume recovery  
in times of  
unstable supply  
chains

Source: IHS Markit

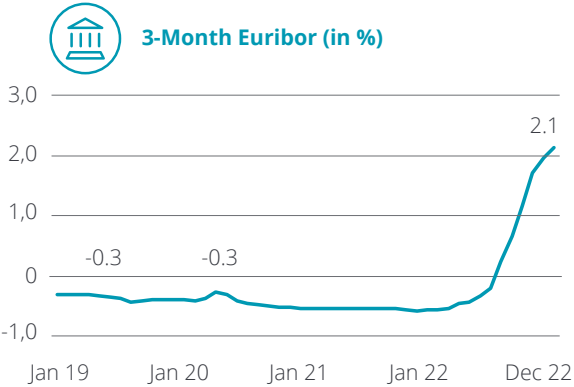


# Cost development

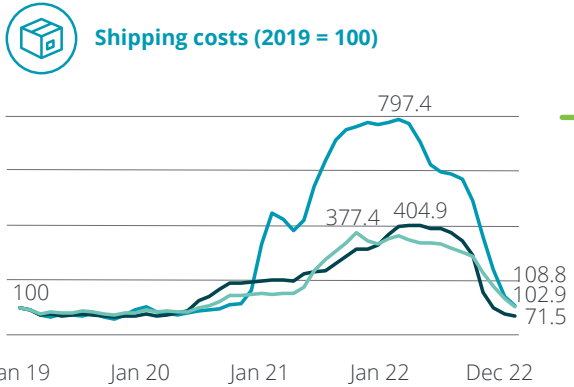
Overall cost pressure increased across multiple dimensions for the automotive industry, examples include

- 3-month-Euribor prime rate increased by >2.4 pp last year, directly impacting refinancing cost.
- The tremendous transportation cost increases of 2020 and 2021 have eased again. However, the longterm development of shipping costs remains unclear.
- Cost of energy increased by 56% for oil and 800% for natural gas mainly driven by Russia-Ukraine-war.
- Prices for raw material increased significantly within the last three years, especially for core resources such as aluminum (+51.1%), copper (+46.6%), and steel (+35.6%).

**Fig. 2 - Cost development**

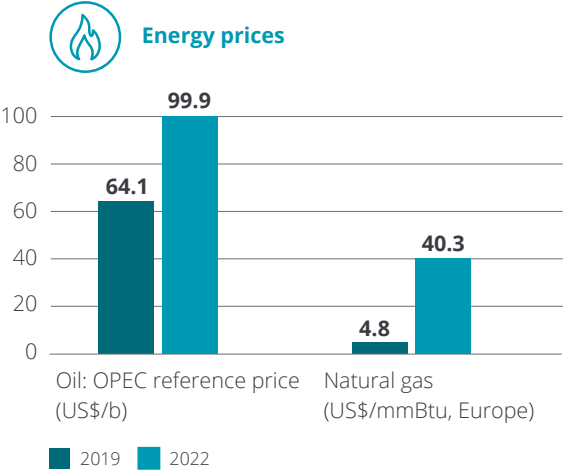


Source: Refinitiv Workspace

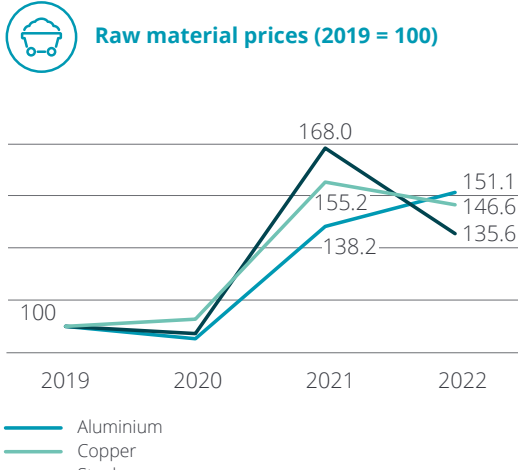


Source: Clarkson

**Key Challenge**  
High cost pressure



Source: The Economist Intelligence Unit



Source: The Economist Intelligence Unit

# Uncertainty

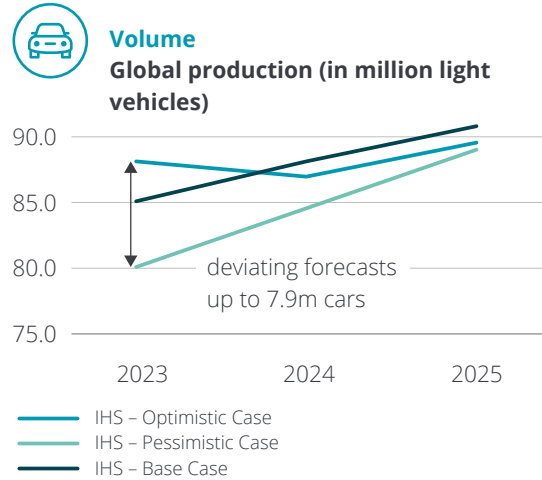
On the market side, there is uncertainty regarding the speed of sales recovery in 2023. Forecasts for the production of cars in 2023 differ by up to 8 million vehicles.

Inflation forecasts deviate up to 1.7pp in Q4 2024 depending on the forecasting source.

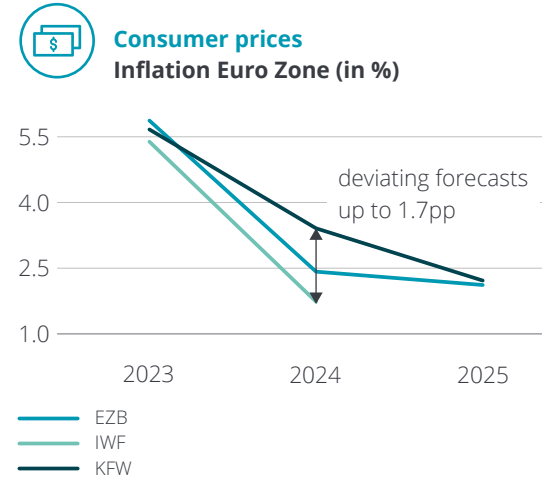
Euribor forecasts deviate up to 2.0pp in Q4 2024 depending on the forecasting source.

Uncertainty and large forecast deviations are jeopardizing refinancing and restructuring.

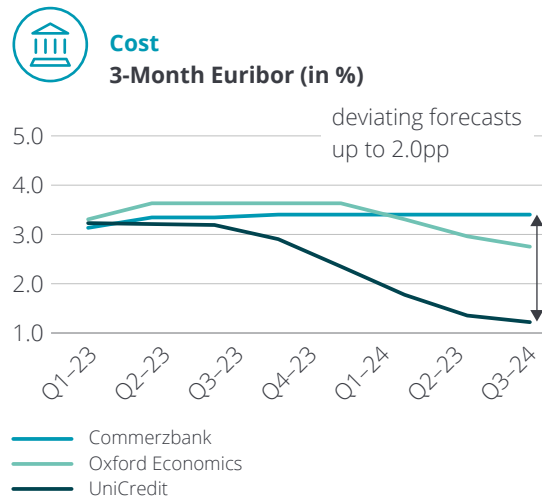
**Fig. 3 - Uncertainty**



Source: IHS Markit



Source: EZB, IWF, KFW



Source: Bloomberg

→  **Key Challenge**  
Uncertainty at all time high

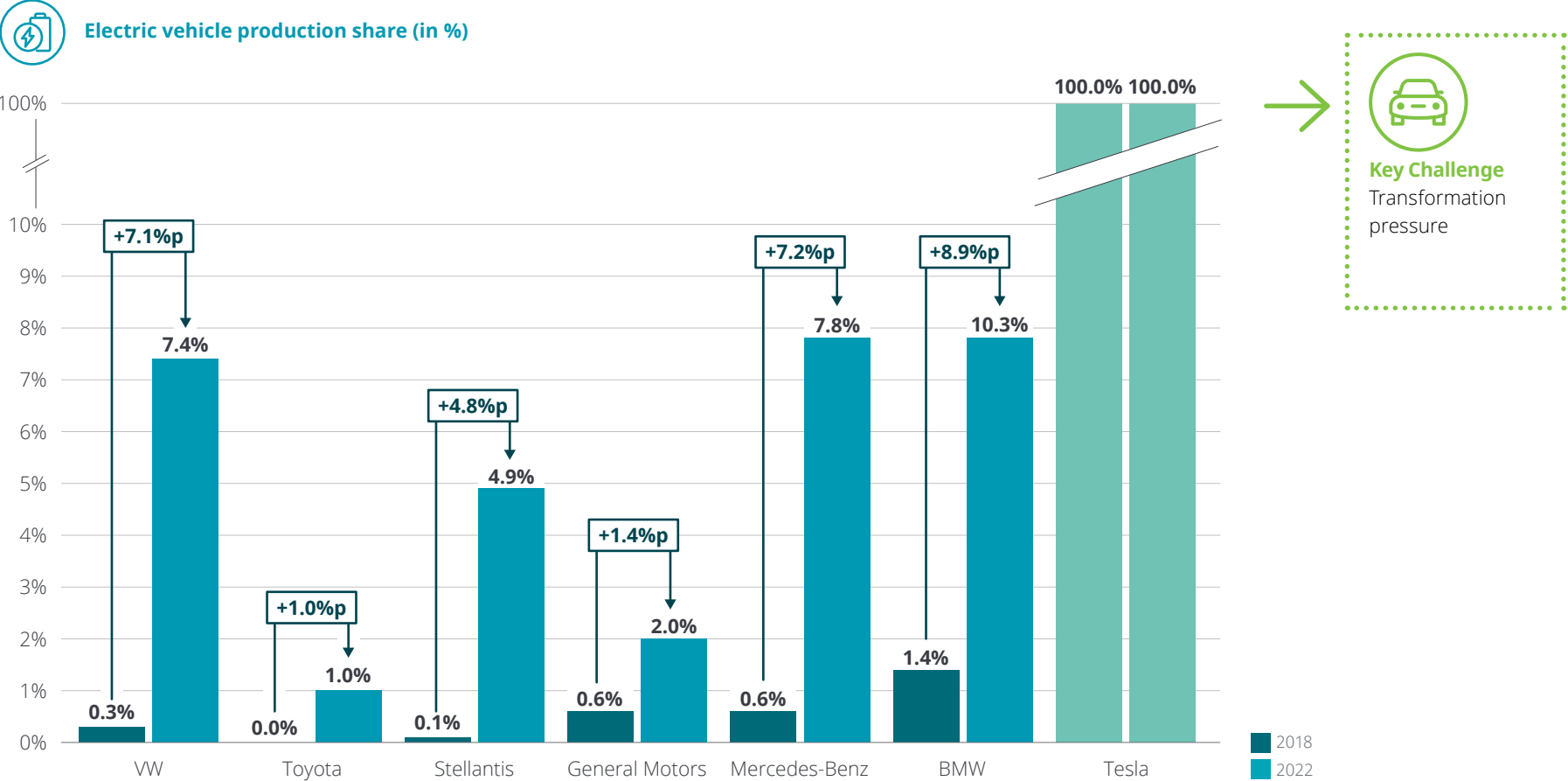
# Increasing speed of electrification

In general, all large automotive OEMs are catching up with electric-vehicle-focused OEMs like Tesla and increased their share in production of purely electric vehicles from 2018 to 2022.

Especially VW, Mercedes-Benz and BMW grew their share of electrified vehicles significantly to >7% of overall fleet compared with <1% in 2018, followed by Stellantis (+4.8pp) and GM (+1.4pp).

It remains to be seen how the established manufacturers keep this pace, leveraging their platform strategies to introduce Electric Drivetrain to all vehicle classes at an acceptable price and fit for the mass market.

Fig. 4 - Electrification



Source: IHS Markit, based on engine production forecast

# Balance of power between OEM & supplier

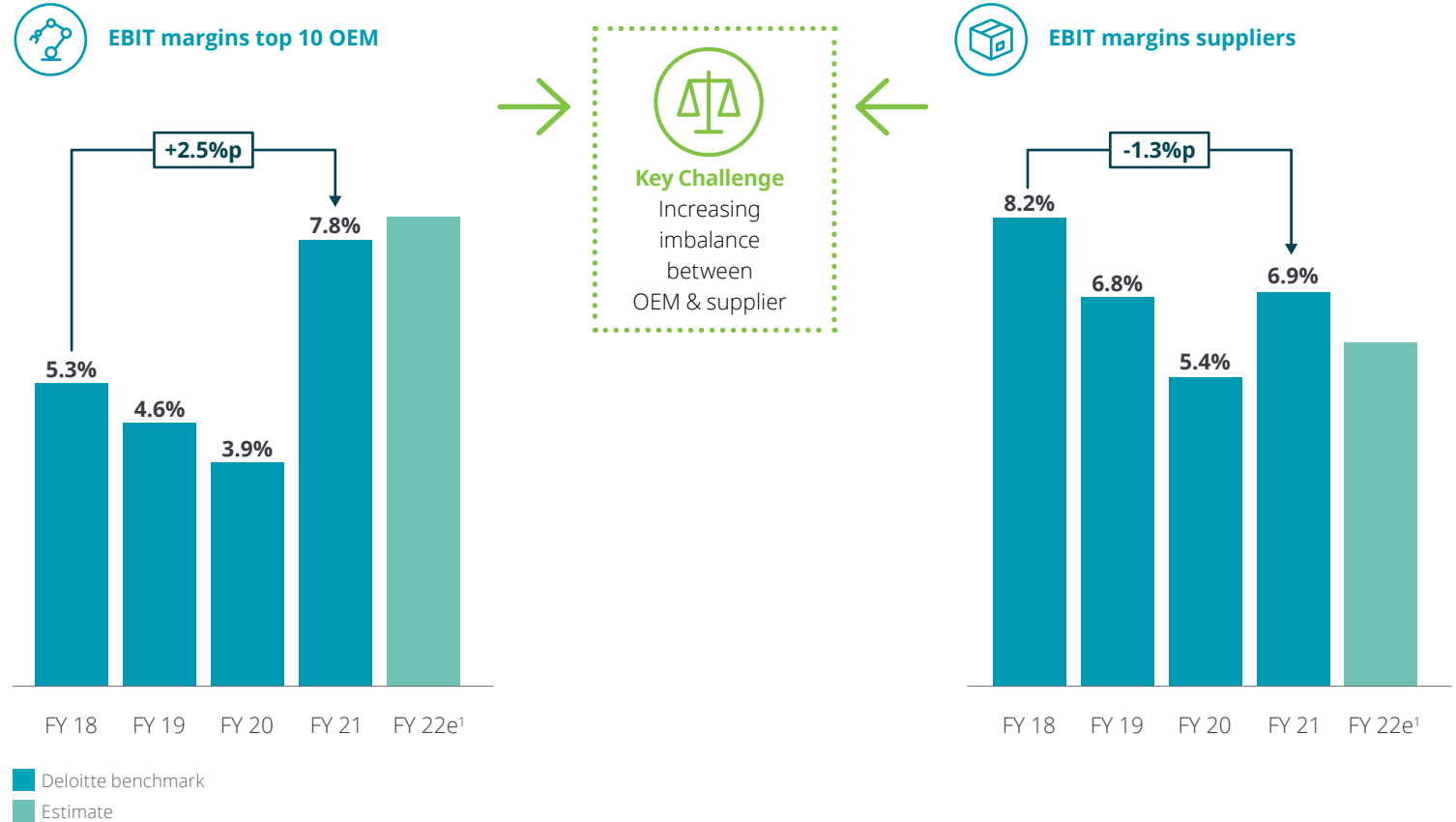
After a period of declining profitability in FY19 and FY20, OEMs managed to increase their EBIT margin by +2.5pp in FY21 compared with FY18 focusing on high margin vehicles, cost cutting and leveraging the seller market by granting limited discounts.

Even though FY22 estimate indicates still increasing margins for OEM, we expect them to be under ongoing cost pressure in 2023.

In contrast to increasing OEM margins, suppliers have faced a significant deterioration of -1.3pp in profitability.

Since the FY21 margins have been positively impacted by subsidies like short-time work that weren't granted anymore in 2022, the outlook for FY22 supplier margins deteriorates.

**Fig. 5 - Margin development**



Sources: Deloitte benchmark database (approximately 770 suppliers), financial reports

<sup>1</sup>At the time of publication, not all annual reports were available for the approximately 770 suppliers in the Deloitte benchmark database.

# Deviating financial status between small and large supplier

During the “crisis” years FY19 and FY20, supplier profitability decreased in general.

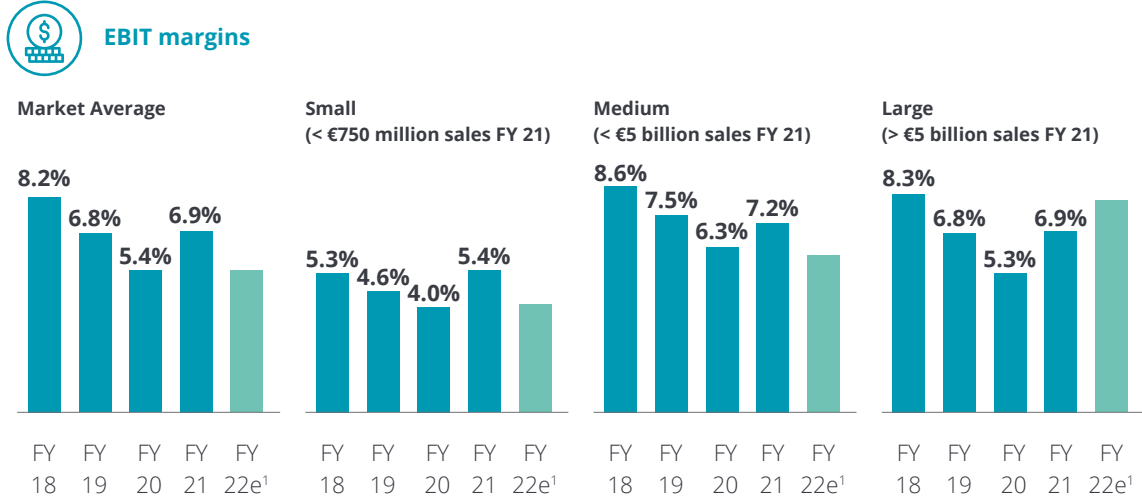
While current indications show that large suppliers managed to keep up their margins in FY22, margins drop for medium and small suppliers.

This trend is getting severe especially for small suppliers because their average EBIT margin is significantly below those of medium and large suppliers.

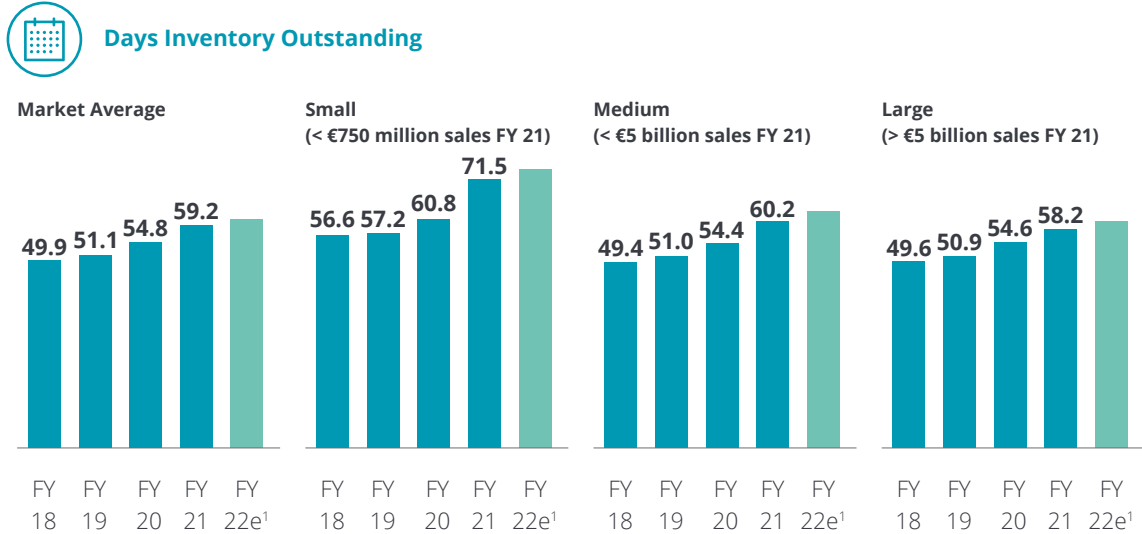
Differences in EBIT development are (partly) due to differences in market power of suppliers towards OEM, depending on their size.

Days inventory outstanding is rising for all suppliers by +10pp on average due to increasing supply chain disruptions and material shortages.

**Fig. 6 - Deviating financial status per supplier size**



→ **Key challenge**  
Decrease in profitability



→ **Key challenge**  
Increase in working capital

■ Deloitte benchmark  
■ Estimate

Sources: Deloitte benchmark database (approximately 770 suppliers), financial reports  
<sup>1</sup>At the time of publication, not all annual reports were available for the approximately 770 suppliers in the Deloitte benchmark database.

# Approach and key results

## The Supplier Risk Monitor in a nutshell



### Why?

Taking a proactive approach to detecting and anticipating risk areas across different supplier component clusters is key to your transformation strategy – the first step to securing your business for the long run and navigating the massive changes taking place in the automotive value chain.



### What?

Your guide to identifying and assessing the component cluster-specific risks facing the global automotive supplier industry.



### How?

Start by assessing 25 leading indicators that cover uncontrollable risks (external factors) in your company's competitive environment and in global and societal trends.

Next up are the controllable risks (internal factors) rooted in your company's own operations, financial situation and strategic positioning.

The starting point for your risk evaluation is the set of 19 component clusters introduced in Deloitte's study series on The Future of the Automotive Value Chain.<sup>1</sup>

Fig. 7 - Breakdown of vehicle into component clusters

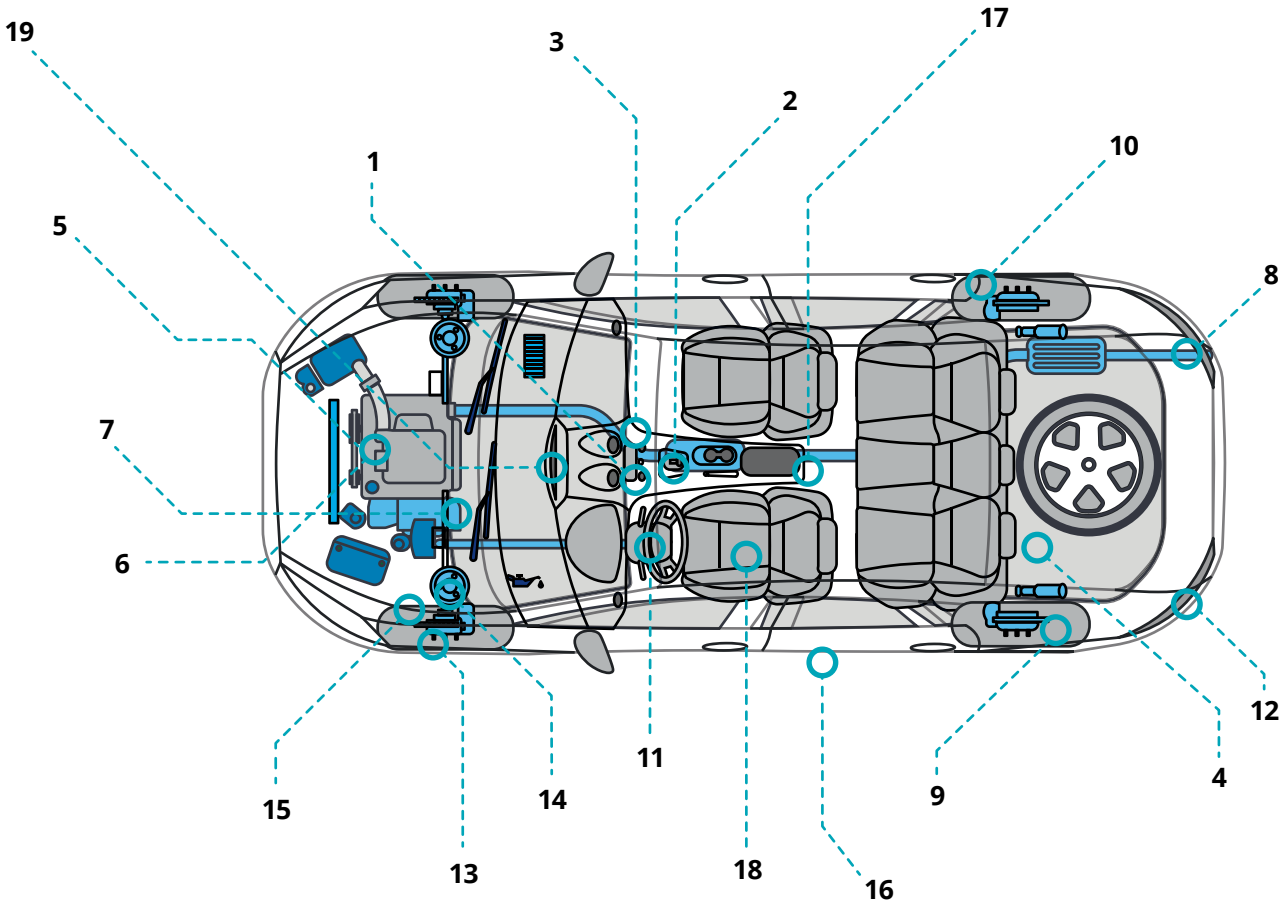


Fig. 8 - (Aggregated) component clusters

1	Advanced Driver Assistance Systems (ADAS) & Sensors	● <b>Connected driving and electronics</b>
2	Electronics	
3	Infotainment & Communications	
4	High Voltage (HV) Battery / Fuel Cell	● <b>New drivetrain</b>
5	Electric Drivetrain	
6	Internal Combustion Engine (ICE)	● <b>Technologies related to ICE</b>
7	Transmission	
8	Exhaust System	
9	Fuel System	● <b>Traditional technologies</b>
10	Wheels & Tires	
11	Steering	
12	Frame	
13	Brakes	
14	Suspension	
15	Axles	
16	Body	
17	Interior	
18	Seats	
19	Climate Control	

The Supplier Risk Monitor enables companies to continuously and systematically monitor risks in 19 separate component clusters. We evaluate each component cluster based on three external risk categories (market structure and pressure, regulatory and societal environment, future market relevance) and three internal risk categories (cash-generation power, cluster adaptability and capacity for innovation, credit rating) on a scale of 1 to 5. The value assigned to each risk category combines multiple risk indicators, which are rated based on our extensive research and sector knowledge. This allows us to rely on a big-picture view, when we identify the relevant risks for a particular component cluster.



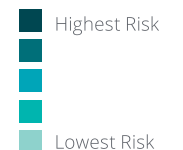
# Key results

Looking at current data, the **highest risk** component clusters are ICE and Frame followed by Transmission and Exhaust System. Compared with the first risk monitor results (2021), not surprisingly, ICE technology related component clusters remain in the high risk areas of the automotive industry. The component cluster with the highest external risk remains ICE (decreasing market volume, high adverse impact of legislation, low future share in passenger cars). Driven by relatively pessimistic market volume development and increasing decarbonization pressure on the external side, in combination with low earnings on the internal side, the overall risk score of Frame has deteriorated by 15 positions in the risk rank. The highest internal risk can be observed in Axles (low-earning, bad balance-sheet structure and poor analyst ratings).

The **lowest risks** remain in the ADAS & Sensors and Electric Drivetrain component clusters. ADAS & Sensors is in four out of six risk categories, among the two component clusters with the lowest risk level. Cluster adaptability and innovative power, creditworthiness and internal financing power (all internal factors) in particular influence the risk level in a positive way.

**Tab. 1 – Component cluster risk league table**

Risk rank	Previous risk rank <sup>1</sup>	Change <sup>1</sup>	Cluster	Risk score
<b>1</b>	1	→	<b>ICE</b>	<b>4.41</b>
<b>2</b>	17	↑	<b>Frame</b>	<b>4.37</b>
<b>3</b>	8	↑	<b>Transmission</b>	<b>3.82</b>
<b>4</b>	2	↓	<b>Exhaust System</b>	<b>3.75</b>
<b>5</b>	9	↑	<b>Body</b>	<b>3.71</b>
6	4	↓	Fuel System	<b>3.68</b>
7	6	↓	Axles	<b>3.68</b>
8	14	↑	Seats	<b>3.30</b>
9	13	↑	Electronics	<b>3.27</b>
10	15	↑	Wheels & Tires	<b>3.26</b>
11	5	↓	Climate Control	<b>3.22</b>
12	3	↓	Interior	<b>3.19</b>
13	7	↓	Suspension	<b>3.17</b>
14	10	↓	Steering	<b>3.00</b>
<b>15</b>	11	↓	<b>Infotainment</b>	<b>2.87</b>
<b>16</b>	12	↓	<b>Brakes</b>	<b>2.71</b>
<b>17</b>	18	↑	<b>Electric Drivetrain</b>	<b>2.16</b>
<b>18</b>	16	↓	<b>HV Battery / FC</b>	<b>2.11</b>
<b>19</b>	19	→	<b>ADAS &amp; Sensors</b>	<b>1.00</b>



<sup>1</sup>Compared to the previous Deloitte Supplier Risk Monitor 2021

Understanding the different risks that impact these factors, classified as either internal or external risks, gives us a strong foundation to start developing countermeasures and mitigating risk. Based on its position within the risk matrix, as shown in Figure 10, we can develop an initial hypothesis as to the origin or the primary driver of each risk and develop risk reduction initiatives. It is crucial, however, to work from an in-depth understanding of your company's individual risk structure.

**Fig. 9 – Component cluster risk map - Description of risk cluster**

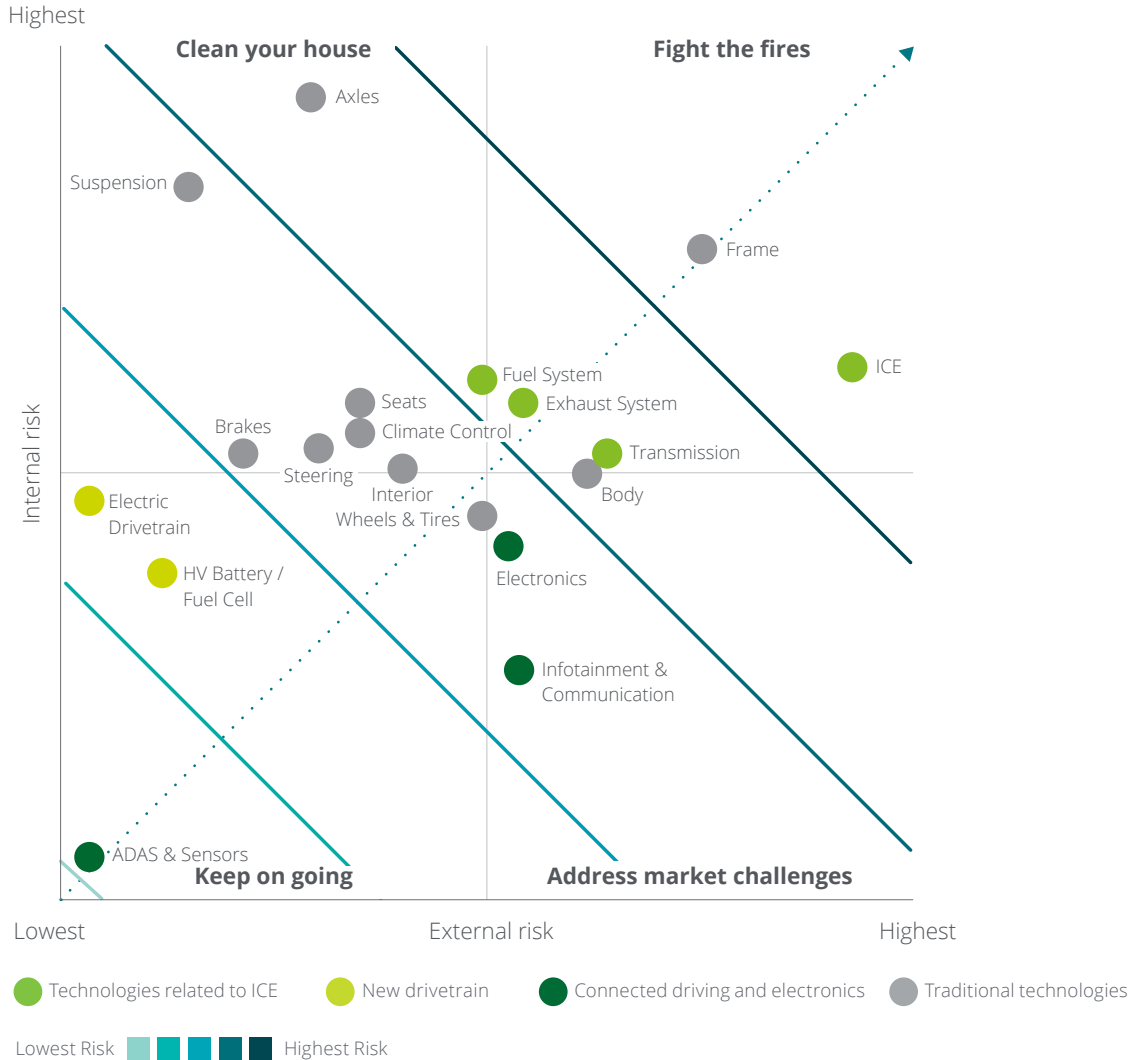


As can be seen in the component cluster risk map, clusters with high internal and external risks are ICE, Frame, Transmission and Exhaust System. All four component cluster are consequently at the top of the risk league table shown on the page before. This is driven by the pressure for carbon-neutral drive systems from both politicians and the general public paired with high internal (controllable) risks like low profitability and high indebtedness. Not surprisingly, clusters focused on New drivetrain technologies and Connected driving and electronics have a lower overall risk profile.

Almost all component clusters considered traditional technologies are characterized by high internal risk. The market for traditional technologies is solid since external risks are still comparatively low. Nevertheless, these technologies are at a crucial crossroad, as minimizing internal risks is essential for a good positioning in challenging times.

If Axles are the riskiest, it is mainly driven by the lowest earnings, operating cash flow and debt repayment capacity of all clusters under review. Suppliers active in these clusters are advised to “clean their house”. Contrarily, suppliers producing Infotainment & Communication parts indicate low internal but increased external risks. This is mainly attributable to low talent availability as well as rather low IPO volumes and enterprise values in M&A activities or more generally said: market challenges.

Fig. 10 – Component cluster risk map



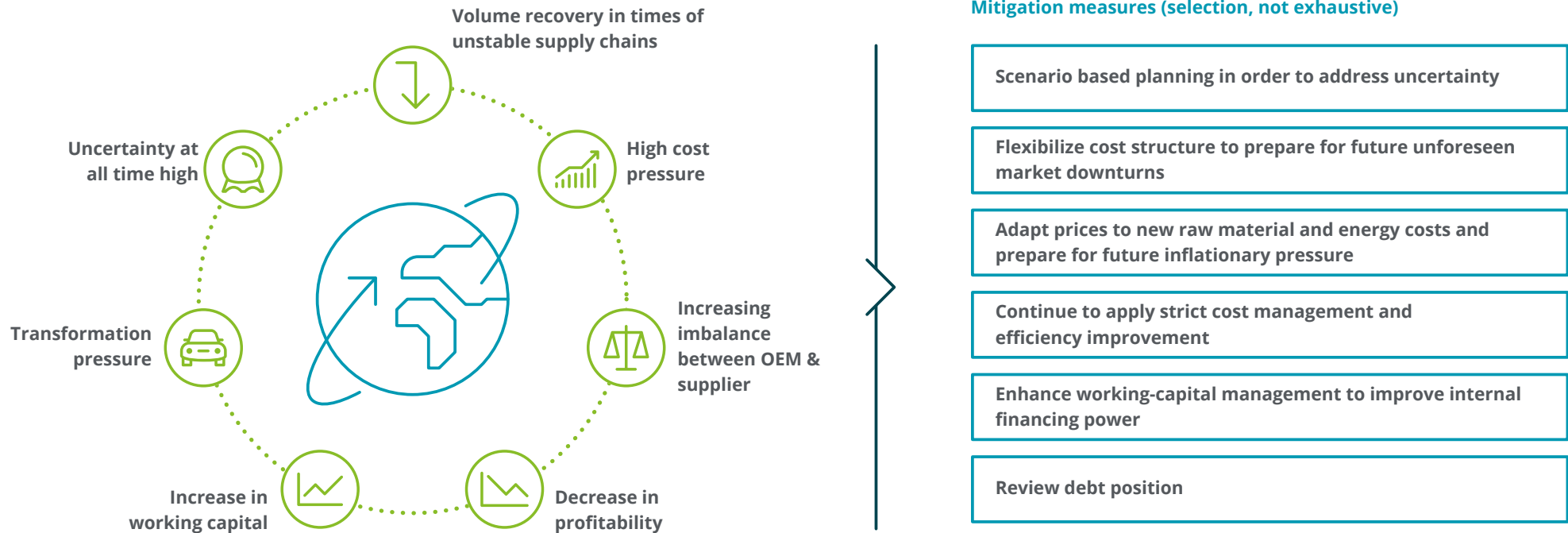
# Mitigation measures

For suppliers, it is essential to know their individual positioning in the risk map, which may differ from the positioning of the component cluster shown on the previous pages.

Regardless of the individual positioning, every supplier should think about implementing “general no-regret moves” to address the current market challenges.

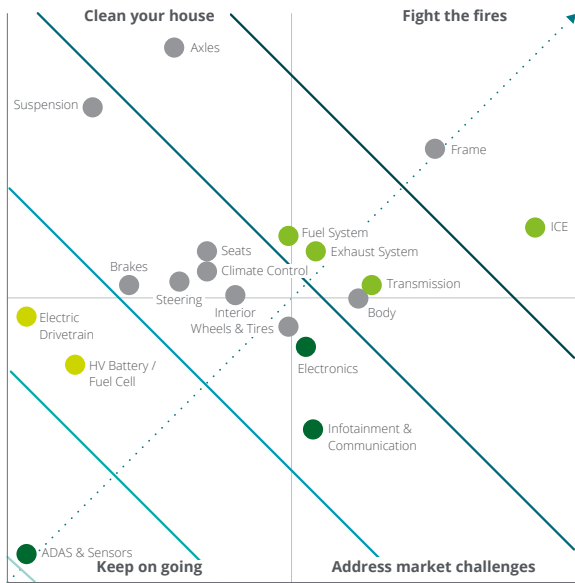
The last step is to adjust the measures according to the individual competitive pressures and competitive positioning.

**Fig. 11 – General mitigation measures**



Further risk cluster specific measures are then to be identified in a second step, depending on the individual positioning in the risk map.

**Fig. 12 – Supplier specific mitigation measures**



**Mitigation measures (selection, not exhaustive)**

Internal risk	Highest	<b>Clean your house</b>	<b>Fight the fires</b>
		<p><b>Clean your house</b></p> <p><b>Collaborate with other suppliers</b> (e.g. join forces for R&amp;D)</p> <p><b>Pimp your house</b> and divest as long as the market development is promising</p>	<p><b>Fight the fires</b></p> <p><b>Divest non-performing business units</b> to stop the bleeding or perform <b>controlled exit</b> and divest complete business</p> <p><b>Restructure</b> (e.g. overhead, production footprint, product portfolio, pricing)</p>
		<p><b>Safeguard market position</b>, by further differentiation from competition (e.g. via innovation)</p> <p><b>Evaluate forward or backward integration</b> (e.g. raw materials sourcing or become a system suppliers)</p> <p style="text-align: center;"><b>Keep on going</b></p>	<p><b>Drive market consolidation</b> to acquire additional market share in decreasing markets</p> <p>Invest in other component cluster to <b>diversify your product portfolio</b></p> <p style="text-align: center;"><b>Address market challenges</b></p>
	Lowest	External risk	Highest

“Our risk analysis shows that many traditional technology suppliers are positioned in the “Clean your house” quadrant of our risk map and therefore face high internal risks, while external risks are not that threatening and therefore not a key priority in the short term. However, market challenges and the need for overall transformation remain high. These traditional technology supplier clusters are at the crossroads and must take (internal) measures to prepare for and shape a successful future.”

**Philipp Obenland, Partner, Supply Chain & Network Operations**

# Risk factors

## External risk factors

are defined as uncontrollable factors that affect either the present or future state of a company but to a large extent are beyond the influence of management decisions.



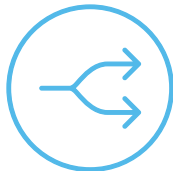
### Market structure and pressure

These are risks arising from the competitive situation within a certain component cluster. It is important to consider the current market structure (e.g., based on level of fragmentation) relative to current market size. The outlook for key inputs such as raw materials and skilled talent is an additional factor in our assessment. Furthermore, external market pressure leading to insolvencies is taken into account.



### Regulatory and societal environment

Besides the competitive environment, a company prospects are increasingly affected by societal and regulatory norms and developments, like subsidies for electric vehicles or CO<sub>2</sub> emission restrictions. The overarching themes here revolve around issues of security, sustainability, predictability of the legislative framework and macroeconomic and political threats.



### Future market relevance

Besides the risks arising from global megatrends, additional risk indicators such as entrepreneurial and M&A attractiveness affect a component clusters future market relevance. Innovation and disruption from automotive players and new entrants are expected to change the current value-added process and the automotive supplier landscape.

## Internal risk factors

These are defined as controllable factors that can be either a multiplier or a mitigator for external risks. Whereas all companies within a component cluster are affected to the same extent by external factors, they vary with regard to their internal risks.



### Cash-generation power

The ability to adapt new trends and the consistently high pressure from OEMs and the market as a whole make it imperative for companies to stay profitable, i.e., to maintain flexible cost structures and stable operating cash flow as well as keeping locked-up working capital to a minimum.



### Cluster adaptability and capacity for innovation

We assess patents and the level of R&D investment over the medium-term to determine a component cluster's readiness to capture current and prospective market trends and a company's willingness to invest in the future of a market. Innovative component clusters offer opportunity for companies to set themselves apart from the competition through innovation or by creating a new market niche.



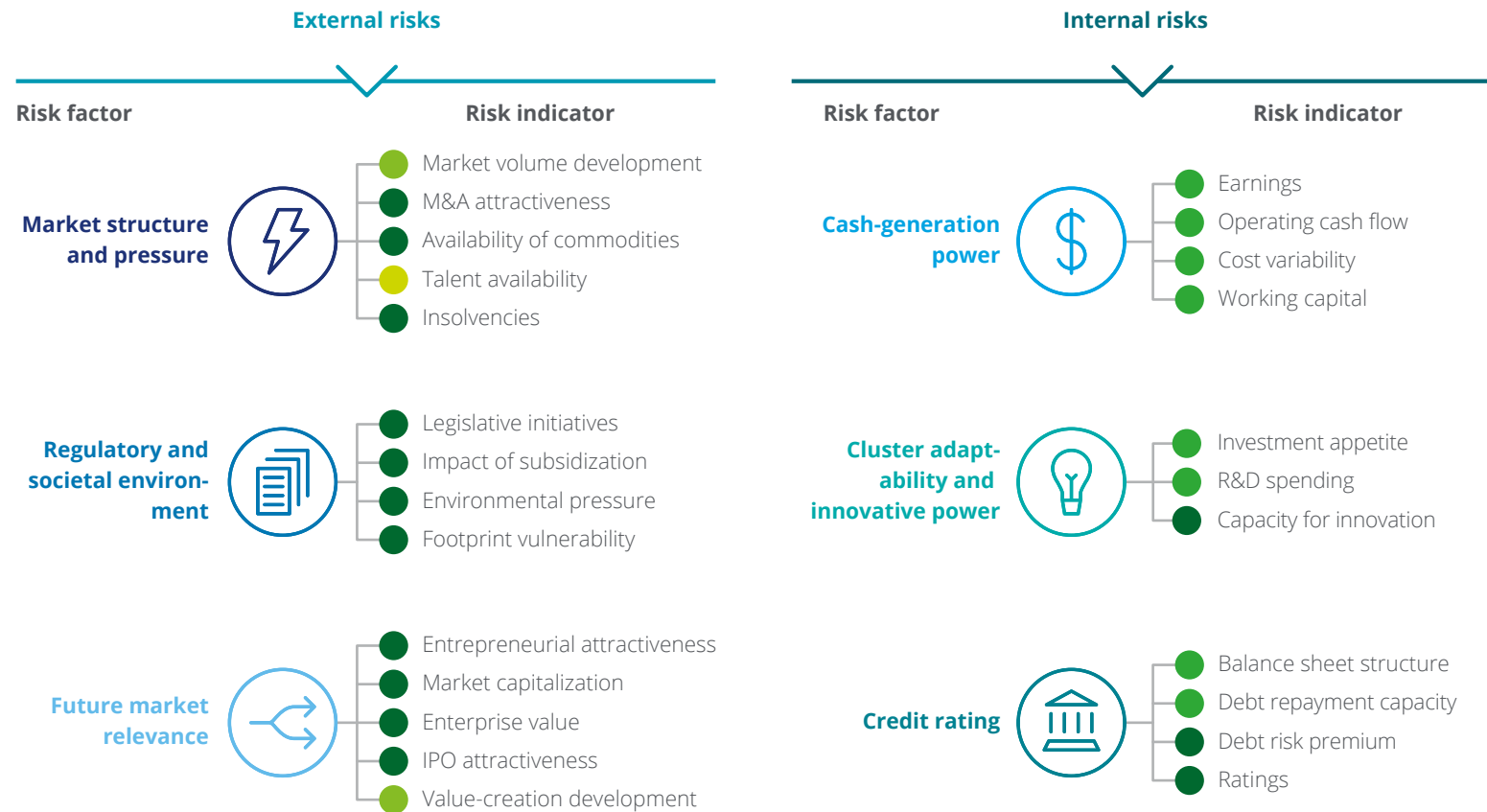
### Creditworthiness

Here, we evaluate a component cluster's ability to finance necessary changes, to fund new projects through external equity or debt capital and to service existing loans. A high credit rating helps companies source debt capital or equity capital providers, which in turn will help fund future endeavors to expand the business, create a niche, grow the product portfolio and drive consolidation.

# Risk assessment approach

This risk assessment covers a comprehensive set of leading internal and external risk indicators that can be measured and monitored. For purposes of the study, we have made sure the indicator database is always up to date to ensure the assessment reflects the latest developments.

**Fig. 13 – Overview of leading indicators and data sources**



● Deloitte *The Future of the Automotive Value Chain* studies   
 ● Deloitte benchmark database (approximately 770 suppliers)  
● Deloitte research   
 ● Deloitte specialist knowledge



# Risk monitoring and mitigation

**Tab. 2 – Overview monitor and mitigation approach**

Risk monitoring		Risk mitigation
<p><b>Analyze and monitor macro risks</b></p> <ul style="list-style-type: none"> <li>Analyze leading indicators to assess risks of individual automotive component clusters.</li> <li>Use leading internal and external indicators to enable an objective risk assessment.</li> <li>Perform risk assessment on a global basis, regularly updating and publishing results.</li> <li>Track the development of risk exposure over time, to allow comparison with previous risk assessments of component clusters.</li> </ul>	<p><b>Identify key risks</b></p> <ul style="list-style-type: none"> <li>Consider and translate Deloitte Supplier Risk Index to a specific company scenario.</li> <li>Analyze company-specific risks:                             <ul style="list-style-type: none"> <li>Does any company have a different risk exposure than its component cluster?</li> <li>How has risk level developed compared with the previous assessment?</li> </ul> </li> <li>Identify key risks based on their expected impact on the company.</li> <li>Separate uncontrollable risks from controllable risks.</li> </ul>	<p><b>Define mitigation actions</b></p> <ul style="list-style-type: none"> <li>Assess different transformation scenarios for own component clusters in general and in light of the Deloitte risk evaluation.</li> <li>Define transformation path and action plan to mitigate key risks.</li> <li>Update action plan based on changed risk exposure.</li> </ul>
<p><b>Focus of this study</b></p>		<p><b>Supplier-specific report tailored to reflect the relevant internal/external risk level.</b></p>
		<p><b>Focus of the Deloitte Supplier Financial Transformation Model<sup>1</sup></b></p>

“Especially in times of uncertainty, it is of utmost importance for automotive suppliers and their equity and debt providers to take a systematic approach for continuous monitoring of external and internal risks. We recommend a scenario-based planning approach with early specification and implementation of a suitable package of mitigation measures to navigate safely through stormy times.”

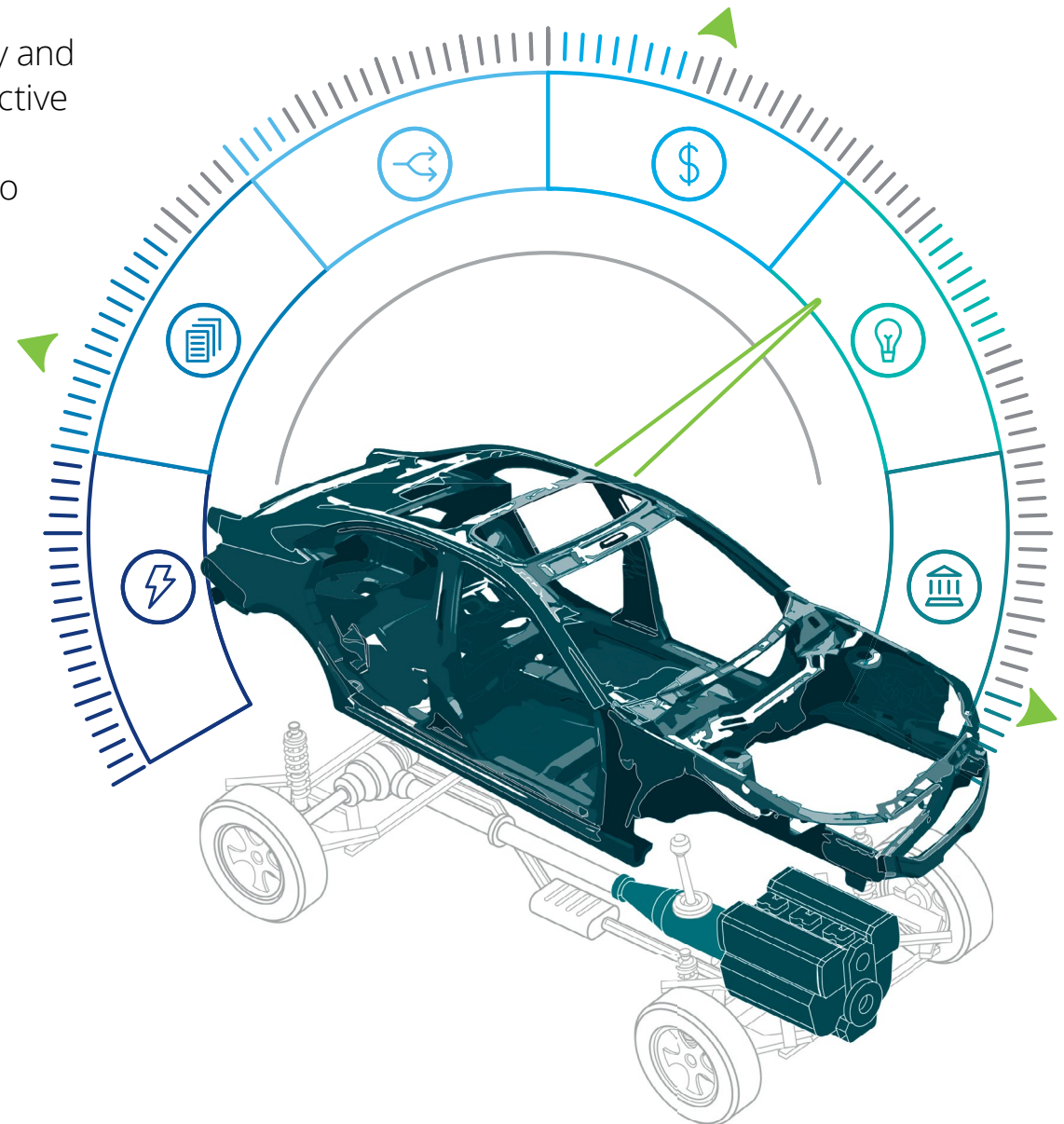
**Daniel Montanus, Partner, Turnaround & Restructuring**

<sup>1</sup> Deloitte, *The Future of the Automotive Value Chain – The Supplier Financial Transformation Model*, 2018.

# Supplier Risk Monitor details

Deloitte has developed a proprietary methodology that enables suppliers, OEMs, banks and investors to identify and monitor risks on an ongoing basis using a set of 25 objective leading indicators. These indicators are categorized into 6 different risk factor categories and updated regularly to support continuous risk monitoring.

Suppliers, OEMs, banks and investors can rely on Deloitte's powerful leading indicator database to benchmark different component clusters and automotive suppliers against one another. With regular updates of the database, future issues of our Supplier Risk Monitor will be able to provide insight on how risks levels change over time.



The following pages present all of our leading indicators as well as their impact on the risk categorization of each component cluster. Get in touch with us for a chance to rank your company, your portfolio of companies, your customers or your suppliers against the competition; we look forward to helping you identify the specific risks of your business and developing possible mitigation measures.



## Market structure and pressure

ICE and Transmission are the riskiest component clusters in terms of market-pressure resulting from poor market development and attractiveness.

The fastest growing component clusters HV Battery / Fuel Cell and ADAS & Sensors also pose an attractive market environment which is attributable to a high share of M&A transactions being done by investors outside these component clusters, indicating a highly attractive market, especially for investors that are willing to diversify.

Even though talent availability is a concern for nearly all industries, the component clusters that need talent in the IT segment, such as ADAS & Sensors and Electronics, are relatively worse off.

Availability of commodities is still a critical issue for component clusters focusing on Electronics, especially Electric Drivetrain and HV Battery / Fuel Cell that require rare materials. In contrast to the previous study, the availability risk for commodities is getting worse as well for component clusters that depend on aluminum, copper, and steel, due to the Russia-Ukraine war: In particular, Body, Frame and Transmission.

**Tab. 3 – League table: market structure and pressure**

		Market volume development	Availability of commodities	Talent availability	Insolvencies	M&A attractiveness
	<b>Risk score</b>	<b>Risk indicator score</b>				
<b>Highest risk</b>	<b>5</b>					
ICE	<b>5.00</b>	■	■	■	■	■
Transmission	<b>4.47</b>	■	■	■	■	■
Frame	<b>4.37</b>	■	■	■	■	■
Exhaust System	<b>4.31</b>	■	■	■	■	■
Fuel System	<b>4.16</b>	■	■	■	■	■
...						
Suspension	<b>2.57</b>	■	■	■	■	■
Brakes	<b>2.41</b>	■	■	■	■	■
Electric Drivetrain	<b>1.55</b>	■	■	■	■	■
HV Battery / Fuel Cell	<b>1.30</b>	■	■	■	■	■
ADAS & Sensors	<b>1.00</b>	■	■	■	■	■
<b>Lowest risk</b>	<b>1</b>					

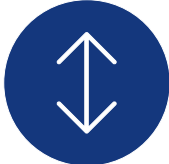
Lowest Risk ■ ■ ■ ■ ■ Highest Risk

Weighting of risk indicator



Market structure and pressure

**Description of risk indicators**



**Market volume development**

Expectations for development of the global<sup>1</sup> market volume for each component cluster. If forecasts indicate a strong increase in market volume, this will typically lead to a less competitive environment in the short term and, a lower risk level for all market participants.



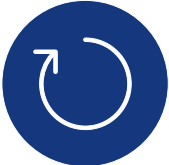
**Insolvencies**

Based on the analysis of insolvencies in recent years, component clusters with a high number of insolvencies are more likely to have higher occurrences of unsolvable challenges in the near future.



**Availability of commodities**

Analysis of worldwide availability of the raw materials required for production in a component cluster. Scarcity of raw materials poses a risk for all market participants in a given cluster.



**M&A attractiveness**

The number of M&A transactions mirrors the attractiveness of a component cluster. A deep-dive into the split of transactions into (buyer and target are from the same component cluster, indicating "consolidation") and inter cluster (buyer and target are from different clusters, indicating "diversification") will follow in this chapter. A high number of transactions to consolidate may result in strong market concentration with just a few suppliers and high risks for less market-dominating competitors.



**Talent availability**

Given the pace of technological change (electrification, autonomous driving, ...) and increasing digitalization of cars (car-to-x), the availability of employees with specialist skills is an important factor. Finding talent with the appropriate background (education and experience) is key to leveraging the market trends expected in some component clusters.

<sup>1</sup>Described by representative markets NAFTA, China, Germany



Market structure and pressure

**Fig. 14 – Sales of alternative drivetrain vehicles in comparison to ICE vehicles (in mio., Germany, NAFTA and China)**



**Deep dive alternative drivetrain market share**

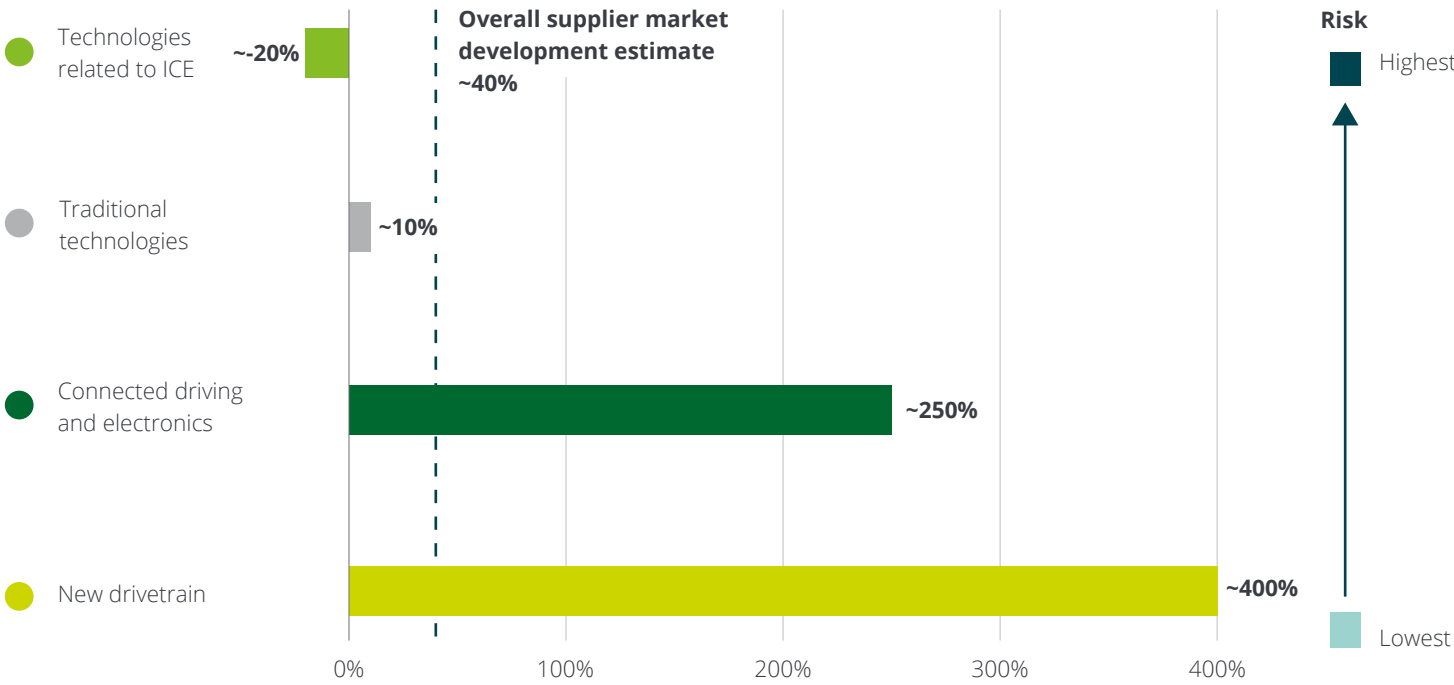
In the most important automotive markets, Germany, NAFTA and China, the share of vehicles with an internal combustion engine will slowly decrease in the coming years.

Alternative drivetrain vehicles will come to over 50% in 2030, mainly driven by the Chinese market.

In the next decade annual sales of alternative vehicles in Germany will shrink to less than 10% of the Chinese market.

Source: Deloitte Automotive Electric Vehicle Model

**Fig. 15 – Market volume development estimate for key market Germany, NAFTA and China (percentage change in expected market volume in 2030 compared to 2022)**



**Deep dive market volume development**

Overall automotive supplier market for selected key markets Germany, NAFTA and China is expected to grow by ~40% until 2030 compared to 2022 market volumes.

Overall growth is mainly driven by connected driving and electronic (~ +250%) as well as new drivetrain (~ +400%) component clusters.

Estimates of market volumes of traditional technologies are showing a slight increase by ~ +10%.

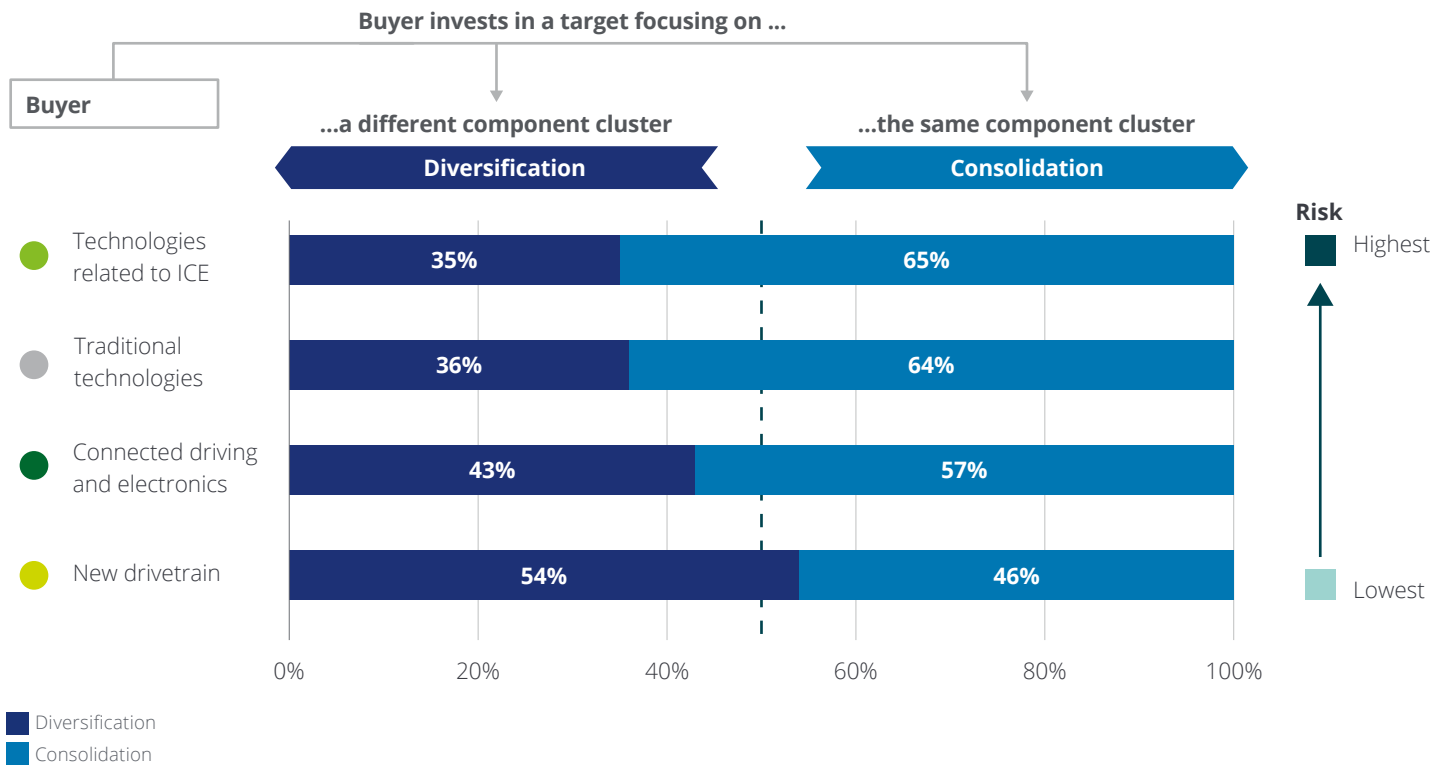
Technologies related to ICE are facing a reduction of revenue by ~ -20% on average until 2030.

Source: Deloitte research, Deloitte Automotive Value Chain studies



Market structure and pressure

**Fig. 16 - M&A attractiveness (Diversification and consolidation in % of total M&A deals)**



Source: Deloitte research, Mergermarket

**Deep dive M&A attractiveness**

Technologies related to ICE are driven by consolidation (65% of overall M&A deals) and therefore least attractive.

Traditional technologies with 64% of deals being done inside the buyer's own component cluster are considered unattractive for outside investors.

Targets within the Connected driving and electronics aggregated component cluster bought by strategic investors from the same industry, account for 57%. Diversification transactions account for the remainder.

The market for New drivetrains indicates a high level of deals characterized by investors buying a target outside their own component cluster, implying attractiveness to extend business and develop new markets (54% of overall M&A deals).



## Key messages

After the significant decline in market volumes across all component clusters in 2020 due to COVID, semiconductor crisis, and supply chain disruptions, the recovery of volumes continues and long-term market volume outlook is still positive. Overall forecasts anticipate total growth of +40% by FY30.

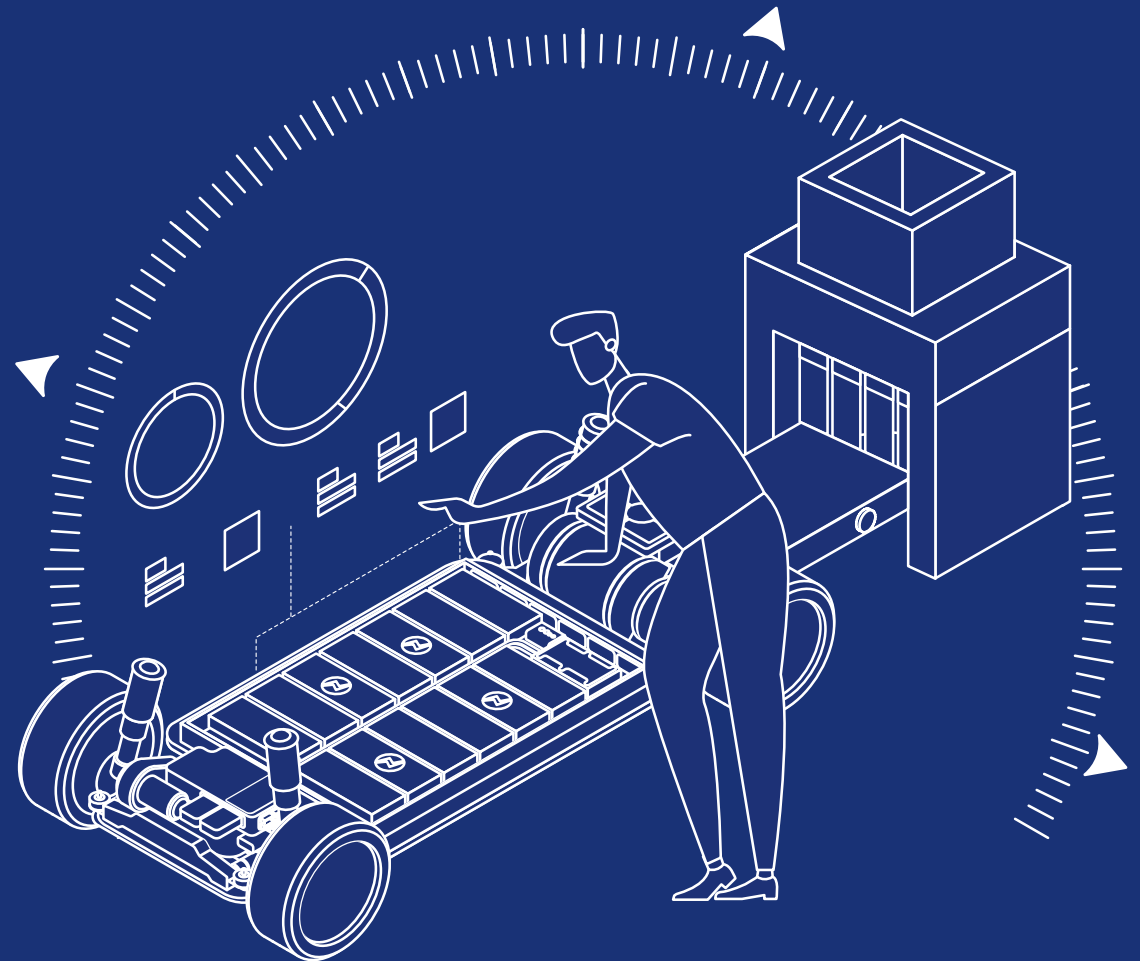
Especially for electric-vehicle-related technologies significant market growth will be possible.

Technologies related to ICE will partially cover volume reduction by price increases, even if forecasts show a revenue decrease of ~ -20% by FY30.

Component suppliers are increasingly under pressure by OEMs to be a full-systems provider, so more and more suppliers are determined to complete the product portfolio within their own component cluster, which drives consolidation. This can especially be observed in the Technologies related to ICE clusters and in the Traditional technology component clusters.

The availability of commodities is important for digitalization and automation in particular, as well as for the switch to Electric Drivetrains. Sourcing relevant raw materials such as cobalt and rare-earth metals hinges on the political stability of the countries of origin and human rights and environmental issues. Moreover, the availability of raw materials like aluminium has worsened due to the Russian-Ukraine-war.

The limited availability of skilled IT and electro-technical specialists is creating a fierce battle for talent in component clusters like ADAS & Sensors, Infotainment & Communication as well as the Electric Drivetrain and HV Battery / Fuel Cells component clusters. Conversely, conventional specialist roles will remain unaffected.





## Regulatory and societal environment

From the internal regulatory and social environment angle, the component clusters Body and Frame, followed by ICE and HV Battery / Fuel Cell, bear the highest risks.

These risks are mainly driven by a relatively bad carbon footprint, especially of Body, HV Battery / Fuel Cell, but also of Frame and by strict legislation and subsidies putting pressure on ICE suppliers.

The lowest risks can be seen in the component cluster Electric Drivetrain, which has the lowest risk score in all of the four risk indicators.

**Tab. 4 – Risk league table: regulatory and societal environment**

		Environmental pressure	Impact of subsidization	Legislative initiatives	Footprint vulnerability
Risk score		Risk indicator score			
<b>Highest risk</b>	<b>5</b>				
Body	<b>5.00</b>	■	■	■	■
Frame	<b>4.66</b>	■	■	■	■
ICE	<b>4.58</b>	■	■	■	■
HV Battery / Fuel Cell	<b>4.56</b>	■	■	■	■
Wheels & Tires	<b>3.43</b>	■	■	■	■
...					
Brakes	<b>1.82</b>	■	■	■	■
Steering	<b>1.66</b>	■	■	■	■
Suspension	<b>1.42</b>	■	■	■	■
Axles	<b>1.27</b>	■	■	■	■
Electric Drivetrain	<b>1.00</b>	■	■	■	■
<b>Lowest risk</b>	<b>1</b>				

Weighting of risk indicator

Lowest Risk ■ ■ ■ ■ ■ Highest Risk



Regulatory and societal environment

**Description of risk indicators**



**Environmental pressure**

There is massive social pressure on today's OEMs to move toward carbon-neutral production. OEMs will work to replace some components that have an adverse carbon footprint with alternative components that improve the carbon-neutral balance. OEMs may also try to pass – at least in part – the price premium associated with these solutions on to their suppliers. That would increase the risks for suppliers in this component cluster, who will have to achieve even more efficiency improvements and innovations to cover these additional costs.



**Legislative initiatives**

Legislation can accelerate market trends in some component clusters and slow them down in others. Where legislation is restrictive, companies may be unable to fully exploit the market's technological potential (e.g., autonomous driving), while legislative activism may boost other trends (e.g., electrification). Uncertainty due to the absence of legislation, on the other hand, means the risk in this area is higher than in other well-regulated markets.



**Impact of subsidization**

Government subsidies can drive product demand that lasts longer or provides a temporary boost, even if they are at a disadvantage to competing products. Where initial production costs are too high for some products (making them affordable only for a limited group of buyers), subsidies can move products into the mass market earlier. Subsidies may reduce risks for companies in a component cluster, even as they increase long-term dependency and decrease competitiveness.



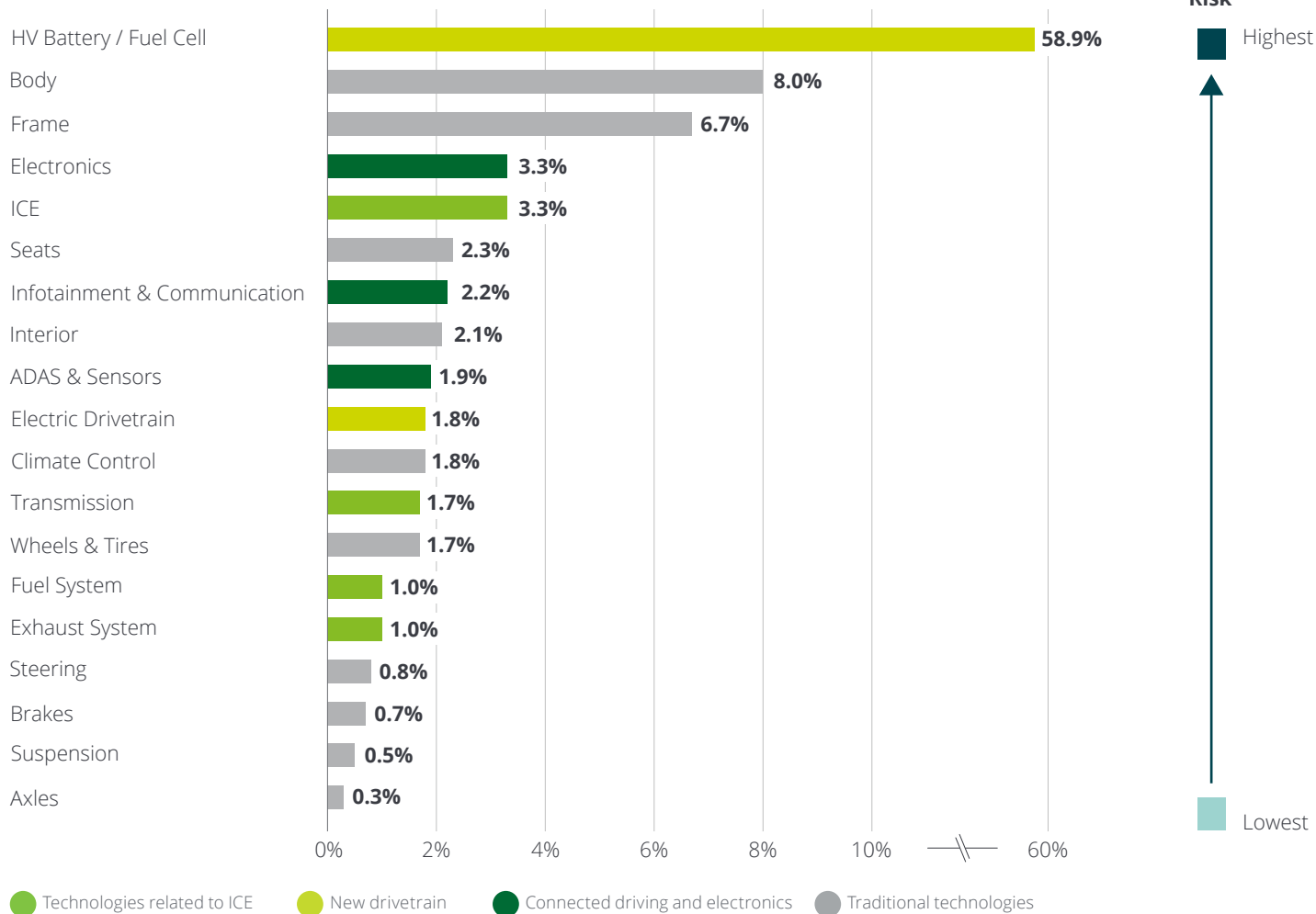
**Footprint vulnerability**

The Russian-Ukrainian war started in February 2022 and tragically demonstrated that worldwide economic political stability can change from one day to another. To take threats due to a company location into account, an index measuring risk and vulnerability of 179 countries worldwide has been assessed. Being located in a more vulnerable state implies a higher risk than being located in rather stable states.



Regulatory and societal environment

**Fig. 17 – Environmental pressure (CO<sub>2</sub> upstream footprint during material extraction)**



**Deep dive environmental pressure**

Even before a vehicle is put into use, it has a large CO<sub>2</sub> backpack, starting with the extraction of raw materials.

Unsurprisingly the HV Battery / Fuel Cell, which is composed to a significant extent of rare earth materials, is the biggest CO<sub>2</sub> driver in material extraction. They and components with high aluminum content (Body and Frame), are responsible for almost 75% of the CO<sub>2</sub> of all components.

Various government initiatives focus not only on the CO<sub>2</sub> -neutral use of cars, but also on their production (e.g., tightening of emissions certificate trading or EU Taxonomy).

These will accelerate the path to CO<sub>2</sub> reduction, but will also increase the effort required to comply with these regulations, leading to higher risks for companies with a high CO<sub>2</sub> upstream footprint.

Source: Deloitte research, Ecoinvent

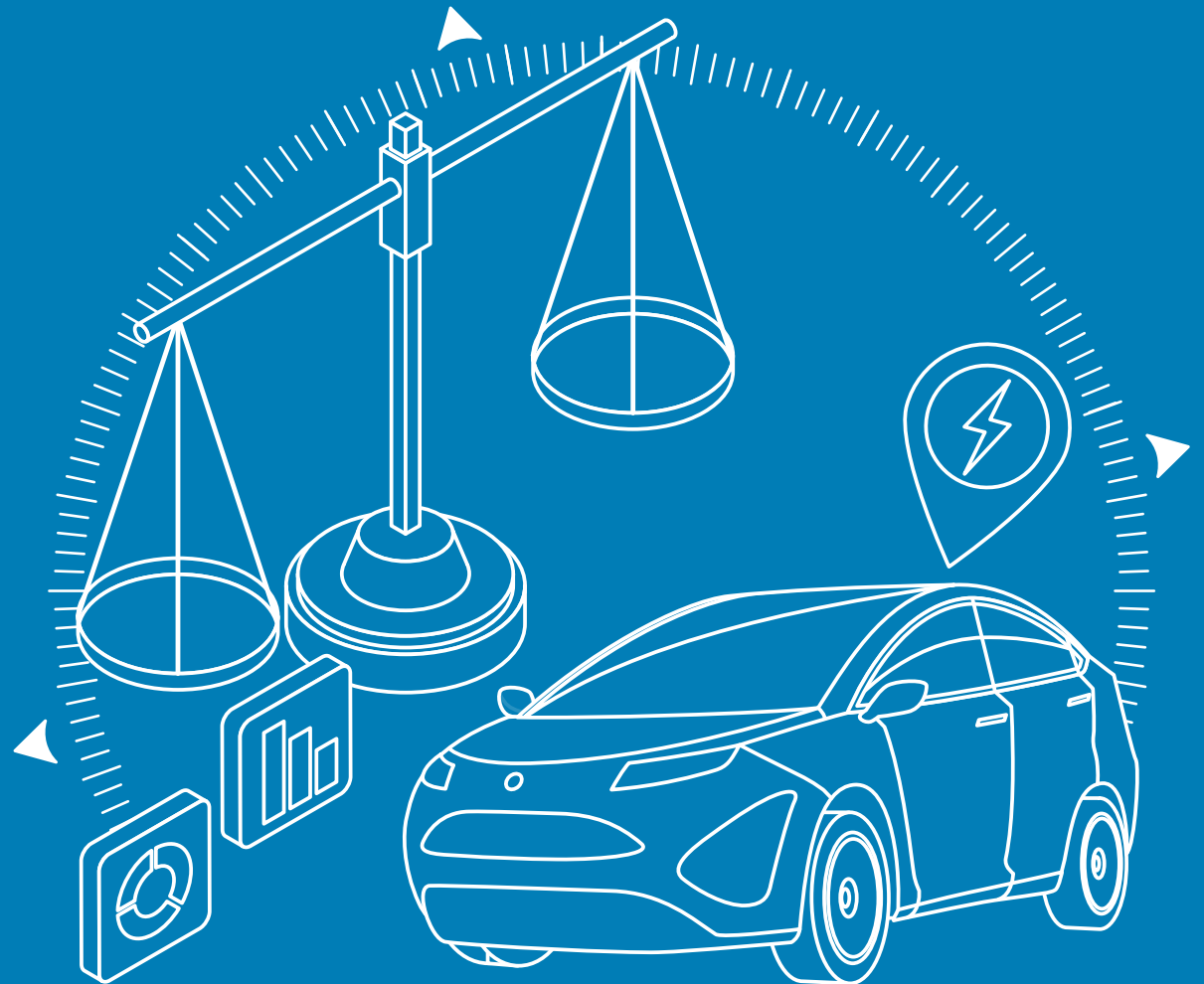
## Key messages

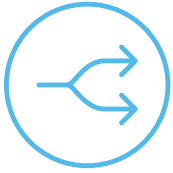
Legislative trends promoting the transformation of the mobility landscape, driven primarily by stricter emissions regulations, will have a positive impact on New drivetrain component clusters – and to a certain extent on the Exhaust System component cluster.

In addition to legislative initiatives, government subsidies that help the industry face pandemic-related challenges are clearly geared toward new drivetrains, as opposed to ICE-related systems.

The carbon footprint is becoming more important for the automotive industry since battery production is the prime emitter of CO<sub>2</sub>, followed by Body and Frame due to resource- and energy-intensive processes. These three component clusters show the largest risks in this category.

In the HV Battery / Fuel Cell and Wheels & Tires industries, companies are often headquartered in regions with lower political stability.





## Future market relevance

Infotainment & Communication suppliers are victims of increasing commoditization of this business area. It is attractive for neither entrepreneurs nor investors, since the component cluster is facing low EBIT multiples and its created value and market capitalization is not growing.

Our risk indicators confirms that the relevance of ICE has already declined substantially:

- Very low funding activity.
- A sharp decrease in market capitalization.
- Low EBIT multiples and reduced chances to refinance through an IPO.
- Despite low entrepreneurial activity (due to high market-entry barriers) and low IPO attractiveness, the HV Battery / Fuel Cell component cluster has the lowest risk score.

**Tab. 5 – Risk league table: future market relevance**

		Enterprise value	Value-creation development	Market capitalization	IPO attractiveness	Entrepreneurial attractiveness
	<b>Risk score</b>	<b>Risk indicator score</b>				
<b>Highest risk</b>	<b>5</b>					
Infotainment & Comm.	<b>5.00</b>	█	█	█	█	█
Electronics	<b>4.47</b>	█	█	█	█	█
ADAS & Sensors	<b>3.20</b>	█	█	█	█	█
ICE	<b>2.90</b>	█	█	█	█	█
Electronic Drivetrain	<b>2.75</b>	█	█	█	█	█
...						
Steering	<b>2.05</b>	█	█	█	█	█
Suspension	<b>2.03</b>	█	█	█	█	█
Climate Control	<b>2.00</b>	█	█	█	█	█
Fuel System	<b>1.93</b>	█	█	█	█	█
HV Battery / Fuel Cell	<b>1.00</b>	█	█	█	█	█
<b>Lowest risk</b>	<b>1</b>					

Lowest Risk █ █ █ █ █ Highest Risk



Future market relevance

**Description of risk indicators**



**Enterprise value**

Similar to changes in market capitalization, the EBIT multiple shows how external stakeholders judge a company's market attractiveness. A high EBIT multiple indicates a company's strong future prospects as well as an ability to sell off part of the company to pay for future transformation efforts.



**IPO attractiveness**

The number of IPOs of the last few years provides an estimate about the general attractiveness of a component cluster's market. Many IPOs indicates that the component cluster is highly attractive to capital markets and investors, while few IPOs indicate the opposite.



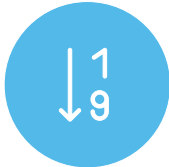
**Value-creation development**

Analyzing the (material) cost share of a component cluster in an average mid-range car relative to the projected share for 2030 provides insights into this component cluster's future relevance. For example, as demand for and therefore production of electric cars increases, the relevance of component clusters focused only on cars with combustion engines will decrease. This indicator also allows us to assess the future attractiveness of a component cluster.



**Entrepreneurial attractiveness**

The number of active and new start-ups within a component cluster acts as a good indicator of the future competitive environment. At the same time, it says a lot about how attractive a particular component cluster is for new business opportunities, how positive its future outlook is and what potential threats could come from new young competitors.

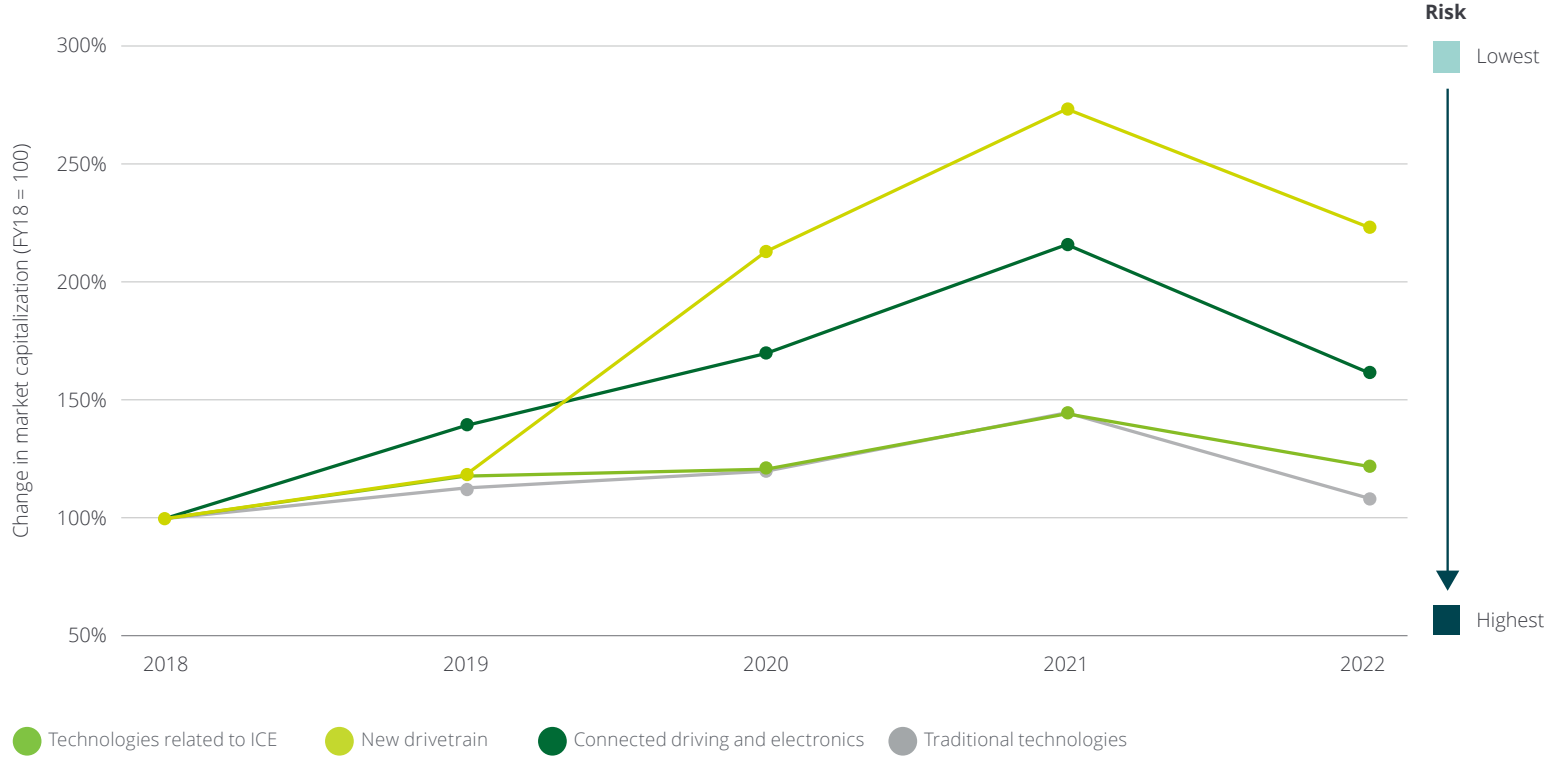


**Market capitalization**

The market capitalization of companies in different component clusters demonstrates how external stakeholders assess the potential returns on the purchase or sale of shares in these component clusters, and therefore the attractiveness of the market. When share prices decrease, it suggests that the opportunities to raise capital through outside financing will become increasingly limited.



**Fig. 18 - Market capitalization (Change in market capitalization)**



**Deep dive market capitalization**

Change in market capitalization shows a vast increase of approx. 175% (New drivetrain) and approx. 116% (Connected driving and electronics) in modern technology clusters.

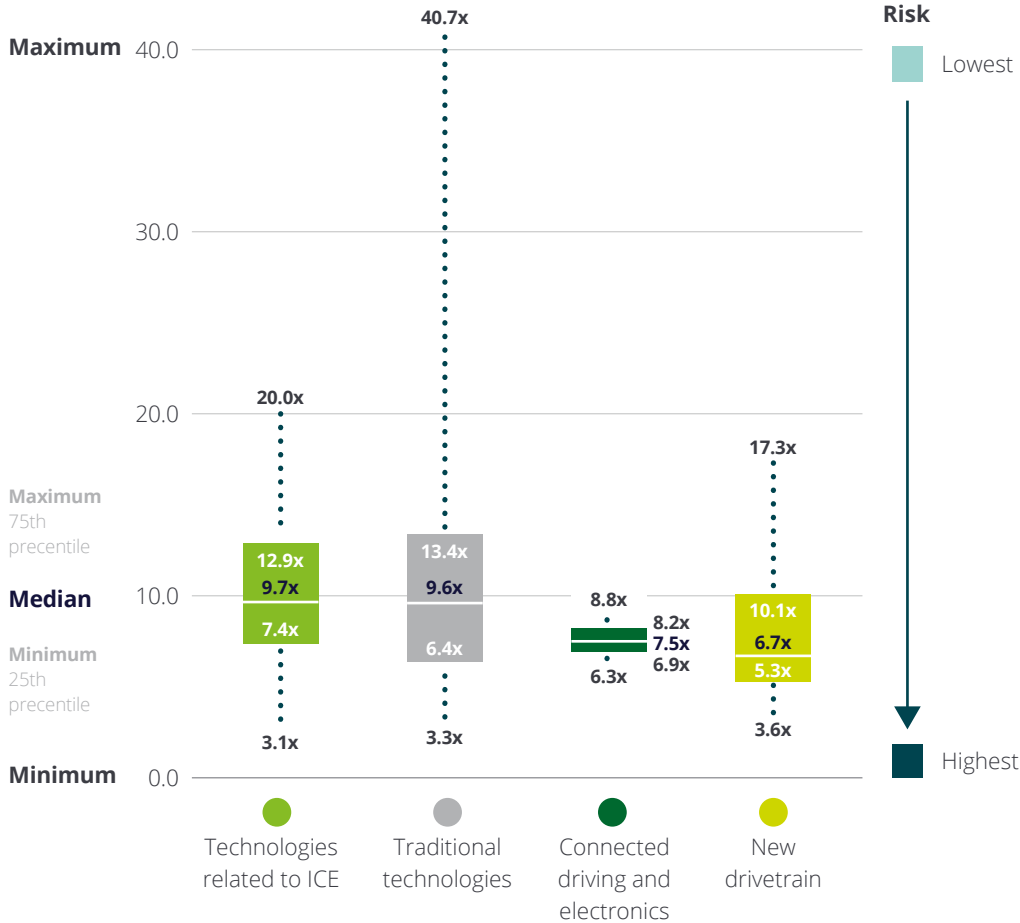
Traditional technologies and Technologies related to ICE only record small increases.

Although there has been a stronger correction of new technology market capitalizations in FY22, they are still outperforming Traditional technologies and Technologies related to ICE.

Source: Deloitte research, Refinitiv Workspace



Fig. 19 – Enterprise value (EBIT Multiples 2019 – 02/2023)



Deep dive enterprise value

Consolidation is the major driver of M&A activity in the ICE component cluster (see figure 16). Highest EBIT multiples are paid in ICE-related component clusters. However, M&A activity in these component clusters has significantly cooled down in the recent years.

Particularly in the New drivetrain sector, a small number of M&A deals has led to a limited informative value of the EBIT multiples evaluated.

Suppliers producing Connected driving and electronics components have the lowest enterprise values in the period under review. These figures are impacted by a large number of transactions in the Electronics component cluster. The underrepresented transactions in the ADAS & Sensors and Infotainment & Communication segments have significantly higher EBIT multiples.

Source: Deloitte research, Mergermarket





Future market relevance

“The numbers don’t lie: whichever supplier cluster you operate in, there is no cluster without risk exposure across at least one of our 25 indicators. Even clusters you may perceive as future proof, like Infotainment & Communication or Electronics, are evaluated cautiously by external stakeholders when looking at the paid EBIT multiples of recent deals. But it comes as no surprise that market participants bet on new drivetrains, connected driving, and electronics-related clusters, as illustrated by the clearly stronger market capitalization compared to traditional and ICE related technologies.”

**Philipp Obenland, Partner, Supply Chain & Network Operations**



## Cash-generation power

From an internal financing power point of view, Axles and Frame are the riskiest component clusters in the automotive supplier sector. Earnings (EBIT margin) and operating cash flow are lowest in these two component clusters. Meanwhile, earnings in the HV Battery / Fuel Cell component cluster are affected by high R&D investment. However, high-cost flexibility reduces the risk position in these component clusters.

The lowest risks can be seen in the Infotainment & Communication as well as ADAS & Sensors component cluster.

Working capital is highest in the component cluster Wheels & Tires followed by ICE. Seats surprisingly has the lowest working capital, mainly due to low inventory levels.

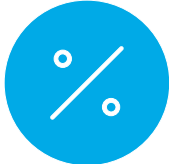
**Tab. 6 – Risk league table: cash-generation power**





Cash-generation power

**Description of risk indicators**



**Earnings**

In the companies we analyzed for our benchmark analysis EBIT serves as a proxy for each component cluster’s profitability. We use the total earnings generated by a component cluster to understand how well or how poorly a certain component cluster is performing in the market and to what extent it has the ability to adapt to future changes under its own power.



**Cost variability**

Cost variability is defined as the ratio of variable costs to fixed costs in a component cluster or company. A high proportion of variable costs is seen as positive, because it allows a company to more easily adapt its operations to lower revenue levels in an economic downturn. In our benchmark analysis, we compared variable costs to fixed costs for each company under review.



**Operating cash flow**

Operating cash flow measures a company’s own financing power earned from ordinary business activities. We have adjusted EBIT for non-cash items and added working capital to better analyze the operating cash flow of the companies in our benchmark analysis.



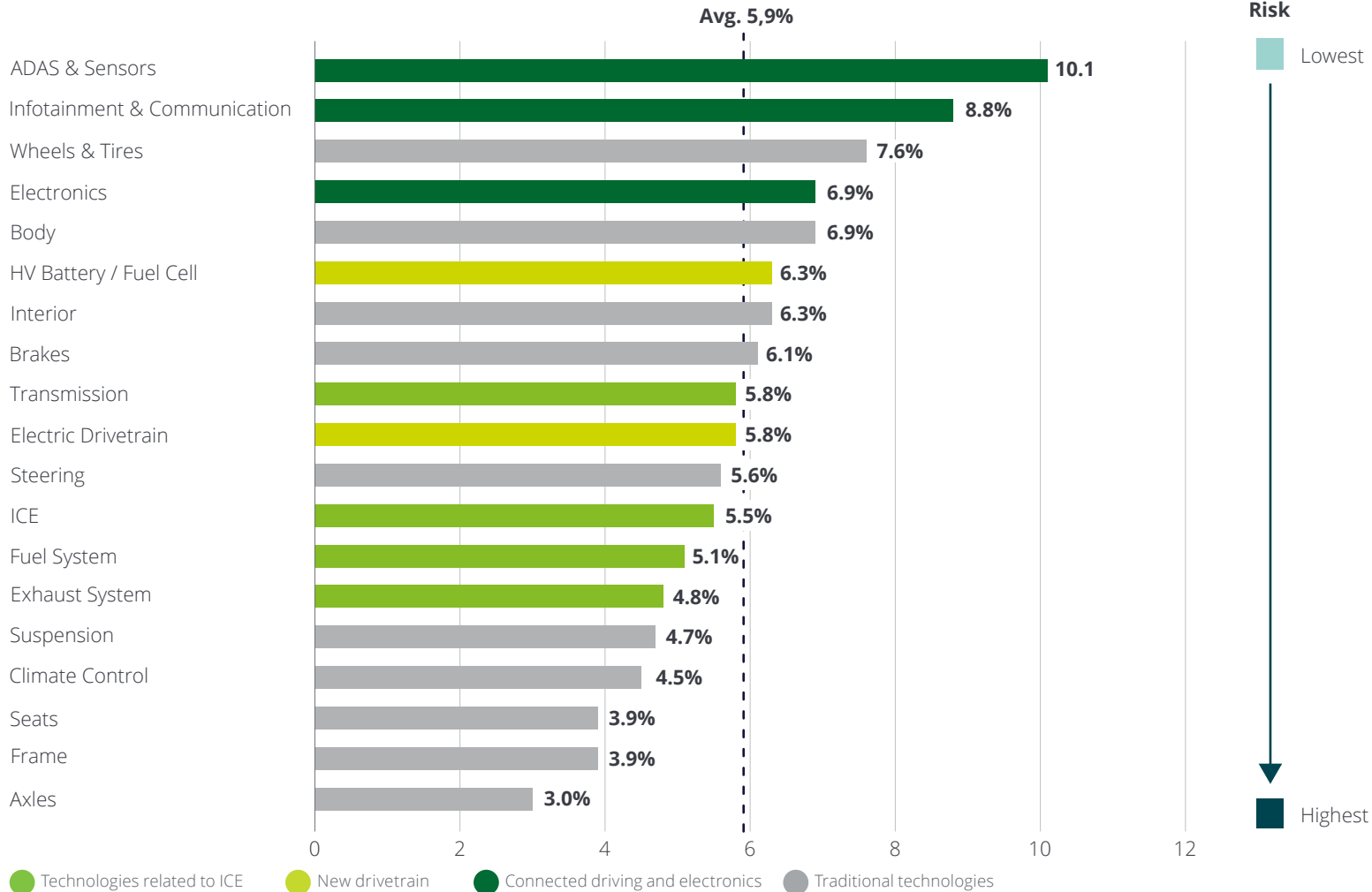
**Working Capital**

Working capital gives insight into a company’s financial health and capabilities. It combines how effective inventories are managed with how payments flow into and out of a company. Higher working capital is seen as a negative indicator for operational performance since it indicates poor management of supply chain and production (inventories), as well as payables and receivables. Moreover, high Working Capital needs to be prefinanced and therefore limits the financial capabilities of a company. We use the cash conversion cycle as relative indicator for working capital.



Cash-generation power

**Fig. 20 - Earnings (EBIT margins of last three years reported)**



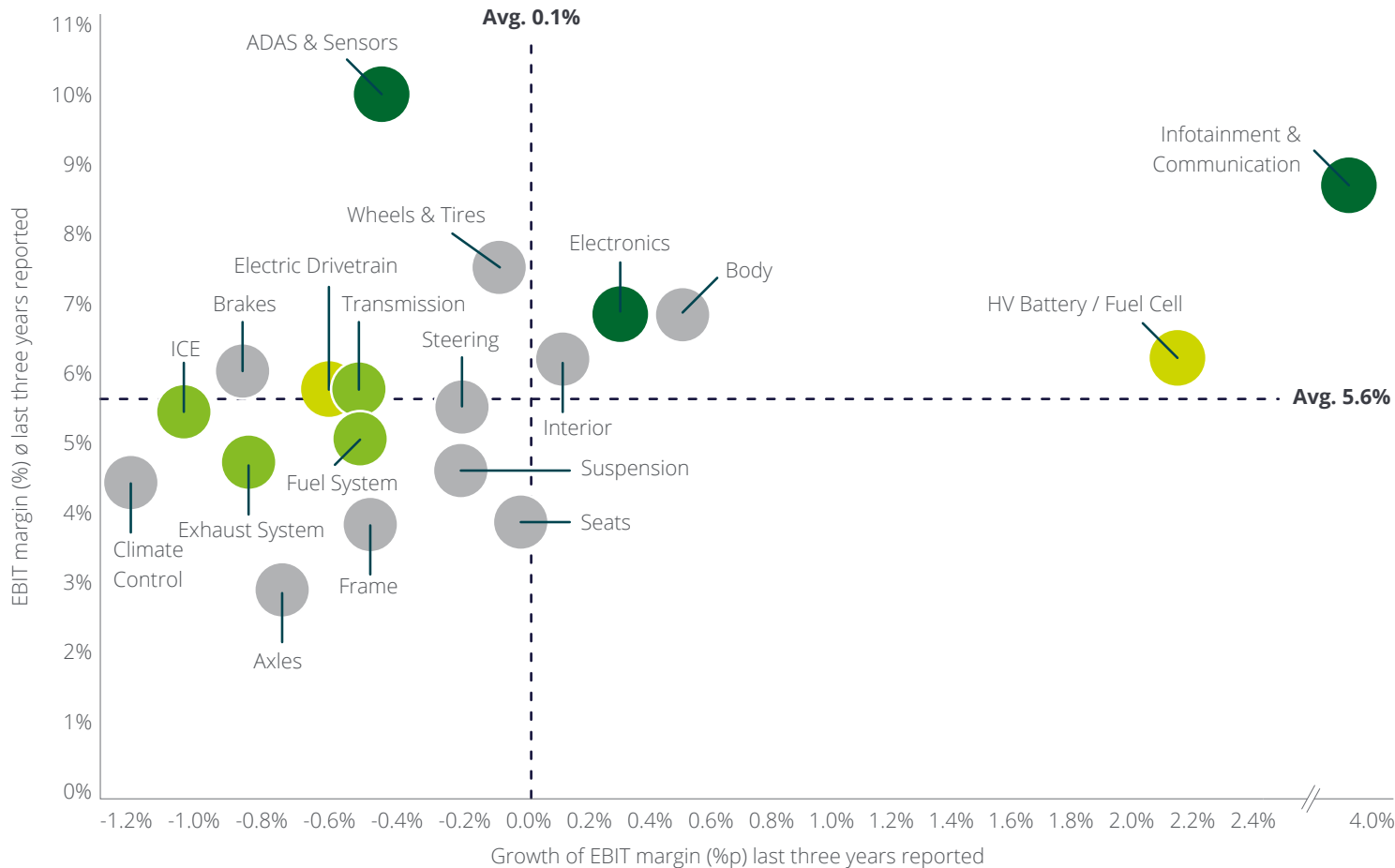
**Deep dive earnings**

ADAS & Sensors suppliers, at 10.1%, show the highest EBIT margins of all component clusters, while Axles show the lowest (3.0%).

It becomes apparent that low profitability especially puts technologies related to ICE (Transmission, ICE, Exhaust System and Fuel System) and Traditional technologies like Axles and Frame under pressure.

Source: Deloitte benchmark database (approximately 770 suppliers)

Fig. 21 – EBIT margin development



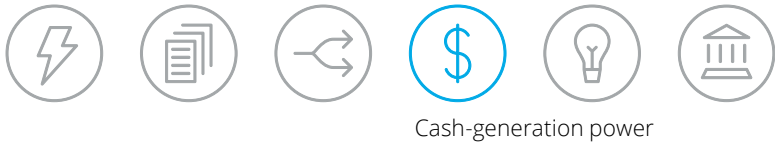
Deep dive earnings development

Nearly all component clusters experienced at least minor margin erosions in the last three years. The margin of 13 of our 19 component clusters fell by 0 - 1.0%p.

Rising margins are often achieved by innovation and seen in the component clusters of Infotainment & Communication and HV Battery / Fuel Cell.

- Technologies related to ICE
- New drivetrain
- Connected driving and electronics
- Traditional technologies

Source: Deloitte benchmark database (approximately 770 suppliers)



**Fig. 22 - Working capital (ø last three years reported)**

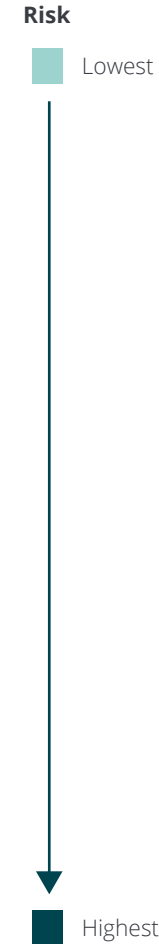


**Deep dive working capital**

Seats suppliers indicate the lowest cash conversion cycle (26 days) whereas companies producing Wheels & Tires on average are able to convert their investments in inventory to cash in 80 days.

Mainly driven by the high share of aftermarket business, Wheels & Tires has its inventory in the warehouse for the longest of all component clusters (DIO of 67 days).

Most days that pass before payments are received is in the component cluster HV Battery / Fuel Cell (DSO of 70 days). However, these suppliers also let the most time pass before they pay outstanding invoices (DPO of 79 days).



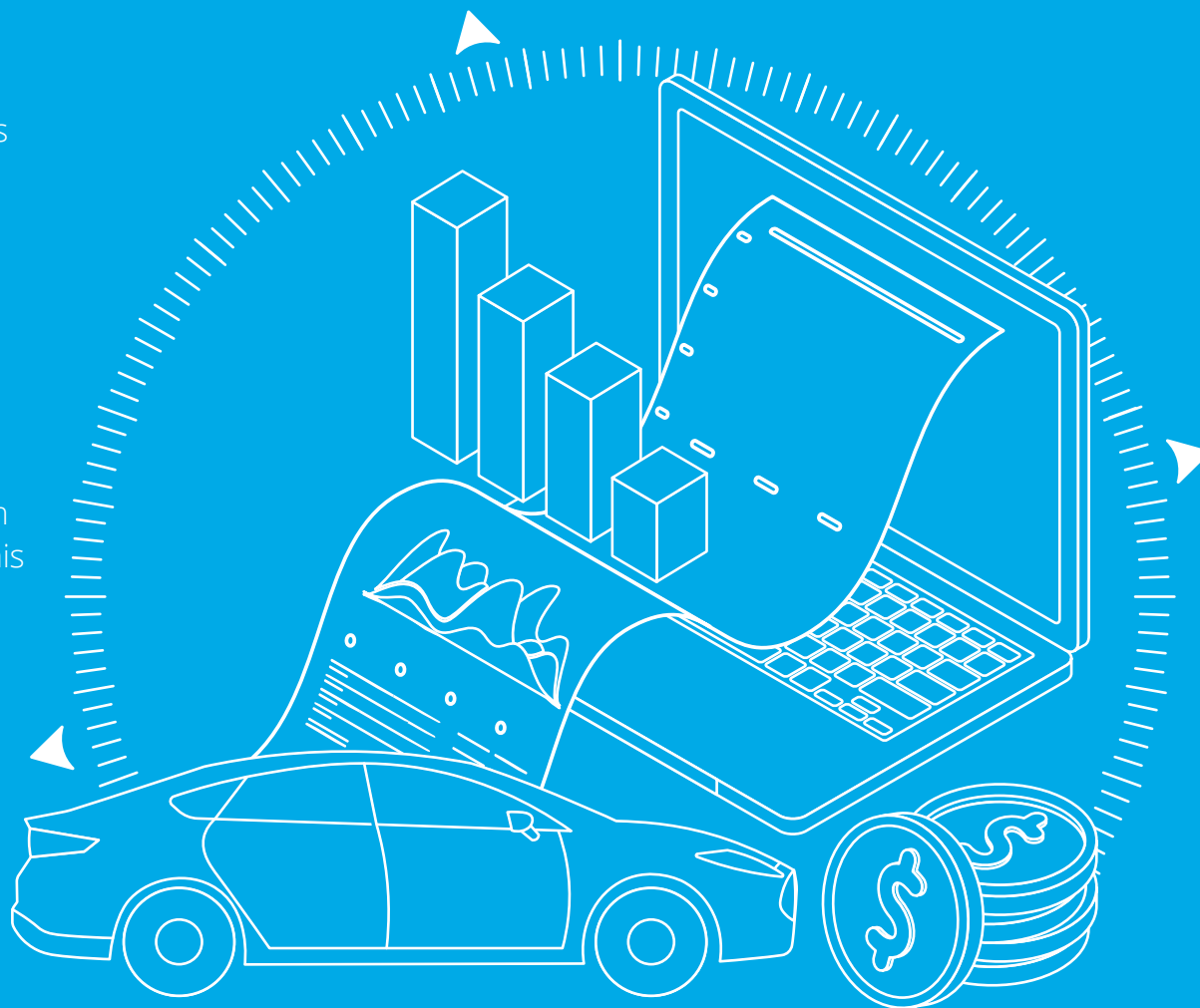


## Key messages

Most component clusters experienced a decrease in margins in the past 2 years but remain at an acceptable level of an EBIT margin of 5.5% or higher. At an already competitive margin level, ADAS & Sensors struggled, but still uphold its above average margin level.

New technologies have the highest ratio of variable to fixed costs, mainly due to still comparatively low revenues coupled with needed R&D investments and other high fixed costs. Regarding cash flow, traditional technology suppliers are under pressure, whereas ADAS & Sensors suppliers score best.

Taking a closer look at working capital, Wheels & Tires suppliers have the longest cash conversion, mainly driven by high stock due to their seasonal business and aftermarket sales. Seat suppliers indicate lowest risk from working capital due to their low cash conversion cycle. This is mainly driven by low inventory levels.





## Cluster adaptability and innovative power

Investment appetite, R&D spending and the innovative power of Seats and Suspension lead in the same direction: comparatively risky, from the innovative power point of view.

High R&D spending and a high level of patents reveal that ADAS & Sensors have the highest innovative power and thus the potential to differentiate from their competitors.

**Tab. 7 – League Table: cluster adaptability and innovative power**

		Investment appetite	R&D spending	Capacity for innovation
Risk score		Risk indicator score		
<b>Highest risk</b>	<b>5</b>			
Seats	5.00	██████████	██████████	██████████
Suspension	4.99	██████████	██████████	██████████
Axles	4.64	██████████	██████████	██████████
Frame	4.64	██████████	██████████	██████████
Body	4.46	██████████	██████████	██████████
...				
Climate Control	3.53	██████████	██████████	██████████
Electronics	3.37	██████████	██████████	██████████
Electric Drivetrain	3.35	██████████	██████████	██████████
HV Battery / Fuel Cell	2.35	██████████	██████████	██████████
Infotainment & Comm.	2.33	██████████	██████████	██████████
ADAS & Sensors	1.00	██████████	██████████	██████████
<b>Lowest risk</b>	<b>1</b>			

Weighting of risk indicator

Lowest Risk       Highest Risk



Cluster adaptability and innovative power

**Description of risk indicators**



**Investment appetite**

Capital expenditure ratio compares investments. A high ratio implies that a component cluster is very likely to invest in expansion, indicating that there must be market opportunities in this component cluster. Where this ratio is consistently low, it would seem to suggest that companies in this component cluster are pursuing a harvest strategy.



**Capacity for innovation**

Similar to R&D expenditure, the number of registered patents a component cluster has can also be used as a parameter for its future viability. R&D expenditure directly correlates to the number of registered patents as well. The higher the number of patents, the greater the probability that the component cluster will be relevant for the entire market, while and the lower the number, the less likely it is to remain relevant.



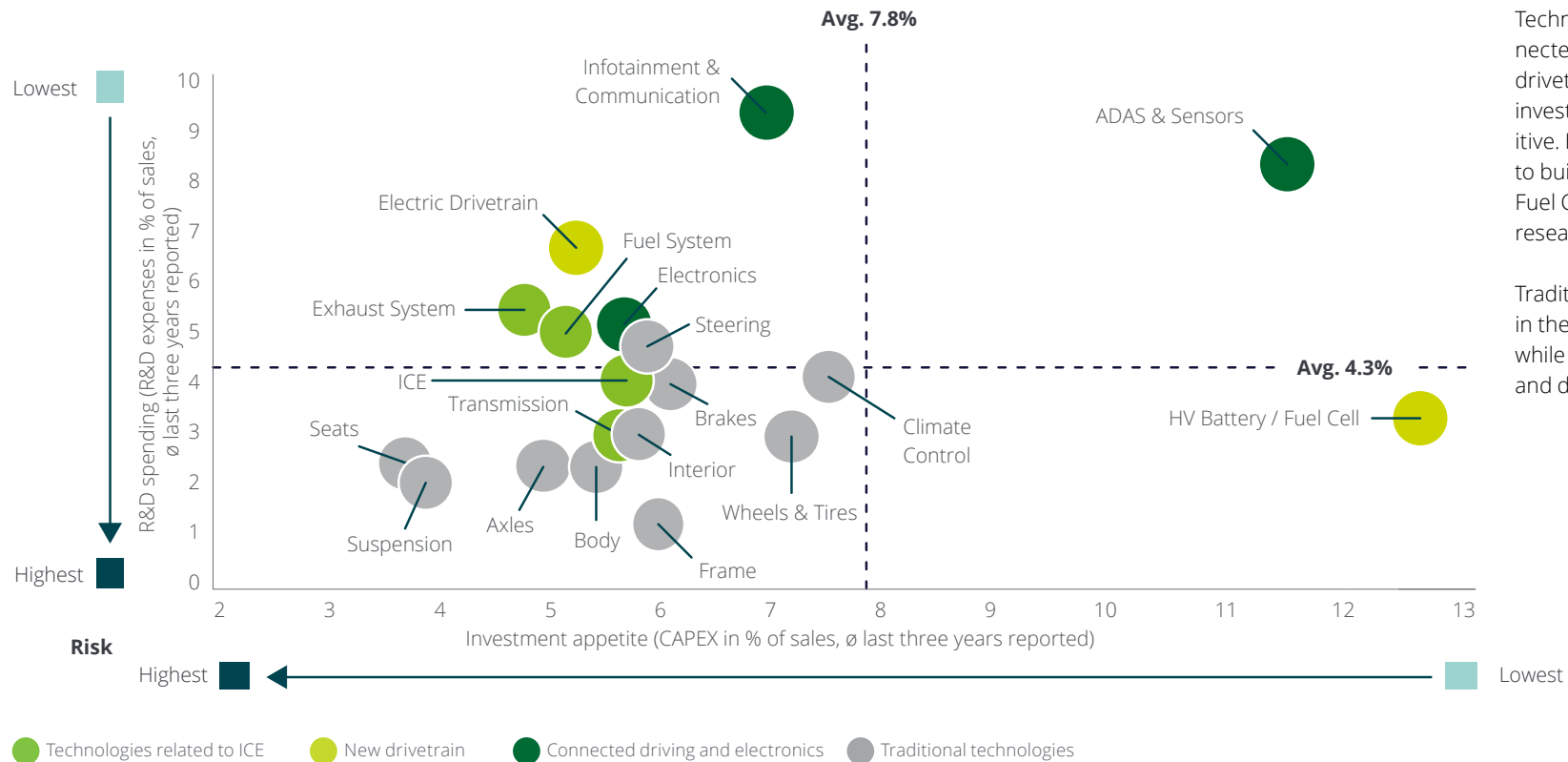
**R&D spending**

We can use a component cluster's expenditure on research and development as an indication of its viability in the long term or of the degree to which players in this component cluster believe their products will be relevant in the future. Where spending on research and development is low, on the other hand, the component cluster is likely to be in a much weaker position to deal with future technological advances.



Cluster adaptability and innovative power

**Fig. 23 – Investment appetite / R&D spending**



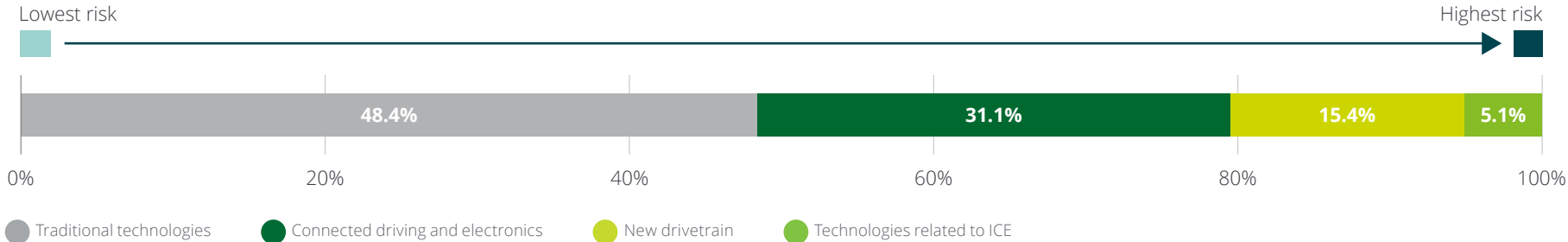
**Deep dive investment appetite over R&D spending**

Technology related component clusters (Connected driving and electronics as well as New drivetrain) show greater commitment towards investments and innovation which seems intuitive. However, and mainly driven by the need to built up production capacities, HV Battery / Fuel Cell suppliers invest more in Capex than in research and development.

Traditional technologies are almost exclusively in the quadrant which spends below-average, while Frame is on the lower end for research and development and Seats for Capex.

Source: Deloitte benchmark database (approximately 770 suppliers)

Fig. 24 – Capacity for innovation (patents in % of total)



Source: Deloitte research, DPA.

**Deep dive capacity for innovation**

As to patents, the development of ICE-related components remains at a low level and no further breakthroughs are expected, so efforts will shift towards New drivetrain and Connected driving and electronics parts.

When looking in detail at Body and Frame (approx. 10%), Traditional technologies show an interesting and very strong connection to the integration of the battery into a vehicle. (e.g. new underbody structure)

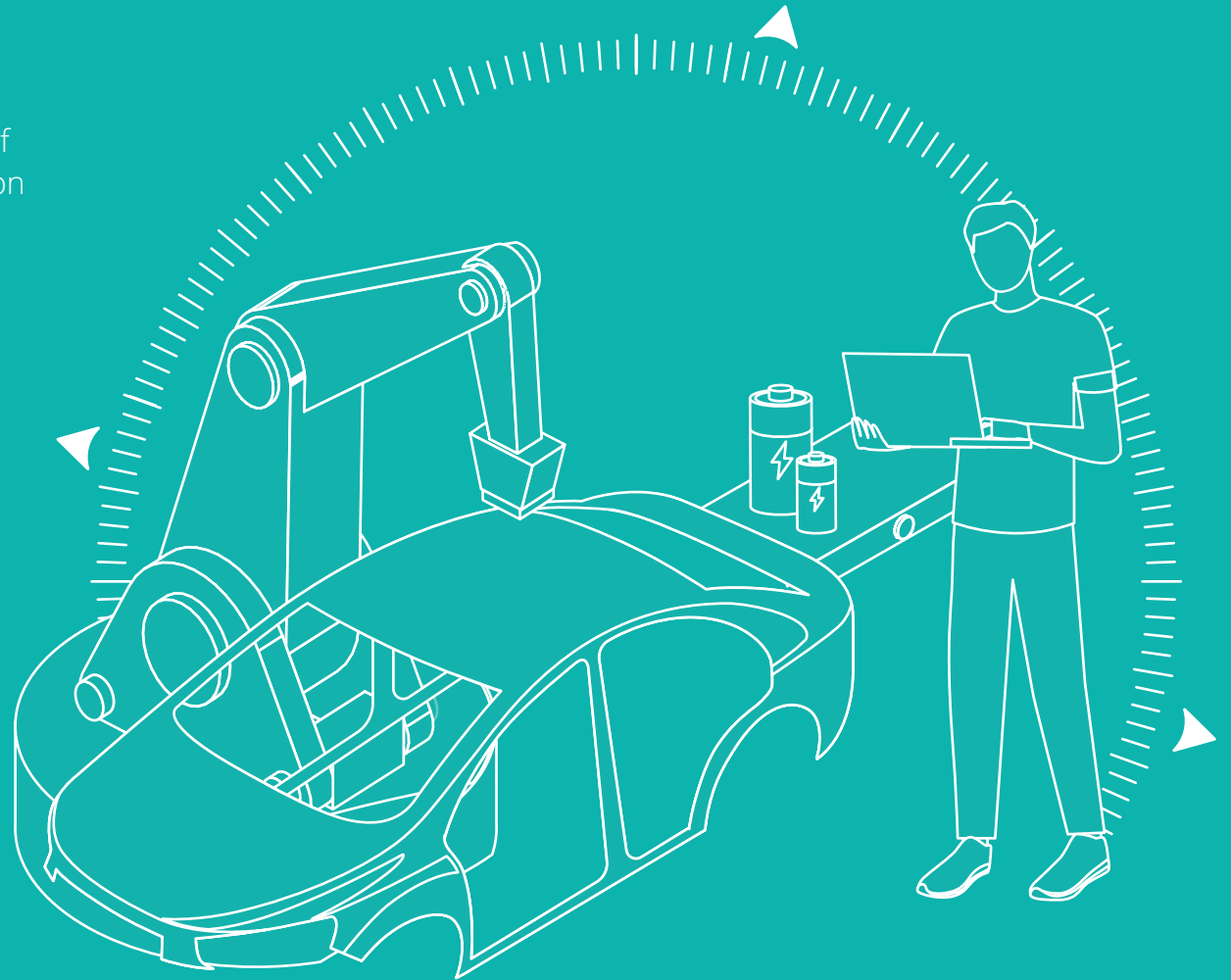
Connected driving and electronics are mainly driven by the high number of patents filed by the Electronics and ADAS & Sensors component cluster (more than 25%)

## Key messages

Traditional technology component clusters almost exclusively show below average Capex and R&D expenses. In the Technologies related to ICE sector only Fuel System and Exhaust System part suppliers indicate above-average R&D, driven by efforts to make the internal combustion engine more climate-friendly in these areas.

Infotainment & Communication, with the highest share of R&D spending, is looking to redesign the value proposition of the automobile and establish these features as a significant point of differentiation.

With a strong presence in the new value networks for electric vehicle and autonomous driving, Electronics and ADAS & Sensors have been active in the development of new technologies.





Cluster adaptability and innovative power

“Many suppliers, especially in the Traditional technology cluster, show below-average profitability and limited internal financing power. At the same time, market expectations in these areas are still promising. It is crucial to take advantage of the decreasing market headwinds in these clusters to clean up one's own house via proactive restructuring and to differentiate from the competition through innovation or M&A activity, thus positioning for an even more intense future competitive environment.”

**Daniel Montanus, Partner, Turnaround & Restructuring**



## Creditworthiness

Suppliers that produce HV Battery / Fuel Cell parts pay the lowest interest spread when taking on debt, indicating that debt financiers see low risk here. In contrast, Suspension suppliers pay the highest premiums, leading to the highest risk classification within that indicator.

ADAS & Sensors companies demonstrate good balance sheet structure and strong debt servicing capacity, so these companies have a high credit rating. Debt capital providers see it the same way: risk premiums in this component cluster are low.

Analyst ratings are best for companies in the HV Battery / Fuel Cell component cluster, unlike Body and Axles and Interior, which are at the bottom of the league.

**Tab. 8 – League table: Creditworthiness**

		Debt risk premium	Analyst ratings	Balance sheet structure	Debt repayment capacity
	<b>Risk score</b>	<b>Risk indicator score</b>			
<b>Highest risk</b>	<b>5</b>				
Suspension	<b>5.00</b>	■	■	■	■
Body	<b>4.84</b>	■	■	■	■
Axles	<b>4.44</b>	■	■	■	■
Interior	<b>4.19</b>	■	■	■	■
Frame	<b>3.22</b>	■	■	■	■
...					
Electric Drivetrain	<b>1.78</b>	■	■	■	■
Infotainment & Comm.	<b>1.69</b>	■	■	■	■
Electronics	<b>1.65</b>	■	■	■	■
ADAS & Sensors	<b>1.10</b>	■	■	■	■
HV Battery / Fuel Cell	<b>1.00</b>	■	■	■	■
<b>Lowest risk</b>	<b>1</b>				

Weighting of risk indicator

Lowest Risk ■ ■ ■ ■ ■ Highest Risk





Creditworthiness

**Description of risk indicators**



**Debt risk premium**

Interest spread or debt risk premium is the difference between the average interest rate a component cluster has to pay to service its existing loans compared with the reference interest rate. A higher spread indicates that debt capital providers deem the component cluster to be more risky.



**Balance sheet structure**

We use the ratio of total liabilities to equity to assess the likelihood of a component cluster or a company securing a loan in a crisis. A high leverage ratio is seen by debt capital providers as a negative factor, indicating that the component cluster or company is using debt to finance assets and operations. Thus these component clusters and companies demonstrate a higher risk for potential capital providers and mutually less possibilities to assess new capital for the companies.



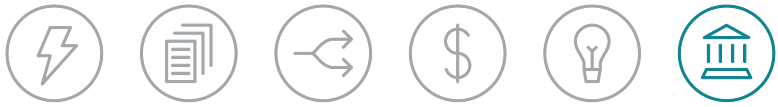
**Analyst Ratings**

Analyst ratings are assessments made by rating agencies on the potential future performance and default risk of a particular company. These ratings are based on various factors including financial, market conditions, and industry trends. We use this indicator to provide insights into the potential performance of a company.



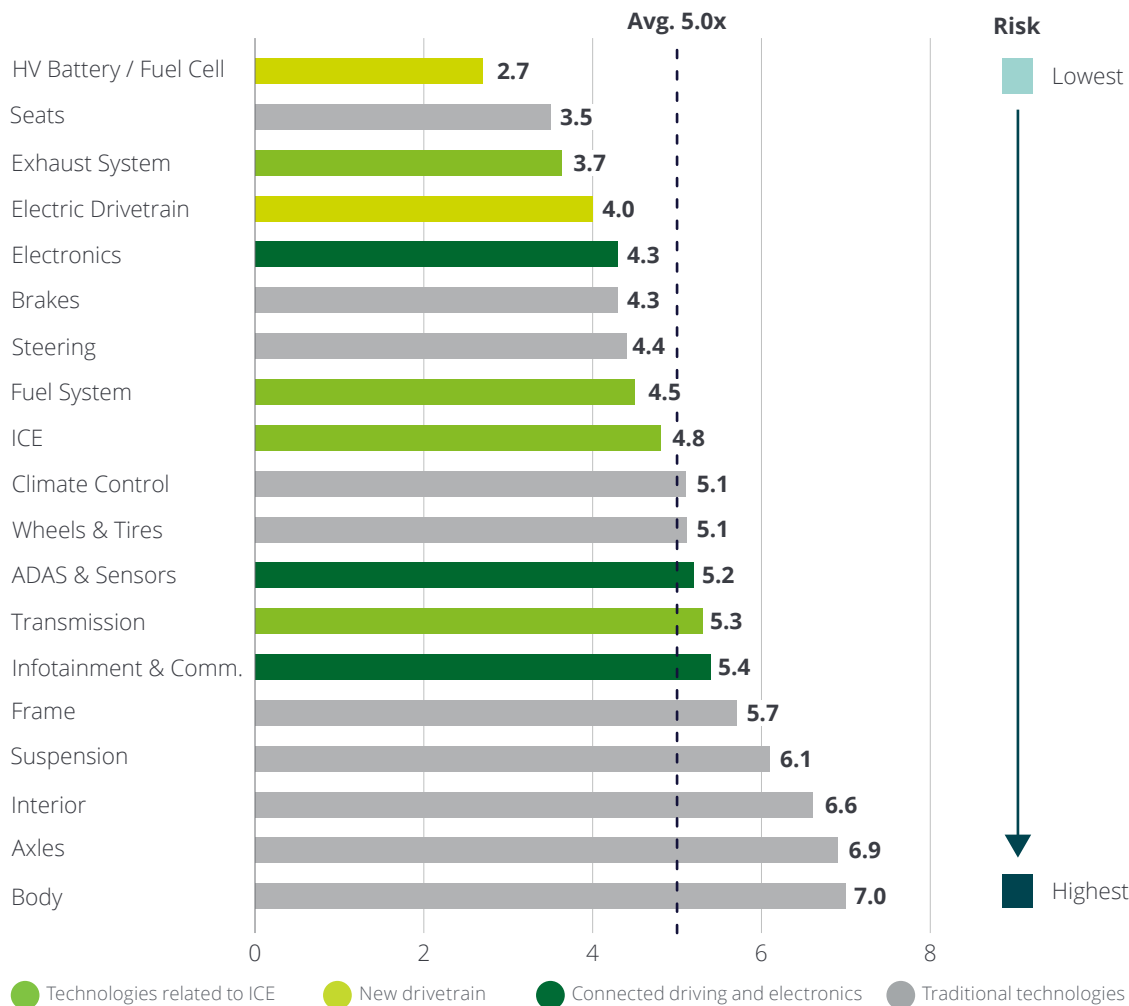
**Debt repayment capacity**

We use this indicator to assess how long it will take for a component cluster to repay its loans. The net financial debt is expressed as a ratio of EBITDA for this purpose. On the basis of this ratio, we can establish how many years it would take a component cluster with a stable debt burden and stable earnings to repay all of its debt.



Creditworthiness

**Fig. 25 – Analyst ratings (combined rating classification)**



**Fig. 26 – Combined rating classification**

Combined rating classification	S&P/ Fitch	Moodys	Cluster	
1.0	AAA	Aaa	<b>Prime</b>	<b>Investment grade</b>
2.0	AA+	Aa1		
3.0	AA	Aa2	<b>High Grade</b>	
4.0	AA-	Aa3		
5.0	A+	A1	<b>Upper Medium Grade</b>	
6.0	A	A2		
7.0	A-	A3		
8.0	BBB+	Baa1	<b>Lower Medium Grade</b>	
9.0	BBB	Baa2		
10.0	BBB-	Baa3		
11.0	BB+	Ba1	<b>Non investment Grade Speculative</b>	<b>Non-investment grade</b>
12.0	BB	Ba2		
13.0	BB-	Ba3		
14.0	B+	B1	<b>Highly speculative</b>	
15.0	B	B2		
16.0	B-	B3		
17.0	CCC+	Caa1	<b>Substantial Risks</b>	
18.0	CCC	Caa2		
19.0	CCC-	Caa3		

Source: Deloitte research, Refinitiv Workspace

### Deep dive analyst ratings

In order to compare the ratings of the different rating agencies, we have used a uniform classification from 1 = Prime (AAA S&P / Fitch and Aaa Moodys) to 19 = Substantial Risks (CCC- S&P / Fitch and Caa3 Moodys).

Analyzing the combined rating classification the following becomes evident:

- HV Battery / Fuel Cell suppliers, on average, are assessed best by rating agencies.
- Suppliers from the component cluster Body have on average the lowest ratings. Although this still falls into the category of investment grade, it is close to the edge of a Lower Medium Grade.

“When it comes to creditworthiness, many automotive suppliers from the Traditional technologies cluster are in focus. Reviewing debt position with an eye to refinancing, strengthening internal financing power by implementing a performance-improvement and working capital program, as well as a head-start in the search for a financially strong partner, can decisively increase the room for maneuver.”

**Dr. Philipp Kinzler, Partner, Turnaround & Restructuring**



Creditworthiness

### Deep dive debt risk premium and debt repayment capacity

Modern technologies have the lowest net leverage ratios, indicating lower debt and higher operating returns.

In relation to their profitability, several component clusters show a comparatively high debt burden. But this is not unusual, given that automotive suppliers often finance large production facilities.

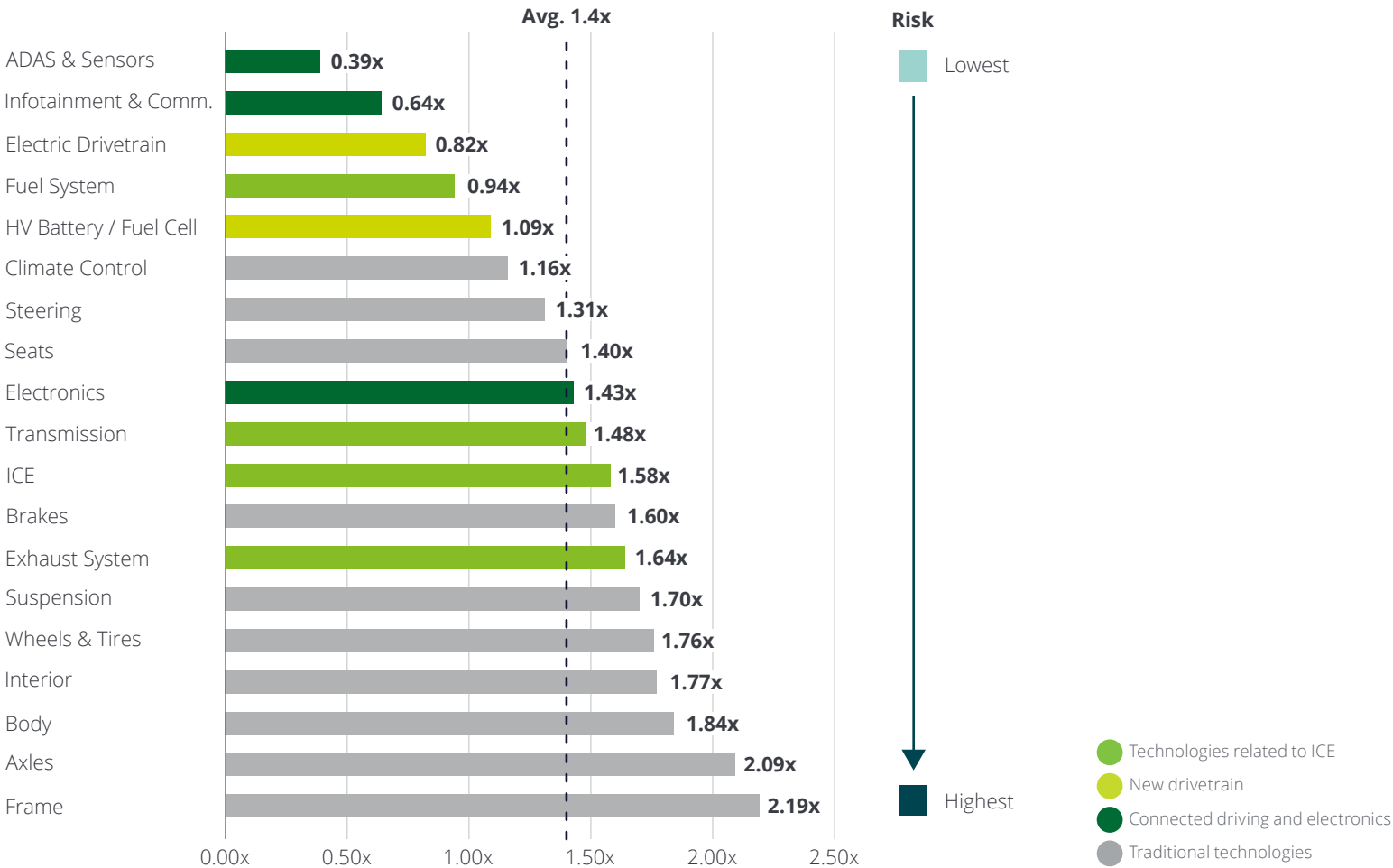
ADAS & Sensors suppliers pay the lowest debt risk premium when taking on debt (105 bps above the reference interest rate). Unsurprisingly, Traditional technologies pay higher risk premiums with Suspension suppliers paying the highest (475 bps).

Fig. 27 – Debt risk premium (in basis point (bps))



Source: Deloitte research, Refinitiv Workspace

**Fig. 28 – Debt repayment capacity (Net leverage ratio Ø last three years reported)**



Source: Deloitte benchmark database (approximately 770 suppliers)



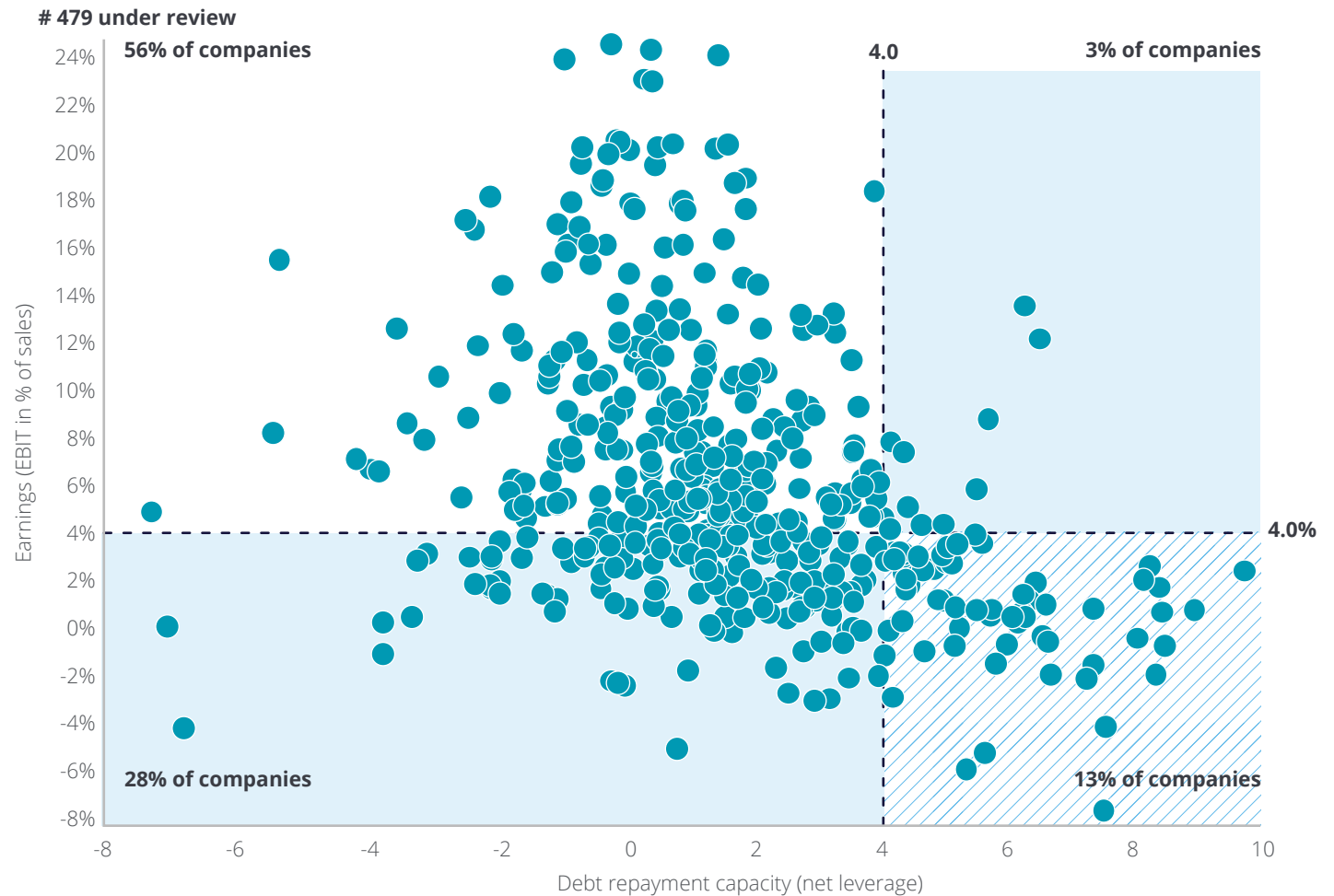
Creditworthiness

### Deep dive EBIT margin over debt repayment capacity

The EBIT margin / Debt repayment capacity matrix indicates that 13% of the companies under review are in a critical zone. More than 28% show critically low EBIT margins and 3% critical low capacity to repay debt.

Only 56% of the suppliers under review are deemed as financially sound.

**Fig. 29 – EBIT margin / Debt repayment capacity matrix (last year reported)**



Source: Deloitte benchmark database (approximately 770 suppliers)

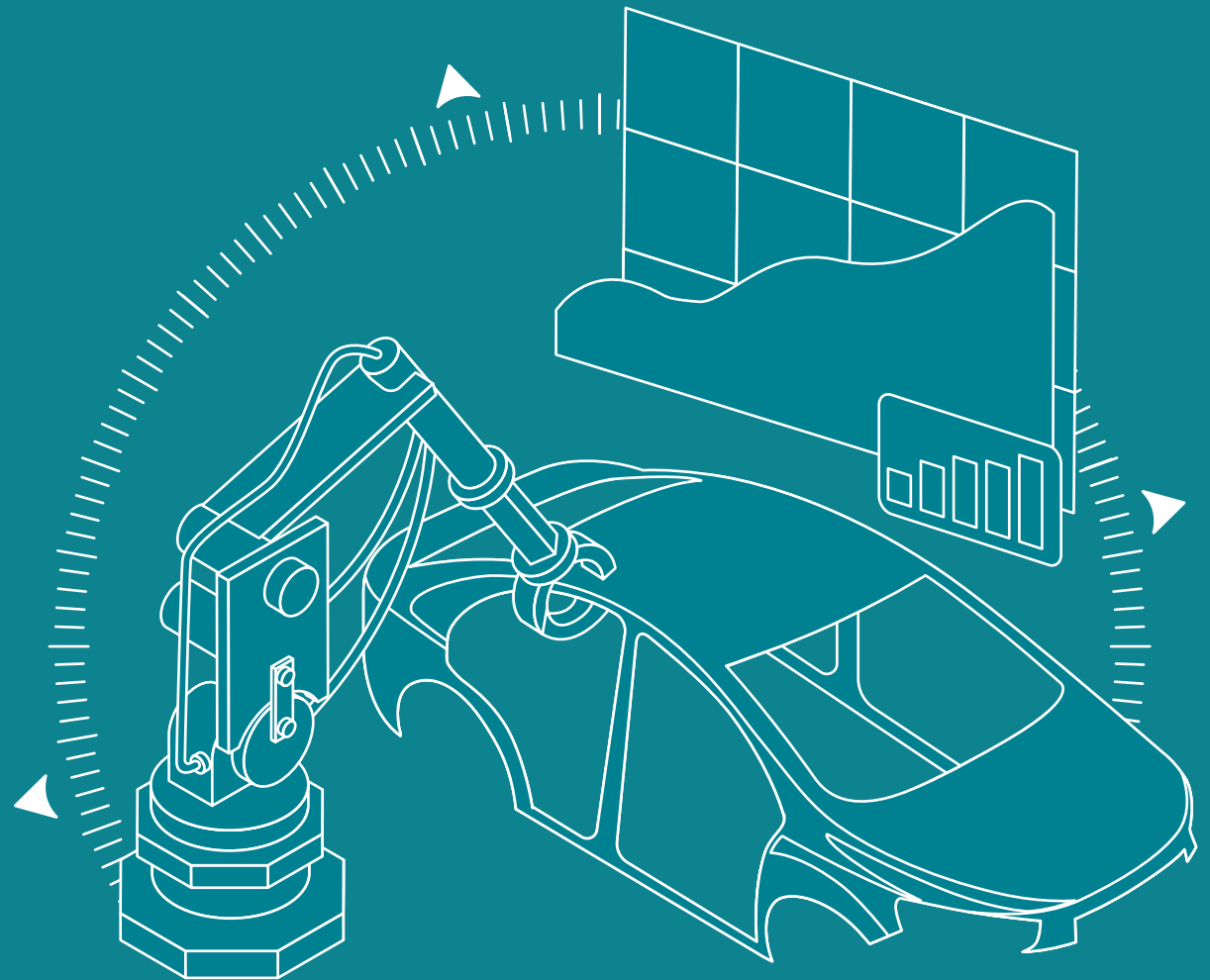
## Key messages

The automotive industry shows a rather solid equity base (balance sheet structure). However, the variances and risk profiles within the industry are large.

In relation to their profitability, several component clusters show a comparably high debt burden, with Axles, and Frame shouldering liabilities more than double its EBITDA. Consequently, market downturn is the largest risk factor for debt-service capacity.

Most new technologies, pay an overall lower risk premium compared with other component clusters. Especially for Body and Suspension, which can be perceived as commodities, high-risk premiums must be paid.

Combining the view of profitability and the capacity to repay debt, it becomes evident that a high portion of suppliers of all sizes and component clusters are in a critical zone with a low profitability and debt repayment capacity.



# Appendix

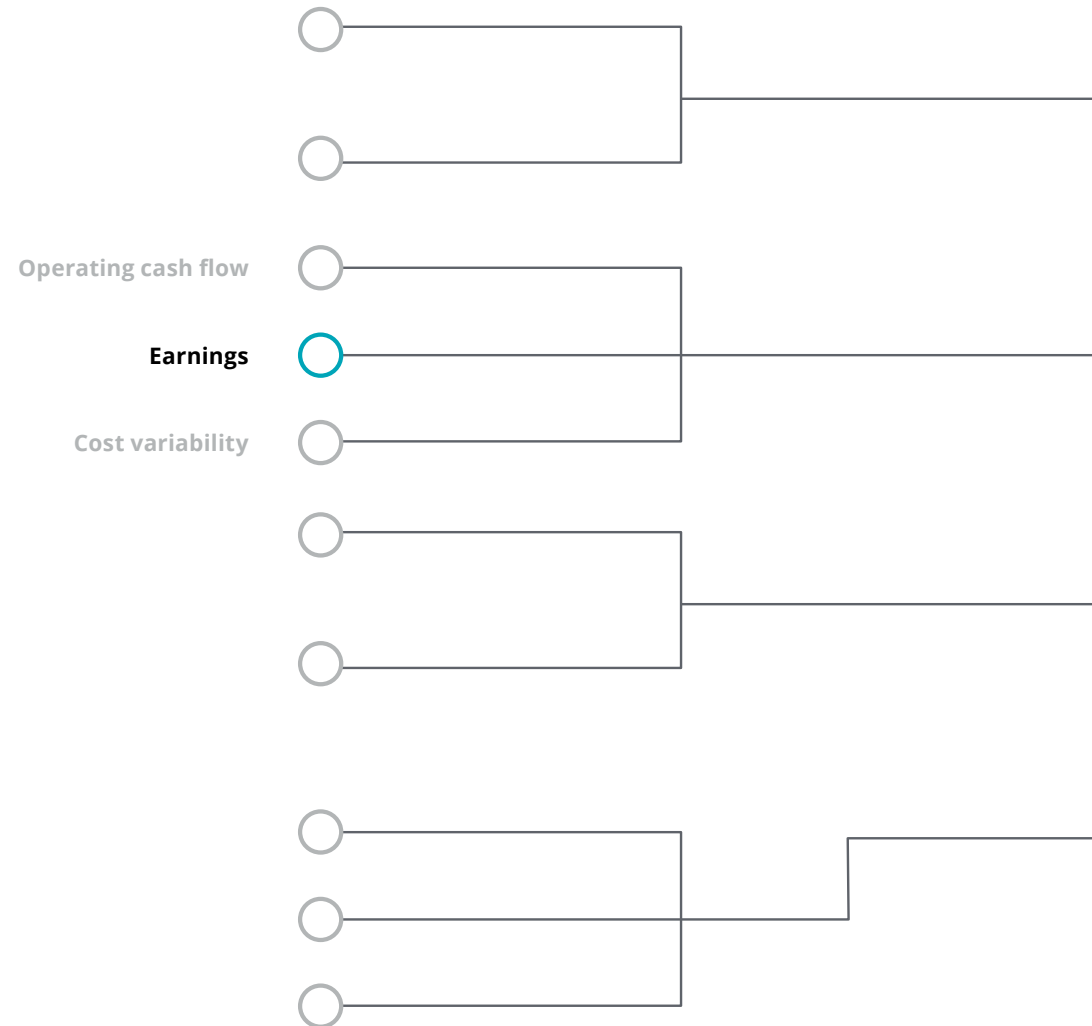
## Driver tree for risk assessment approach

### Risk indicator Earnings (p. 46)

Cluster	Risk rank	Risk score	EBIT margin <sup>1</sup>
<b>Axles</b>	<b>1</b>	<b>5.00</b>	3.0%
<b>Frames</b>	<b>2</b>	<b>4.47</b>	3.9%
<b>Seats</b>	<b>3</b>	<b>4.45</b>	3.9%
<b>Climate Control</b>	<b>4</b>	<b>4.13</b>	4.5%
<b>Suspension</b>	<b>5</b>	<b>4.04</b>	4.7%
Exhaust System	6	<b>3.97</b>	4.8%
Fuel System	7	<b>3.78</b>	5.1%
ICE	8	<b>3.56</b>	5.5%
Steering	9	<b>3.52</b>	5.6%
Electric Drivetrain	10	<b>3.38</b>	5.8%
Transmission	11	<b>3.37</b>	5.8%
Brakes	12	<b>3.24</b>	6.1%
Interior	13	<b>3.14</b>	6.3%
HV Battery / FC	14	<b>3.13</b>	6.3%
<b>Body</b>	<b>15</b>	<b>2.77</b>	6.9%
<b>Electronics</b>	<b>16</b>	<b>2.77</b>	6.9%
<b>Wheels &amp; Tires</b>	<b>17</b>	<b>2.40</b>	7.6%
<b>Infotainment</b>	<b>18</b>	<b>1.73</b>	8.8%
<b>ADAS &amp; Sensors</b>	<b>19</b>	<b>1.00</b>	10.1%



### Level 3: Risk indicator



For every leading indicator all component clusters are compared with each other. Both the highest out-performing and under-performing component cluster are ranked as either low risk 1.00 or high risk 5.00. All other component clusters are distributed relative to these extremes, based on fundamental drivers of the leading indicator.

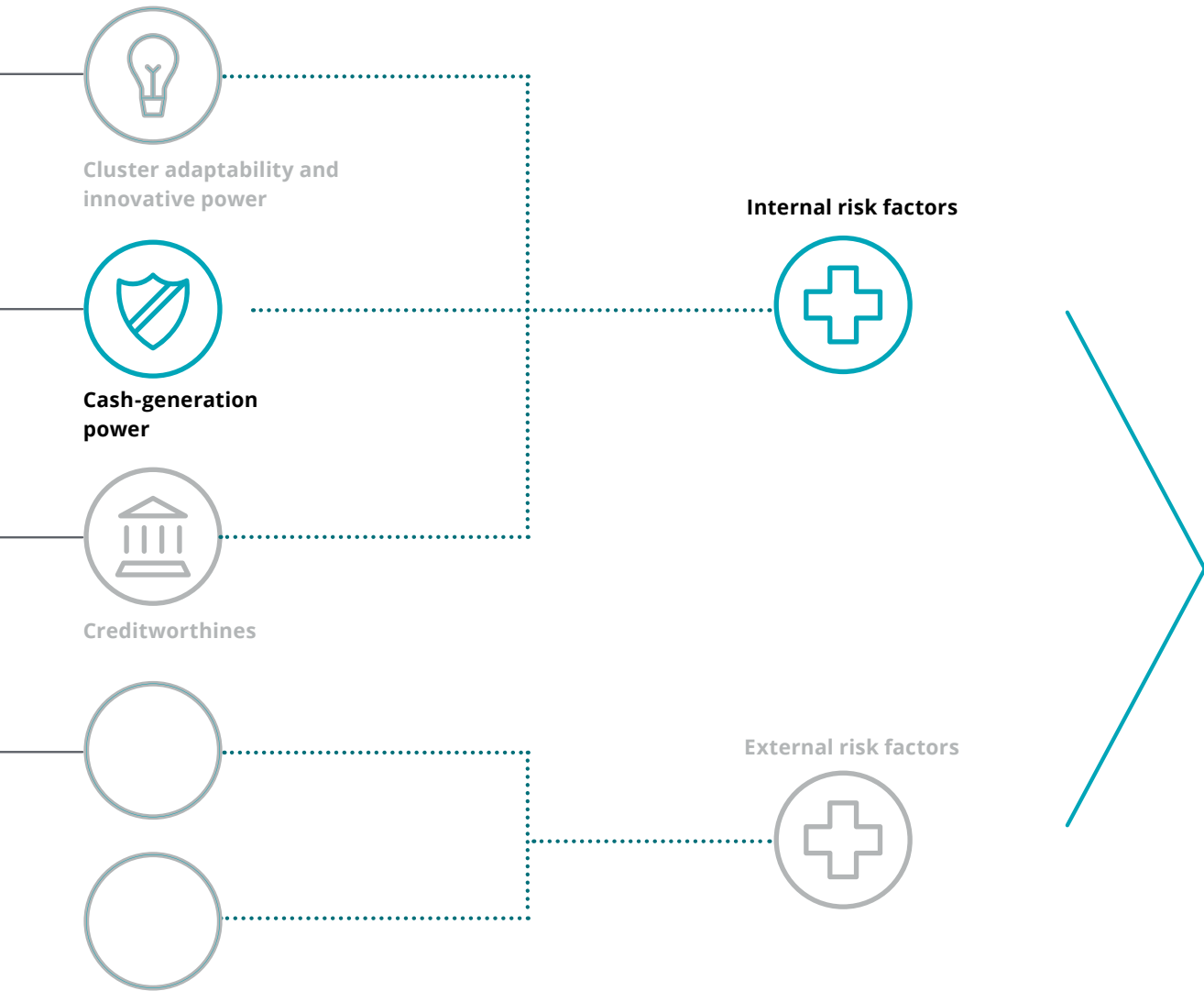
<sup>1</sup>EBIT-margin as ratio for the earnings risk indicator.

All leading indicators within a respective risk factor cluster are weighted according to their market significance for overall risk factor.



Level 2: Risk factor

Level 1: Overall risk score



All risk factors are weighted according to their potential impact on a suppliers performance. This determines the ultimate internal and external risk of a supplier.

Ultimately the internal and external Risk factors are weighted 50:50 to determine to overall risk score of any respective component cluster.

Component cluster risk league table (p. 17)

Risk rank	Previous risk rank	Change	Cluster	Risk score
1	1	→	ICE	4.41
2	17	↑	Frame	4.37
3	8	↑	Transmission	3.82
4	2	↓	Exhaust System	3.75
5	9	↑	Body	3.71
6	4	↓	Fuel System	3.68
7	6	↓	Axles	3.68
8	14	↑	Seats	3.30
9	13	↑	Electronics	3.27
10	15	↑	Wheels & Tires	3.26
11	5	↓	Climate Control	3.22
12	3	↓	Interior	3.19
13	7	↓	Suspension	3.17
14	10	↓	Steering	3.00
15	11	↓	Infotainment	2.87
16	12	↓	Brakes	2.71
17	18	↑	Electric Drivetrain	2.16
18	16	↓	HV Battery / FC	2.11
19	19	→	ADAS & Sensors	1.00

# Deloitte benchmark database

Fig. 30 - Worldwide distribution

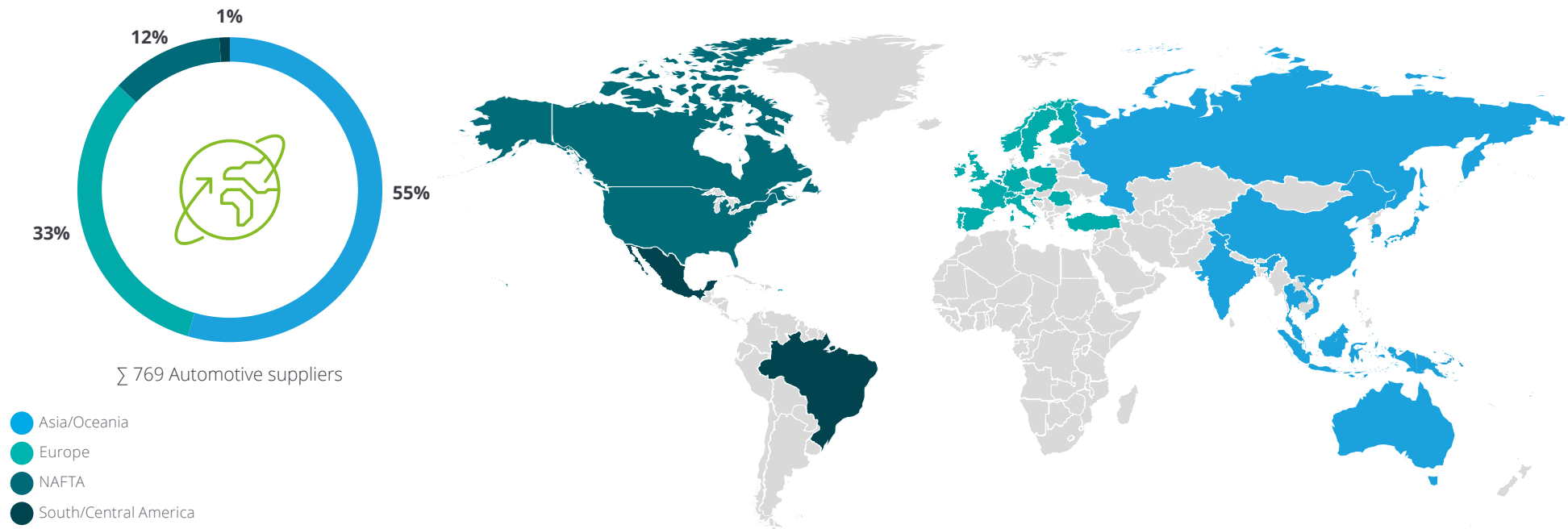
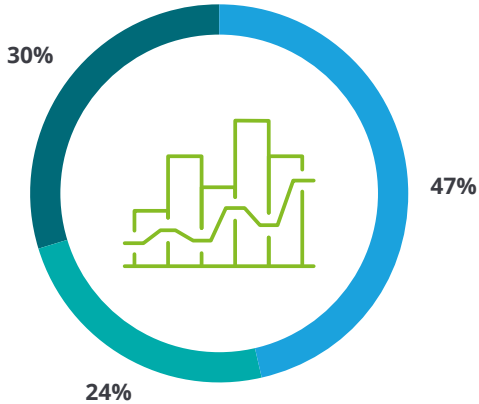


Fig. 31 – Revenue distribution



- Small (< €750 million Sales FY21)
- Medium (> €750 & < €5 billion million Sales FY21)
- Large (< €5 billion Sales FY21)

The basis of the benchmark database are companies active as suppliers of car parts for light vehicles around the globe primarily active as a Tier-1 suppliers (ranging from approximately €250 thousand to €80 billion in revenue). Sources for financial data are various databases including companies worldwide and country-specific publications.

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