



Strategy

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1. Vision

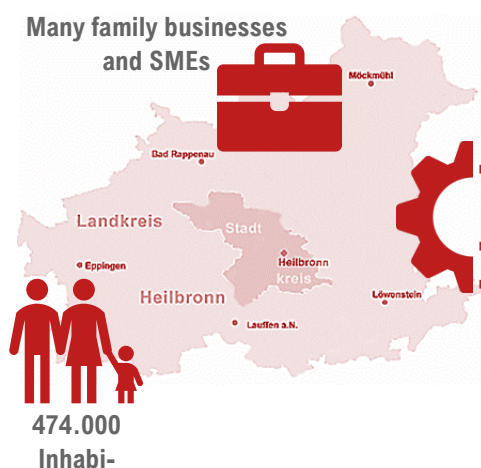
The former industry networks MetalIDIALOG, KunststoffDIALOG and AutomotiveDIALOG of Wirtschaftsförderung Raum Heilbronn GmbH (WFG) have been merged with the TRANSFORMATIVE project for the Heilbronn-Franken economic region, which is funded by the Federal Ministry of Economics and Climate Protection (BMWK). The industry network will continue as **TRANSFORMATIVE DIALOG** after the end of the funding period (30 June 2025).

The **vision** of TRANSFORMATIVE DIALOG is to be *the* starting and finishing point for manufacturing companies in the Heilbronn economic region when it comes to corporate, technological and organisational development.

Our **mission**: The industry network is a platform for the exchange of knowledge, experience and resources within the industry in the Heilbronn economic region and to jointly promote innovation, growth and sustainable development in this region and the internationalisation of companies and institutions.

The **TRANSFORMATIVE DIALOGUE** is organised under the guidance of the municipal business development agency Wirtschaftsförderung Raum Heilbronn GmbH (WFG). The WFG provides expert advice, support and mediation in all matters relating to the Heilbronn economic region. The WFG always endeavours to develop and pursue new methods and approaches. It brings together partners from business, science, authorities and institutions and creates networks that act as project initiators, initiators and information platforms. The focus of its work is on supporting local companies and investors in the metal, plastics and automotive industries. The promotion of technology transfer, the procurement of commercial and industrial sites in towns and municipalities in the Heilbronn economic region and assistance with the acquisition of funding are also part of the service portfolio. The shareholders of WFG are the city and district of Heilbronn, the city of Neckarsulm, IG Metall and the municipalities of the Heilbronn district.

Figures, data and facts about the city and district of Heilbronn:



500 companies in the automotive industry based here (out of a total of 860 in the Heilbronn-Franken region)
1 large OEM (Audi)
15 large companies

2. Management board

The management board of TRAFO-DIALOG consists of executives from companies in the automotive, metal and plastics industries. They form the strategic backbone of the network.

The Board meets between one and three times over the course of a year to play a key role in shaping the development of the network. Its central tasks are to manage the strategy process:

Strategy development: The Management Board plays a key role in defining the long-term strategic goals of TRAFO-DIALOG. By pooling their extensive expertise and experience, they shape the future direction and development of the network.

Decision-making: The Board members work closely together to make ground-breaking decisions for the network. This includes the design of partnerships, the initiation of collaborations and the identification and prioritisation of future projects.

Network maintenance: The Board acts as a driving force for the promotion of relationships between the network companies. Its aim is to facilitate the exchange of knowledge, resources and best practices and to further strengthen the network.

These structured meetings of the Management Board, customised to the requirements of one to three meetings per year, ensure a regular review and adjustment of TRAFO-DIALOG's strategy. This allows current developments to be assessed, new directions to be defined and network activities to be coordinated.

3. Advisory Board

The project advisory board of the TRAFO-DIALOG network consists of the shareholders of the WFG and representatives of the Alliance for Transformation (BfT), who play a key role in shaping the network's innovation agenda and driving forward the transformation initiative in the Heilbronn economic region. This pillar of the advisory board forms an essential part of the foundation for the strategic direction and long-term vision of TRAFO-DIALOGUE. This is ensured through close and constructive dialogue with the Management Board.

The project advisory board is designed to reflect the broad diversity of social and economic interests and needs. Public representatives contribute their perspectives to ensure that the TRAFO-DIALOGUE's strategies meet the needs of the community as well as the long-term goals of the entire network and its individual members.

In addition, the advisory board is supported by experts from various fields such as science, business and associations. These diverse voices broaden the spectrum of discussion and offer well-founded insights and practice-orientated advice to strengthen the innovative power of the network.

The composition of the project advisory board is adjusted dynamically to cover the required competences and expertise and to ensure that it can respond to current challenges and future opportunities in an agile manner.

Regular meetings of the project advisory board, which take place up to three times a year, serve as a forum for stimulating discussions, strategic planning and the development of pioneering initiatives and projects. This enables the management board, and therefore the entire network, to benefit from a broad pool of knowledge and experience in order to create innovative solutions for the challenges of the future.

In its role as an advisory body, the Project Advisory Board ensures that the TRAFO-DIALOGUE has a strong foundation and remains continuously adaptable in order to promote transformative developments in the region and support long-term economic, social and environmental change.

4. Region

The WFG serves the Heilbronn economic region, consisting of the city of Heilbronn and the district of Heilbronn. The Heilbronn-Franken economic region is the area in which TRANSFORMATIVE DIALOG is to be active. It consists of the above-mentioned regional authorities as well as the Hohenlohe district, the Main-Tauber district and the Schwäbisch Hall district with a total of 900,000 inhabitants. There are 500 automotive companies in the Heilbronn economic region and around 860 in the Heilbronn-Franconia economic region. A recent study by VDIVDE-IT identified 3,000 industrial companies in the Heilbronn-Franconia economic region and 1,500 companies in the Heilbronn economic region.

The company size corresponds to the statistical average in Germany: 99.3 % SMEs, 0.7 % large companies... All research and technology centres as well as the headquarters and main locations of the universities are located in the Heilbronn economic region.

TRANSFORMATIVE DIALOG currently already has 120 members, including: 7 large companies (including 1 OEM), 105 SMEs, 3 universities, 3 research and technology centres, a trade union, an employers' association and a private regional development association.

5. Value chain

The Heilbronn-Franconia economic region is not only able to produce cars itself, but theoretically all preliminary products. The only thing missing is a tyre manufacturer.

- **Strengthening the regional value chain:**
 - (combustion) engines,
 - Piston,
 - Brakes,
 - all chassis and body parts,
 - all (black) plastic parts,
 - Car windscreens,
 - Cable,
 - Plug,
 - the entire internal and external logistics,
 - Transport robots,
 - Pressing,
 - Fuel cells,
 - Utilisation of hydrogen.
- **Weaknesses in the regional value chain:**
 - Software,
 - some electronic parts,
 - Infotainment,
 - academic research at universities,
 - Research and technology centres (only rudimentary).

In addition, the consulting firm LennardtundBirner, which was commissioned to analyse and develop the regional transformation strategy for manufacturing companies in the Heilbronn-Franken economic region as part of the TRANSFORMATIVE project, carried out an analysis of the regional value chains. The results are presented below.

These value chains were analysed:



The "materials" value chain has developed particularly strongly in the Heilbronn-Franken region:

WSK	Region Heilbronn Franken							
	2013	2022	Wachstum	Anteil Beschäftigte in der WSK an den Gesamtbeschäftigten	2013	2022	Wachstum	Anteil Betriebe in der WSK an den Gesamtbetrieben
Automotive	70.771	85.777	21%	20,0%	2.081	2.168	4%	9,4%
Maschinenbau	72.954	90.535	24%	21,1%	2.107	2.087	-1%	9,1%
Werkstoffe und Materialien	90.790	115.398	27%	26,9%	3.206	3.192	0%	13,9%
Wissensintensive Dienstleistungen	58.976	75.473	28%	17,6%	4.579	4.784	4%	20,9%

In the city of Heilbronn, the VAC "Materials" is the fastest growing trend analysis:

WSK	Heilbronn, Universitätsstadt							
	2013	2022	Wachstum	Anteil Beschäftigte in der WSK an den Gesamtbeschäftigten	2013	2022	Wachstum	Anteil Betriebe in der WSK an den Gesamtbetrieben
Automotive	6.542	8.312	27%	11,1%	350	368	5%	9,8%
Maschinenbau	6.983	9.423	35%	12,6%	248	231	-7%	6,1%
Werkstoffe und Materialien	9.820	14.447	47%	19,3%	447	447	0%	11,8%
Wissensintensive Dienstleistungen	13.855	18.780	36%	25,1%	958	990	3%	26,2%

In the district of Heilbronn, the value chain "knowledge-intensive services" is developing best:

WSK	Landkreis Heilbronn							
	2013	2022	Wachstum	Anteil Beschäftigte in der WSK an den Gesamtbeschäftigten	2013	2022	Wachstum	Anteil Betriebe in der WSK an den Gesamtbetrieben
Automotive	34.888	42.744	23%	28,9%	787	801	2%	9,9%
Maschinenbau	25.640	31.568	23%	21,3%	864	852	-1%	10,6%
Werkstoffe und Materialien	32.411	42.383	31%	28,6%	1.225	1.207	-1%	15,0%
Wissensintensive Dienstleistungen	21.793	30.134	38%	20,4%	1.490	1.622	9%	20,1%

The respective value chains were also analysed individually for the entire Heilbronn-Franken region.

In the automotive value chain, the downstream area has grown particularly strongly:

Automotive	2013	2022	Wachstum	Anteil Beschäftigte in der WSK an den Gesamtbeschäftigten
Insgesamt	70.771	85.777	21%	20,0%
Kernbereich	22.774	25.423	12%	5,9%
Nachgelagerter Bereich - Handel/Service/Nachleistungen	19.374	26.212	35%	6,1%
Vorgelagerter Bereich - Komponentenfertigung und Planung	28.623	34.142	19%	8,0%

In the mechanical engineering value chain, the downstream sector is growing very strongly:

Maschinenbau	2013	2022	Wachstum	Anteil Beschäftigte in der WSK an den Gesamtbeschäftigten
Insgesamt	72.954	90.535	24%	21,1%
Kernbereich - Maschinenbau	25.588	31.458	23%	7,3%
Nachgelagerter Bereich - Handel/Service/Nachleistungen	5.914	10.759	82%	2,5%
Vorgelagerter Bereich - Komponentenfertigung und Planung	41.452	48.318	17%	11,3%

In the materials value chain, the exploration/extraction of raw materials in particular is growing:

Werkstoffe und Materialien	Anteil Beschäftigte in der WSK an den Gesamtbeschäftigten			
	2013	2022	Wachstum	
Insgesamt	90.790	115.398	27%	26,9%
Exploration und Gewinnung von Rohstoffen, Dienstleistungen	17.323	28.054	62%	6,5%
Textilindustrie	164	121	-26%	0,0%
Kunststoffindustrie	8.231	9.554	16%	2,2%
Chemieindustrie	953	809	-15%	0,2%
Glasindustrie	1.889	1.796	-5%	0,4%
Baustoffe	1.223	1.191	-3%	0,3%
Metall- und Stahlindustrie	18.666	20.606	10%	4,8%
Herstellung von elektrischen Ausrüstungen, Materialien	9.089	11.594	28%	2,7%
Maschinenbau	25.588	31.458	23%	7,3%
Großhandel von Werkstoffen	3.379	3.401	1%	0,8%
Ingenieurdienstleistungen, Forschung und Entwicklung	4.285	6.814	59%	1,6%

In the knowledge-intensive services value chain, the area of communication has grown particularly strongly:

Wissensintensive Dienstleistungen	Anteil Beschäftigte in der WSK an den Gesamtbeschäftigten			
	2013	2022	Wachstum	
Insgesamt	58.976	75.473	28%	17,6%
Finanzen und Vermögen	12.130	11.392	-6%	2,7%
Kommunikation	4.939	10.368	110%	2,4%
Beratung und Forschung*	18.978	27.357	44%	6,4%
Medien und Kultur	1.928	1.770	-8%	0,4%
Gesundheit	21.001	24.586	17%	5,7%

6. Trend analysis

In February 2023, the EU energy ministers adopted the new CO₂ Regulation, which provides for a comprehensive ban on combustion engines from 2035. This means that from this date, no new cars or light commercial vehicles may be registered throughout the EU that use conventional diesel or petrol as their fuel. However, exceptions apply to combustion engines that run on CO₂-neutral synthetic fuels (e-fuels). Alongside these, electric engines are currently considered the most promising alternative for ensuring mass mobility in the future. ¹

A fundamental transformation of the automotive industry has not only become apparent since this decision was taken, but also a few years ago as a result of society's growing awareness of sustainability and in response to the increasingly noticeable consequences of climate change. As a result, many car

¹ ADAC, 2023; Federal Government, 2023

manufacturers and their suppliers have gradually switched from conventional production methods and the development of conventional combustion engines to e-mobility.²

A "regional development concept for the Heilbronn-Franken economic region" has already been developed for the transformation of the region and possible future developments. This regional transformation strategy places particular emphasis on the automotive sector.

This change marked the starting point for a fundamental restructuring of previous production and working patterns in the entire automotive industry, which, due to changing needs and requirements, is also having an impact on upstream and downstream manufacturing processes and the entire supplier pyramid.³

Not only the car manufacturers and their suppliers are particularly affected by these changes, but also the entire economy of the regions that are heavily dependent on the automotive industry. The employment figures for the Heilbronn-Franconia economic region, with around 41.5% of employees in the manufacturing industry, which is characterised to a significant extent by the automotive and supplier industry in the Tier 1 and Tier 2 sectors, clearly show this dependency. This primarily traditional industrial structure of Heilbronn-Franconia is also characterised by a large number of family-run, medium-sized companies that are involved in the production of combustion engines through components.⁴

In addition to these, the Audi plant in Neckarsulm also represents a strong economic component as one of the largest employers in the entire Heilbronn-Franconia region with more than 15,500 employees (as at 31 December 2022). As a forward-looking and education-oriented group, Audi AG also employed almost 800 apprentices and 53 dual students at the Neckarsulm site at the end of last year (as at 31 December 2022).⁵

In combination with above-average population growth and a high proportion of people of working age, a stable and steadily growing economic structure⁶ with a slightly above-average income⁷ has been established in the Heilbronn-Franconia economic region over the last few decades.

Nevertheless, technical developments, the changes in supply chain structures associated with globalisation, digitalisation processes and the increasing shortage of skilled workers pose challenges for the region which, if ignored, could have devastating long-term consequences for the region's socio-economic development. In addition, there are fundamental weaknesses in the region, such as below-average research and development intensity, a low proportion of employees with a higher level of education compared to the state of Baden-Württemberg and a trend towards a decline in dual apprenticeships. The strong focus on the conventional automotive industry with combustion engines and the associated high degree of specialisation in a less diversified product range can also be viewed critically.⁸

Although initial measures have already been taken in the region with the establishment of several educational institutions and universities as well as the expansion of the IT sector in order to build a broader economic base, the automotive industry and its suppliers must also adapt to current developments in order to continue to be a significant basis for the prosperity of the entire region. This is because the first

² ifo Institute, 2021, p. 4ff

³ BMWK, 2023

⁴ Transformative, 2023

⁵ Audi Media Centre, 2023

⁶ WFG, 2023a

⁷ Southwest Broadcasting, 2022

⁸ VDA, 2022d

declines in production and falling orders for suppliers, primarily at tier 2 and tier 3 level, are already being recorded.⁹

In order to counteract these negative trends, the relevance of structural change in the automotive industry and the associated paradigm shift must be taken seriously by all stakeholders involved in the industry. In addition, new production and mobility concepts must be created as quickly as possible in order to continue to secure this as one of the core industries for the Heilbronn-Franken economic region and to maintain jobs and gross value added.¹⁰

Falling production figures

For decades, Germany was regarded as the land of the automobile, with various automotive groups and brands as well as thousands of companies in the upstream and downstream sectors of the automotive industry. With high production and export figures worldwide, Germany was considered the world market leader for many years. However, a decline in domestic production has been recognisable for some years now. This trend has been apparent since 2011, when domestic car production peaked at just under 5.9 million cars. From 2011 to 2017, production was still able to stabilise to some extent, but occasionally recorded a slight decline and a slight increase in production. A sharp decline in production has been evident since 2017. This is in the range of an annual decline of between -8.9 per cent and -24.6 per cent. Most recently, a significant increase in production of 12.4 per cent was recorded again in 2022. However, if we look at the overall trend over the last 10 years, we can see that production has fallen by almost 41 per cent. This corresponds to almost 2.4 million fewer domestically produced cars.¹¹

AUDI in figures

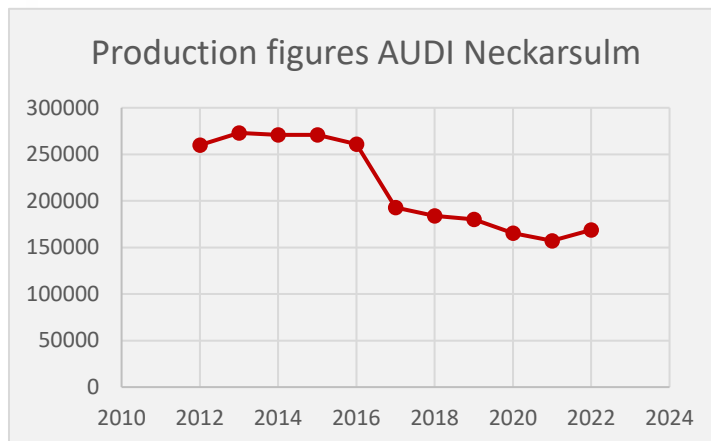
To illustrate this development once again for the Heilbronn-Franken region, the production figures of recent years for AUDI in general and the Neckarsulm site in particular are considered as a representative example. The figures for the years 2016 to 2022 cited in the Volkswagen annual reports also indicate a trend of falling production figures at AUDI. AUDI's last production peak was in 2016 with total production of 1,904,167 cars. Since then, a steady downward trend can be seen until 2022. In the financial years 2016 to 2021, AUDI with its own brand and the Lamborghini brand had an average annual decline in production of just under 4 per cent, which corresponds to around 65,000 fewer cars produced. This decline peaked in 2019 at 8 per cent and 138,514 fewer cars produced. It was not until the 2022 financial year that an increase in production of around 7.5 per cent and 117,813 more cars produced compared to the previous year was recorded for the first time.¹²

⁹ BMWK, 2023; VDA, 2022e; WFG Heilbronn, 2023b

¹⁰ ifo Institute, 2021, p. 3ff

¹¹ VDA (2022c); article "Automobile production"; last updated on 24/05/2023; retrieved on 16/06/2023

¹² Volkswagen Aktiengesellschaft; Annual Reports AUDI 2016-2022; retrieved: 15/06/2023

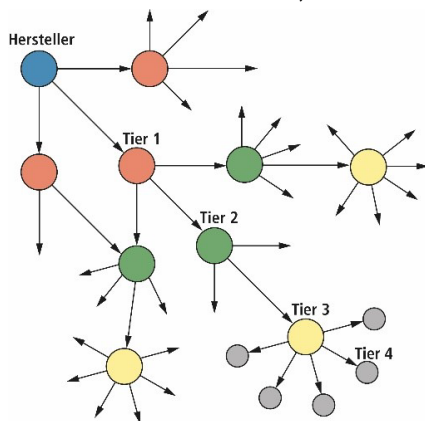


For the AUDI plant in Neckarsulm, the production figures from 2012 to 2022 also show a clear downward trend. In 2019, production at the Neckarsulm site fell by around 12 per cent, which corresponds to around 20,000 fewer cars produced. This figure decreased slightly in 2020, but still stands at 8 per cent or around 12,000 fewer cars produced. A slight consolidation can also be seen here in 2022. However, this only amounts to an increase of 2.7 per cent

or 4,035 cars produced.¹³

Challenges for automotive suppliers

The automotive production system is based on a chain of suppliers of various tiers (Tier 1-4) and the actual OEM. The number of suppliers multiplies the further down the supply chain you go. Conversely, this means that if, for example, an OEM is affected by the consequences of the transformation and the switch to electric motors, three Tier 1 suppliers may already be affected in the next step. Then nine Tier 2 suppliers, twenty-seven Tier 3 suppliers and eighty-one Tier 4 suppliers. However, this number is only an example of a multiplication by a factor of 3 for each tier. In reality, the number of companies affected by the transformation is many times higher. According to a study by the VDA, around 75 per cent of the added value of an automobile is created by suppliers.¹⁴ In Germany alone, around 300,000 people are employed in a supplier company. These are mostly small and medium-sized, family-run companies.



The transformation poses huge challenges for suppliers. The elimination of parts that are no longer used in new powertrains could lead to the loss of entire business areas and sectors in the automotive supply industry. According to experts, a conventional combustion engine consists of at least 1200 different parts, while the electric drive only has around 200. Accordingly, a decrease in personnel requirements is to be expected.¹⁵ Suppliers in particular must drive the transformation forward through research and development and, in the course of this, put old business models to the test. Offering alternative drive systems, supply chain resilience and energy and material supply at competitive prices on the market pose major challenges in this context.¹⁶ At the same time, OEMs are placing tougher demands on suppliers, such as cost and cost-cutting requirements, tendering conditions and ownership of developments.¹⁷ Another aspect that suppliers will have to pay more attention to in the future is sustainability in all

Another aspect that suppliers will have to pay more attention to in the future is sustainability in all

¹³ AUDI AG (2020-2022a); Fact Pack AUDI 2020-2022; retrieved: 15/06/2023

¹⁴ VDA (2022a); Annual Report 2022; page: 124-126; retrieved: 15/06/2023

¹⁵ Neue Zürcher Zeitung; Article from 13.01.2020; Michael Rasch; "The switch to electric cars could cost over 400,000 jobs in Germany"; retrieved on 15.06.2023

¹⁶ VDA (2022a); Annual Report 2022; page: 124-126; retrieved: 15/06/2023

¹⁷ Hans Böckler Foundation; Location perspectives in the automotive supplier industry; Page: 36] retrieved: 15.06.2023

dimensions.¹⁸ To summarise, it can therefore be said that the major costs of the transformation must be borne by the suppliers. Based on current analyses, it can be said that only 56 per cent of the suppliers considered can be regarded as financially healthy. Critical EBIT margins and critical debt levels can be found at 13 per cent of suppliers.¹⁹ This means that the necessary investments in the future of the companies are associated with a high risk for the liquidity of the companies concerned.²⁰ Furthermore, German SME suppliers in particular are facing a double problem: shrinking domestic markets and, at the same time, limited resources for globalisation.²¹

More than ever, companies need the support of politicians in order to overcome this challenge. In the long term, they will no longer be able to remain globally competitive due to high energy costs, a lack of planning security, a shortage of skilled labour and excessively long approval procedures.²²

The trend towards automotive suppliers abroad

Large companies are increasingly relocating their production facilities abroad. This so-called offshoring has the background of cost savings, which come from lower regulations, lower energy prices and lower labour costs. This trend can also be seen in the automotive industry. Cars for the Asian market are already produced in Asia, cars for the American market in North America. However, car manufacturers are increasingly utilising automotive suppliers from the Baltic states, Eastern European countries, Turkey and countries in North Africa, as they pay lower wages and have low energy costs.

The innovation and export model of the German automotive industry is facing major challenges due to the shift of growth markets from Europe to Asia, especially China. Above all, factors such as logistics costs, regionally differentiated customer requirements and currency fluctuations are driving the change in the industry's production model. While non-European markets were previously mainly served by exports of cars produced within Germany, there is now a shift towards global production and innovation networks. These are intended to reinforce the motto "local-for-local" through regional markets and regional production. Between 2012 and 2016, OEMs planned a total of 62 new plants worldwide, 32 of which were exclusively in China. Eight of these plants belonged to the VW Group. A transformation process from export-dominated to regionalised vehicle production is therefore taking place.²³ At the IFA car summit, VW brand boss Schäfer announced that the VW Group sells around 40 per cent of its vehicles on the Chinese market.²⁴ A demarcation from China back to the domestic market is therefore inconceivable. In addition, Taiwan is the world market leader in the manufacture of computer chips for the automotive industry. In this context, dependence on China stems from the fact that many Taiwanese companies have their production sites on the Chinese mainland. If China were to be cut off, it is possible that the current global chip shortage for the automotive industry could worsen and the car manufacturers' plants could come to a complete standstill.

¹⁸ Hans Böckler Foundation; Location perspectives in the automotive supplier industry; Page: 28; retrieved: 15/06/2023

¹⁹ Deloitte; Supplier Risk Monitor; retrieved: 15/06/2023

²⁰ VDA (2022a); Annual Report 2022; page: 124-126; retrieved: 15/06/2023

²¹ Hans Böckler Foundation; Location perspectives in the automotive supplier industry; Page: 27; retrieved: 15/06/2023

²² VDA (2022a); Annual Report 2022; page: 124-126; retrieved: 15/06/2023

²³ Hans Böckler Foundation; Location perspectives in the automotive supplier industry; Page: 24-25; retrieved: 15/06/2023

²⁴ Handelsblatt (2022a); article from 20/10/2022; Stefan Menzel; IFA car summit; retrieved: 15/06/2023

However, the Asian market is not the only market exerting pressure on domestic automotive suppliers. The Baltic, Eastern European and North African states and Turkey are becoming increasingly interesting for the domestic automotive industry. They are tempting with low energy and labour costs. Ukraine is considered one of the most important producers of wiring harnesses in Europe. Wiring system manufacturers such as Leoni, SEBN and Kromberg & Schubert source their cable harnesses from Ukraine. However, this is not necessarily because Ukrainian wire harnesses are of the highest quality in Europe, but rather because an hour's labour, including non-wage labour costs, costs just three euros in Ukraine, compared to 54 euros per hour in Germany. As the Russian war of aggression led to a significant slump in the production of cable harnesses, Volkswagen, for example, is working with suppliers on parallel production in North Africa.²⁵ With Lithuania, another Baltic state is now increasingly moving into the focus of the automotive industry. Two German suppliers, Hella and Continental, have already set up operations there. German industry giants are expecting an investment of at least 120 million euros and the creation of 3,000 new jobs there. A decisive factor in this decision was the fact that Lithuanian workers earn only a fraction of the wages in neighbouring countries. Wage costs in Lithuania are said to be 14 per cent lower than in Poland and even 30 per cent lower than in the Czech Republic. However, wages have also been rising here since 2018. In 2018, the average wage rose by 10 per cent to 960 euros, while in 2019 it was already over 1250 euros per month.²⁶ As already mentioned, North African countries are also increasingly becoming the focus of the automotive industry, including Morocco in particular. Although Moroccans tend to be reluctant buyers of new cars, with 180,000 new registrations out of a population of 37 million, the country stands out as Africa's largest car exporter. Morocco has an annual production of 470,000 units, which corresponds to an increase of around 10 per cent compared to the previous year - despite the coronavirus pandemic and the ongoing war in Ukraine. According to the analysis institute Eos, Morocco's capacity already stands at 700,000 vehicles per year. An increase in capacity to 1 million vehicles is planned by 2025. Car manufacturers such as Renault-Nissan-Mitsubishi and Stellantis are constantly driving this development forward. In the meantime, car manufacturers such as Hyundai and VW have also followed suit. For example, VW has closed its plant in Algeria and reopened it in Morocco. What makes Morocco such an interesting location for the automotive industry are, for example, free trade agreements with the EU, the USA and Turkey and automotive clusters with attractive tax regulations. Companies in the free trade zones are tax-free for the first five years and a maximum of 8.75 per cent corporate tax is due for the twenty years thereafter.²⁷ Companies are completely exempt from trade tax and VAT.

In a 2014 study, Deloitte once again confirmed the key criteria for deciding on a location for the automotive industry. These are customer proximity, labour cost levels, energy costs, qualifications and productivity.²⁸

Employment losses in the automotive industry

The electrification of the new vehicle fleet as part of the transformation will lead to a significant loss of jobs in the German automotive industry. Automotive suppliers in particular will feel the effects of this. A study by the BMWi from 2019 assumes a loss of 170,000 jobs in the automotive industry alone if 80% of the cars produced are electrified. This would correspond to a reduction in employment of more than

²⁵ Handelsblatt (2022b); Markus Fasse, Axel Höpner, Franz Hubik, Stefan Menzel, Arno Schütze; article from 15/03/2022; Ukraine war; retrieved on 15/06/2023

²⁶ Focus; Article from 05.08.2019; Construction of new plants; accessed 15.06.2023

²⁷ Automobil Produktion; Article from 07.03.2023; Thomas Geiger; North Africa's silent star; retrieved on 15.06.2023

²⁸ Deloitte; Upheaval in the automotive supply industry; retrieved on 15/06/2023

18 per cent of those employed in the automotive industry in 2017. The potential for new powertrains to create new jobs has already been taken into account here. In addition to the employment losses in the automotive industry, there are also losses in the upstream and downstream sectors of the automotive industry, such as metal products, rubber and plastic goods or moulded products. Car workshops must also be taken into account, as electrified cars are less maintenance-intensive. The BMWi study assumes further losses of 300,000 employees. The task of policymakers is to minimise the loss of employment and to ensure that employees have the opportunity to find a job in the new mobility industry by offering retraining and further training.²⁹

New forms of mobility and mobility of the future

The shift towards new drive systems and new forms of mobility is now considered certain. However, it is not yet possible to determine exactly whether the drive system of the future will be electric, hydrogen-based or more environmentally friendly (e-fuels). However, the authors of the pwc study "eascy - The five dimensions of the transformation of the automotive industry" are certain. The car of the future will be: electrified, autonomous, shared, connected and yearly updated. The trend of owning your own car will disappear and the vehicle of the future will be used and shared "on demand". This will enable simpler, more flexible and more individualised mobility. Autonomous driving will also gain in importance in the future and have a strong influence on shared mobility concepts. Furthermore, according to this study, China will become a leading market for automotive transformation, focussing on the "new" mobility of users. The young, tech-savvy generation will drive the automotive transformation. PWC assumes that the global automotive market will change. This means that autonomous and shared forms of mobility will gain enormously in importance by 2030. New registrations in the USA, China and Europe will increase by 30 per cent and 55 per cent of new registrations will be fully electrified by 2030. Furthermore, 40 percent of passenger kilometres driven in Europe will be autonomous by 2030, increasing by 23 percent to 5.88 trillion kilometres. In addition, the intensity of use and holding period of vehicles will change fundamentally as a result of electrification and modularisation. However, these changes will also have a negative impact. Between 2020 and 2025, the industry will have to contend with falling margins and rising investments. As a result, OEMs and suppliers will have to put the user at the centre of their reorientation and offer an "eascy" mobility solution.³⁰

Insourcing by OEM

In order to secure jobs and save costs, OEMs are increasingly focussing on insourcing, i.e. production is being brought back in-house piece by piece. Conversely, however, this means that orders for automotive suppliers will increasingly decrease. Level 3 and 4 suppliers are particularly affected. The Volkswagen Group has announced that it will build large parts of the electric drive itself from 2025. With this step, VW is increasingly penetrating the market of large suppliers such as Bosch, ZF, Mahle and Vitesco. This is a disadvantage for suppliers in two respects, as they are already losing out on added value as a result of the transformation. This concerns the high-revenue market for electric powertrain components, which is expected to grow to almost 81 billion euros by 2030. If car manufacturers increasingly rely on in-house production, suppliers will lose up to 10 per cent of the overall market. VW argues that this would lead to greater efficiency, better economies of scale and cost savings.³¹

²⁹ VDA (2022b); Article "Employment effects of the transformation"; Dr Volker Schott; accessed 16.06.2023

³⁰ pwc; eascy 2017 study; accessed on 16/06/2023

³¹ Handelsblatt (2022c); article "VW wants to increasingly manufacture e-drive components itself"; Martin-W. Buchenau, Roman Tyborski; article from 15/03/2023; retrieved on 20/06/2023

Top trends in the automotive industry

The five top trends in the automotive industry were identified by the consultancy firm commissioned to analyse and develop the regional transformation strategy for manufacturing companies in the Heilbronn-Franken economic region as part of the TRANSFORMATIVE project.

1. Electrification

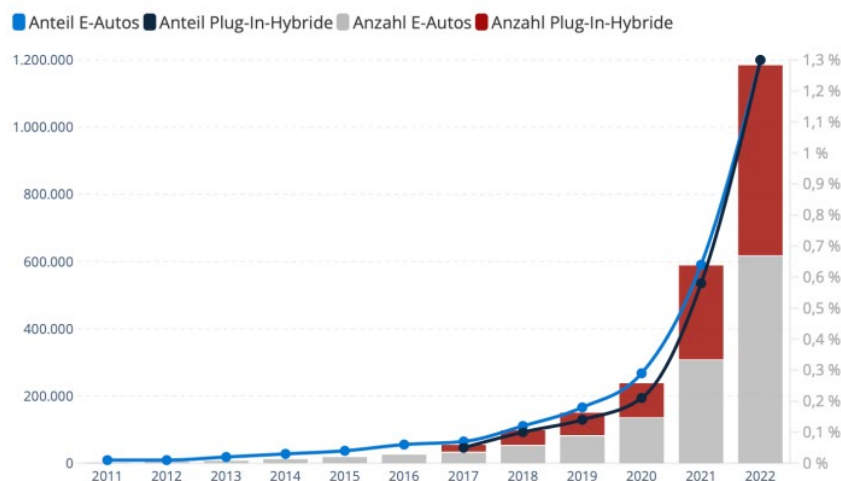
- Transition from conventional combustion engines to electrically powered vehicles.
- Increasing use of electric motors instead of combustion engines and fuels.
 - As battery electric vehicles (BEV)
 - Plug-in hybrid vehicles (PHEV)
- The degree of environmental friendliness depends on the type of electricity generation, but in any case there is a significant improvement in air quality along transport routes, as there are no direct exhaust emissions.

Federal government target by 2030: seven million electric vehicles on German roads

The further development of batteries is increasing the range of vehicles, but there are still considerable challenges in the procurement of the required raw materials.

Incentives: Governments have introduced subsidies or concessions to make the purchase of electric vehicles more attractive.

Challenges and opportunities for expansion in Germany: development of a sufficient charging infrastructure, disposal/recycling of batteries, sustainability in the manufacture of vehicles, "range anxiety"



Anzahl der Elektroautos (BEV)	1,01 Mio.
Anzahl der Plug-In-Hybride (PHEV)	864.712
Anzahl der Elektroautos in Nordrhein-Westfalen	222.053

Source: Statista <https://de.statista.com/themen/608/elektromobilitaet/#topicOverview>

The main highlights of electrification in terms of technology

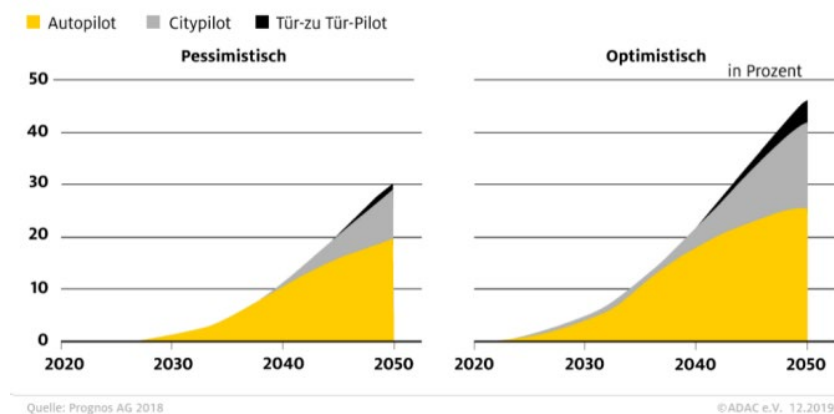
- Advanced Li-ion battery cells and packs in electromobility
- Performance improvements in power electronics
- Optimising electric motors for electromobility
- Fuel cells as an alternative in the transport transition
- Autonomy as a disruptive technology in the automotive sector

2. Autonomous driving

In 2017, Germany passed a law regulating autonomous driving. This law allows test drives with autonomous vehicles on public roads under certain conditions.

According to ADAC forecasts, autonomous driving will not become widespread until the 2030s.

- Several test routes and pilot projects for autonomous driving have been set up in Germany. One example is the "Digital Test Field Motorway" test route on the A9 motorway in Bavaria.
- Germany is home to many well-known car manufacturers and technology companies that are intensively involved in autonomous driving. Companies such as BMW, Daimler, Volkswagen, Audi and Bosch are actively involved in the development of autonomous vehicles.
- Research and development: German universities and research institutions play an important role in the research and development of autonomous vehicles. There is close co-operation between industry, academia and the government to drive innovation.



Übersicht über die erwartete Verbreitung automatisierter Autos • © ADAC e.V.

The development of autonomous vehicles takes place in different stages or levels.

- From semi-automated systems that take over certain tasks to fully autonomous vehicles without human intervention. Germany is focussing on both semi-automated and highly automated vehicles.

- Safety is an important aspect of autonomous driving. Strict standards and guidelines are being developed to ensure the safety of self-driving vehicles and other road users. Ethical issues such as decision-making in critical situations are also being discussed.
- There are still many challenges to overcome before fully autonomous driving becomes widespread. These include legal and regulatory issues, technological challenges, adapting the infrastructure, data protection and cyber security.
- Public acceptance of autonomous vehicles is an important factor in their success. The introduction of autonomous driving requires trust, education and clear communication about the benefits and challenges.

3. Connectivity

Vehicles with wireless communication to other devices, networks and services

- Networking between vehicles and infrastructure
- Telematics - Infotainment systems
- Real-time traffic information
- Vehicle-to-vehicle communication (V2V)
- Vehicle-to-infrastructure communication (V2I) trend analysis

4. Shared mobility

Sustainability and environmental impact: Shared mobility helps to reduce traffic volumes and CO2 emissions as there are fewer cars on the roads. The use of environmentally friendly vehicles such as electric cars or bicycles can further reduce the ecological footprint.

Car sharing: The shared use of vehicles enables users to rent a car when needed instead of owning their own vehicle. This reduces individual vehicle ownership and promotes more efficient use of resources.

Ridesharing: With ridesharing services, several passengers share a vehicle for a joint journey. This can reduce the number of vehicles on the road and help to reduce traffic congestion and environmental impact.

Bikesharing: Bikesharing systems allow users to hire bikes for short journeys. This promotes environmentally friendly mobility and a healthy lifestyle.

Scooter sharing: Scooter sharing services offer electric scooters for short journeys in urban areas. They offer a flexible and environmentally friendly alternative to travelling by car.

5. Artificial intelligence

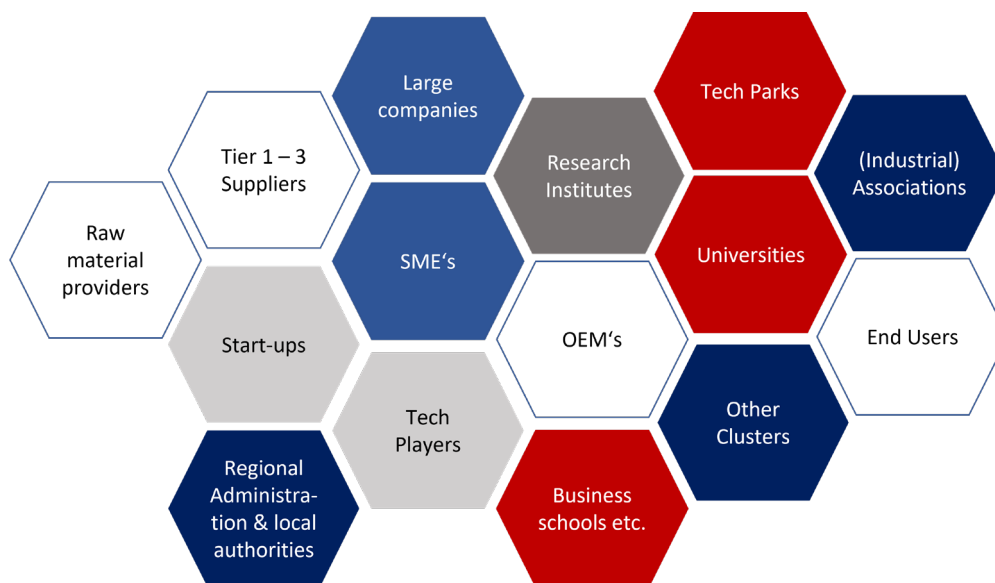
Driver assistance systems: Artificial intelligence (AI) enables advanced driver assistance systems such as adaptive cruise control, lane departure warning systems, emergency brake assistants and collision warning systems. These systems use AI algorithms to recognise and analyse traffic situations and react accordingly.

Voice control: AI-based voice assistants enable drivers to control various functions in the vehicle by voice command. This includes operating the infotainment system, navigation, making phone calls and sending messages without having to take their hands off the steering wheel.

Vehicle diagnostics: AI can be used to improve the diagnosis of vehicle problems. By analysing sensor data, AI algorithms can identify potential problems, interpret fault codes and suggest solutions. Maintenance intervals are optimised.

Autonomous driving: AI plays a crucial role in the development of autonomous vehicles. Machine learning and deep learning are used to train algorithms to recognise traffic signs and signals, identify other vehicles and pedestrians, anticipate traffic behaviour and perform driving manoeuvres safely.

If we look at the value chain in terms of target groups, the following picture emerges:



Our focus is on bringing together all parties in the entire cluster. We would like to add start-ups to the list of topics and also focus more on end users and society. The raw material suppliers are in the previous METAL and PLASTIC DIALOGUE. By also looking at the logistics and supply chain of manufacturing companies in the region, all players along the value chain are included.

7. Main challenges

The biggest and most important challenges that characterise the Heilbronn economic region are listed below:

- **automotive industry:**

- Global shift from Europe to Asia,
- Shift from combustion engines to electric drives and fuel cells
- Changing car concepts: autonomous driving, connected cars, electromobility, shared cars
- **Industry:**
 - networked production,
 - IoT,
 - AI,
 - Blockchain,
 - missing links in supply chains.
- **Cluster management:**
 - Post-merger integration after the initial set-up of TRANSFORMATIVE DIALOG,
 - Realignment of external communication,
 - Integration of new team members SWOT analysis

STRENGTHS	WEAKNESSES
<p>Industrial area</p> <ul style="list-style-type: none"> > Very strong industrial base > Very high level of formal education of the labour force > Positive and growing > Income development > Internationally recognised as one of the leading regions in the automotive industry and production <p>Cluster Management</p> <ul style="list-style-type: none"> > Broad service portfolio (due to projects), larger than other clusters > Very high proportion of revenue from projects with EU, national or regional governments > Generally positive assessment of partners and area managers > Very good assessment of the cluster by SMEs (better assessment than multinationals) > Very qualified and experienced team (18.5 FTEs) > Good external communication (with partners and the environment) > Good position with the Baden-Württemberg Ministry of Economic Affairs 	<p>Industrial area</p> <ul style="list-style-type: none"> > Internal combustion engines have a very high share of regional GDP and regional employment > Institutionalised research is only developing at regional universities > The switch to new engines is not reflected in many corporate strategies > Software / IT / electronics is underrepresented in our region / cluster <p>Cluster Management</p> <ul style="list-style-type: none"> > Many new team members > No engineer(s) > No long-term (more than 3 years) funding (for the recently hired employees - 13.5 out of 18.5 FTE) > Weak position in front of the national Ministry of Economy
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> > The ecosystem lacked a network of universities and RTOs (until 2019, only Heilbronn University of Applied Sciences and the DLR Institute of Drive Technology were represented). Thanks to the efforts of the DSS (Dieter Schwarz Foundation), the following institutions were brought to Heilbronn: Heilbronn Cooperative State University, Cooperative State University Centre for Advanced Studies, Ecole 42 Heilbronn, Ferdinand Steinbeis Institute, Fraunhofer IAO with its KODIS branch, 	<ul style="list-style-type: none"> > Decoupling from China (this would have an unknown impact on our Audi plant and the neighbouring Mercedes and Porsche plants) > Decline in the share of the combustion engine in global passenger car sales > Disruption of strict regulatory requirements and sanctions in relation to emissions > Uncertainty about the temporary degree of introduction and adoption of new standards in

Artificial Intelligence Innovation Park, TUM (Technical University of Munich). >
Hydrogenium: a testing and consulting facility for all hydrogen issues to be launched in 2023 >
AITRAQX: a training and competence centre for artificial intelligence to be launched in 2023

Cluster Management

- > Better international networking leads to more visibility and more EU projects
- > New team members can specialise in certain areas and acquire expert knowledge, which benefits the cluster member companies
- > Further development of the team through specific HR measures in the projects

drive technology > Possible relocation and concentration of car manufacturers to Asia (not necessarily China) with an impact on Germany
> Growing tank production in Germany and its impact on Rheinmetall sites
(supplier for tank production instead of remaining a supplier for the automotive industry) >
Growing importance of ESG as a key decision-making factor >
Impact of new trends in vehicle use on new car sales >
Shortage of technicians and skilled labour for companies >
Risk of loss of competitiveness (salaries) compared to other European countries

Cluster Management

- > Departure of the team due to fixed-term contracts
- > Few to no new projects

8. services

Services provided by Wirtschaftsförderung Raum Heilbronn GmbH

- Understanding the needs of local companies
 - Development of programmes/projects to overcome challenges
 - Raising funds for these programmes
 - Support for companies, universities and RTOs in the search for subsidies
 - Enabling new courses/vocational training with local schools/universities, sometimes also raising funds
 - Definition of a cluster-specific personnel strategy
 - Definition of measures for upskilling and retraining
 - the implementation of these measures
 - Support with internationalisation
- Formation of consortia to give SMEs the opportunity to participate in larger projects
- Business location service - contact person for the search for commercial sites and properties in the Heilbronn economic region
- Targeted support and promotion of the emerging hydrogen and fuel cell industry

9. Added value of the TRANSFORMATIVE DIALOGUE

TRANSFORMATIVE DIALOG is designed to offer its members a wide range of added value that supports their entrepreneurial development and innovation. This added value results from

- Early, interdisciplinary information and communication on current trends: Members gain an early insight into current trends and developments by exchanging information within the network. This information basis enables them to reflect on and implement their own activities before they become relevant in the competitive environment.

- Impulses for new project ideas: Networking within the network promotes the exchange of innovative project ideas between members. Discussions and collaboration create new opportunities for cooperation and the joint development of innovative products and projects.
- Market positioning through exchange: The dialogue with network partners enables members to determine their own position. This exchange enables them to benchmark their own company in comparison to others and offers starting points for optimisation.
- Access to expertise and research results: The network provides expertise through the presentation of research results and bilateral exchange. This opportunity to expand knowledge supports members in their continuous development.
- Promoting out-of-the-box thinking: TRANSFORMATIVE DIALOGUE encourages thinking beyond conventional boundaries through new impulses and innovative workshop formats. This helps to open up new ways of thinking and explore innovative solutions.
- Faster learning and more precise assessment of current and future developments: The network's collaborative approach enables members to learn more quickly and assess current developments more accurately. Joint reflection and discussion enable a more informed approach to current and visionary issues.
- Building valuable national & international partnerships: The TRANSFORMATIVE DIALOGUE opens up the possibility of forming valuable partnerships that lead to synergy effects. These partnerships create opportunities for joint projects, co-operation and mutual support.
- Joint public image as a network. Presence on all platforms of the network, at events, in print and online media

Overall, the TRANSFORMATIVE DIALOGUE offers a unique platform that provides members with numerous opportunities for further development, networking and promoting innovation.

Specific activities & services of the TRANSFORMATIVE DIALOGUE

The TRANSFORMATIVE DIALOGUE is designed to provide a range of services and activities to maximise added value for members and promote networking. These include:

- Annual network meetings: Regular events enable personal meetings, information exchange and co-operation between members.
- Joint trade fair stands: Members are given the opportunity to use joint stands at relevant industry trade fairs to present their products and services to a wide audience.
- Network-related online community: An online platform promotes the continuous exchange of knowledge, discussions and collaboration, even between physical meetings. International exchange is promoted through the use of matchmaking services and the online community.
- Meetings at member companies: Network meetings can also take place directly at member companies to provide insights into operational processes and resources.
- International delegation trips: Organised meetings at international companies and events to promote exchange beyond Heilbronn and exploit synergies.
- Active co-design of funding applications: Members can participate in the conception of funding applications for the TRANSFORMATIVE DIALOGUE.

- Participation in funding projects: Opportunity to actively participate in the realisation of funding projects.



These services aim to utilise the synergies within the network and support members in their quest for innovation, growth and sustainable development.

The organisational chart of TRANSFORMATIVE-DIALOG is as follows (separate document)

10. Integration into the regional innovation system

The state of Baden-Württemberg is responsible for drawing up the S3 strategy / innovation strategy. The state of Baden-Württemberg utilises the twelve regional economic development agencies as the main contact partners at the subordinate level. Wirtschaftsregion Heilbronn-Franken GmbH is the so-called cluster contact for the Heilbronn-Franken economic region. Dr Dufour is Dr Schumm's deputy as cluster contact. Dr Schumm consults with the representatives of the two cluster organisations before all meetings of the regional economic development agencies with the Baden-Württemberg Ministry of Economic Affairs. The TRANSFORMATIVE-DIALOGUE and its predecessor organisations are listed in the so-called Cluster Atlas of the state of Baden-Württemberg and are therefore addressed in all BW-wide issues of the state of Baden-Württemberg.

TRANSFORMATIVE-DIALOG is also involved in the state agency e-mobil-bw. Furthermore, we are in a position to contribute to the innovation strategy in terms of content, both via the automotive / production topics and via the topic of hydrogen.

11. Strategic goals

The strategic goals of TRANSFORMATIVE DIALOG, derived from the vision, are as follows:

TRANSFORMATIVE DIALOG becomes an independent company that is financially supported by Wirtschaftsförderung Raum Heilbronn GmbH.

Securing the financial basis to retain as many employees as possible.

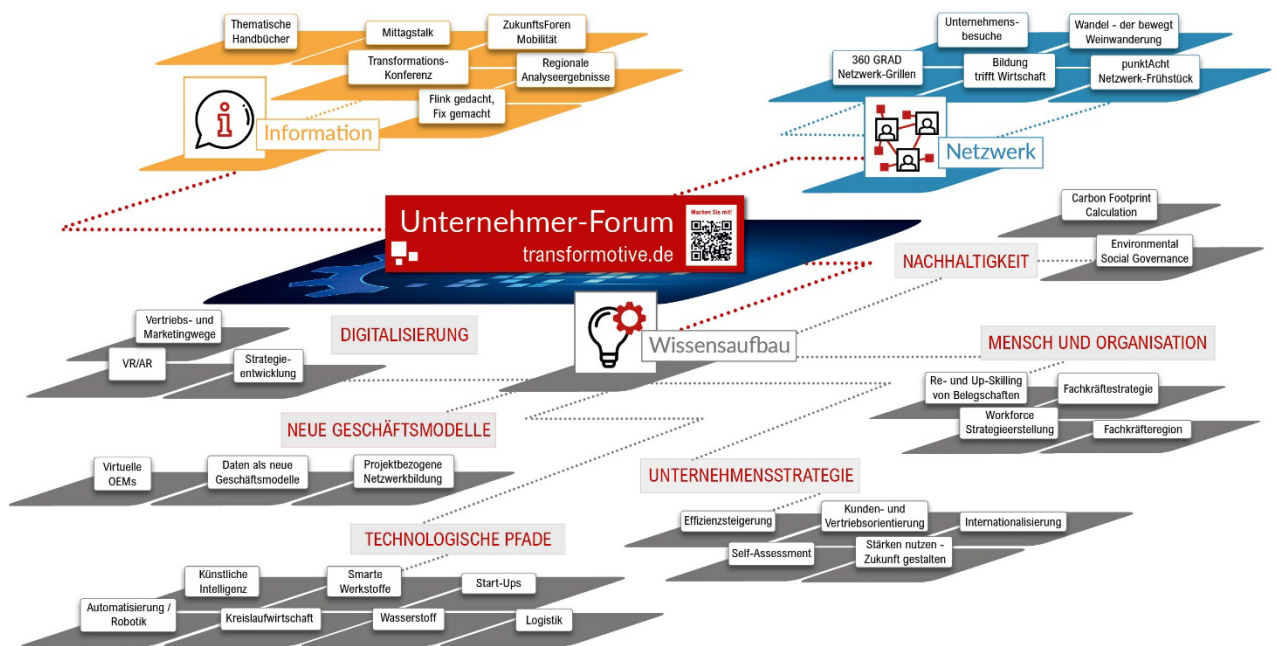
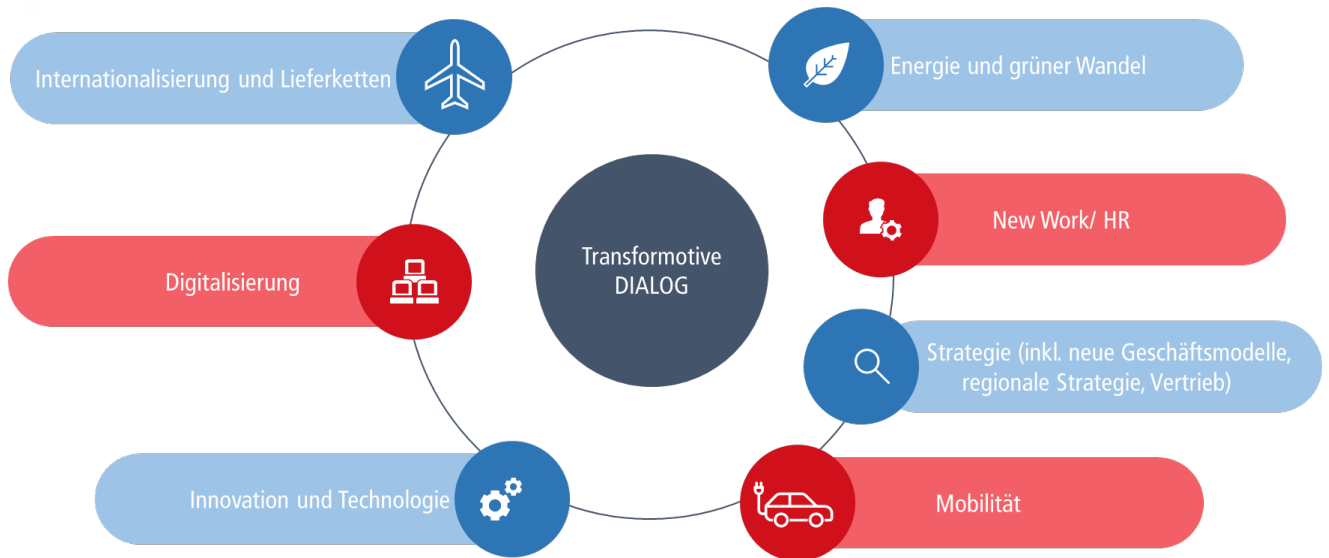
Gradual increase in the number of members

Creation of a permanent competence centre for our members.

Become the contact point for European projects.

Achieve organisational excellence.

TRANSFORMATIVE DIALOG would also like to provide expertise in the following areas:



12. Working method

The WFG's working method is always driven by a service orientation, responsiveness, expertise and a focus on results.

The top-down approach is used to inform the participants in the TRANSFORMATIVE project and the members of the TRANSFORMATIVE DIALOGue and to develop new solutions to challenges. This involves the WFG monitoring the market and technology.

On the other hand, the bottom-up approach is also applied by actively involving participants and members through surveys. This allows the needs and challenges to be better understood.

A cluster performance analysis was carried out in 2022. The aim of the survey was to identify the critical success factors for companies in the clusters. An online survey was used to assess all the assumed critical success factors (29 in total) in terms of their relevance for the company and the estimated performance of the company itself on a scale of 1 (insignificant/very poor) to 7 (very high/very good). The results were summarised through qualitative expert interviews.

Critical success factors:

Internal Factors	Regional Factors	Competitive (market) factors
1. Development of new business models	12. Availability of apprentices	21. Bargaining power of customers
2. Increase in efficiency	13. Availability of skilled and qualified workforce	22. Bargaining power of service providers / suppliers
3. Process innovation	14. Availability of digitally skilled workforce	23. Market entry of new competitors
4. Product innovation	15. Efficient transports and logistics infrastructure	24. Availability of raw materials
5. Organisational transformation	16. Availability of land (for production & offices)	25. Replacement of existing products by substitutes or new products
6. Readiness for Cyber Security	17. Regional innovation ecosystem	26. Government regulations changing the market situation
7. Digitalisation of processes and products	18. Public funds to support industrial transformation	27. Industry regulations changing the market situation
8. Quality and reliability of processes and products	19. Regional customer orders	28. Cost of energy
9. Upskilling / reskilling of workforce	20. Credibility, stability and commitment of the cluster management	29. Impact of climate change
10. Financial resources for investment and modernisation		
11. Long-term structural orientation of the company (shareholder structure, generational turnover)		

The most important results of the expert interviews are listed below.

- **Digitalisation of processes and products**
 - Digitalisation must be placed centre stage and prioritised
 - The aim of digitalisation is to increase efficiency
 - Most companies have a good knowledge of physical product development
- **Process innovation**
 - Preventive maintenance
 - Reliability and proof of reliability
- **Increased efficiency**
 - Lean production teams
 - Shop floor management
 - Gemba walks
 - The key to improvement is the exchange of knowledge and transparent communication
- **Bargaining power of customers**

- Companies buy what they can get (even if it is similar to the components they actually need).
- **Bargaining power of service providers and suppliers**
 - It's not just about the price, but also about the security of supply
 - Companies are trying to source more locally
 - Local procurement is not always possible
- **Availability of trained and qualified labour and availability of digital specialists**
 - It is not easy for small companies to find new employees
 - Small companies are more demanding and offer less money
 - The options for contacting potential employees have changed
 - Mechanics is the past, electronics as a knowledge competence is the future
 - Companies need investment

In addition, a further company survey is currently planned as part of a transformation performance analysis. The survey is to be conducted between week 48 and week 50 in 2023. The aim is to identify which bottleneck factors are limiting the companies' ability to transform. The methodological approach is identical to the cluster performance analysis. As part of the quantitative survey of affected companies, the relevance of potential transformation factors and the current performance of the companies in fulfilling these factors are to be worked out. This will enable a clear weighting and prioritisation of bottleneck factors - i.e. fields of action. In a second step, interviews will be conducted to analyse and evaluate the inherent logic of the bottleneck factors and the probable causes. This should provide a comprehensive picture of the cause-and-effect principles that can lead to the inadequate fulfilment of the critical transformation factors.

13. Key Performance Indicators

The key performance indicators (KPIs) can be found in a separate Excel spreadsheet. The storage location is accessible to all WFG employees. As part of project planning, performance values were defined for all projects carried out by the WFG. Significant achievements are measured and presented in the form of a key figure. It can be seen whether and to what extent defined target values have been achieved.

The key figures for the respective projects were selected in such a way that the process output at the end of the process is visible. If target values deviate, appropriate measures can be introduced at an early stage.

Clear responsibilities have been assigned to the people working on the project for maintaining the individual key figures. Updates are made weekly, at the end of each calendar week, so that the progress of the project can be tracked at all times.

The Excel table is used for work planning, summarised for the following projects:

- EVOLUTE
- INNOBIOVC
- PERCY

- POLREC
- TRANSFORMATIVE
- TRANSFORMATIVE DIALOGUE

In addition to an overview spreadsheet, the Excel table is divided into individual spreadsheets for the above-mentioned WFG projects. For all projects, the overview summarises the respective subject areas and the overall degree of fulfilment for the calendar year and, if required, the degree of overfulfilment as a percentage. The project-specific spreadsheets are organised according to the defined subject areas. The topic areas contain the respective key figures, for which a topic designation, a measured value with unit of measurement, a target value, the current status, a deadline - if different from the calendar year - and the respective degree of fulfilment including the degree of overfulfilment are shown as a percentage. For all topics, the average degree of fulfilment including the degree of overfulfilment is also shown as a percentage.

The following key figures were defined for the respective projects (as at 31 October 2023)

EVOLUTE

Subject area: Key performance indicators

- Individual cluster strategy for each of the 6 participating clusters
- Comprehensive portfolio of services for each of the 6 participating clusters
- Completion of comprehensive joint cluster strategy and portfolio of services for EVOLUTE
- General Assembly
- 2nd Technical Progress Report
- Joint cluster strategy of the EVOLUTE consortium
- Joint Comprehensive Portfolio of Services for the EVOLUTE consortium
- Added services to the service portfolio
- 3rd Technical Progress Report
- Cluster exchanges
- Monthly Calls
- Social media followers

INNOBIOVC

Subject area: Key performance indicators

- D 1.2.2 4 Good practice and lessons learned report
- D 1.2.1 4 training workshops in PP regions conducted for PP and regional stakeholders
- Social media followers

PERCY

Subject area: Key performance indicators

- Presentation of results - Workshop
- Technical Progress Report / Dissemination
- Completion of comprehensive joint cluster strategy and portfolio of services for EVOLUTE

- Project completion

POLREC

Subject area: Key performance indicators

- WP2 - D2.2 - D4 Mapping of waste streams and of recyclers (New-to-firm products and/or services in the industrial ecosystem/s)
- WP3 - D3.2 - D10 Online networking events - 1
- WP3 - D3.5 - D13 Findings about the knowledge, services or products and esp. the interests / objectives of the identified SME members.
- WP3 - D3.6 - D14 Online conference
- WP3 - D3.8 - D16 Face to face meetings - 1
- Social media followers

TRANSFORMATIVE

Subject area: PRIO Key Performance Indicators

- Number of company/institution visits
- Number of events organised by TRAFO and with active TRAFO participation (total number and differentiation)
- Number of participants in TRAFO workshops
- Number and satisfaction of participants in continuing education activities
- Number of users in the company forum
- Number of projects and project outlines

Subject area: Tenders - Workshops

- Efficiency enhancement
- Customer and sales orientation
- Virtual OEM topic area
- Project-related networking
- Restructuring topic area
- Workforce strategy development
- Workforce implementation - reskilling and upskilling of workforces
- Workforce Employer Branding
- Digitalisation in production & logistics - ESG & CFC
- Digitalisation in production & logistics - data as new business models_AI and digitalisation
- Digitalisation in production & logistics - strategy development
- Digitalisation in production & logistics - sales and marketing channels

Subject area: Tenders - Services

- Transformation performance analysis
- Self-assessment topic area
- Thematic area Regional transformation strategy
- Workforce topic area Target image creation
- VR / AR topic area

- Thematic area Products & machinery

Topic: Communication

- Instagram
- LinkedIn
- TRAFO - Website
- Press releases / reports
- Social media post
- Manuals / Brochures

TRANSFORMATIVE DIALOGUE

Subject area: Key performance indicators

- General Meeting
- Number of members
- Cooperation within the cluster