

A3PS-Konferenz | 17.11.2023

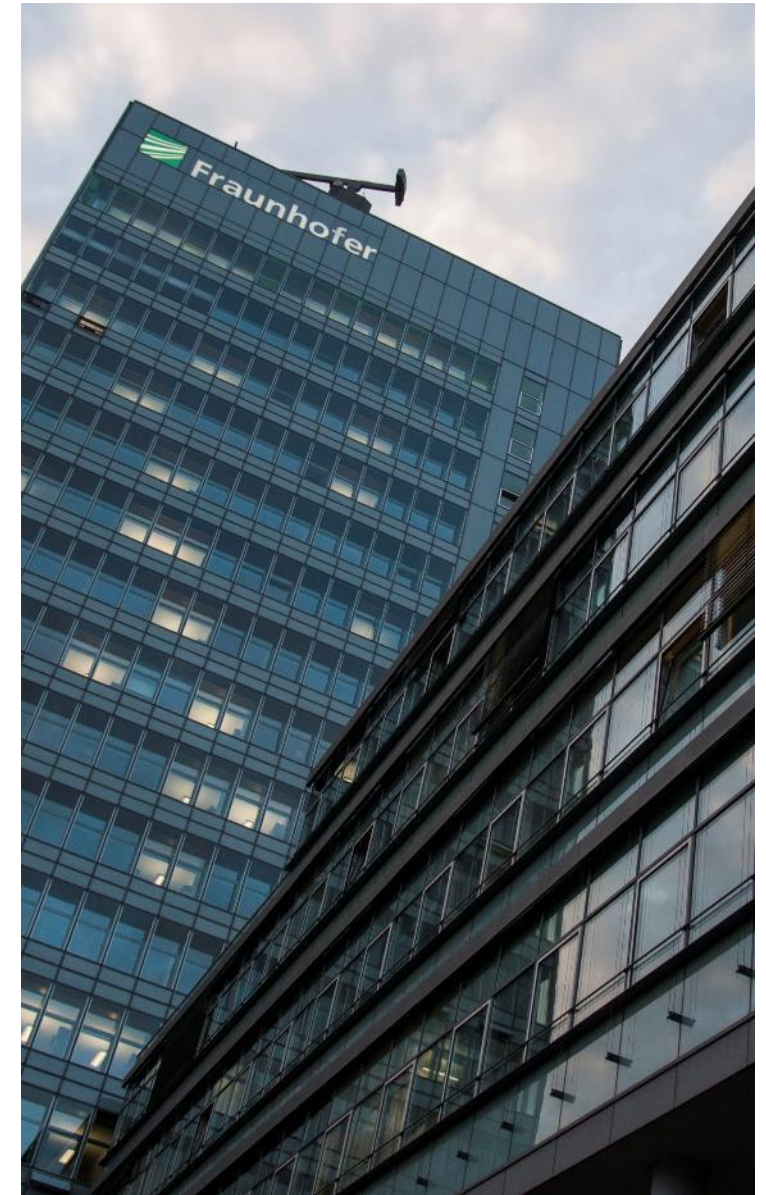
Future Mobility without Value Creation in Austria?

Univ. Prof. Dr. Sebastian Schlund

Fraunhofer-Gesellschaft

Die führende Organisation für anwendungsorientierte Forschung

- Die Fraunhofer-Gesellschaft mit Sitz in Deutschland ist die weltweit führende Organisation für anwendungsorientierte Forschung
- 76 Institute und Forschungseinrichtungen
- 30 000 Mitarbeiterinnen und Mitarbeiter
- Forschungsvolumen: 2,9 Milliarden Euro, davon 2,5 Milliarden Euro im Bereich Vertragsforschung
 - Über 70 Prozent dieses Bereichs erwirtschaftet Fraunhofer mit Aufträgen aus der Industrie und mit öffentlich finanzierten Forschungsprojekten
 - Knapp 30 Prozent werden von Bund und Ländern als Grundfinanzierung beigesteuert



Fraunhofer Austria

Innovative Lösungen für das Heute von morgen

1

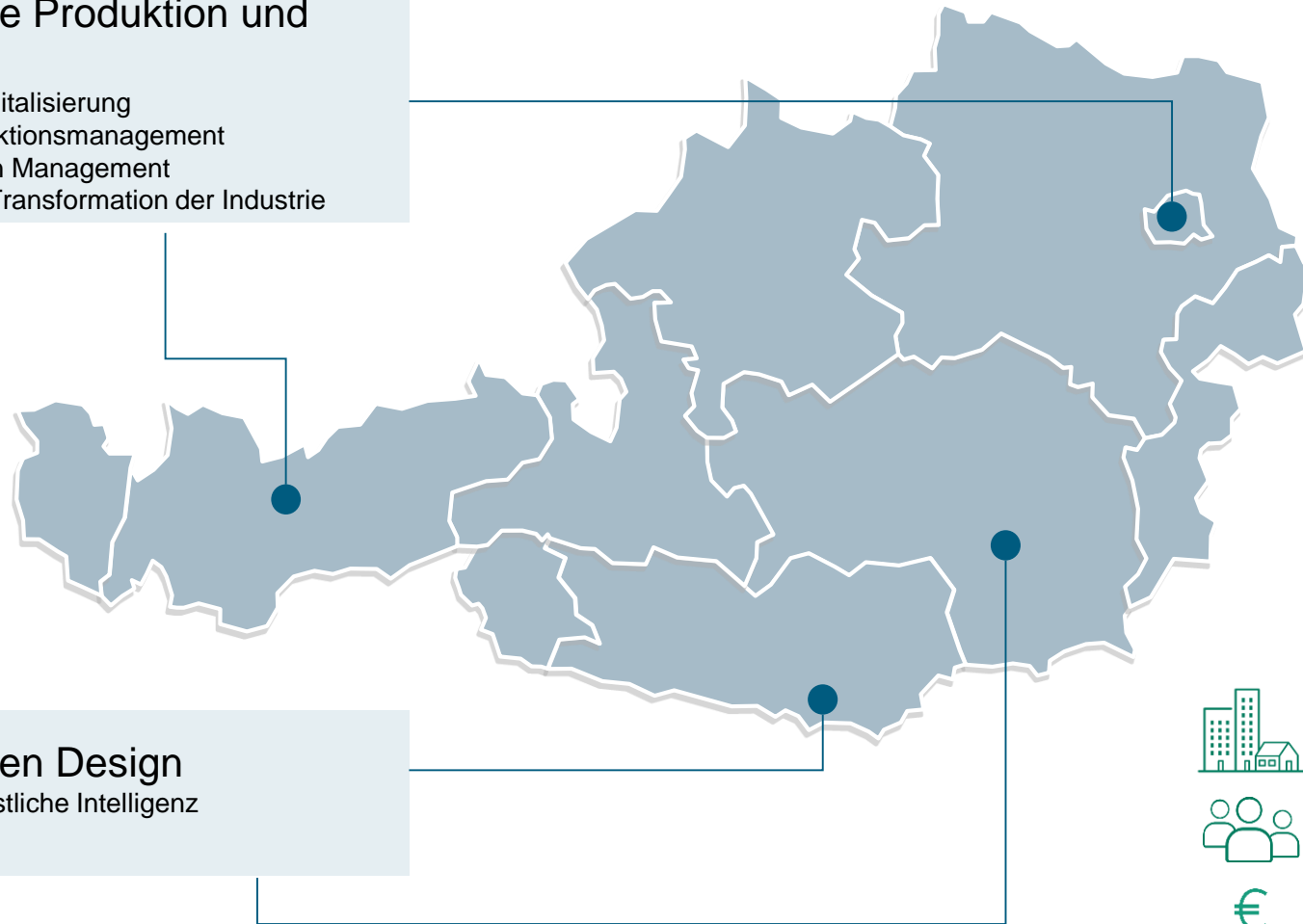
Center für Nachhaltige Produktion und Logistik

- GB Arbeitsgestaltung und Digitalisierung
- GB Fabrikplanung und Produktionsmanagement
- GB Logistik und Supply Chain Management
- Innovationszentrum Digitale Transformation der Industrie

2

Center für Data Driven Design

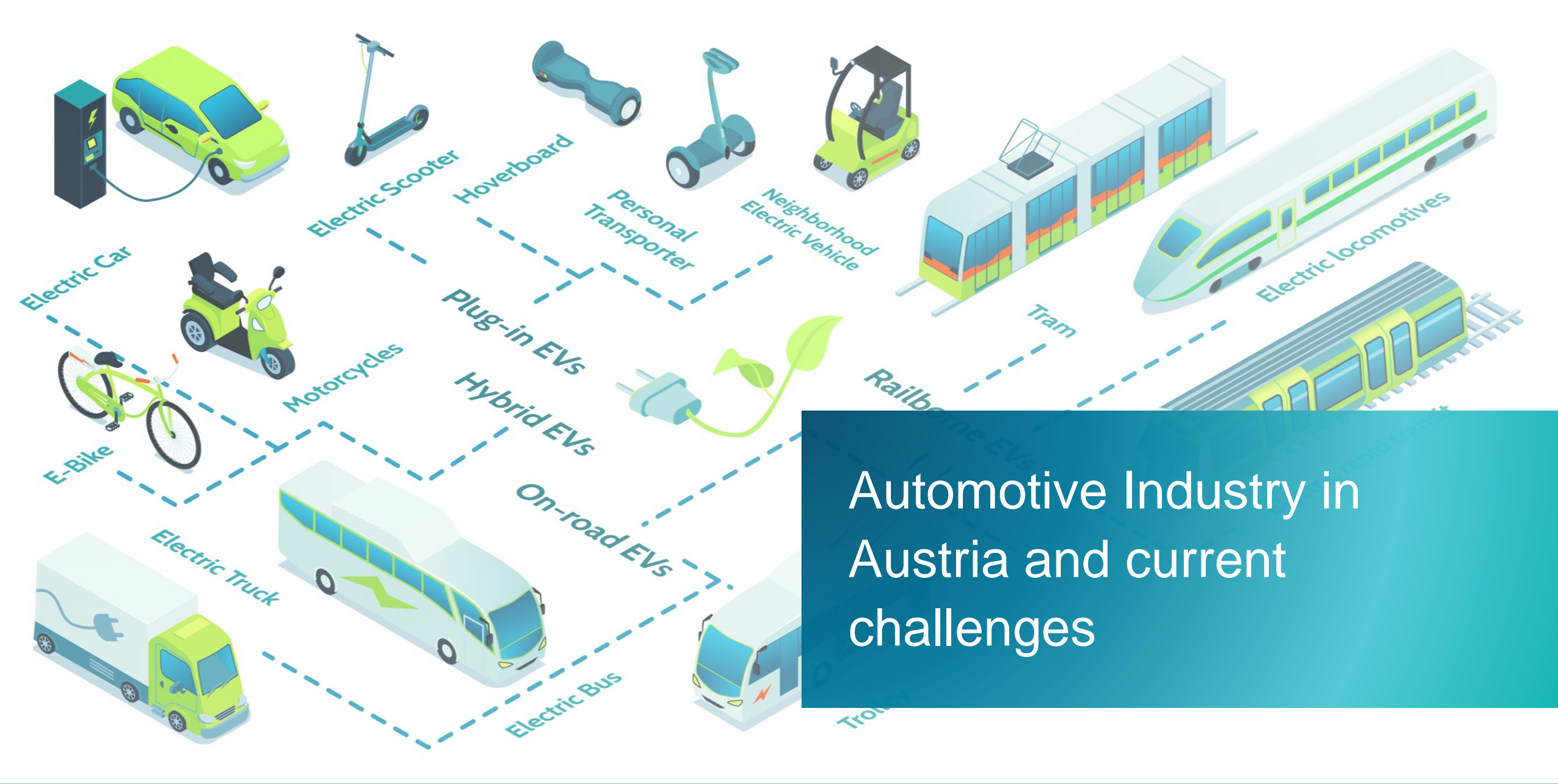
- GB Digitalisierung und Künstliche Intelligenz
- GB Visual Computing



4 Standorte
5 Geschäftsbereiche (GB)
1 Innovationszentrum

125 Mitarbeiterinnen und Mitarbeiter

Forschungsvolumen: ca. 10 Mio. Euro



Automotive Industry in Austria and current challenges

Automotive Industry in Austria

Key facts

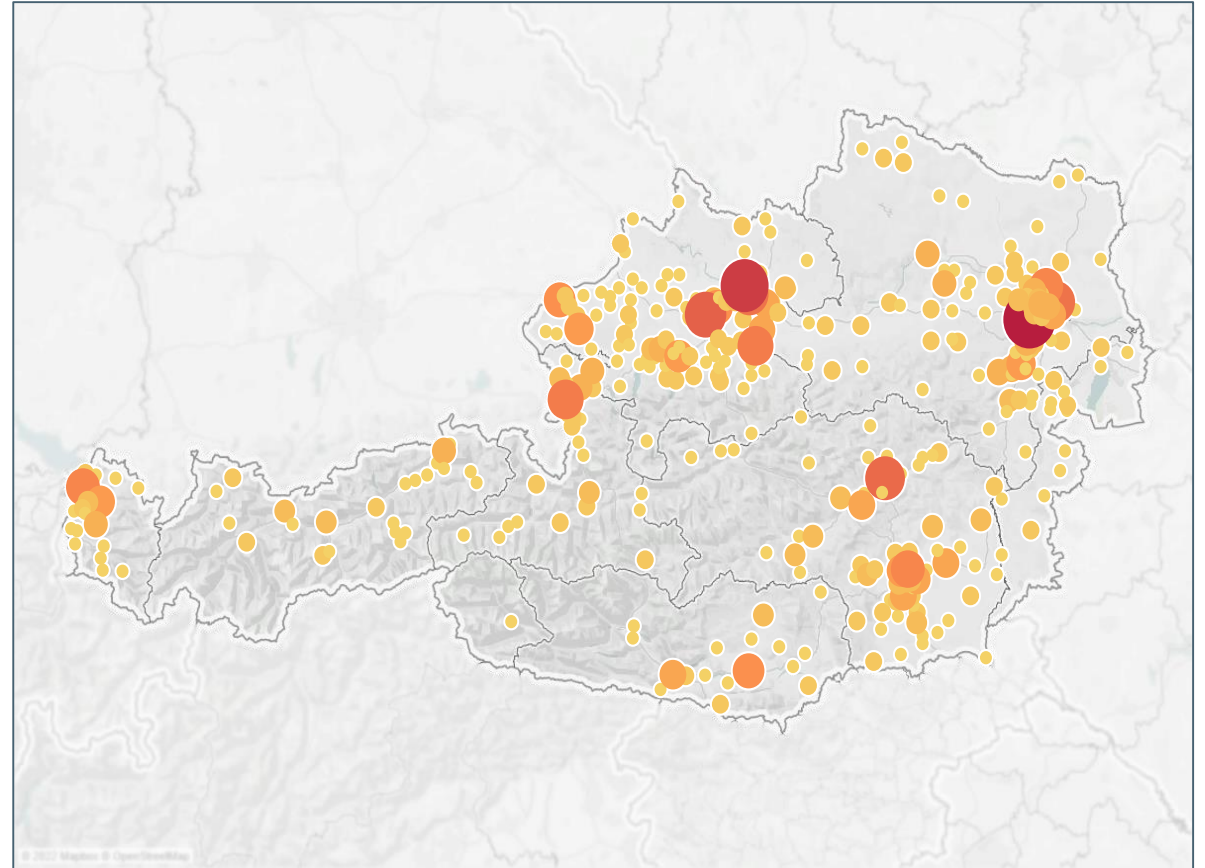
Automotive Industry in Austria



The automotive industry is of central importance for the Austrian economy and secures high-quality jobs in the country

- Around **900** companies in Austria are active in the "automotive" sector
- Almost **112,000** jobs can be attributed to the automotive supply industry
- International leading companies cooperate with an average of **800** associated SMEs

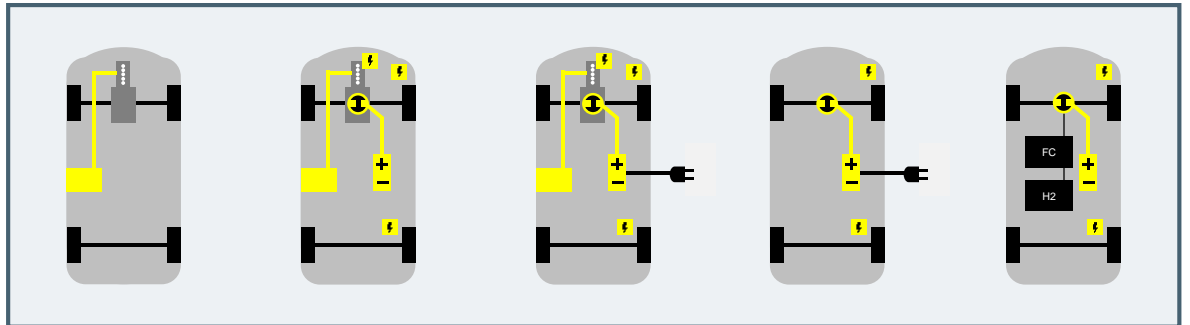
The automotive Industry is located all over Austria



Current challenges

Shift to electric technologies

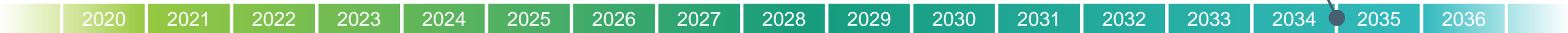
Components \ Drive concept	ICE	HEV	PHEV	BEV	FCEV
	Change in the systems				
Internal combustion engine	Modified	Modified	Modified	Not required	Not required
Starter and alternator	Modified	Modified	Modified	Not required	Not required
Exhaust system/ air system	Modified	Modified	Modified	Not required	Modified
Fuel system	Modified	Modified	Modified	Not required	Modified
Transmission	Modified	Modified	Modified	Modified / Not required	Modified / Not required
Electric drive motor	n.V.	New	New	New	New
Traction battery	n.V.	New	New	New	New
Power electronics	n.V.	New	New	New	New
Internal charging system	n.V.	n.V.	New	New	n.V.
Fuel cell technology	n.V.	n.V.	n.V.	n.V.	New





Fit for 55: new passenger cars and light commercial vehicles emission-free from 2035 onwards

Pressemitteilung [PLENARTAGUNG](#) 14-02-2023 – 14:02

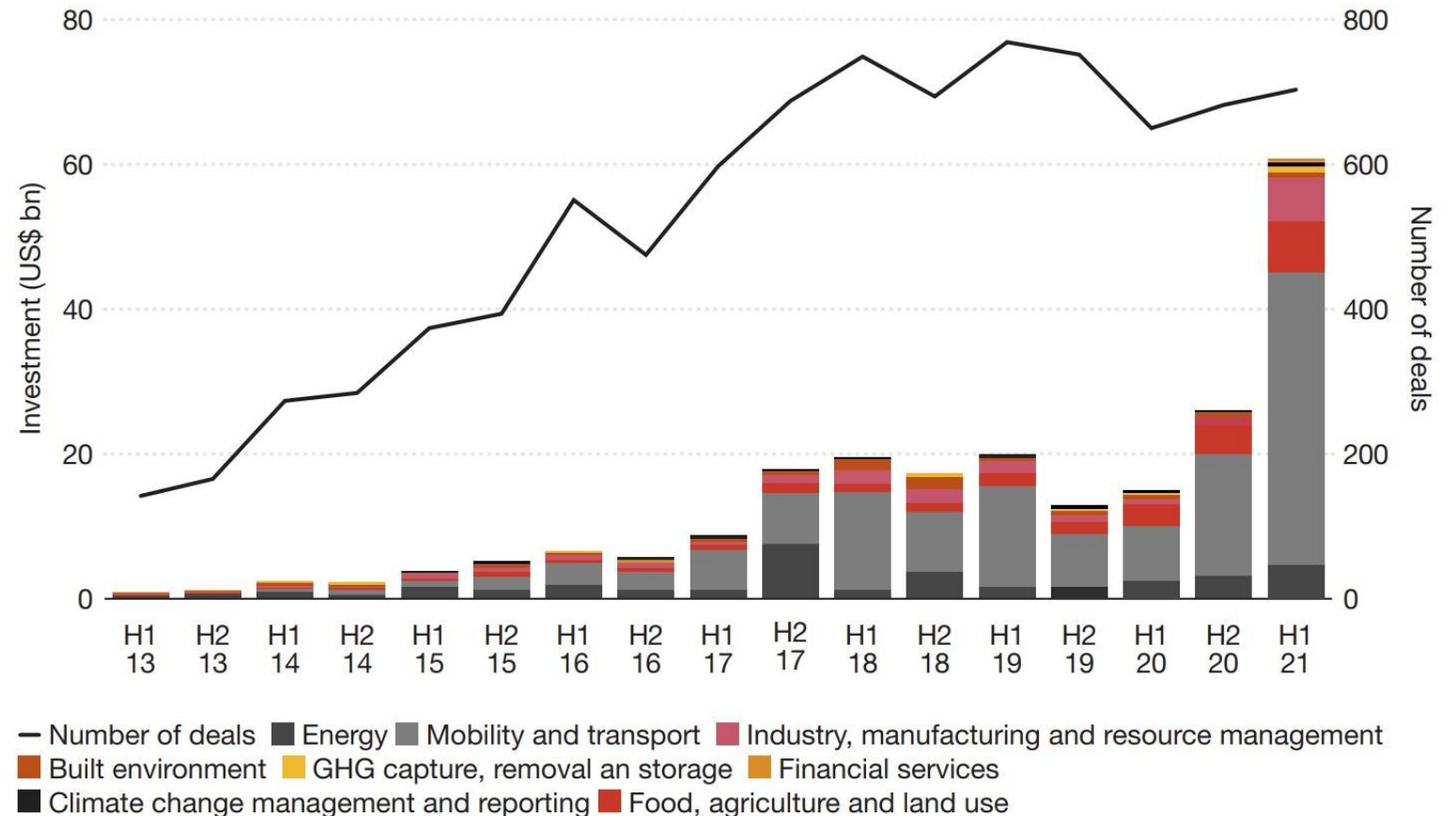


Current challenges

Shift to electric technologies

Investment rounds in climate tech have regained momentum after the COVID 19 pandemic. A strong sign of life for a growing industry

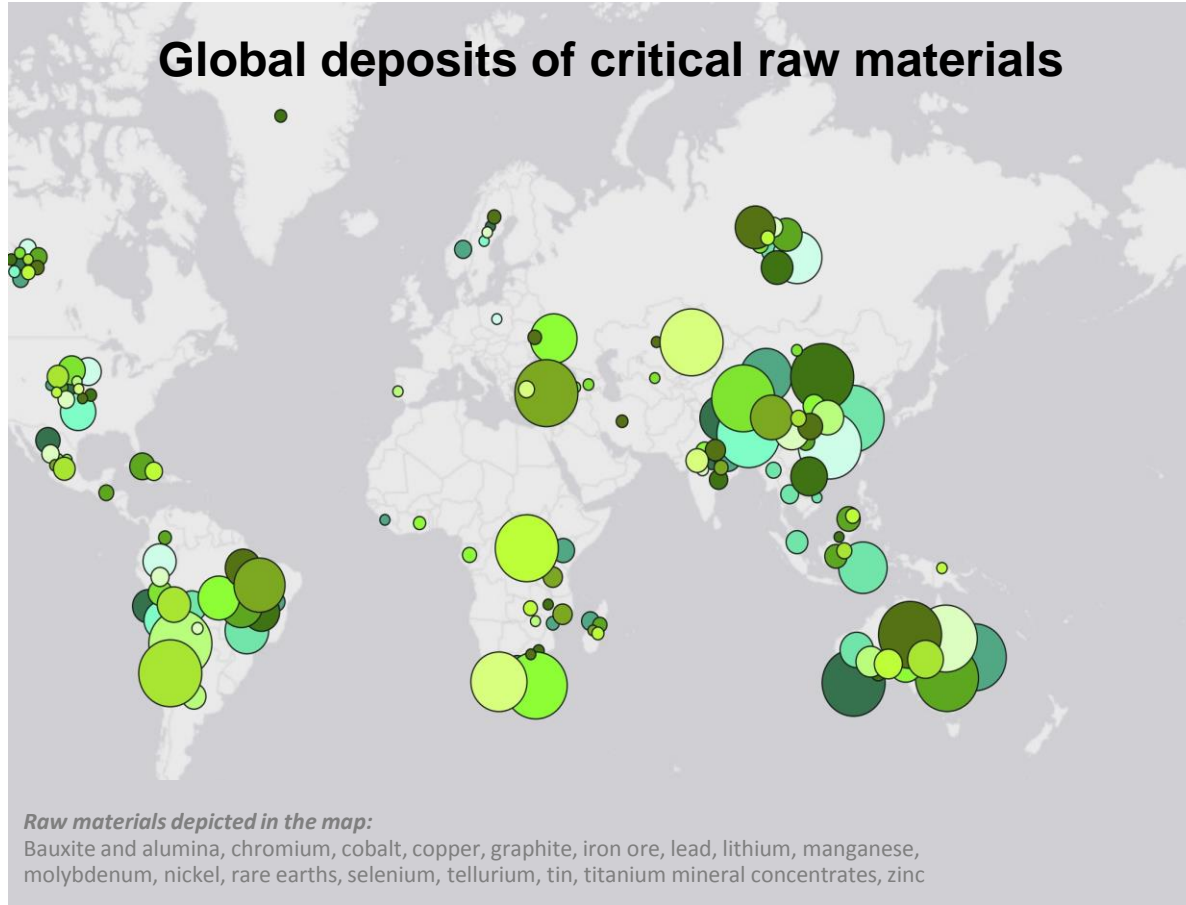
Investment in climate tech start-ups (in USD billion) and number of deals / year



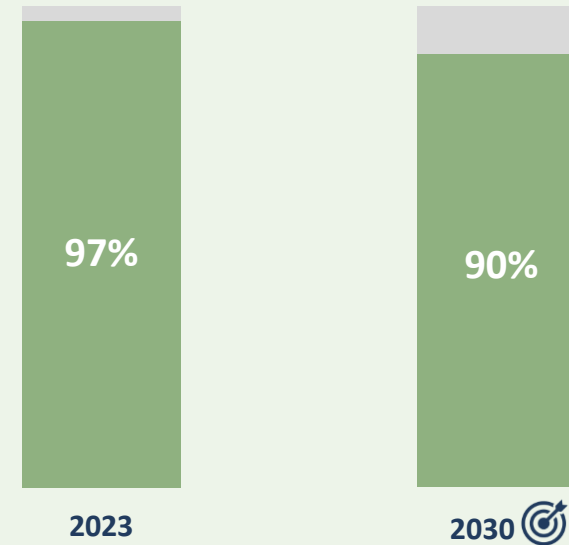
Current challenges

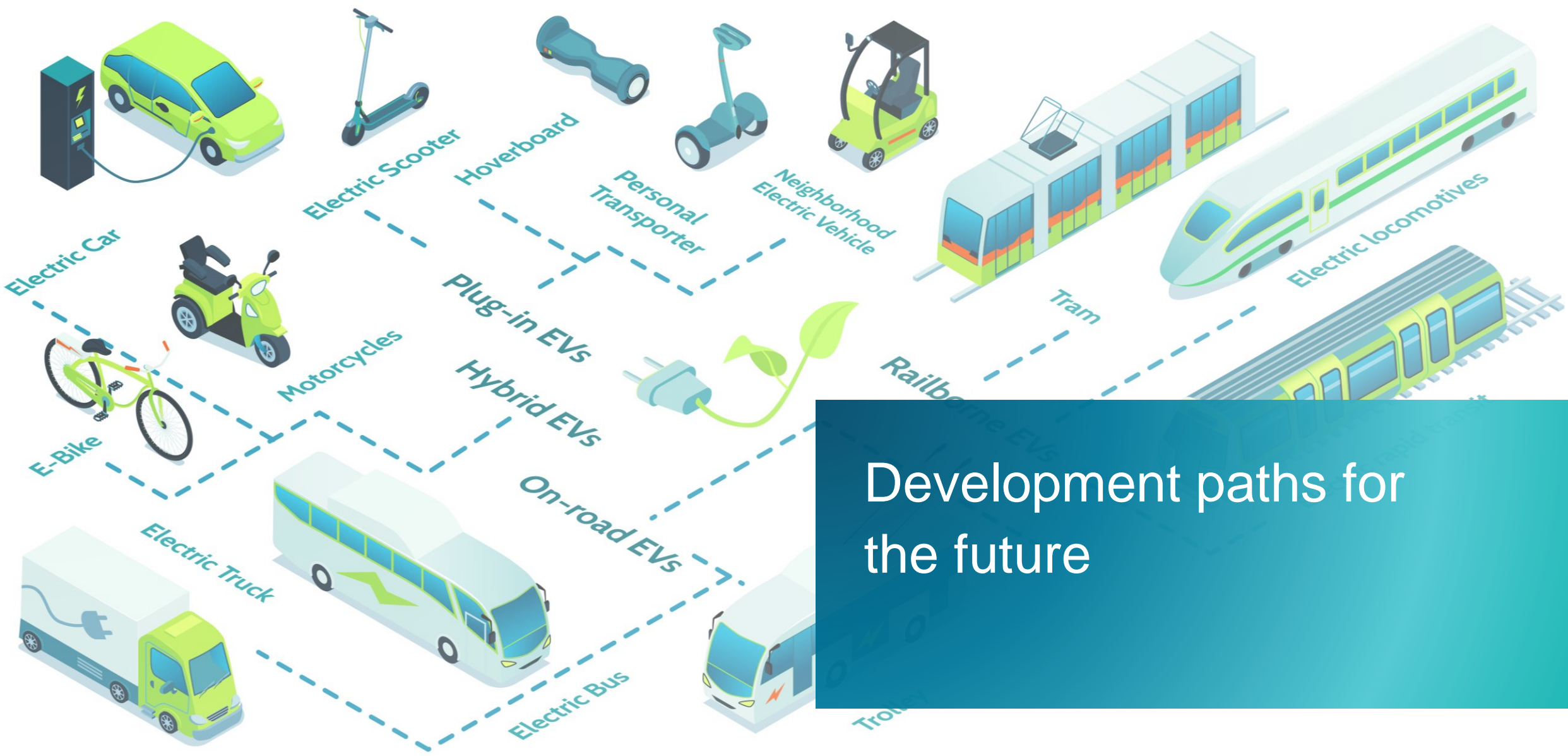
Strategic Independences

Critical raw materials form the basis of innovative technologies. With an import dependency of 97%, Europe must keep them in circulation as long as possible.



EU import needs for critical raw materials





Development paths for the future

Development paths for the future

Voices from industry

*“It is expected that **80% of growth** in the global automotive industry **will occur outside the EU!**”*

*“As part of the **"following-customer" strategy**, local **R&D competencies** are increasingly being built up to adapt **models to local market needs**”*

*“If cost-driven production relocations break down the **spatial coupling of production and product development**, regional **innovation clusters** that formed the basis for the high competitiveness of the automotive industry over decades **will disintegrate.**”*

Development paths for the future

Voices from industry

„The **region will continue to fall behind** as a **manufacturing hub** by **global standards...**“

„In general, there is a **lack of long-term strategies** for **structural change** and **future investments** in the automotive industry.“

„The **dominance of transnational** corporations and suppliers means that key **decision-making competencies are not local.**“

Development paths for the future

The transformation in Austria

No effects

The developments are happening outside our sphere of activity. We can continue to work with our current business model.

Low Impact

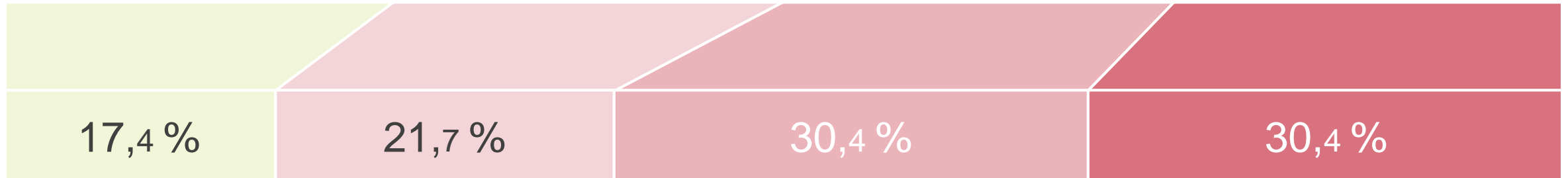
We expect a slight impact on the development of turnover in our core business.

High impact

We need to expand new business areas to remain competitive.

Very high impact

The transformation process affects our entire business model. A comprehensive realignment of the company is necessary to sustain business operations until 2035.



- More than 60 per cent of the companies surveyed expect the shift to electric drives to have a high to very high impact on their business.

Development paths for the future

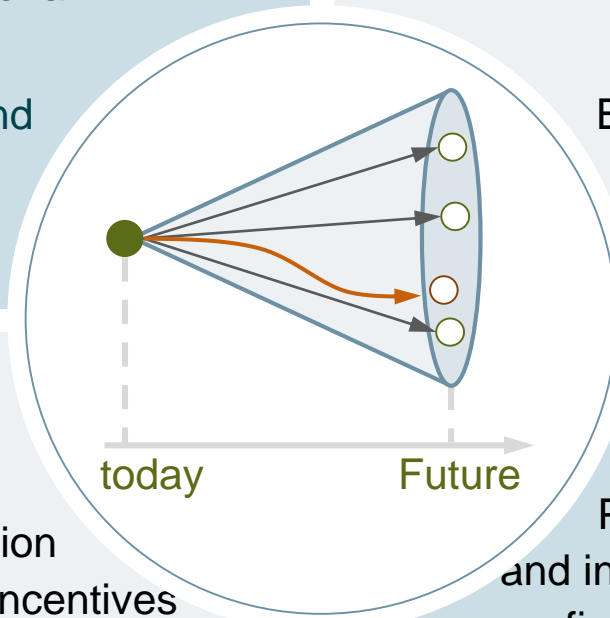
What options do we have?



Scenario "Path continuation"

- Maintaining existing technology and traditional industries without fundamental changes
- Heavy focus of R&D on ICE-technology and conventional components, restricting exploration of new avenues

- Radical transformation of existing paths through integration of new technologies
- Promoting the transition to electric propulsion technologies through stricter policies and incentives for R&D and production



Scenario „Path Branching“

- Development of new paths based on existing industrial competencies
- Expanding specialized structures, enhancing exploratory capabilities, and building of relationships outside established paths.

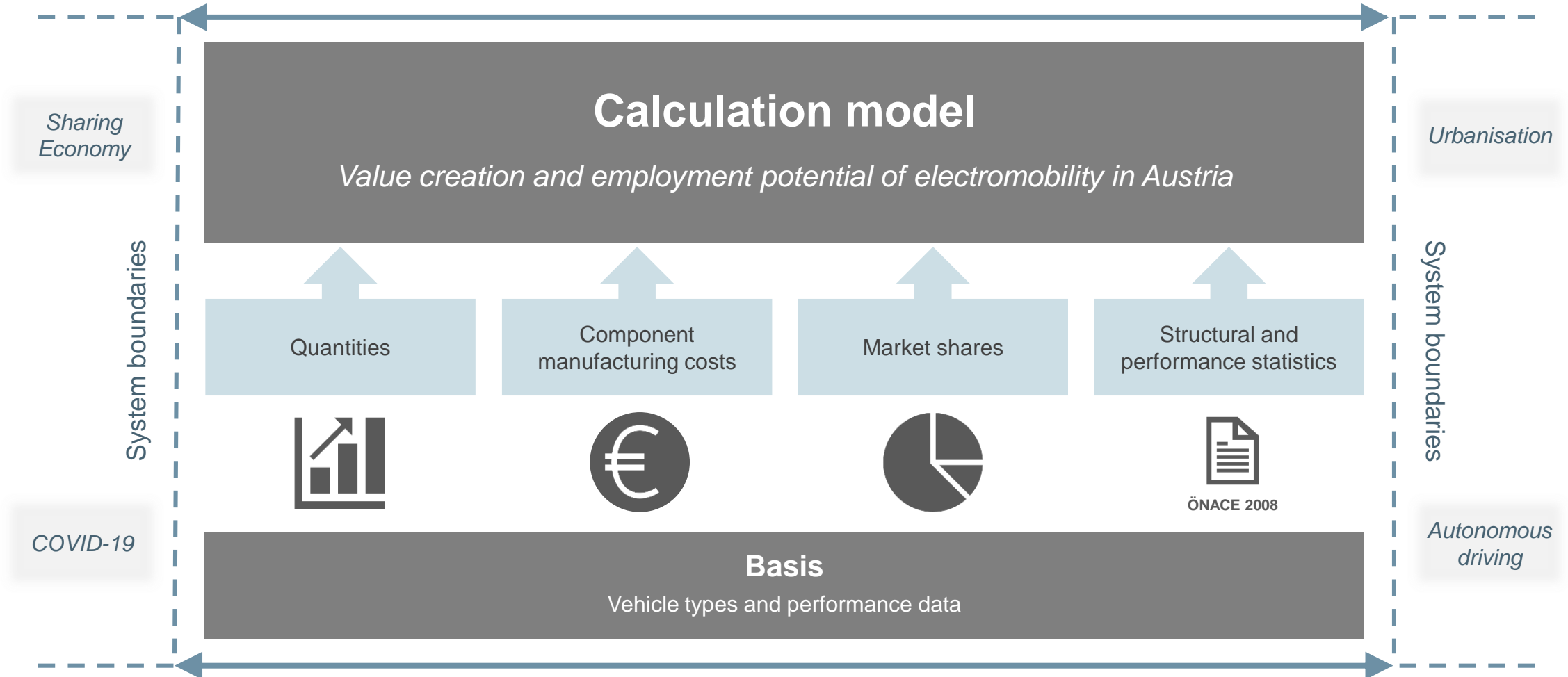
- Establishment or import of new industries and value chains from abroad
- Promotion of international direct investments and innovation partnerships, research institutions, new fields of knowledge, and modern infrastructure to build a knowledge base

Scenario „Path modernisation“

Scenario „Path transplantation“

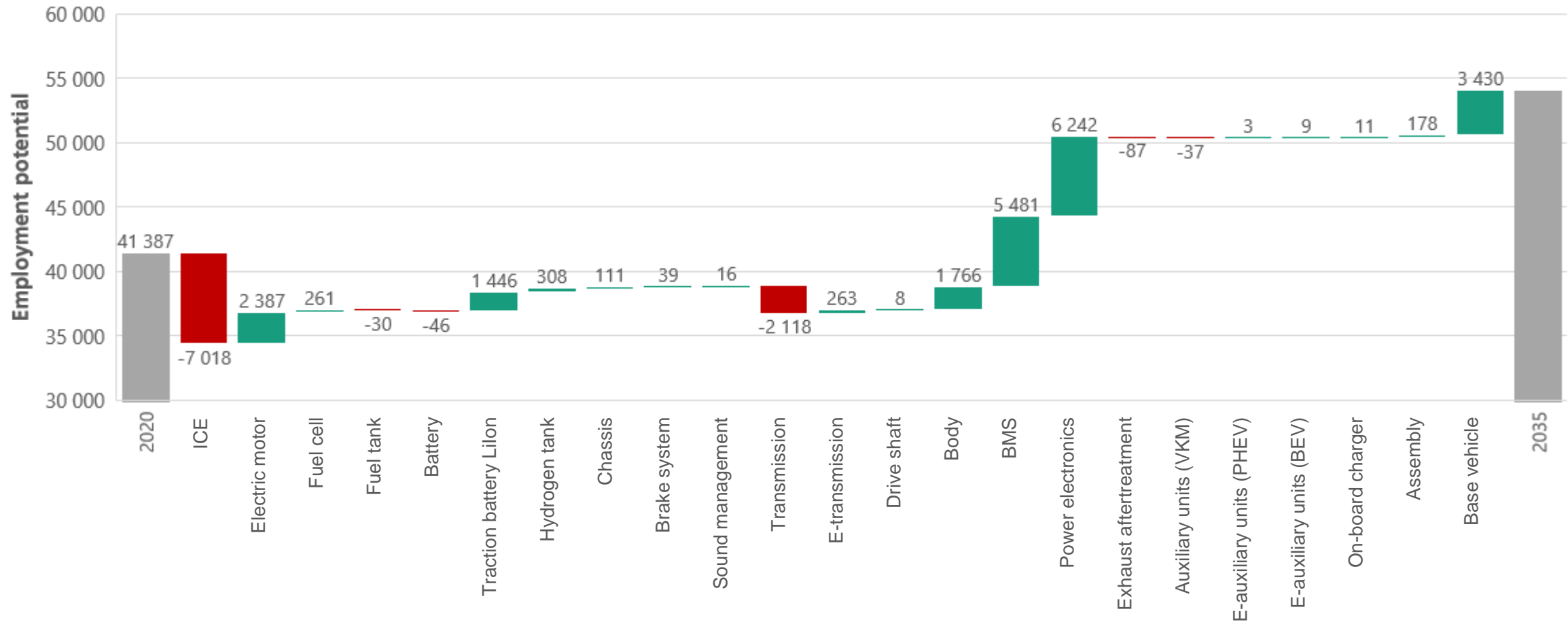
Development paths for the future

Technical Analysis



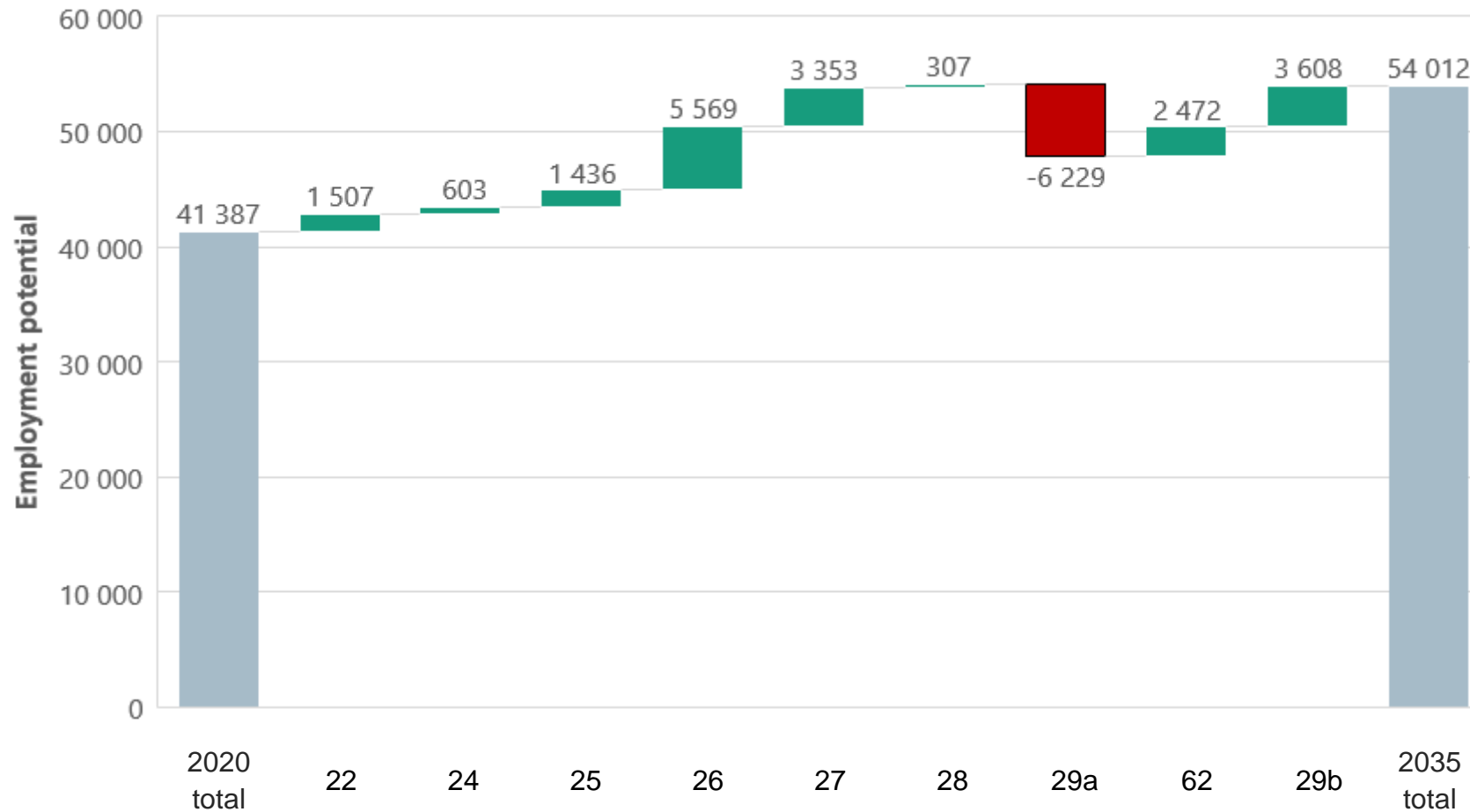
Development paths for the future

Austrian employment potential by components (passenger cars, N1, N2, N3)



Development paths for the future

Employment potential by ÖNACE class (passenger cars, N1, N2, N3)



- 29** *Manufacture of rubber and plastic products*
- 24** *Metal production and processing*
- 25** *Manufacture of fabricated metal products*
- 26** *Manufacture of computers, electronic and optical products*
- 27** *M.o. electrical equipment*
- 28** *M.o. non-industry-specific machinery*
- 29a** *M.o. Motor vehicles and parts - main components*
- 29b** *M.o. Motor vehicles and parts - base vehicle*
- 62** *Provision of information technology services*

Development paths for the future

Summary

Electrification holds value creation and employment potential for Austria as a business location.

Positive potential in the switch to electrified drives

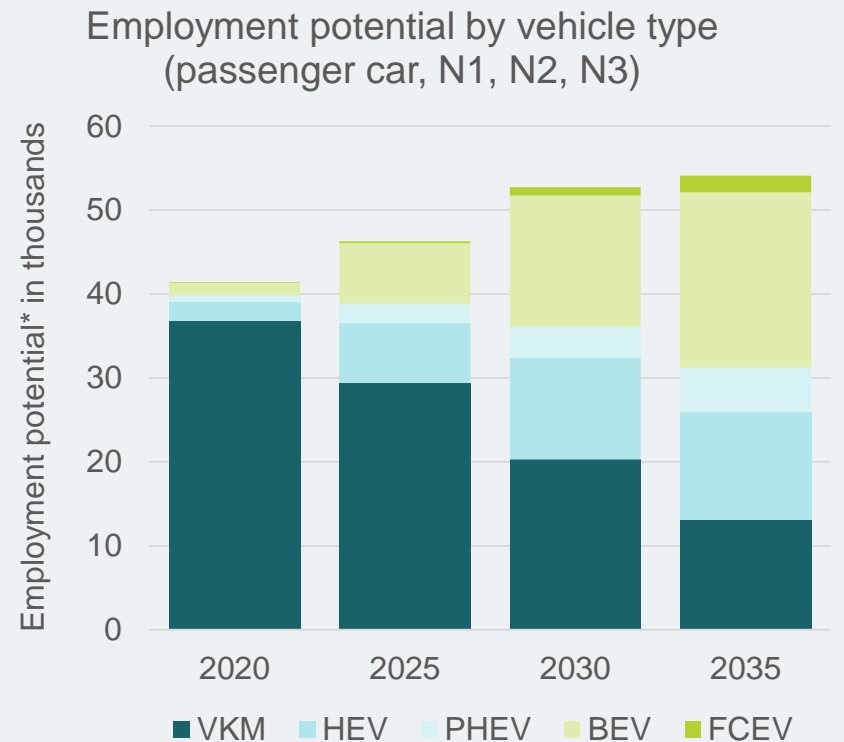
- Recovery effects on the Covid-19-related drop

Prerequisite: unchanged market share

- According to general expectations, the world market share of Western European companies will decline in a global comparison
- Technological path dependencies complicate transformation

Up to 10,000 jobs will become obsolete

- According to the calculations, there is the potential to compensate for endangered jobs by creating jobs in the field of electrical components (power electronics, data processing equipment, etc.) - This will only succeed if the position of Austrian companies can be maintained on the world market





Need for action

Need for action

Comparison of European initiatives

National funding programs are increasing the pace of transformation in neighbouring European countries.

1 Mrd. 2021-2025

Zukunftsfonds Automobilindustrie

- Promotion of transformation networks
- Digitisation of the automotive industry
- Strengthening sustainable value chains

3,75 Mrd. 2020-2022

Plan de Impulso a la Industria de la Automoción

- Investment in industrial value creation
- Qualification and training of skilled labour
- R&D for connectivity and sustainability

Ongoing subsidies

More Vehicle Production Readiness Competition

- Focus: SMEs and British supplier industry
- Support for the transition of vehicle technology from demonstrator to production readiness

177 Mrd. 2023-2026

Klima und Transformationsfonds

- Modernisation of the companies
- Development of charging infrastructure
- Development of the German hydrogen industry

24 Mrd. 2021-2023

PERTE

- Public-private partnerships for major strategic projects
- Topics: BEV & HEV, hydrogen equipment, battery, microprocessors, training, connectivity, etc.

Ongoing subsidies

Automotive Transportation Fund

- Support for large-scale industrialization
- Development of a fully electrified WSK in the UK
- Topics: Power electronics, drive technology, etc.

500 Mio. 2019

Forschungsfabrik Batterie

- Competitive, industrial battery cell research
- Focus: entire VAC (material, cells, processes & production research)

2,9 Mrd. 2022

Plan de Recuperación, Transform. y Resiliencia

- Electrification of existing factories
- Development of battery ecosystem (mining to assembly)
- Investments for training, digitalisation and KLV

Ongoing subsidies

Technology Developer Accelerator Programme

- Focus: SMEs, start-ups, spin-offs
- Financial, technical and consulting support on the way to market maturity



...



...



...

Need for action

Success factors of the transformation



Shaping a competitive
LOCATION POLICY

- *Business and investment incentives as a competitive factor for companies*
- *Market entry barriers for companies are high*
- *There is a lack of investment incentives for opening up new markets or for structural change*
- *The complex funding landscape in Austria restricts entrepreneurs*



Strengthening Austrian
TECHNOLOGICAL SOVEREIGNTY

- *Technology openness to avoid dependencies*
- *Competence advantages of the location must be in the foreground*
- *Technological leadership in highly developed countries is crucial*
- *Currently, environmental and economic policy objectives are at odds with each other - a life cycle-orientated approach is required.*



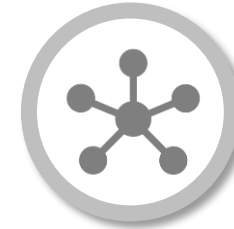
Securing efficiency advantages through
DIGITALISATION

- *Digitalisation and automation are crucial for the competitiveness of companies in order to compensate for wage cost disadvantages*
- *Extensive digitalisation enables more efficient processes and the establishment of new business models*
- *High wage levels as the main reason for relocation trends from Austria*



Strengthening the innovation base with
SKILLED LABOUR & QUALIFICATION

- *Transformation and new technologies require expertise*
- *Mastering the structural change in the automotive industry is not possible without accompanying skills development*
- *Priorities must be set in training systems in order to provide skilled labour and remain competitive*



Leveraging synergies through
NETWORKING & COOPERATION

- *"Production knowledge-based product innovation" as one of the greatest competitive advantages in the DACH region*
- *Networking promotes companies' market position*
- *Regional innovation systems and knowledge transfer between research and industry are essential*

Need for action

Current activities

Transformation campaign of the BMAW 2023 - 2026



**WACHSTUM UND WETTBEWERBSFÄHIGKEIT
FÜR ÖSTERREICHS WIRTSCHAFT**

The Federal Ministry of Labour and Economic Affairs (BMAW) is supporting the Austrian economy in its sustainable and digital transformation with the transformation offensive. The BMAW is providing around €300 million in funding for this in the period from 2023 to 2026. The aim is to strengthen the competitiveness, resilience and independence of companies and create sustainable value chains.

Schwerpunkte

*Transformative
company projects*

Frontrunner

Qualification

Kontakt

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