Innovation Network

# FutureCar

**2020-2022 - Phase VI:**

## »Vehicle Technologies and Trends within the Transformation of Future Mobility«



FutureCar

Fraunhofer IAO

# Fraunhofer Institute for Industrial Engineering IAO

## Profile of the institute and its eight areas of research

Digital Business

Urban Systems Engineering

Service and Human Resources Management

Organisational Development and Work Design

Mobility and Innovation Systems

Human-Technology-Interaction

Cognitive Engineering and Production

Responsible Research and Innovation

Fraunhofer Institute IAO 1981
University of Stuttgart IAT 1991
Founded

Prof. Dr.-Ing. Prof. e.h. Wilhelm Bauer
Univ.-Prof. Dr.-Ing. Oliver Riedel
Univ.-Prof. Dr.-Ing. Dr.-Ing. E.h. Dr. h.c. Dieter Spath
Dr.-Ing. Florian Herrmann
Management board

**Numbers in 2020:**

| | |
|---|---|
| 47.6 M€ finance volume | 358 Research projects |
| 650 Employees | 217 Project partners |
| 172 Scientific publications | 545 Scientific presentations |

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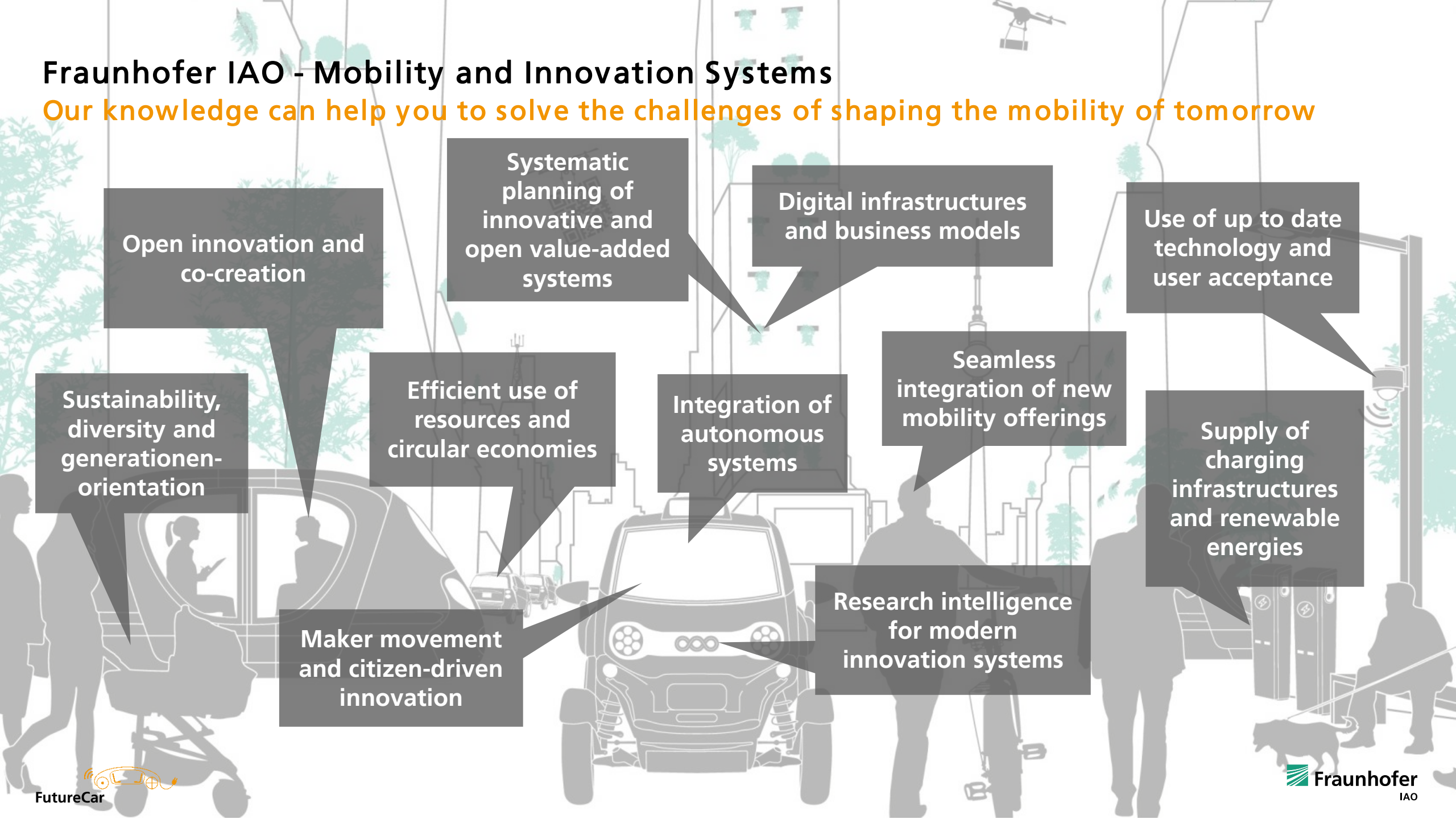
# Fraunhofer IAO - Mobility and Innovation Systems

## Our knowledge can help you to solve the challenges of shaping the mobility of tomorrow

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# In a nutshell: The Innovation Network FutureCar

## A platform for joint and pre-competitive research on automotive technologies and trends

- Support in understanding and **solving the challenges of a transforming automotive industry**
- Organisation and content by **Fraunhofer** and invited experts
- **Three conferences** per year plus additional services
- **2 year membership contract**
- **€ 20 K membership fee** p.a.[1]

## Industry pain points

| | | | |
|---|---|---|---|
| **Transformation of the automotive industry** | New vehicle technologies | New market players | Increasing complexity | High uncertainty |
| **Innovation in mobility pre-development** | Need of innovative idea generation | Specific and unknown user needs | Need of open mindset and external input |

## Solutions and benefits through FutureCar

| | | | |
|---|---|---|---|
| **Future technology and trend scouting** | + Identification of new technologies and trends | + Validation of newly arising technologies | + Providing a knowledge lead |
| **Strength through collaboration** | + Bring together different players for new links and contacts | + Identification of new partnerships | + Exchange of opinions and collaborative learning |
| **Gateway to Fraunhofer Society research** | + Gateway to the research world and scientific insights | + Conjoint writing of funding applications | + Support in research and development |

[1] € 10 k membership fee p.a. for SME:
< 250 employees and either revenue < € 50 M p.a. or balance sheet < € 43 M p.a. (Art. 2 des Anhangs zur Empfehlung 2003/361/EG)

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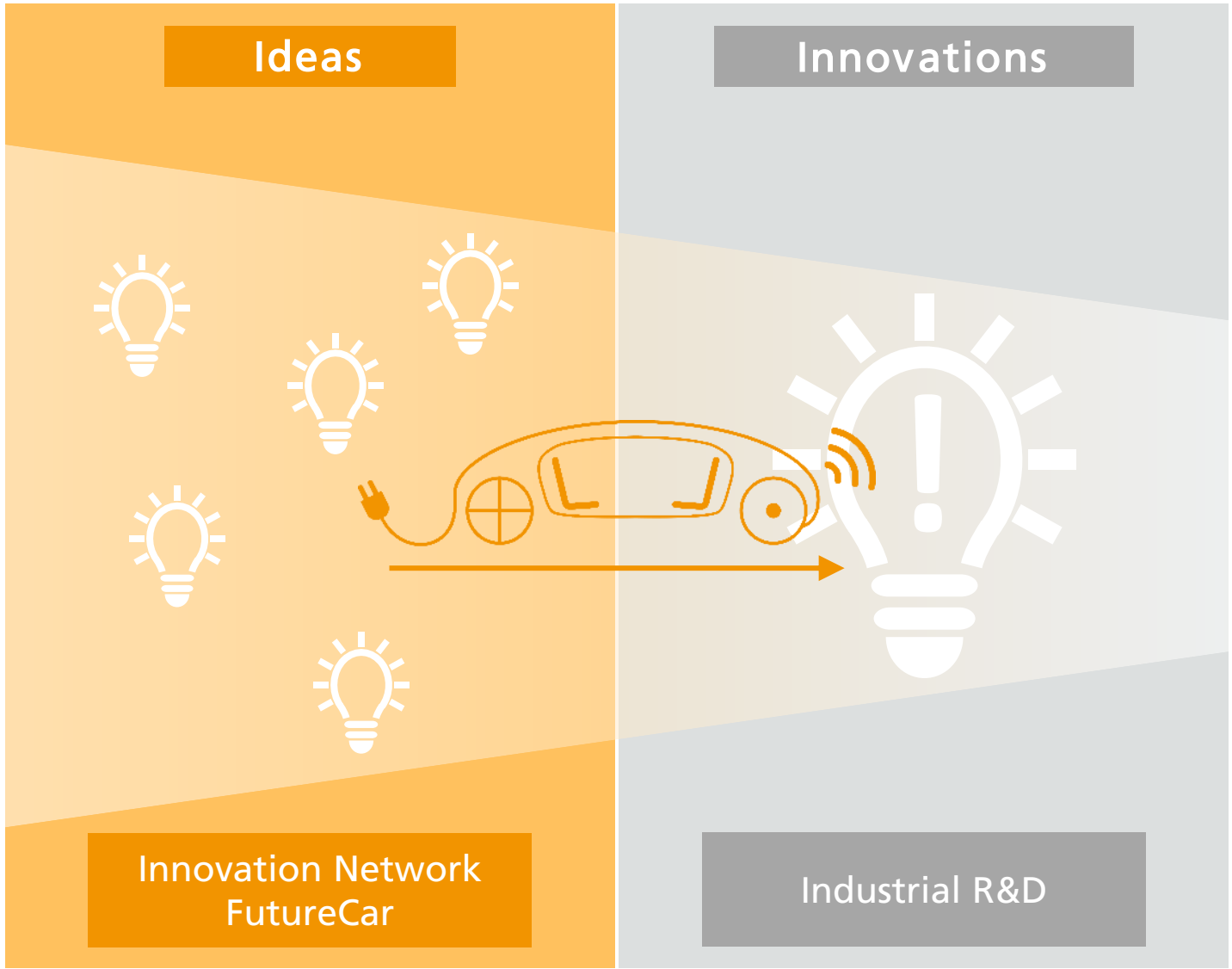
# Innovation Network FutureCar

## A platform for joint research and pre-competitive dialogue

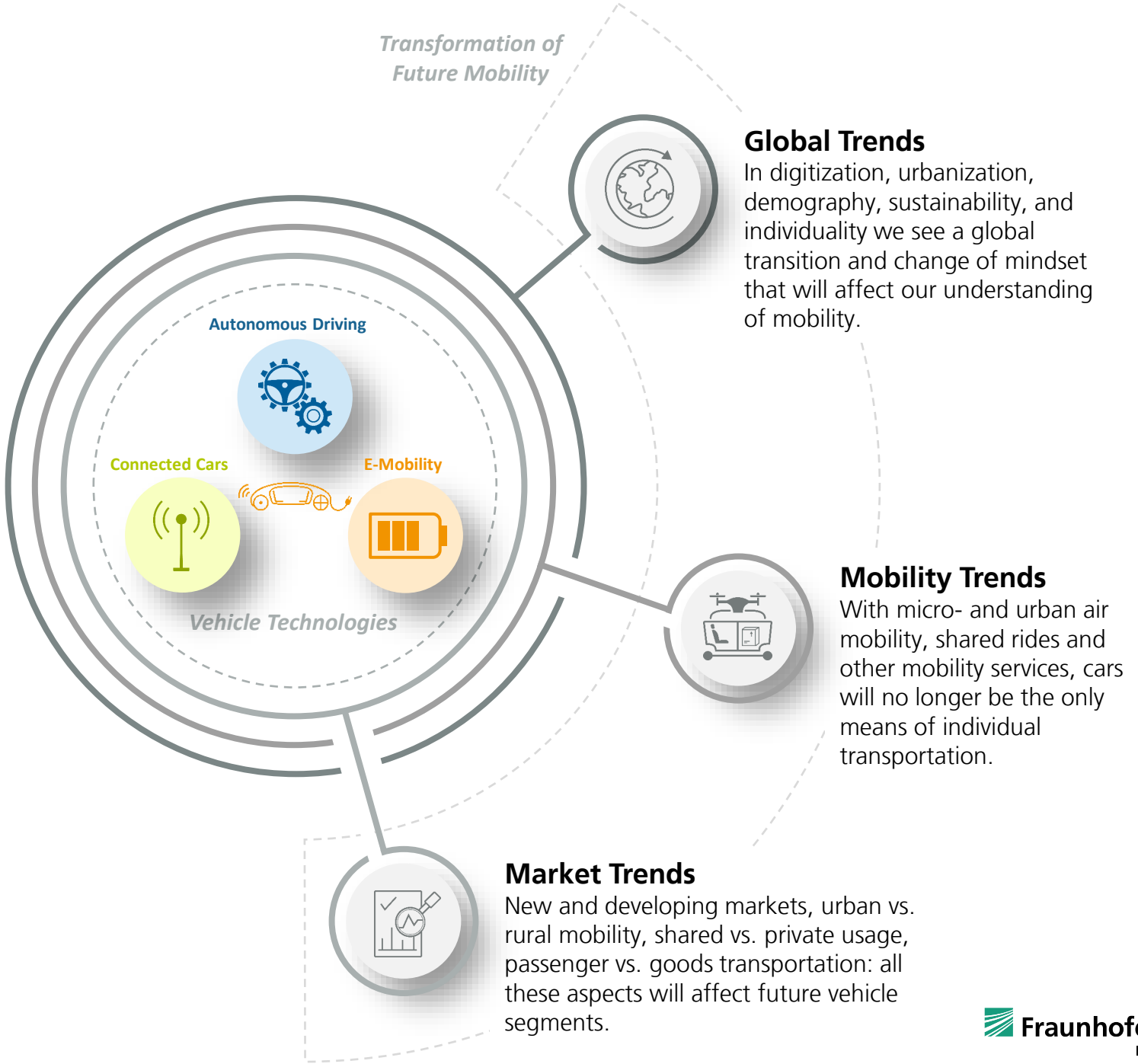
- Discussion of topics and ideas which are **ahead of corporate R&D** programs
- Open exchange of opinions leading to a **common understanding of early stage technologies**
- Meeting platform for like-minded innovators on a **multidisciplinary and cross-company** basis



# FutureCar Phase VI

## »Vehicle Technologies and Trends within the Transformation of Future Mobility«

- Major **transformation of established mobility** systems
- Future vehicles are highly influenced by the **»CAE« technological drivers**
- **Global trends, new mobility concepts and changing markets** are shaping this transformation
- Success in future automotive business requires this **holistic understanding** of change



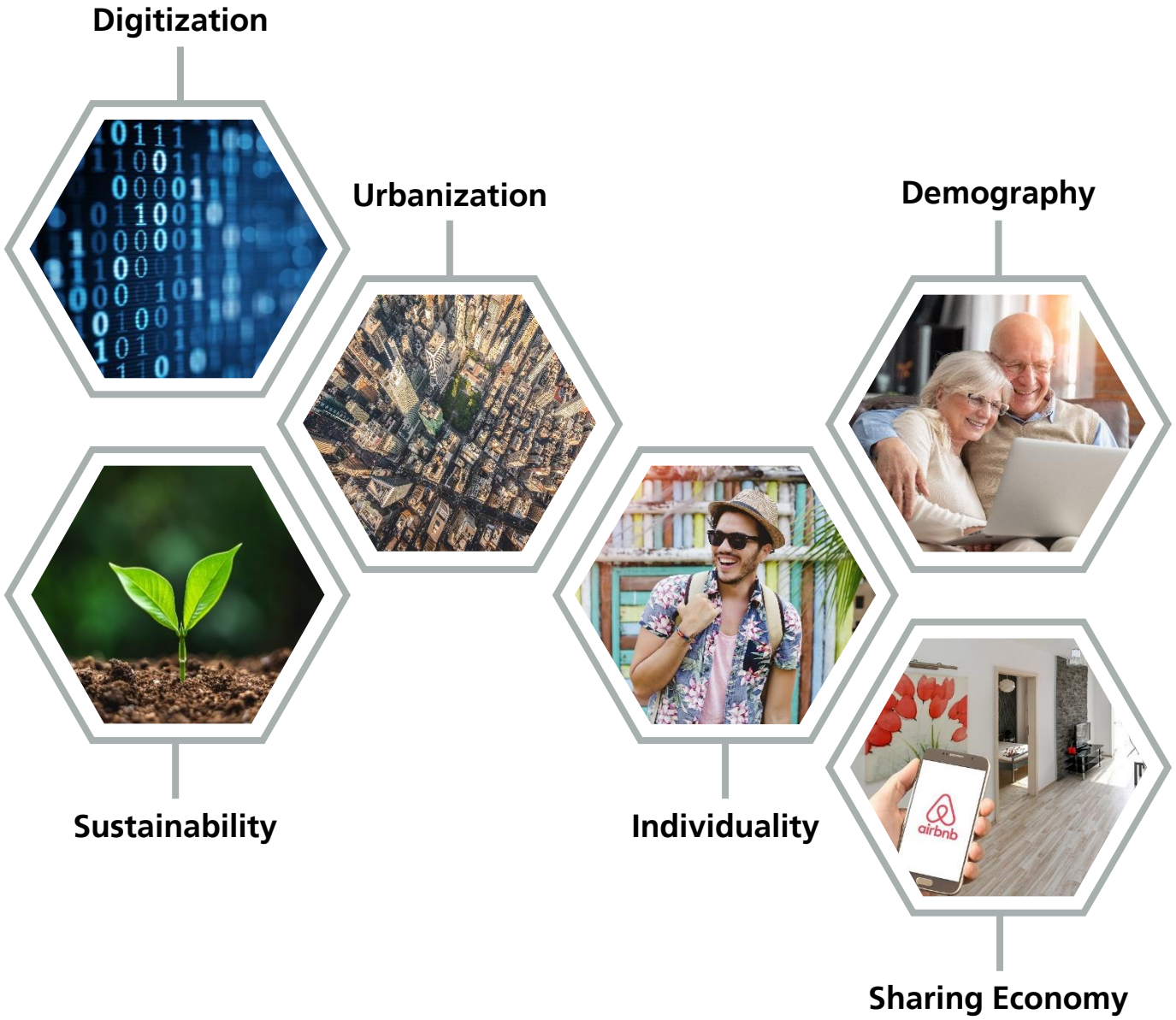
# Global Trends

## Social movements and worldwide challenges will affect future mobility on a global scale

**Mega trends on a global scale need to be considered when developing and designing future vehicle concepts.**

Potential influences of global trends are:

- Vehicle design and architecture
- Special equipment and functions
- Vehicle production and recycling
- Vehicle usage models
- Vehicle-infrastructure- integration






Reference: gonin AdobeStock, Sleg iStock, ArtRachen01 iStock, Luna Vandoorne AdobeStock, Proxima Studio AdobeStock

# Mobility Trends

## New means of transportation and services will revolutionize today's mobility understanding

**Various trends will change the way of getting from A to B, and thus creating opportunities for:**

- New vehicle components
- New vehicle usage models
- Charging and sharing infrastructures
- Legal requirements

# Market Trends

## Shifting market demands will require customized mobility solutions

**Different market demands in terms of:**

- Customer requirements
- Technical restrictions
- Stakeholder groups

**Specific markets with different needs of:**

- Vehicle concepts
- Business models
- Partnerships

# E-Mobility

## The exit from fossil fuels will require more than equipping vehicles with larger batteries

**E-mobility is the leading technology towards sustainable mobility ecosystems:**

- Mass production of battery electric vehicles
- New technologies and development processes
- Alternative solutions for e-mobility
- Analyses at component, architecture, and infrastructure level

# Connected Cars

## Connectivity and data-based services will enable the transformation towards fully digitized vehicles of the future

**Vehicle and infrastructure data, wireless communication standards, and digital services will influence future vehicles:**

- Connected vehicle technologies
- Value and property of vehicle data
- User-specific content for in-car entertainment
- Vehicle-infrastructure-interaction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Reference: Henrik5000 iStock, lukutin77 iStock, Wenjie Dong iStock, sarayut iStock, Tramino iStock, cybrain iStock, VectorMine Adobestock

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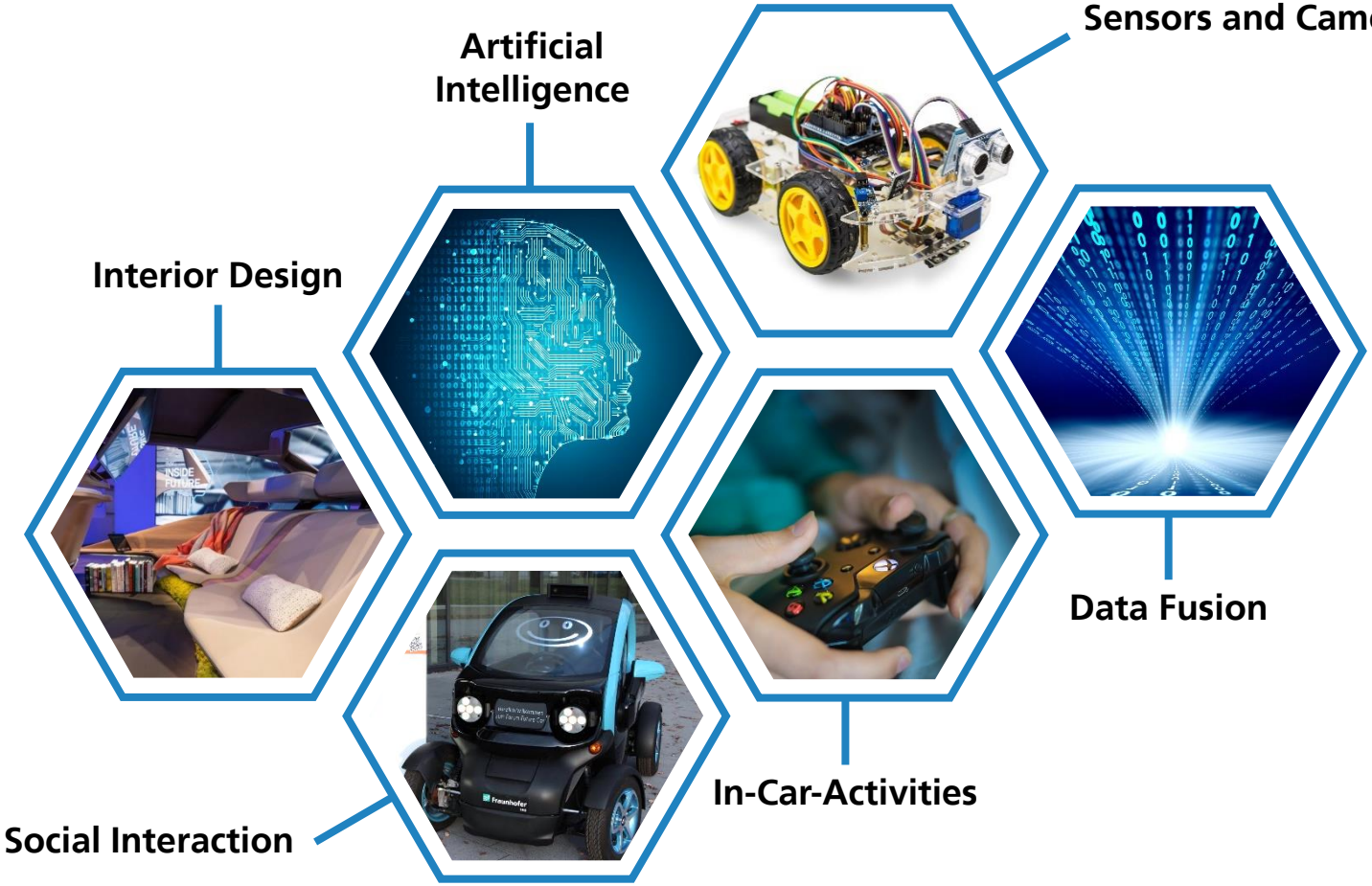
# Autonomous Driving

## Increasing automation will change future vehicles as well as the entire mobility ecosystem

**Vehicles will increasingly take over driving tasks, which creates new opportunities and demands for future vehicle development:**

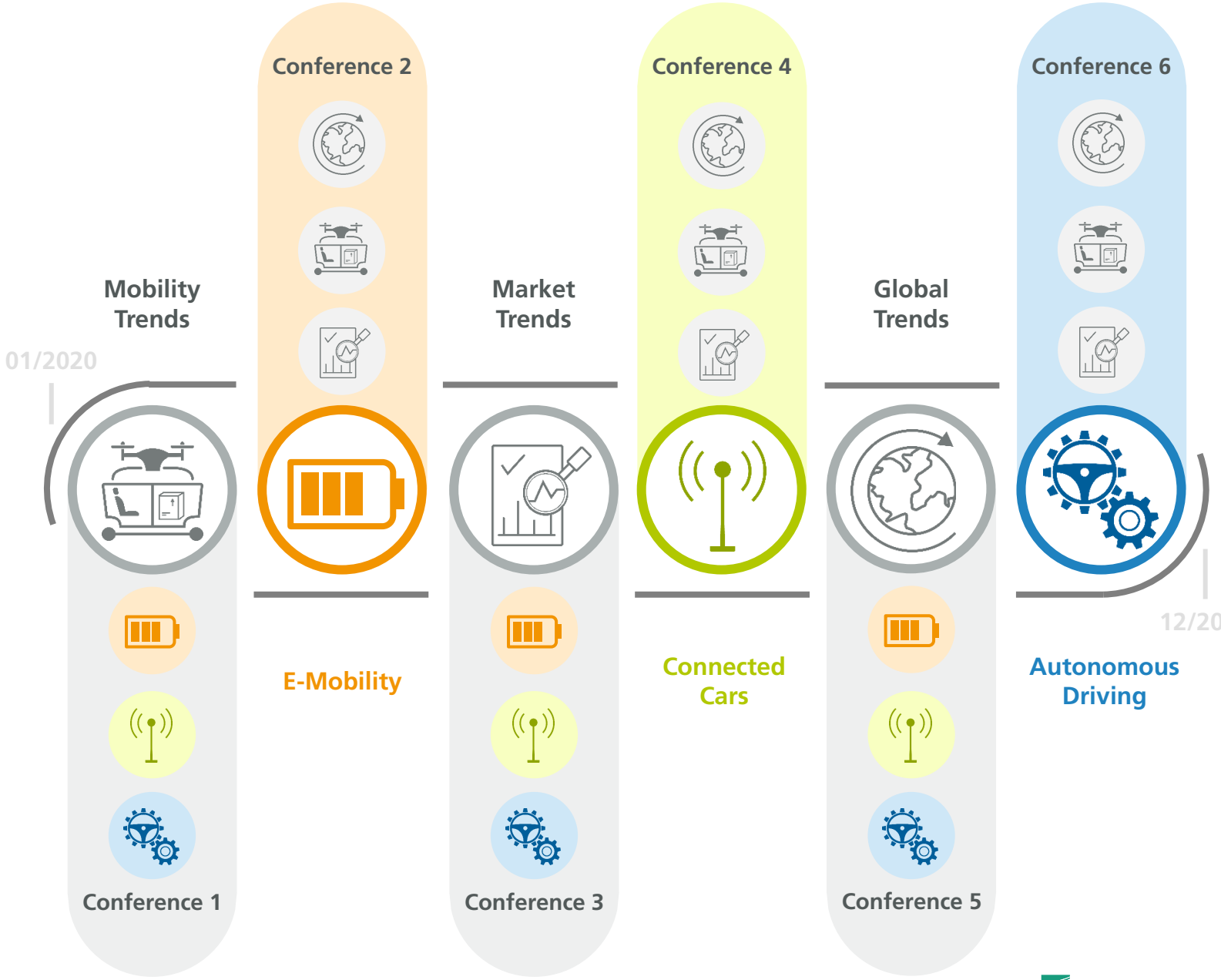
- New vehicle concepts and architectures
- New mobility experiences
- Legal requirements
- Autonomous mobility services



# FutureCar Phase VI

## Dedicated conferences on vehicle technologies and trends within the transformation of future mobility

- Six **two-day network conferences** are core elements of the **Innovation Network FutureCar Phase VI**
- Concentrating on **one main topic and three side topics per conference**. All technological drivers are addressed and discussed four times on different levels.



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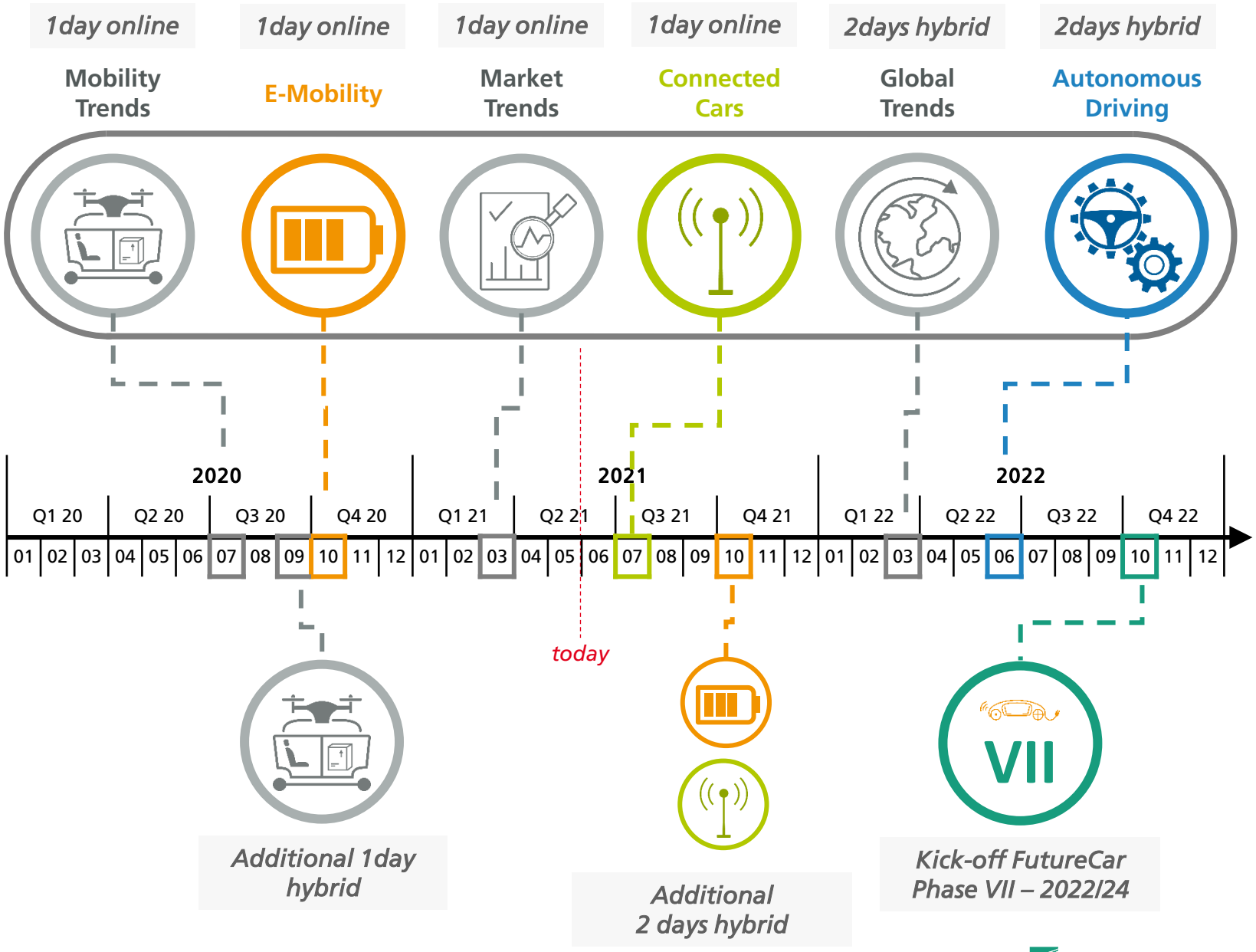
# ADJUSTMENTS - 2021
## FutureCare Timeline due to COVID-19

Due to the on-going impacts of Covid-19 we suggest an extension of FutureCar VI:

- **Cost-neutral extension** of the project duration **until Q4/2022**
- **Fully virtual or hybrid events** until the situation allows otherwise

The following meetings will be planned **as flexible as possible** in order to **react to any circumstances** given.



# Network conferences

## Two-day conferences in changing locations with a versatile program are core elements of the FutureCar Innovation Network

- The broad program provides **insights in different company and research labs** for a cross-company exchange.
- During the conferences there is **time for in-depth discussions and networking**.

### Guided Tours

Visit of ZAL TechCenter Hamburg

**We visit and experience** R&D centers, labs, and creative workspaces.

- E-Drives Lab, Fraunhofer NAS
- Faurecia R&D Center, Hagenbach
- Floatility MakerSpace, Hamburg
- BMZ Battery Plant, Hanau
- e.GO Prototype Factory, Aachen
- Mobility Innovation Lab, Fraunhofer IAO

### Presentations

Speaker session at INC Aachen

**We present and discuss** current and relevant network topics.

- Presentations by IAO as impulses and discussion starters
- Presentation of research findings by other Fraunhofer Institutes
- Presentation of innovations by industry partners and external speakers
- StartUp pitches by selected automotive entrepreneurs

### Workshops

Design workshop "Creating trust in autonomous vehicles"

**We conjointly work** in group and creativity workshops.

- Brainstorming of new project ideas
- Elaboration of project proposals
- Discussion of current issues in automotive industry
- Collaborative development of future network topics and fields of interest

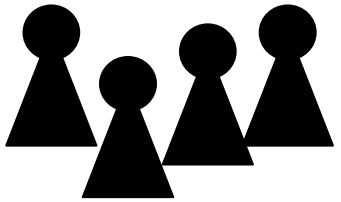
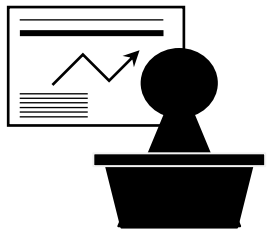
*Examples from last network Phase V in 2018/2019*

Reference: Fraunhofer IAO

# Partners and network

## Members from industry and research meet external guest experts

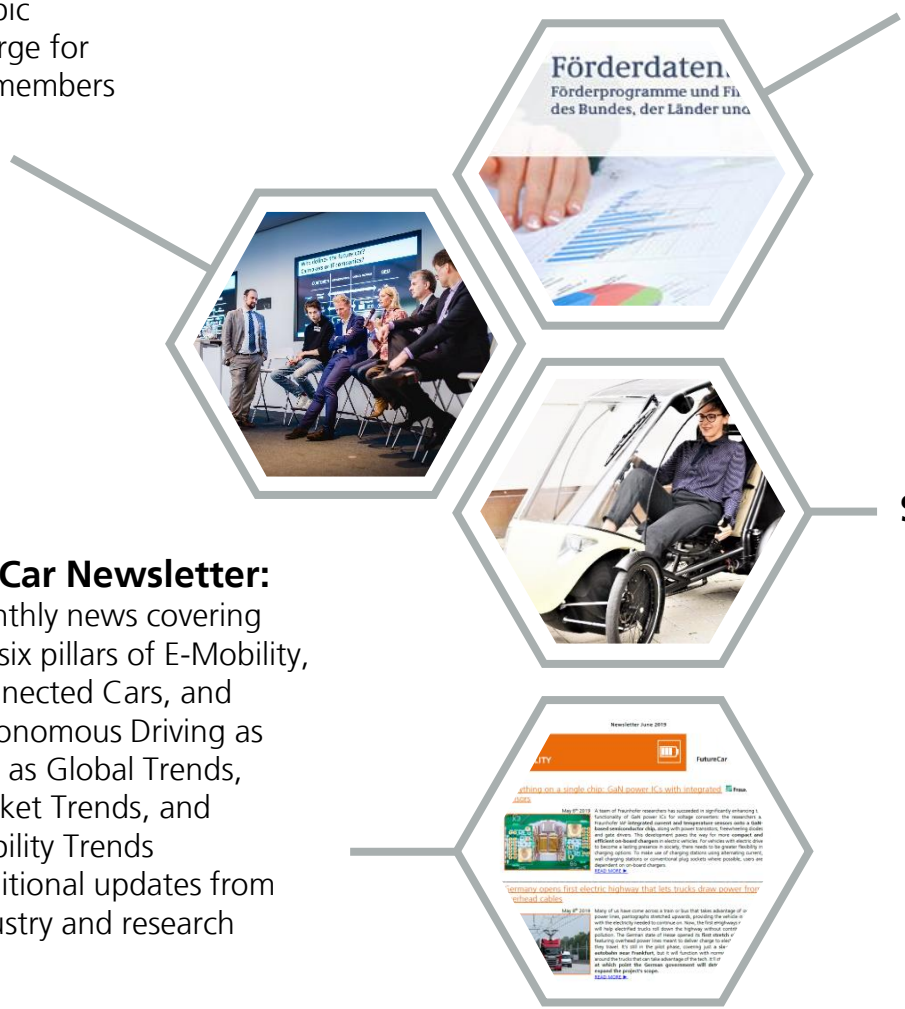
- The FutureCar network **brings together different players** and experts in the fields of future automotive technologies and mobility trends.
- **The permanent network members benefit** from all provided contents, the additional services as well as the gateway and early stage access to cutting-edge research.

| | Permanent members | Guest experts in network meetings |
|---|---|---|
| FutureCar |  |  |
| **Science and public sector**  | Organization and content **development by Fraunhofer** | **Topic-specific presentations** from scientific and political institutions |
| **Industry**  | **Joint financing** through several industry partners | Topic-specific presentations by **guest experts** from the industry |

# Additional services
## Support and additional information on a regular basis

- **Innovation Networks** base on **collaboration and constant exchange of ideas** about new technologies and their potentials
- **Knowledge transfer** through regular updates on the automotive industry and latest technology trends as well as interesting funding programs
- **Additional meetings** throughout the phase VI for content related **networking opportunities**

**Forum FutureCar:**
- Annual, public conference on a future mobility topic
- Free of charge for FutureCar members




**Funding Program Screening:**
- Quarterly update on relevant funding programs for public project applications in FutureCar topics
- Support in consortia finding and application process

**FutureCar Newsletter:**
- Monthly news covering the six pillars of E-Mobility, Connected Cars, and Autonomous Driving as well as Global Trends, Market Trends, and Mobility Trends
- Additional updates from industry and research

**Special Meetings:**
- TechDays, ThinkTanks, and RoundTables covering specifc focus topics
- In-depth discussion and information during one day meetings

# Terms and conditions

## Two-year contract for a company-wide membership including six conferences and additional services

- **FutureCar is collectively financed by all members and organized by Fraunhofer IAO**
- Membership includes the **attendance at all three conferences** per year, including subsequent **minutes, workshop results and presentations** shared by the speakers
- **Additional services** during the whole network term and access to the **Fraunhofer Society's entire research community**

### Network Term

- Two-year contract, 01/2020 - 12/2021

### Meeting Attendance:

- Company-wide membership, not limited to specific groups or business units
- Four attendees max. per conference (exceptions possible)

### Network Schedule

- Three two-day conferences per year (~March, July, October)

### Network Language:

- Slides and newsletter: English
- Communication: German (and English if necessary)

### Membership Fee

- € 20 K p.a.
- € 10 K p.a. with SME[1] discount

[1] < 250 employees and either revenue < € 50 M p.a. or balance sheet < € 43 M p.a. (Art. 2 des Anhangs zur Empfehlung 2003/361/EG)

# Contact us!

## We are looking forward to get in touch with you!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