»Future Mobility & Infrastructure«
From customer needs to innovations ...

Join the consortium to ...

improve your strategy for a transition roadmap coping with the massive changes and learn about future technology trends:

- Search for needs and potential solutions with partners from different industries and public authorities
- Define a cross-industrial roadmap for mobility in urban and rural areas
- Get a global overview of best practice apps, technologies & concepts
- Cope with latest user needs like range extension, mobility HUBs, drone logistics and future driving experience
- Receive a detailed technological and economic evaluation of disruptive changes to rate potential threats and identify outstanding opportunities

Start: September 2018
End: June 2019

"That [burning fossil fuel] is the dumbest experiment in history, by far."
Elon Musk
CEO Tesla Motors

"Anyone who focuses solely on the technology has not yet grasped how autonomous driving will change our society."
Dr. Dieter Zetsche
CEO Daimler

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### Motivation

**Initial Situation**
Decrease of pollution, traffic congestion and increase transport efficiency in all segments are important factors for a sustainable future.

Frequently asked questions of involved companies and public entities are:

- How will the new mobility systems disrupt our company and our cities?
- Which propulsion technologies will overtake the current ones?
- What would be the key enabler technologies for seamless mobility?
- What are the new mobility platforms and concepts to enable the V2X interconnection?

**Major Outcome for Participants**

- A detailed overview about applications, propulsion systems, infrastructure and enabling technologies regarding future mobility
- Technological and economic transparency
- Access to a large cross-industrial & interdisciplinary partner network

**Procedure**
Within the project, current and future applications will be suggested and selected by the consortium. Cross-industry innovation patterns are extracted and applied to specific products and services named by the consortium. Based on your vote, technological concepts and business cases will be established for the most relevant applications and solutions.
### Future Mobility & Infrastructure - Suggested Focus Areas

<table>
<thead>
<tr>
<th>Category</th>
<th>Focus Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transportation</strong></td>
<td></td>
</tr>
<tr>
<td>Private &amp; Public Transport</td>
<td>(Private &amp; Public Vehicles, Last Mile Devices, New Interior, Autonomous Driving, …)</td>
</tr>
<tr>
<td>Freight Transport</td>
<td>(Maritime, Rail, Air, Street-Transportation, Logistic Systems, …)</td>
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<tr>
<td>Propulsion Systems</td>
<td>(E-Mobility, Fuel Cells, Range Extension, …)</td>
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<tr>
<td><strong>Infrastructure</strong></td>
<td></td>
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<tr>
<td>Mobility Platforms</td>
<td>(Mobility HUBs, Shared Mobility, Multimodal Transportation, …)</td>
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<tr>
<td>Traffic Management</td>
<td>(Congestion Avoidance, Fleet Management, Navigation, …)</td>
</tr>
<tr>
<td>Traffic Infrastructure</td>
<td>(Vehicle-2-X, Smart Infrastructure, Safety Systems, Charging &amp; H²-Infrastructure, Parking, …)</td>
</tr>
</tbody>
</table>
Stage 1 Content:
- Assessment of relevant market trends and consortium needs
- Suggestion of relevant segments and sub-segments to be assessed
- Global scanning for cross-industrial applications
- Outcome: Overall structure, well evaluated user and stakeholder needs, relevant and innovative application overview based on deep market and research landscape analysis

Stage 2 Content:
- Systematic selection of the most attractive applications & solutions by the project partners
- Detailed technology assessment for selected applications
- Evaluation of technological feasibility and roadmap to implementation
- Outcome: detailed implementation instructions including core technologies, experts and suppliers for up to 20 selected applications

Stage 3 Content:
- Assessment of smart service potential based on smart products or systems
- Evaluation of market opportunities
- Assessment of potential business models
- Analysis of potential added value and costs for implementation
- Business model generation (if applicable for the selected case)
- Outcome: Reliable business information to motivate inhouse follow-ups for selected applications

»Future Mobility & Infrastructure« Project Timeline

Stage 1
- Kick-off
- Structure, User Needs & Mobility Applications
- 3 months
- 1st Report
- December 2018

Stage 2
- Technology Assessment
- 3 months
- 2nd Report
- March 2019

Stage 3
- Economic Evaluation
- 3 months
- Final Report
- June 2019

Launch of new center for future mobility & fuel cells at RWTH Aachen Campus

KEX
Knowledge Exchange
»Future Mobility & Infrastructure«
Questions to be answered

Which applications fit my company's core competencies and strategic orientation?

Which are the core technologies and competencies required for implementation?

Which alternative ways of implementation are feasible?

What are the strength and weaknesses of different approaches?

Which high potential applications in global markets and leading research entities?

Which are high potential applications in global markets and leading research entities?

Which stakeholder needs must be satisfied by new applications?

What are the strengths and weaknesses of different approaches?

Which new business models are applicable and which changes are crucial to initiate those?

Which budget is required to implement a new application?

Which innovative services could be offered by new applications?

Become an exclusive founding member of the new center for future mobility & fuel cells at RWTH Aachen Campus after the project.
»Future Mobility & Infrastructure«

Consortium Structure

Consortium Partners
- Representatives of vehicle manufacturers, infrastructure vendors and public entities
- Professionals in company strategy, product development, R&D and technology & innovation management

Research Partners
- Approx. 20 consortium partners
- € 25,000 per partner
- 9 month duration

Industrial Experts
- Data analysts
- ICT providers
- Sensor specialists
- AI experts
- ...

Interdisciplinary Consortium
- Global scope (EU, US, Asia)
- Four major project meetings
- Optional expert workshops
Consortium Project Framework:

- **Offline result generation by research partners** (PEM, Fraunhofer IPT, e.GO, FEN, KEX)
- **Face-to-face results presentation and discussion** with industrial consortium partners
- **Moderated cross-industrial workshops and expert keynote speeches**
- **Networking** with an **cross-industrial consortium and highly relevant research entities**

*All mentioned companies are partners of a smart future consortium project hosted by KEX AG and the research partners Fraunhofer IPT and WZL RWTH Aachen.
Stage 1: Application/Solution Scanning & Scouting

- **Application Trees**
  - Pre-selection of the most relevant approx. up to 400 cross-industrial applications to be presented to the consortium during the 1st report meeting.
  - Structured overview of current and future solutions in the context of specific applications fields.
  - The consortium will vote for up to 20 applications to be evaluated technologically in project Stage 2.

- **Segmentation**
  - Structured overview of relevant focus areas and sub-segments within these focus areas.
  - Suggestion of focus areas based on consortium preferences (questionnaire) and major trends.
  - High level aggregation of market and technology intelligence for each segment.
Technology Analysis

- Scouting and presentation of relevant technologies to implement the selected solutions
- Deep assessment of different technological concepts ending up in a deep dive report
- Evaluation and discussion of challenges
- Identification of potential technology partners

Market Pre-Assessment

- Assessment of expected market potential, time-to-market and economic competitiveness of the selected smart solutions
- Assessment of the potential for new Smart Services as preparation for project stage 3
Proceeding – Example of a Previous Project
Stage 3: Smart Service & Business Case Evaluation

Smart Service Assessment

- Analysis of **smart service potential** based on technological solution or e.g. availability of valuable data
- Search for potential **innovative business models**
- Evaluation approach is based on Business Model of St. Gallen University

Business Case Analyses

- **Detailed calculation of business cases** for the selected applications/solutions
- Assessment of potential **added value streams**
- Analysis of **added costs** for implementation
- Business model generation (where applicable)
Involved Institutes and Companies
A Powerful Team in Technology Research

Your Expert Network:

**KEX Knowledge Exchange AG**
- Spin-Off of Fraunhofer IPT TIM department
- Technology and market information provider
- [www.kex-ag.com](http://www.kex-ag.com)

**Fraunhofer IPT**
- Focus on technology & innovation management and future trend exploration
- Focus on manufacturing and upscaling
- [www.ipt.fraunhofer.de](http://www.ipt.fraunhofer.de)

**PEM at RWTH Aachen University**
- Focus on products and production technology of e-mobility components
- Focus field battery research and production
- [www.pem.rwth-aachen.de](http://www.pem.rwth-aachen.de)

**TIME Chair RWTH Aachen**
- Technology & innovation management
- Business model innovation
- [www.time.rwth-aachen.de](http://www.time.rwth-aachen.de)

**e.GO Mobile AG**
- Electric vehicle manufacturer based in Aachen
- Founded by Prof. Schuh
- [https://e-go-mobile.com/](https://e-go-mobile.com/)

**Flexible Elektrische Netze FEN GmbH**
- FEN Research Campus is an association of institutes of RWTH Aachen University and industrial partners
- [https://fenaachen.net/](https://fenaachen.net/)
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