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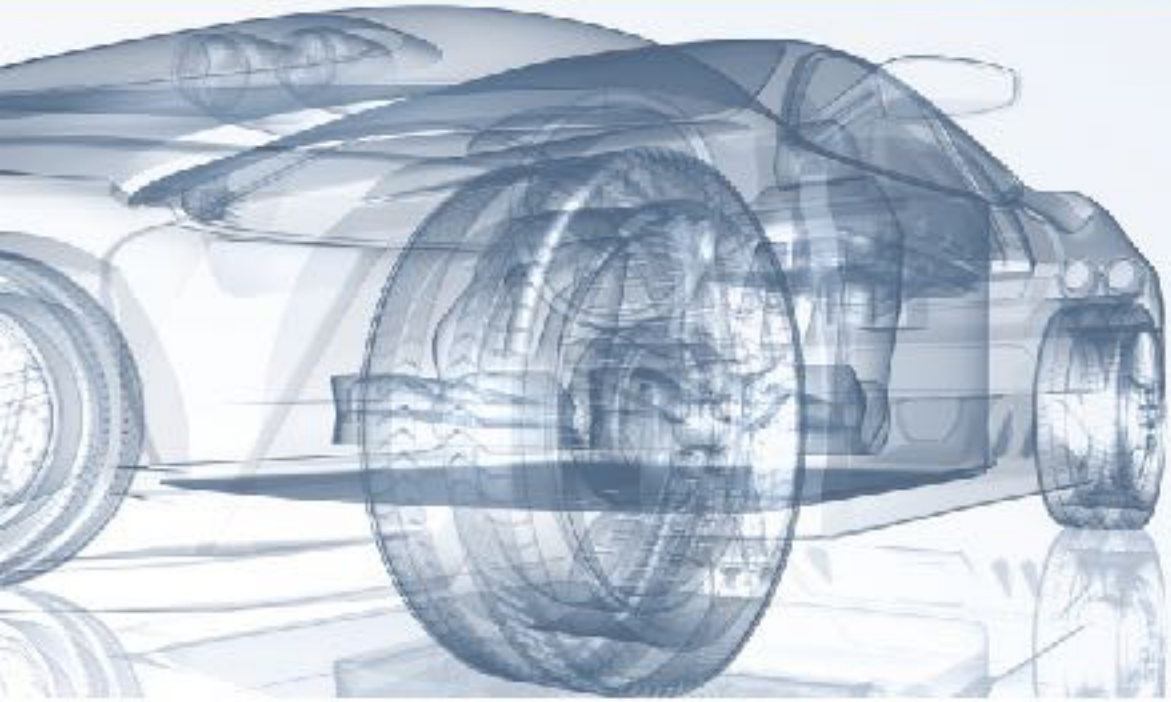

The 30th International
Electric Vehicle
Symposium & Exhibition

October 9–11, 2017

Messe Stuttgart, Germany

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Internationalisation as a component for successful industrialisation of electric mobility within Cluster Electric Mobility South-West

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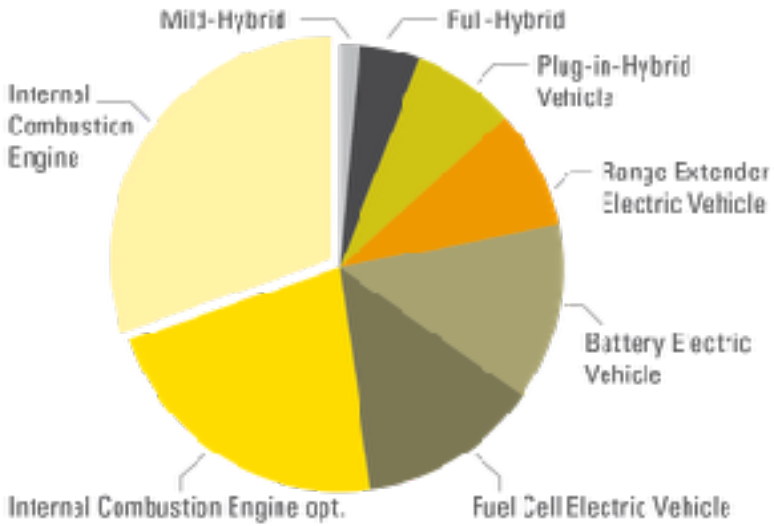
Agenda

- ***Challenges in the automotive and mobility sector***
- ***Automotive and mobility sector in Baden-Württemberg***
- ***Cluster Electric Mobility South-West***
- ***Internationalisation strategy of Cluster Electric Mobility South-West***
- ***Case study: German-French cooperation project AllFraTech***
- ***Case study: Four Motors for Europe and Associates***

Challenges in the automotive and mobility sector



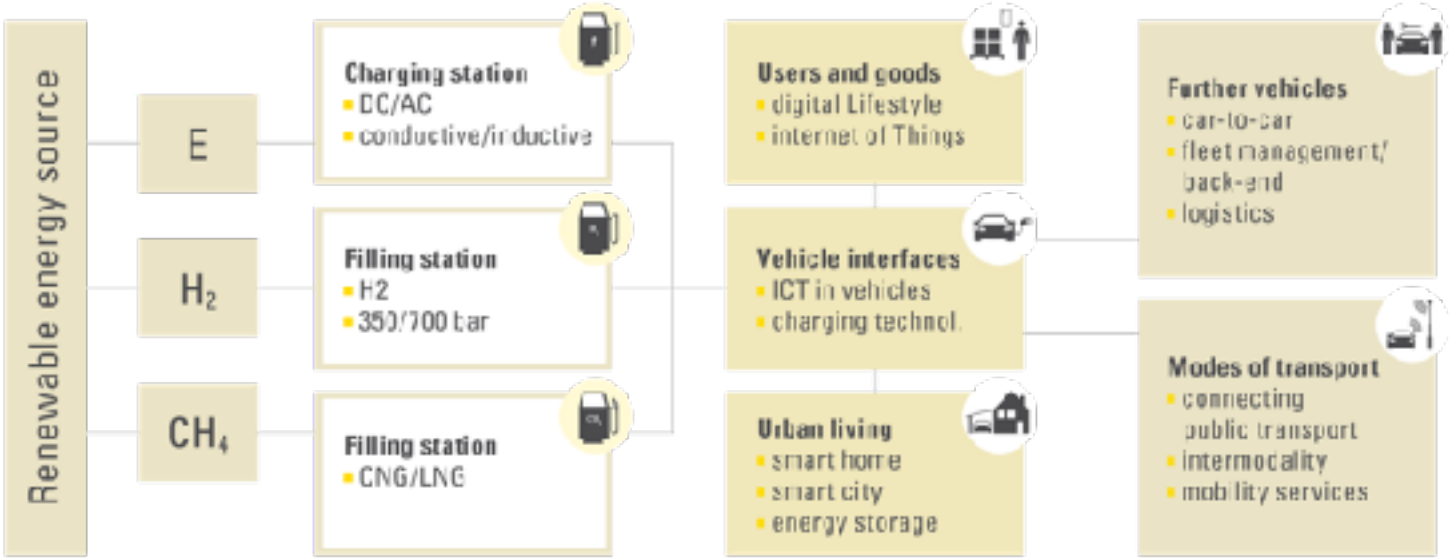
(source: Strukturstudie BWe mobil 2015)

In 2030 almost three quarter of all sold vehicles worldwide will contain an electric component in the drivetrain

Challenges in the automotive and mobility sector

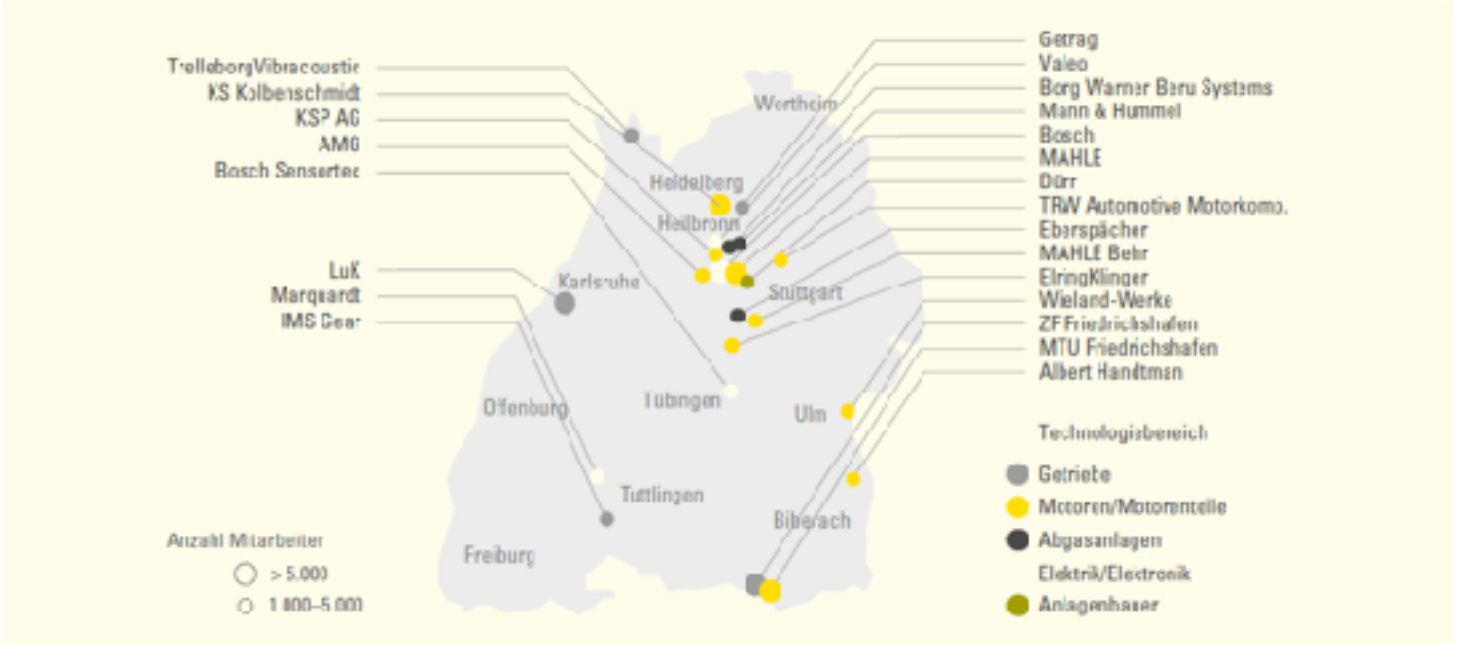
(source: Robert Bosch GmbH)

System approach to future transport technologies



(source: Fraunhofer IAO)

Automotive and mobility sector in Baden-Württemberg



(source: Strukturstudie BWe mobil 2015)

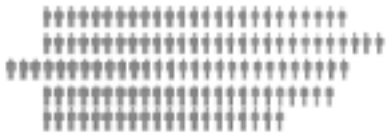
electric mobility south-west

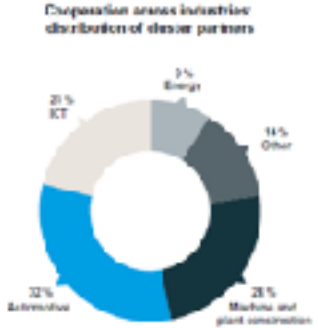
- *one of the most important regional alliances for future mobility solutions*
- *vision: "We aim at making Germany's south-w one of the leading providers of innovative mobility solutions in the global market place and to advance autonomous, connected and electric mobility around the world."*

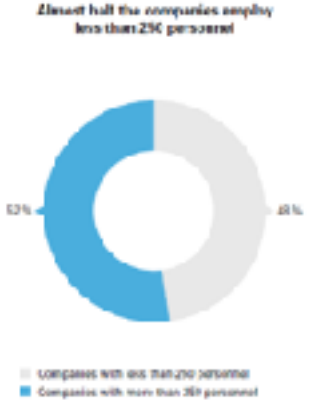
Established: 2007

127 members

from industry, science and the public sector







(source: e-mobil BW GmbH)

Cluster Electric Mobility South-West

- ***Cluster Electric Mobility South-West has been selected as one of fifteen German Leading-Edge Clusters by the Federal Ministry of Education and Research (BMBF) in 2012.***

- ***More than 25 major research and development projects in four fields of innovation***
  - ***vehicle***
  - ***energy***
  - ***ICT***
  - ***Production***

(source: e-mobil BW GmbH)

- ***Research and development projects funded in the framework of the German Leading-Edge Clusters programme (up to 40 million Euro), national funding programmes (BMBF, BMWi) and the State of Baden-Württemberg. Individual engagement of cluster partners in European programmes.***

Examples of major research and development projects:

- *ELISE – Stand-alone charging unit and system-integrated data gateway for electric vehicles*
- *DiNA – EV diagnosis and repair*
- *GaTE – holistic thermal management in electric vehicles*
- *BIPoLplus – Contactless, inductive and position-tolerant charging*
- *AUTOPLES – Automated parking and electric vehicle charging*
- *Green Navigation*
- *eFlotte – EV fleet and charging management*
- *Epromo – A modular production concept for electric engines*
- *AutoSpEM – Automated approach for process-reliable and cost-effective manufacture of storage batteries for electric vehicles*

Internationalisation strategy

- ***Since 2012, Cluster Electric Mobility South-West follows a dedicated internationalisation strategy for exchange and cooperation with clusters and networks in Asia, Europa and North America. This strategy is continuously reviewed and adapted by cluster partners and cluster management.***

- ***components of the internationalisation strategy:***
  - ***scientific analysis "Elektromobilität weltweit – Baden-Württemberg im internationalen Vergleich"***
    (in cooperation with Fraunhofer Institute for System and Innovation Research ISI)
  - ***continuous monitoring of international developments in the automotive and mobility sector***
  - ***regular trade missions to relevant regions in Asia, Europe and North America as part of a continuous business and technology benchmark***
  - ***specific analyses for certain countries and regions***

Internationalisation strategy

Scientific analysis "Elektromobilität weltweit – Baden-Württemberg im internationalen Vergleich" (in cooperation with Fraunhofer Institute for System and Innovation Research ISI):

- ***analysis of 16 international regions with major competences in the automotive and mobility sector***
  - ***in-depth analysis of ten most relevant regions in technology development and deployment***
- ***following the "Innovations Systems Approach" developed by Fraunhofer ISI (taking into account all components and sectors involved in future mobility solutions)***
- ***evaluation of quantitative and qualitative indicators in in depth-analysis***
  - ***quantitative indicators: production capacities (vehicles, batteries), patents and publications,***
    xEV sales, infrastructure deployment, etc.
  - ***qualitative indicators: political strategies, funding schemes, organisations, networks,***

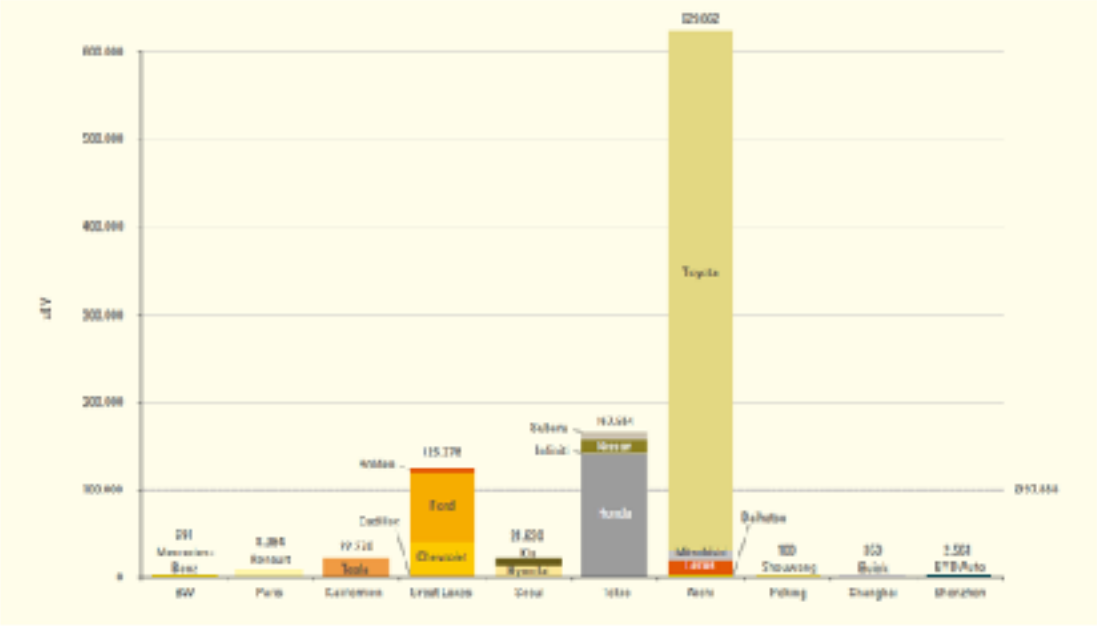
Internationalisation strategy

Ten most relevant regions identified:

- ***Baden-Württemberg (1)***
- ***Île-de-France (2)***
- ***California (3)***
- ***Great Lakes (Detroit and Toronto metropolitan region) (4)***
- ***Seoul metropolitan region (5)***
- ***Tokyo metropolitan region (6)***
- ***Aichi metropolitan region (7)***
- ***Beijing metropolitan region (8)***
- ***Shanghai metropolitan region (9)***
- ***Shenzen metropolitan region (10)***

(source: Fraunhofer ISI, analysis „Elektromobilität weltweit")

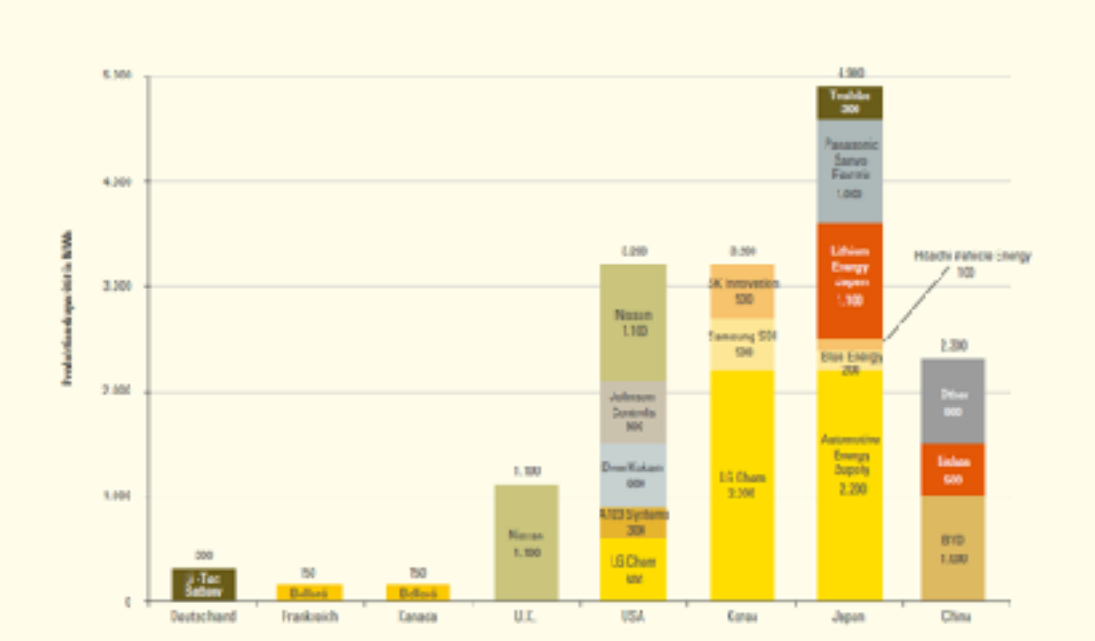
Technology development: Production of xEV in relevant regions (2013)



(source: Fraunhofer ISI, analysis „Elektromobilität weltweit")

Internationalisation strategy

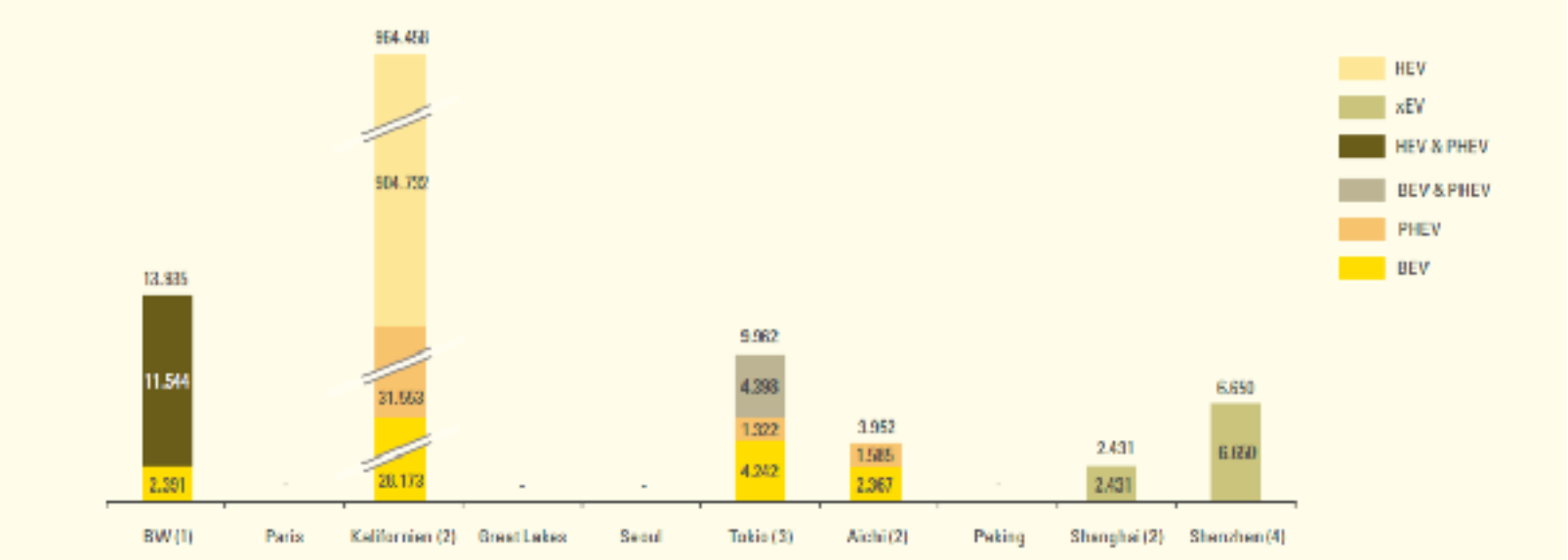
Technology development: Production capacities of lithium-ion batteries for xEV (2013)



(source: Fraunhofer ISI, analysis „Elektromobilität weltweit")

Internationalisation strategy

Technology deployment: Stock of xEV at regional level (2013/2014)

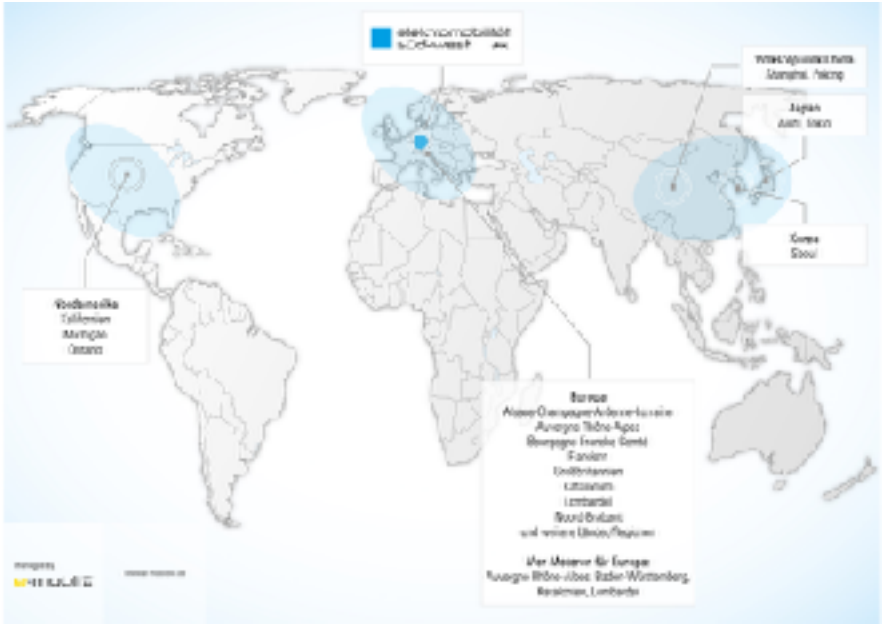


(source: Fraunhofer ISI, analysis „Elektromobilität weltweit")

Internationalisation strategy

Portfolio of internationalisation activities:

- ***business missions with representatives from industry and academia***
- ***organisation of international events and trade fair presences***
- ***participation in international conferences and trade fairs***
- ***support of SME in international cooperation (special interest in European cooperation)***
- ***initiation of cross-border projects***
- ***information and intercultural coaching***



(source: e-mobil BW GmbH)

Case study: German-French cooperation project AllFraTech

- *German-French cooperation project of Cluster Electric Mobility South-West (Baden-Württemberg) and LUTB-RAAC (Auvergne-Rhône-Alpes)*
- *intensification of bilateral innovation partnership on future transport technologies and mobility solutions*

- *funding scheme:*
  "Internationalisation of leading-edge clusters, future projects and comparable networks (InterSpiN)"
  by German Federal Ministry of Education and Research (BMBF)
- *time frame: January 2017 – June 2021 (estimated)*
- *project phases:*
  (1) concept development phase (01/2017-06/2018)
  (2) implementation phase (approx. 07/2018-06/2021)

Case study: German-French cooperation project AllFraTech

Concept development phase:

- ***definition of internationalisation concept for long-term international cooperation***
- ***identification of technology fields of interest for both cluster networks***
- ***definition of cross-border R&D project proposals and further ideas for cooperation***

First results of concept development phase:

- ***two strategy and project workshops with players from Baden-Württemberg and Auvergne-Rhône-Alpes***
- ***technology fields for further cooperation with benefit for both cluster networks:***
  - ***thermal management and energy efficiency***
  - ***innovative charging technologies (inductive charging, DC charging)***
  - ***specific use cases for future EV charging technologies***
  - ***testing and validation for future autonomous mobility services***

Case study: German-French cooperation project AllFraTech

Outlook on implementation phase:

- ***three cross-border R&D projects in the framework of the InterSpiN funding scheme***
  - ***funding of German project partners (companies, universities, research institutes) by Federal Ministry for Education and Research (BMBF)***
  - ***funding of French project partners by regional and national schemes in France***
- ***further projects in European research and innovation funding schemes***

Specific challenges of cross-border cooperation project:

- ***developing a joint understanding for technology developments in future mobility solutions***
- ***bridging intercultural differences (project management)***
- ***identification and acquisition of suitable funding schemes in the international partner country***
- ***synchronising time schemes and procedures in both cluster networks***

Case study: Four Motors for Europe and Associates

- ***network dialogue "Electric mobility and future transport technologies" established in 2011***
- ***based on long-term political and economic cooperation of major European regions***

Participating regions and cluster networks:

- ***Auvergne-Rhône-Alpes (France): LUTB-RAAC***
- ***Baden-Württemberg (Germany): Cluster Electric Mobility South-West***
- ***Catalonia (Spain): ACCIÓ / Automotive Industry Cluster of Catalonia (CIAC)***
- ***Lombardy (Italy): Cluster Lombardo della Mobilità/Politecnico di Milano***

Associated regions and cluster networks:

- ***Flanders (Belgium)***
- ***Noord-Brabant (Netherlands)***

Case study: Four Motors for Europe and Associates

Goals of the network dialogue:

- ***create a network of relevant European clusters and networks on future transport technologies***
- ***enable exchange on strategy + projects for the development and deployment of future technologies***
- ***sharing information, experience and best practice examples***
- ***initiate research and innovation projects with stakeholders from leading European automotive regions***
- ***advance the industrialisation of sustainable transport technologies in Europe***

Initiation of joint project proposals and activities:

- ***four project proposals with companies and research institutes in Horizon 2020 calls in 2014***
- ***project proposal "AUTORES - Automotive Researchers for European Suppliers" in European Marie Sklodowska Curie programme (re-submission planned)***

References

- *Fraunhofer Institut für Arbeitswirtschaft und Organisation IAO, Strukturstudie BWe mobil 2015 - Elektromobilität in Baden-Württemberg, Stuttgart: e-mobil BW - Landesagentur für Elektromobilität und Brennstoffzellentechnologie Baden-Württemberg GmbH, 2015.*
- *Statistisches Landesamt Baden-Württemberg, Statistische Berichte Baden-Württemberg - Verarbeitendes Gewerbe, Bergbau und Gewinnung von Steinen und Erden in Baden-Württemberg 2016 - Jahresergebnis für Betriebe (Berichtskreis 20+), Stuttgart: Statistisches Landesamt Baden-Württemberg, 2017.*
- *Fraunhofer Institut für System- und Innovationsforschung ISI, Elektromobilität weltweit - Baden-Württemberg im internationalen Vergleich, Stuttgart: e-mobil BW - Landesagentur für Elektromobilität und Brennstoffzellentechnologie Baden-Württemberg GmbH, 2015.*
- *Fraunhofer Institut für System- und Innovationsforschung ISI, Elektromobilität: Zulieferer für den Strukturwandel gerüstet? - Status quo und Handlungsempfehlungen für den Automobilstandort Metropolregion Stuttgart, Stuttgart: Industrie- und Handelskammer Region Stuttgart, 2011.*
- *Germany Trade & Invest GTAI, Branche kompakt: Frankreich - Kfz-Industrie und Kfz-Teile (März 2015), Bonn: Germany Trade & Invest Gesellschaft für Außenwirtschaft und Standortmarketing mbH, 2015.*
- *Four Motors for Europe, „History," 2016. [Online]. Available: http://4motors.eu/en/history-3/*