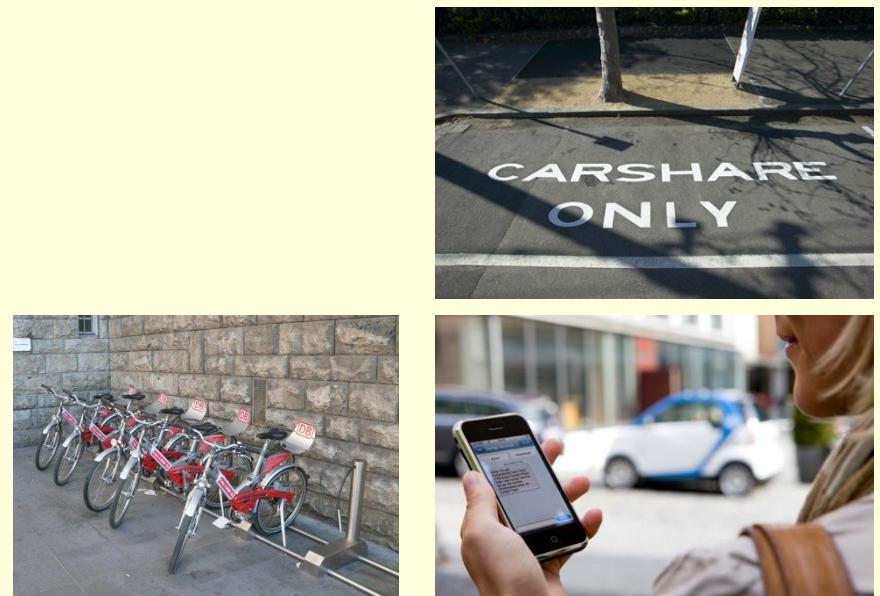
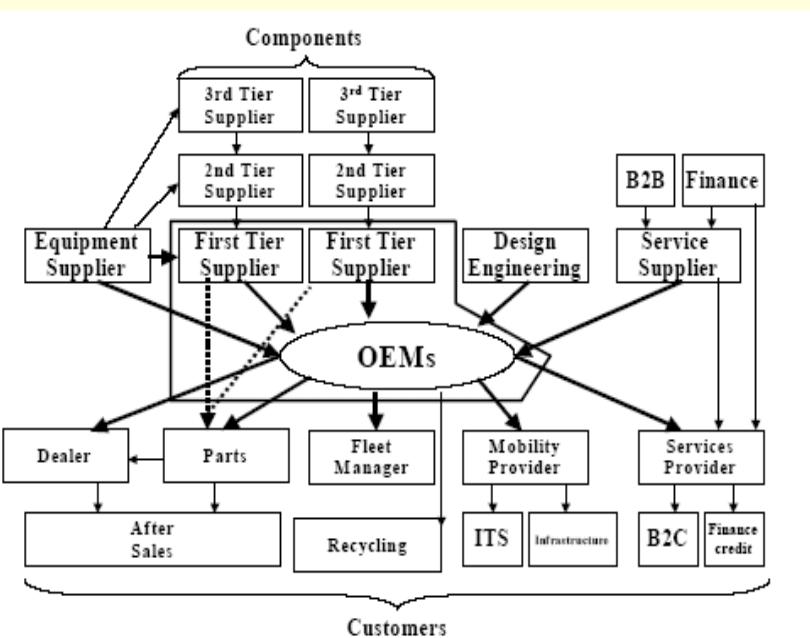


automotive-bw: strategy and cluster management tools
Dr. Rolf Reiner
Investing and opportunities in Germany, June 12th, 2012

The world is changing...

1. ...in the automotive sector
2. ...in mobility behaviour



Environmental policy forces to act

- Limitation of the CO₂-emission on 120g/km (per car)
- Limitation of air pollution (1999/30/EG)
- Noise control (EC-Directive on environmental noise)



- Rising of the perceived fuel costs
- Rising costs per car (diesel, hybrid, lightweight construction)
- Toll & Parking Space Management

Mobility costs rise

Urbanisation favors city cars

- Rising number of vehicles and roads (Megacities` > 5 mio. population: 1975=18; 2007=49; 2025=75)
- Restrictive traffic management (Paris, London, California ...)

■ Low efficiency of current vehicle fleets in the city

- Rising oil/gas imports from unstable countries
- Development of hydrogen/ biofuels still takes time
- Withdrawal from nuclear power / Necessity to modify the electricity grid (renewable energies)

Security of power supply decreases



56% of Baden-Württemberg's value creation – 182.500 jobs – 39.5 billion € turnover

Daimler AG Werk Rastatt



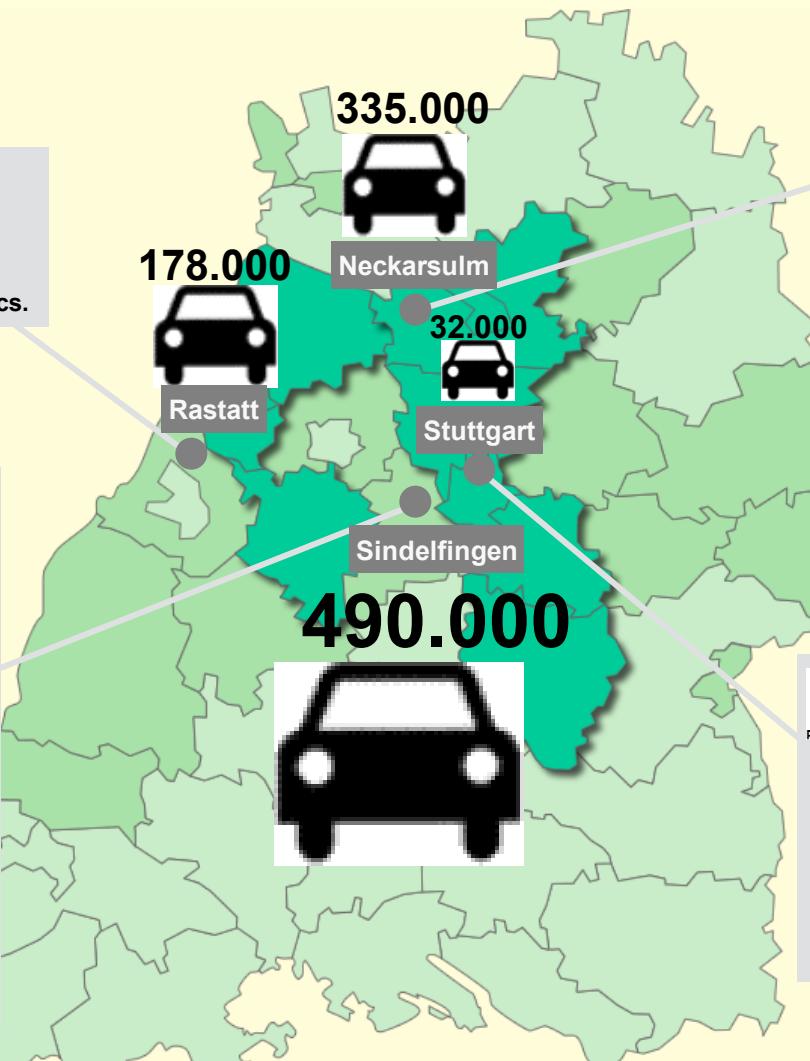
employees: ~ 6.200
A-Klasse, B-Klasse
yearly production: ~ 178.000 pcs.

Daimler AG Werk Sindelfingen



employees: ~ 26.500
C-Klasse Limousine, S-, E-
CL- and CLS-Cklasse, SLS
AMG (Coupé and Roadster)
and Maybach
yearly prod.: ~ 485.000 pcs.

Gottlieb Daimler
Wilhelm Maybach
Stuttgart - Bad Cannstatt
1883 - 1st four cycle engine
1885 - 1st motorcycle
1890 - Daimler Motoren Gesellschaft
1926 - Daimler-Benz AG — Mercedes-Benz Brand
1998 - Daimler Chrysler AG
2007 - Daimler AG



AUDI AG, Neckarsulm



employees: ~ 14.000
Audi A4 Limousine, Audi A5
Cabriolet, S5 Cabriolet, Audi A6
Limousine, A6 Avant, S6, A6
allroad quattro, Audi A8, A8L, S8,
R8, R8 Spyder, Audi RS 6
Limousine, RS 6 Avant, Audi A7
yearly production ~ 335.000 pcs
(incl. 119.000 SKD/CKD)

1873 - NSU
1960 - NSU Motorenwerke AG
1969 - AUDI NSU Auto Union AG
1985 - AUDI AG

Dr. Ing.h.c. F. Porsche AG Stuttgart-Zuffenhausen



employees: ~ 2.900 (production &
logistics)
911, Boxster
yearly production : ~ 32.000 pcs.

1931 - Dr. Ing. h. c. F. Porsche GmbH
1937 - Dr. Ing. h. c. F. Porsche KG
1972 - Dr. Ing. h. c. F. Porsche AG



Wirtschaftsförderungs-
gesellschaft mbH
Region Ostwürttemberg

Wirtschaftsförderung
Region Stuttgart



| Netzwerk Automotive |



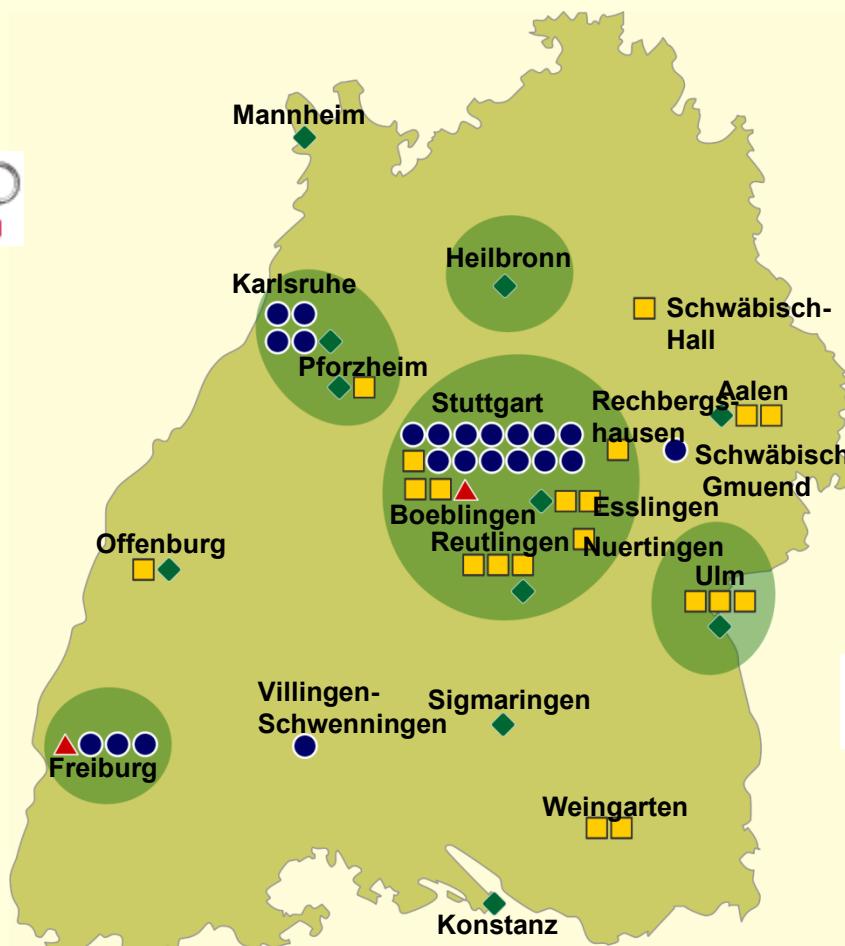
Joining forces – regional automotive clusters establish automotive-bw

- RKW Baden-Württemberg (network management and on-top services)
- AutomotiveCluster RheinMainNeckar
- Automotive-Region Heilbronn
- Automotive-Region Ostwürttemberg
- Automotive Engineering Network Südwest (AEN)
- Clusterinitiative Automotive Region Stuttgart (CARS)
- Cluster Nutzfahrzeuge Schwaben e.V.
- IHK-Netzwerk Automotive Reutlingen
- Wirtschaftsregion Südwest

Suppliers – the driving force of automotive-bw



OEM = passenger cars
trucks and busses
special purpose vehicles
retrofitting / car tuning

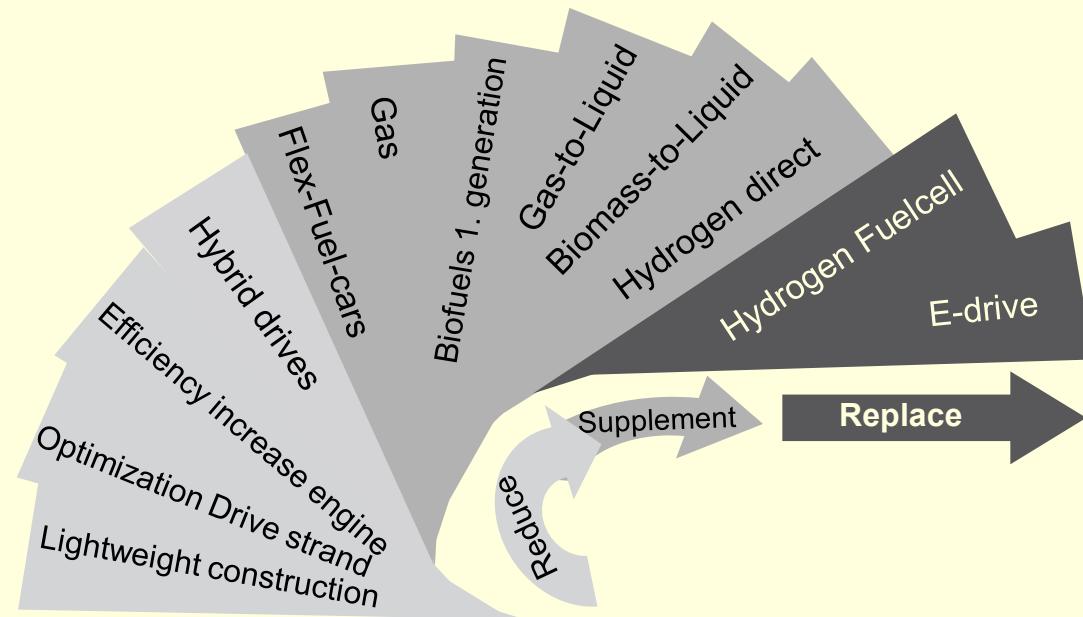


- research institutes
- ▲ universities
- technology transfer agencies (Steinbeis-Stiftung)
- ◆ universities of applied sciences



EUROPAISCHE UNION
Europäischer Fonds
für regionale Entwicklung
Investition in Ihre Zukunft!

Das Vorhaben wird gefördert durch die Europäische Union – Europäischer Fonds für regionale Entwicklung – sowie das Land Baden-Württemberg.
Verwaltungsbehörde des RWB-EFRE-Programms:
Ministerium für Ländlichen Raum, Ernährung und
Verbraucherschutz: www.rwb-effe.baden-wuerttemberg.de



Reduce

- Combustion engine
- Drive strand
- Rolling friction
- Air resistance
- Lightweight const.
- Mild-Hybrid

Supplement

- Biofuel
- Synthetic Fuel
- Auto- / Naturalgas
- Full-Hybride
- Li-Ion Battery

Replace

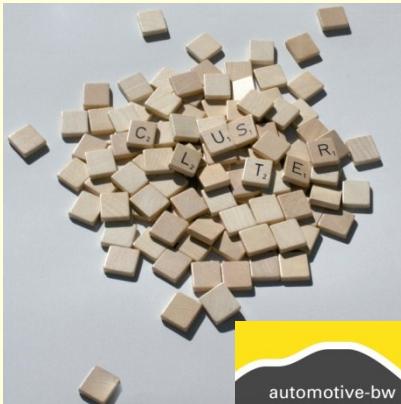
- Fuelcell
- H₂-combustion
- E-drive

Source: following „Unsere Autos“, VDA Berlin
www.unsere-autos.de



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- New models of cooperation are developed and implemented
 - ➔ Central topics: Improvement of the powertrain, hybridization, electric mobility connected with lightweight construction, vehicle safety and vehicle comfort.
- Providing a comprehensive offer of specific working groups, workshops, seminars, information events and matchmaking activities in the different regions of Baden-Württemberg.
- Moderating effective working groups – so-called TecNets
 - ➔ Horizontal, cross-functional exchanges as well as vertical connections of the automobile actors are pursued. Thereby, manufacturers, system suppliers and particularly small and medium-sized enterprises are promoted.
 - ➔ Enterprises throughout the whole state may reflect their own competencies and research and development concepts on current and future topics and user requirements.
- ,automotive-bw‘ supports the direct exchange of the relevant automobile actors and takes over the role of a neutral and independent moderator.

TecNets are working groups on vital topics of the automobile industry, facilitating exchange and cooperation of the participants, while treating **tangible technological issues**. TecNetGroups are accompanied by **representatives from industry and science**, who give orientation and - if necessary – inputs and build contacts.

TecNetGroup „E-mobility“

- Mentors:** Dr. Klaus Harms,
*Director of development,
Robert Bosch GmbH, Stuttgart*
- 
- Prof. Dr. Frank Gauterin,
*Institute leader, Institut for vehicle
system engineering of KIT, Karlsruhe*

TecNetGroup „Efficiency technologies“

- Mentors:** Volker M. Stauch, *former plant
manager Untertürkheim and Director
Production Powertrain Mercedes-Benz*
- Prof. Dr. Jochen Wiedemann,
*Institute leader, Research
Institute of Automotive Engineering and
Vehicle Engines (FKFS), Stuttgart.*
- 

TecNetGroup „Lightweight construction“

- Mentors:** Dr.-Ing. Lutz-Eike Elend, *Head of AUDI
lightweight construction center, AUDI AG
Neckarsulm (Passenger car)*



Klaus-Dieter Holloh, *Head of pre-
development of commercial vehicles,
Daimler Trucks Stuttgart (CV)*

Prof. Dr. Frank Henning, *Head of
Fraunhofer Institute of Chemical Technology
(ICT), Pfinztal*

TecNetGroup „Manufacturing technologies“

Mentors: Werner Reichelt, *Head of
automotive- management Festo AG,
Esslingen*



Prof. Engelbert Westkämper, *Head of
Fraunhofer Institute for Manufacturing
Engineering and Automation (IPA), Stuttgart*



„We have to
re-invent the
automobile“

Dr. Dieter Zetsche, 2009

automotive-bw

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