Changes and Strategies in the Future Automotive Industry Structure in Europe

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Requirements and Challenges for OEM´s and Suppliers

International Symposium
Recent Developments in the Automotive Supplier Industry in Japan and the EU

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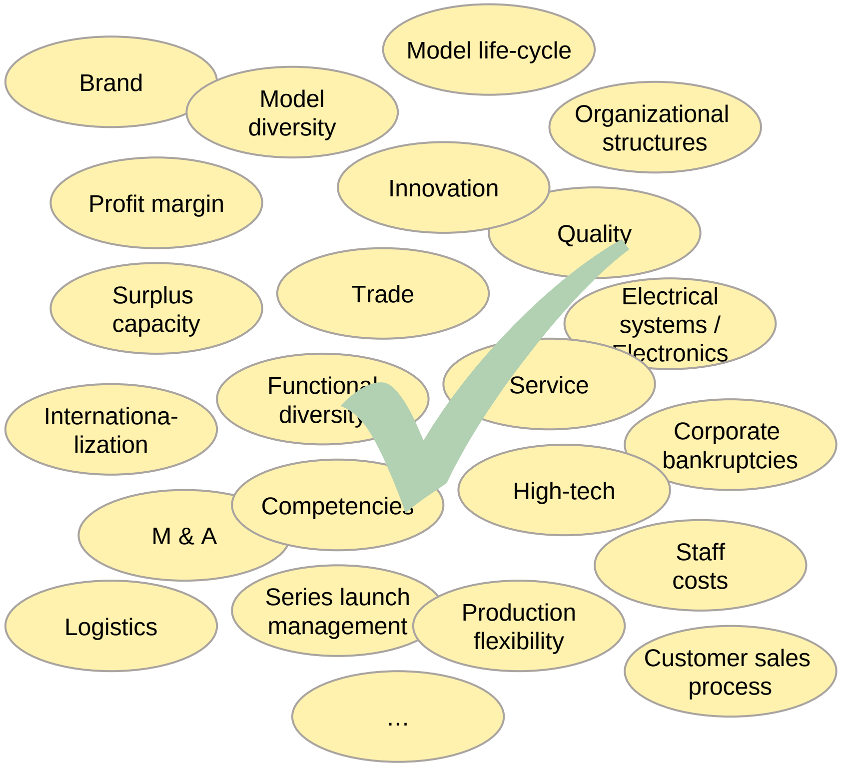
Content

- Executive summary of the study “Future Automotive Industry Structure 2015”
- Research activities of the European Automotive Industry
  - The 5DayCar Initiative

Key challenges in the automotive industry

The automotive industry must face up to gigantic challenges. Auto makers, automotive suppliers and service providers are noticeably coming under increased pressure to act.

Current (and future) challenges for the automotive industry



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Further intensification through...

- **Changes in customer behavior**
  - “Segment-of-one” (new vehicle concepts)
  - Declining customer loyalty
- **Value orientation (EVA, ROCE)**
  - Auto makers allocating capital downstream
  - Investments in growth markets (auto makers, automotive suppliers, service providers)
  - Competition for capital (between industries, companies, divisions, brands, series, etc.)
  - Access to capital more difficult (Basel II)

Automobile development and production: perspectives for profitability and ROCE / ROE?

The purpose of this study is to provide answers to the questions “What will change?” , What are the approaches for competitiveness in the future?” and “How can it be implemented?”

Key Elements of the Study

Proceeding from the brand profiles of all essential automobile brands, the study outlines the necessary structural change as well as forms of cooperation and areas of action.

Automobile Brands

- Analyzes and positions all automobile brands (70+)
- Derives vehicle modules and value creation levels relevant to brand experience
  - for six brand clusters
  - separately for 11 European brands

Value Creation System in the Automotive industry

- Extensive desk research: >30 studies, >20 analysis reports, >30 databases, >100 press studies
- Analyzes model policy for each brand and forecasts production quantities for each series and region
- Provides models for value creation systems in 2002 vs. 2015 (scenarios)
  - Distribution between OEM / supplier
  - Five value creation levels (pre-development, series development, fabrication, module assembly, vehicle assembly)
  - Seven main modules, 42 vehicle modules
  - Six brand clusters
  - Nine regions

Business Designs and Cooperation

- 60 interviews with key decision-makers (board members, CEOs, strategy planners ...) in the automotive industry (OEMs, suppliers, engineering service providers, etc.)
- Identifies promising business designs
- Describes “new quality” of cooperation
- Identifies new forms (or strategies) of cooperation for implementation purposes

Profitability and Economic Viability in the Automotive Industry

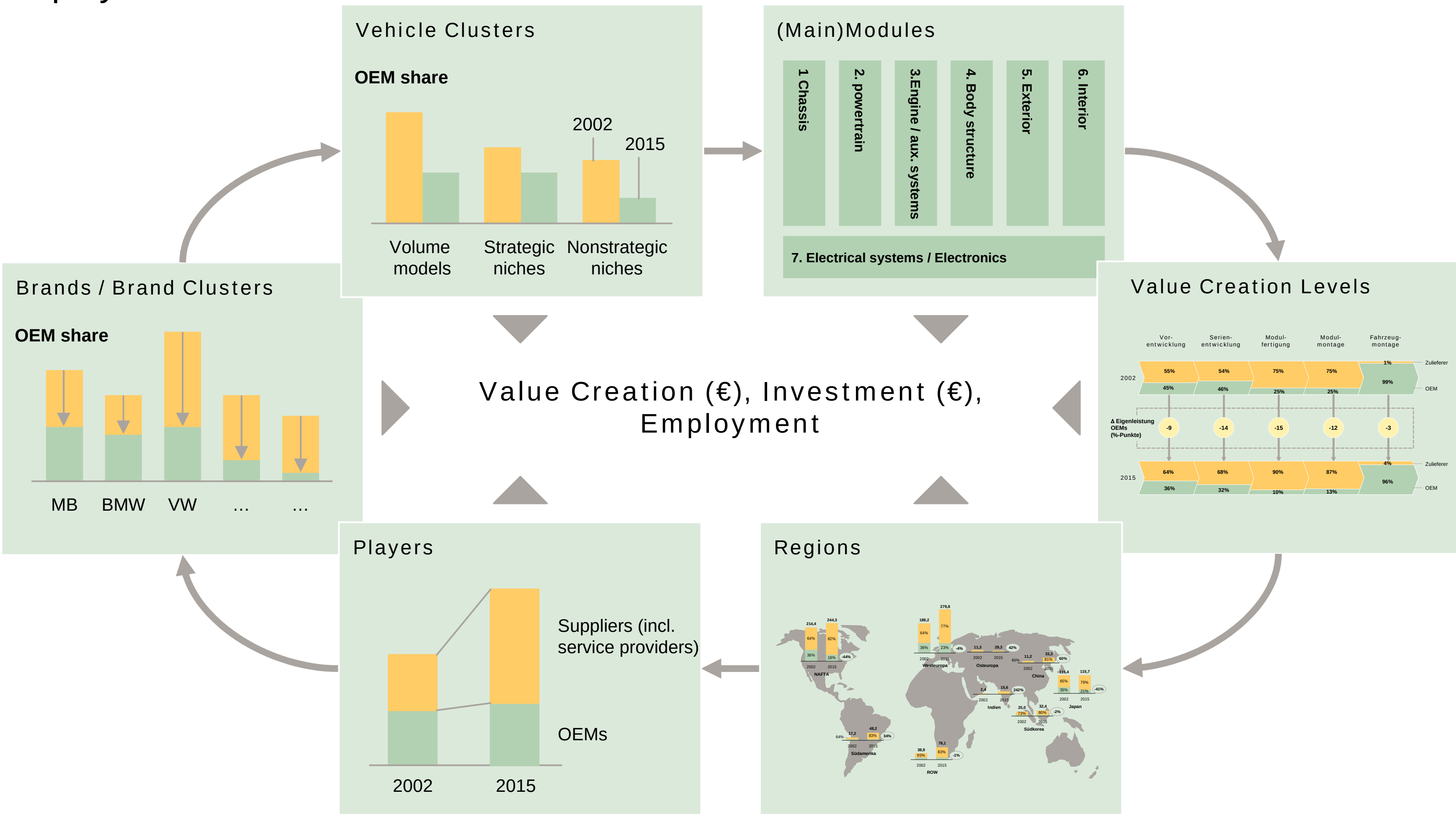
- Works out detailed cost mechanisms for all core processes
- Provides model of impact on earnings (EBIT margin)
- Provides model for investment and capital requirements (OEM / supplier) and returns on capital employed

Areas of Action / Recommendations

- Identifies areas of action for OEMs, suppliers, and providers of engineering and logistics services
- Recommends specific courses of action and management agenda

Six Dimensions of Structural Change

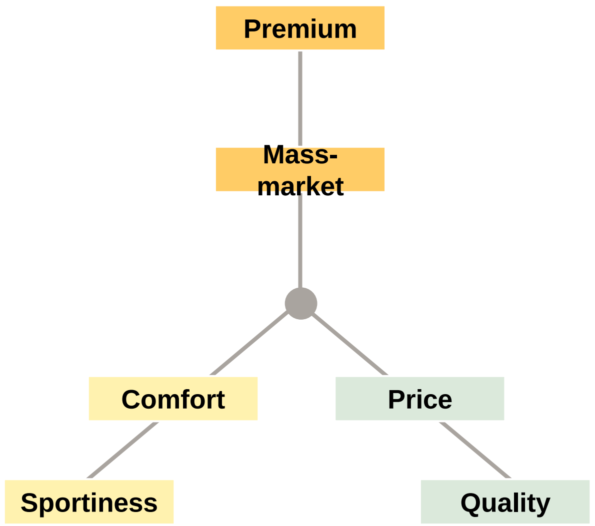
The “FAST 2015” study uses a six-dimensional model to illustrate the structural changes in the automotive industry and their repercussions on value creation, investment and employment.



Brand Clusters

Six brand clusters and assigned 71 brands to them were identified.

Three Brand Cluster Dimensions



Brand Cluster	No. of brands	Examples
Mass-market, price, comfort	30	CITROËN, KIA
Mass-market, price, sportiness	5	SEAT
Mass-market, quality, comfort	7	TOYOTA, PEUGEOT
Premium, price, comfort	2	smart
Premium, quality, comfort	10	
Premium, quality, sportiness	17	BMW, Audi, MASERATI

A strategy pattern for value creation strategies can be worked out for each brand cluster on the basis of differentiating brand characteristics.

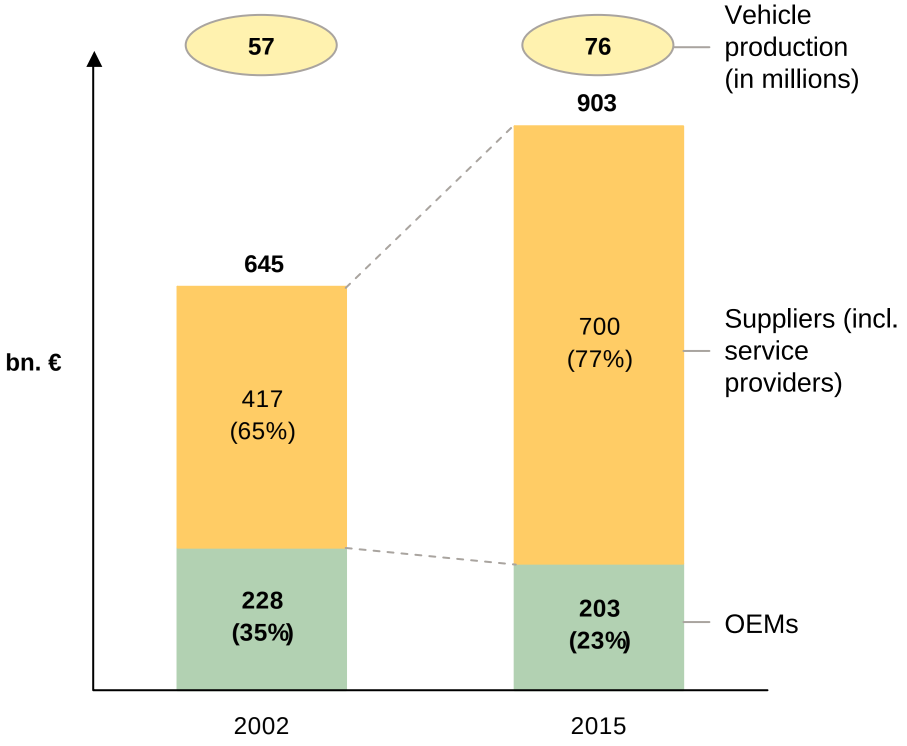
Source: Mercer Value Creation Model 2015

1

Overall Value Creation Performance, 2002-2015

The overall value creation will increase by about EUR 250 billion. The percentage created by OEMs will drop from the present-day 35% to 23% in 2015.

Value Creation / Percentage Created by OEMs
(worldwide, automobile development & production, light vehicles)



- Average annual growth of 2.6% for overall value creation (2002-2015)
  - OEM value creation will drop by 0.9% p.a. on average
  - Suppliers (incl. service providers) will grow by 4.1% p.a. on average
- Number of vehicles produced will grow by 2.2% p.a. on average
  - Traditional markets / triade: 0.8% p.a. on average
  - Growth markets: 5.5% p.a. on average
- Average vehicle value will only increase from EUR 11,280 to EUR 11,840 (CAGR 0.4%)
  - Positive effect: increase of vehicle value in traditional markets
  - Negative effect: sharp growth in quantity with below-average vehicle value (growth markets)

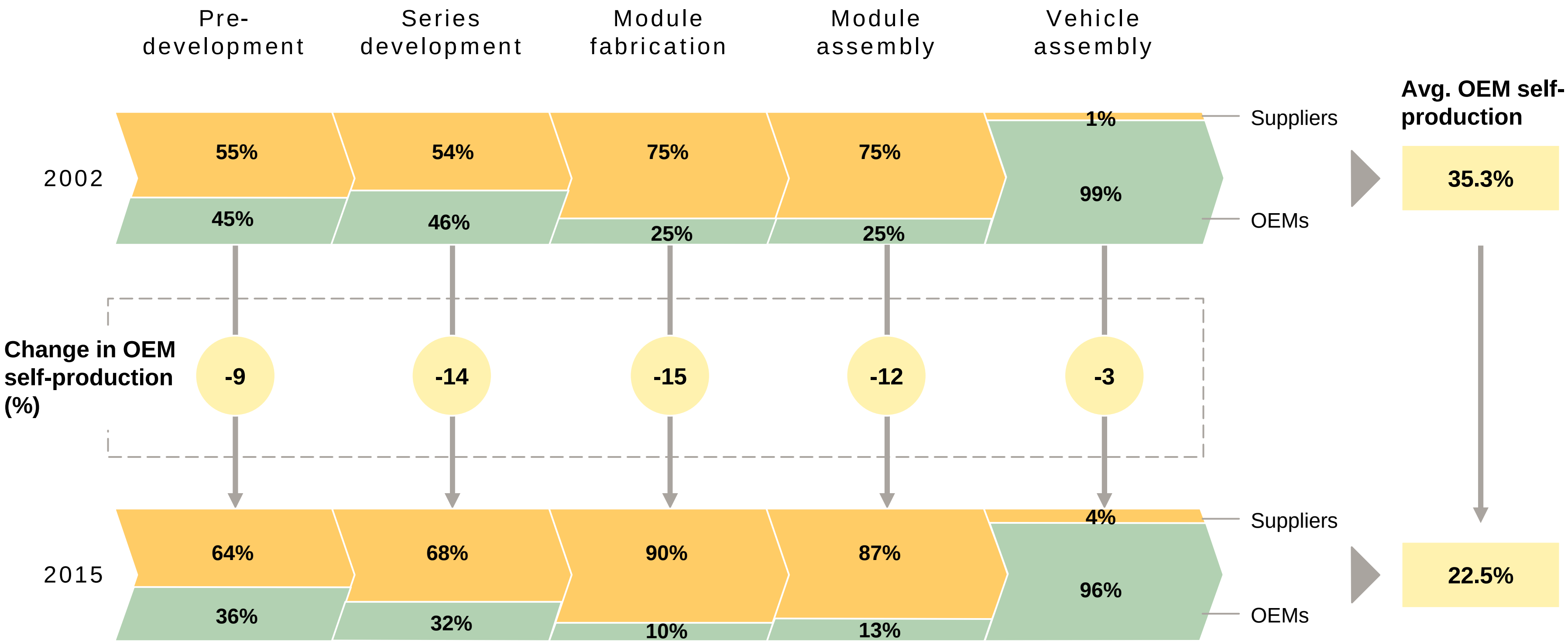
5 Main Modules: Shares of OEMs and Suppliers

Shares of value creation will shift to automotive suppliers in every main module except for electrical systems/electronics.[1]

1 incl. service providers
Source: Mercer Value Creation Model 2015

Value Creation Levels (1)

The low percentage of OEMs in module fabrication and assembly will continue to decline.



In the future, the in-house competence of OEMs will reside primarily in vehicle assembly and selectively in development.

Source: Mercer Value Creation Model 2015

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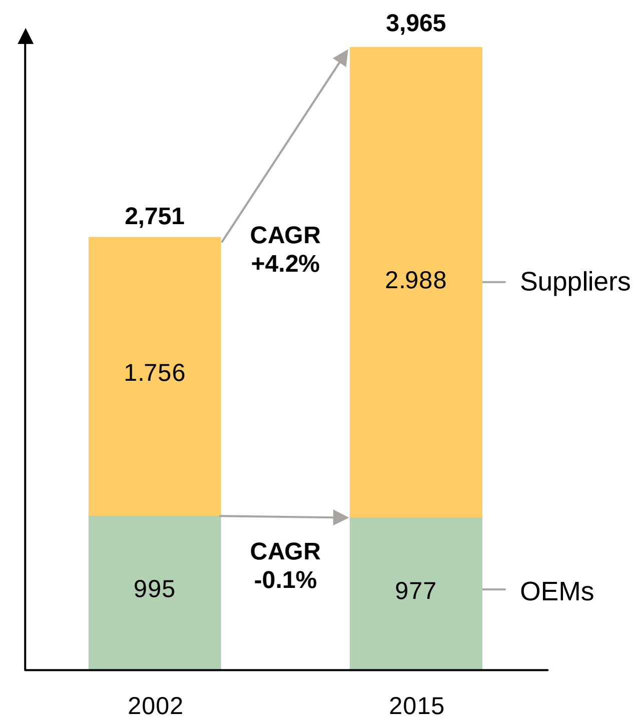
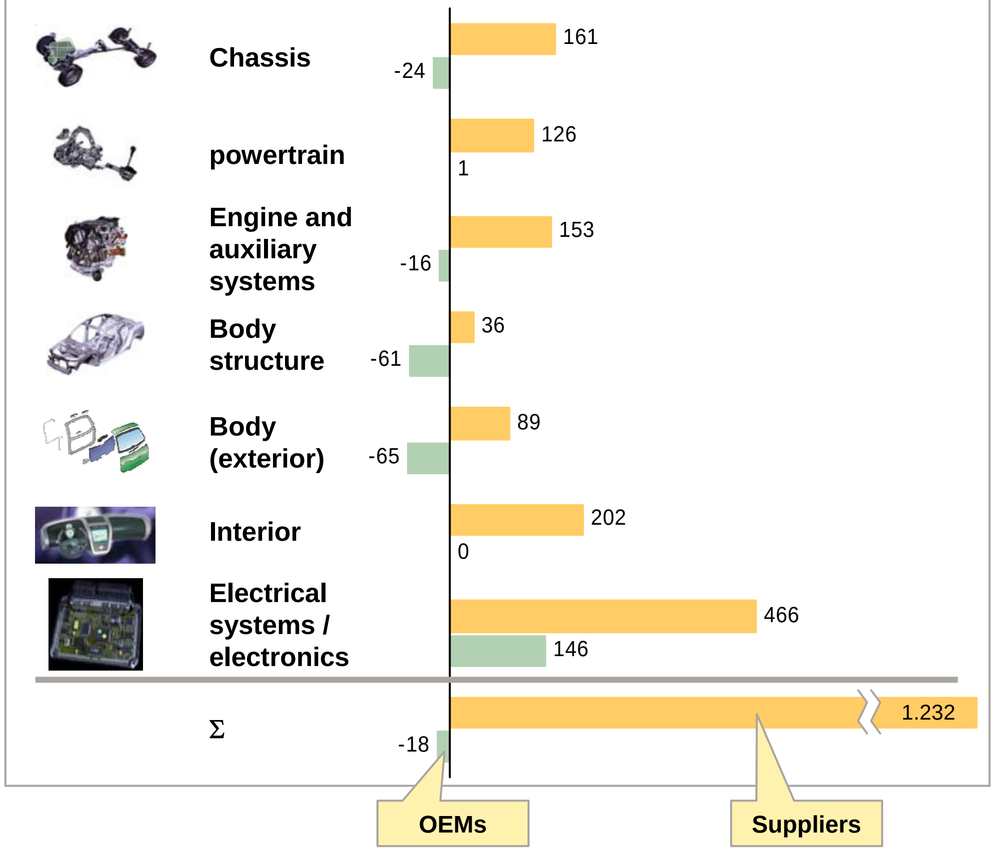
Impact on Employment in Europe: OEMs

Cutbacks in staff capacities and competencies at OEMs in “traditional” plants will amount to some 170,000 jobs. This figure will be offset by a gain of almost 150,000 jobs in electrical systems/electronics at the OEMs (Europe).

Impact on employment in Europe ...
(in thousands of jobs)



... and changes between 2002 and 2015 in Europe, broken down by main modules (industry segments)[1]
(in thousands of jobs)



1 Assuming equal productivity across the seven main modules
Source: Mercer analysis

Additional Seven Changes for Suppliers (incl. Service Providers)

As with the OEMs, some suppliers will see drastic changes in their value creation structures in automobile development and production.

9 Total Supplier Share

- Supplier share will increase from 65% (2002) to 77% (2015)
- Additional EUR ~280 in value creation will be built up

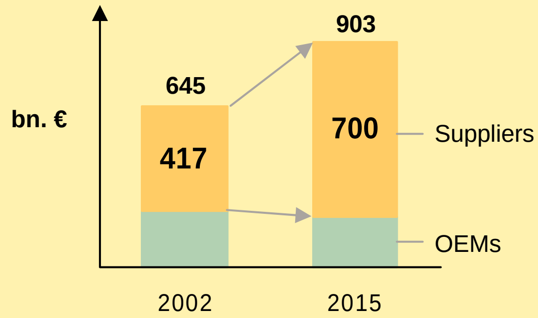
10 Main Modules (1)

- Growth in all main modules
- Sharp growth in electrical systems and electronics (EUR +157 bn.)

11 Main Modules (2)

- Besides electrical system and electronics, the main modules with high growth performance for suppliers will mainly be body structure and powertrain.

Automobile Development and Production



12 Value Creation Levels

- Module fabrication and assembly will grow by about 65%
- Peak growth rate (p.a.) in external vehicle assembly

13 Regions

- All regions will be growth regions for suppliers
- Main growth potential (in absolute terms) for suppliers will be found in Europe and North America

14 Investment / Employment

- Suppliers' annual need for investment will grow by 70%
- 60-percent rise in number of employees ("employment engine")

15 Consolidation

- The consolidation process will continue
- The number of suppliers will be reduced by half (2015: aprox. 2,800 suppliers worldwide)

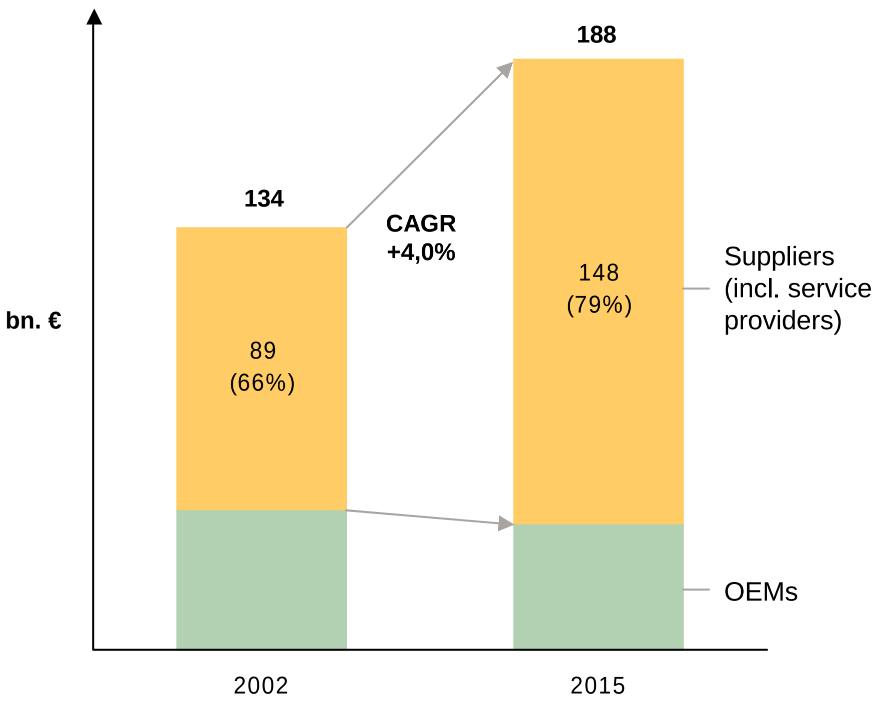
Source: Mercer / FhG "FAST 2015" study

14 Need for Investment: Suppliers

The automotive industry will become an “investment engine.” Suppliers in particular will face a „Herculean challenge.“

Total Annual Investment

(worldwide, bn. €)



Remarks

- The investment ratio of suppliers will climb from 4.7% (2002) to 5.6% (2015).
- The main driver will be the sharp increase in value creation due to
  - growth in production quantities and
  - outsourcing of OEMs.
- The total investment volume of suppliers will virtually double. This will require new forms of financing and a sharp increase in profitability among suppliers in order to strengthen the cash flow.

1 Gross investment ratio relative to core value creation areas, excluding direct partial ownership in automotive suppliers

Source: Mercer analysis

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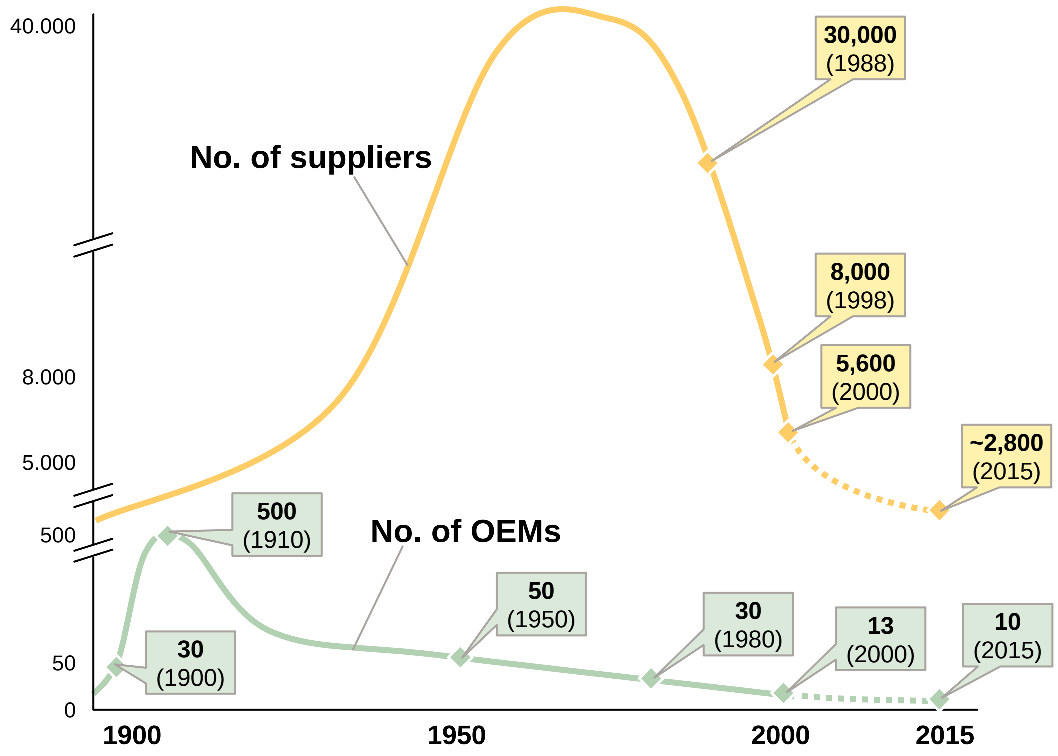
Consolidation in the Supplier Sector

Structural change will lead to a sustained process of consolidation in the supplier sector. The number of suppliers is expected to be halved.

Number of Companies in the Automotive Industry



Remarks

- Balanced market relations can be expected (megasuppliers)
- The apportionment of services and the demands of OEMs will change, with overall packages and modules going to suppliers
- A new "quality" will be demanded from suppliers:
  - Expanded range of products and services
  - New areas of competence
  - Additional resources
  - Inter-regional business relations
- Suppliers too need consistent value creation strategies

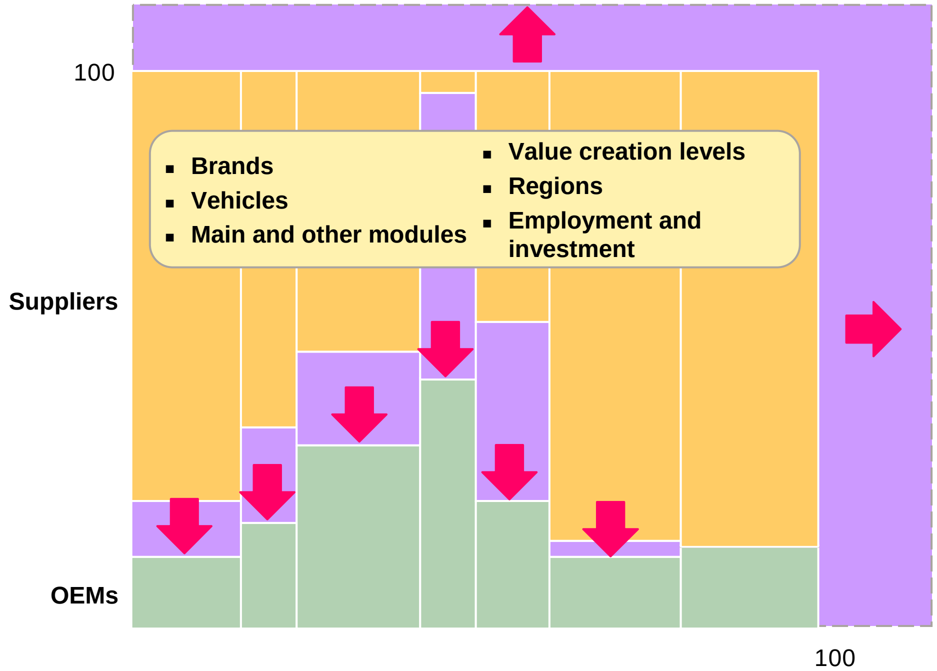
Brand-driven value creation shifts in the OEMs will "structure" the process of consolidation in the supplier sector. Suppliers will have to develop innovative business designs!

Source: Automobilproduktion, University of London, Mercer analysis

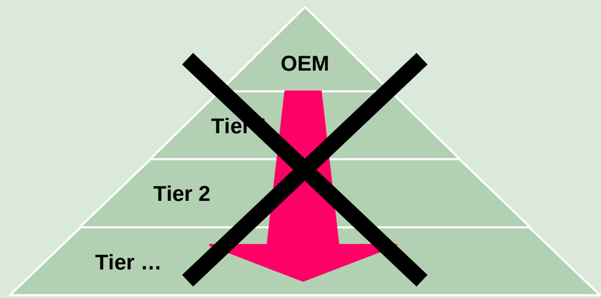
Cooperation in the Automotive Industry

The changes in the value creation system will require radically different forms of cooperation and a new understanding of the roles of OEMs and suppliers.

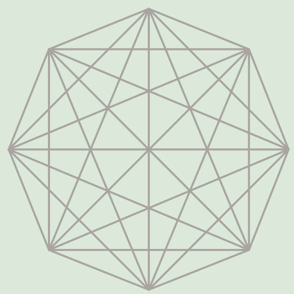
Changes in the Value Creation System



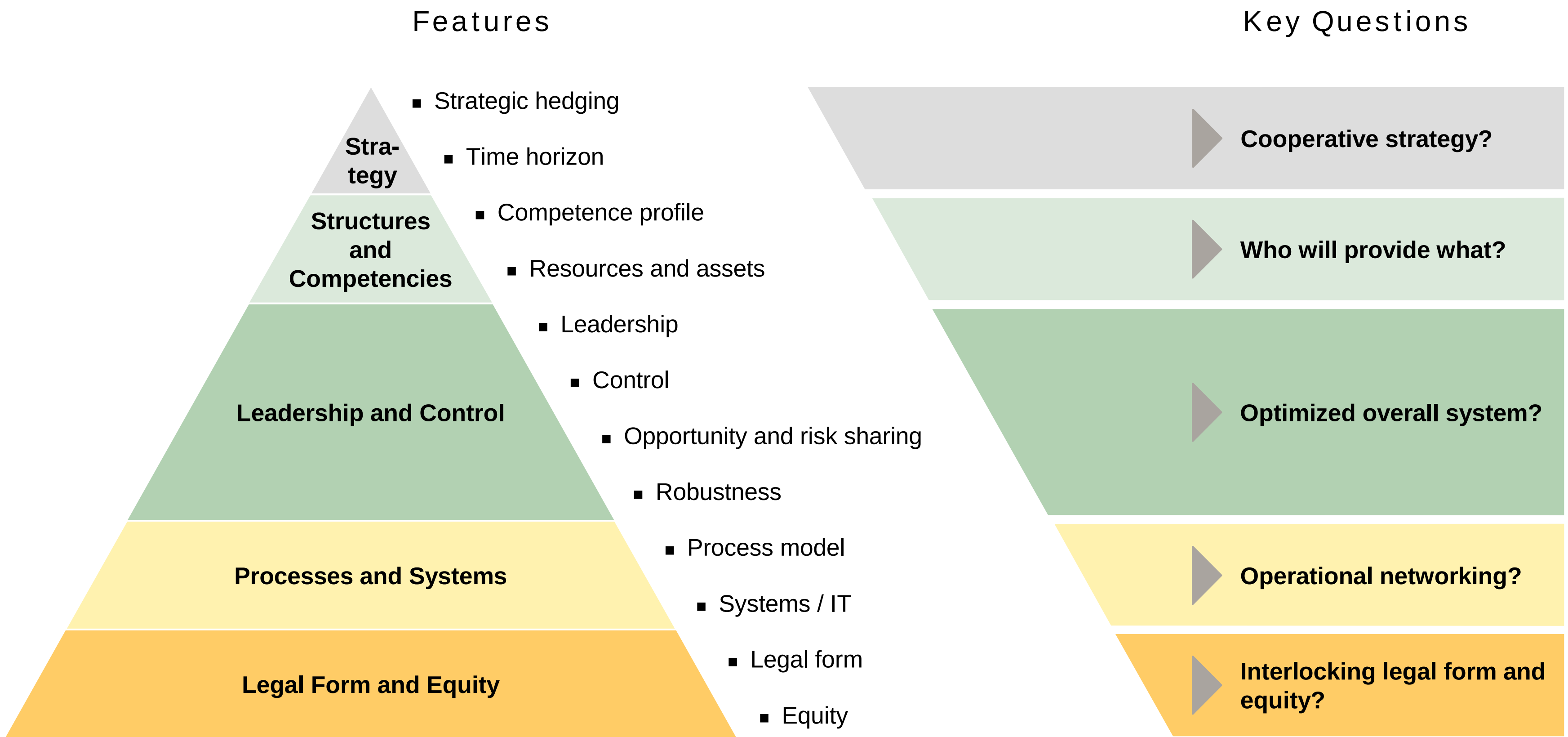
Cooperation Today: Hierarchy



Cooperation Tomorrow: Network



“New Quality” of Cooperation
The new quality of cooperation can be discussed on the basis of various features.



Different forms of these features will mark the quality of the cooperative venture, producing a greater or lesser degree of networking among the players involved.

2 Examples of European Research activities

A new quality of collaboration between the market players in Europe can be recognized regarding the Research activities of the OEM´s and suppliers.

The 5DayCar Initiative is a common activity of the European Automotive Industry, mainly driven by the European supplier association CLEPA.

The overall target is to strengthen the Industry by future oriented R&D activities.

ILIPT: Intelligent Logistics for Innovative Product Technologies

ADAPT-EC: Advanced Design of Adaptive Processes and Product Technologies for European Car Industry

Integrated Project for Global Distribution

Integrated Project for developing SME´s to high tech suppliers

EU 5 Day Car Initiative

ILIPT - Intelligent Logistics for Innovative Product Technologies

founded by the European commission

duration: 7/2004 – 6/2008

budget: 16.8 Mio. Euro

Coordination: Thyssen Krupp Automotive

ILIPT - Vision and Mission

The IP “ILIPT” is a significant and essential element of the radical automotive supply chain concept: “The EU 5-Day Car Initiative”.

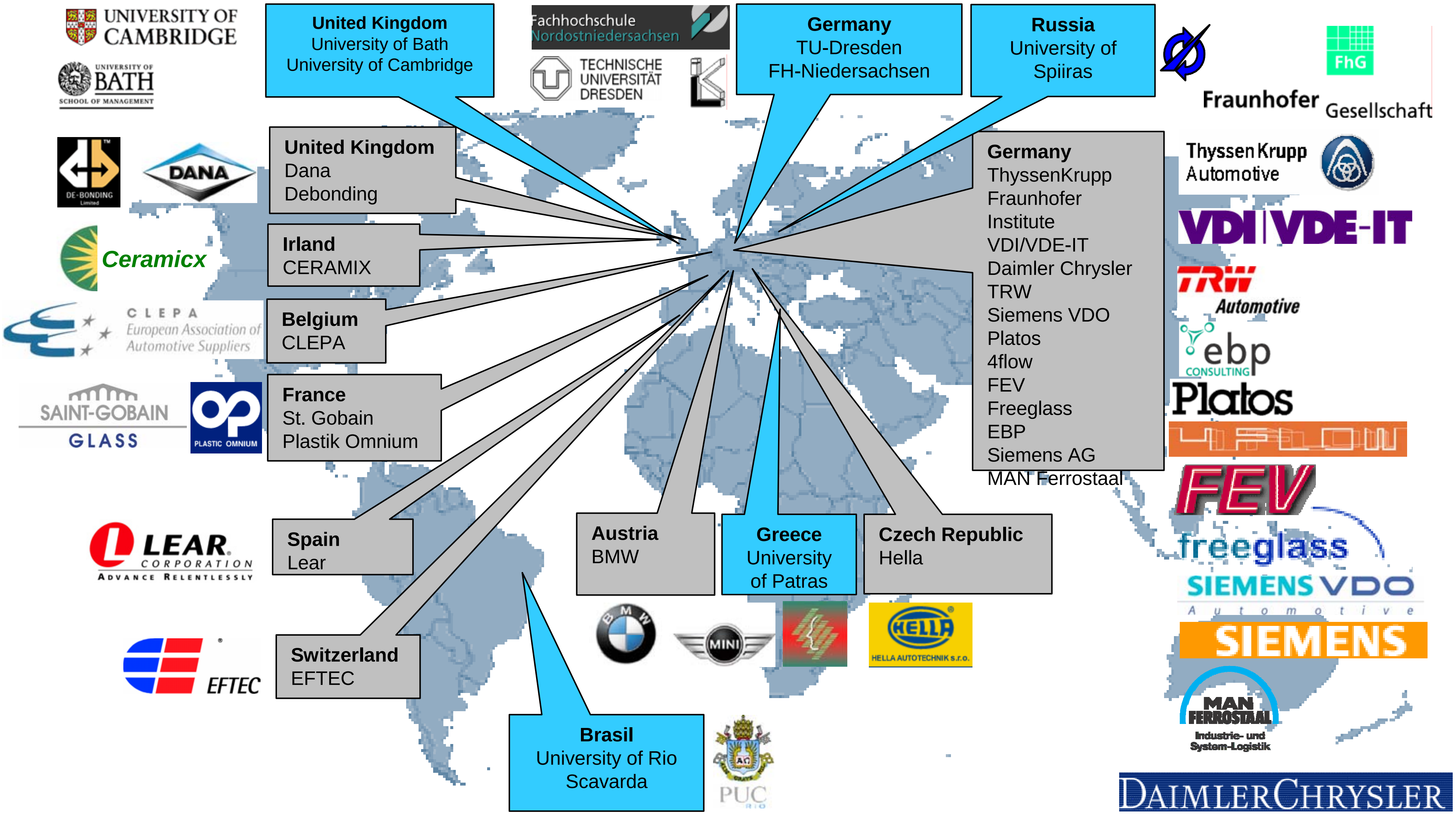
A stockless vehicle supply system to deliver a customer ordered vehicle in 5 days. This will lead to the renewal of the entire industry and a quantum jump in competitiveness.

ILIPT is based on a radical new concept including a tremendous level of modularity, the joining methods and novel integration approaches.

ILIPT aims at a groundbreaking renewal of current thinking from the traditional concept of supply chains, toward high-added value networks.

ILIPT challenges the current mindset of build-to-stock, restricted information sharing, optimised islands, and current emphasis on high volume not high value production.

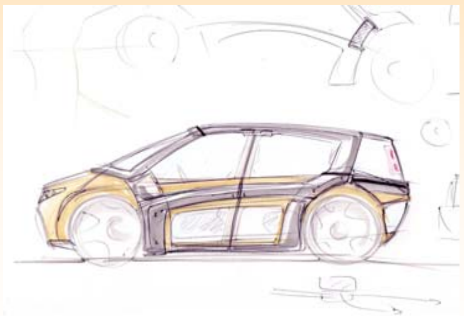
ILIPT Konsortium



8 technology- projects, assigned to the 3 complementary themes:

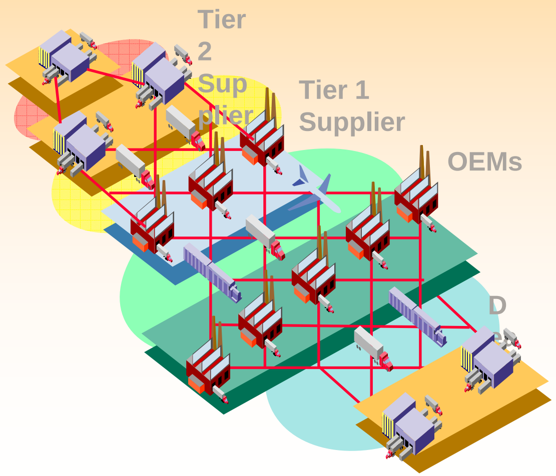
Theme I: The Modular Car

- Technical & Method Integrator
- Exteriors & Structures
- Interior & Electronics



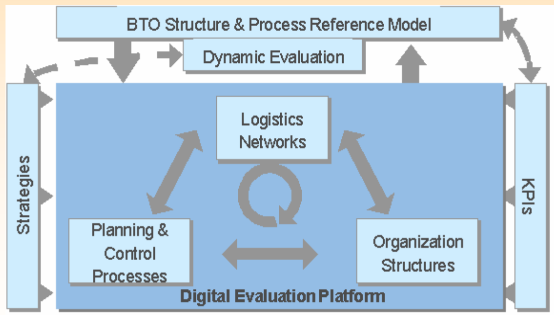
Theme II: Flexible Supply Network

- Collaborative Planning
- Collaborative Execution
- Interoperability



Theme III: Integration of complex Product Processes

- Design of Production and Logistics Networks for innovative Products
- Digital Evaluation



Build-to-Order current state 1999: Facts and Figures

- **Anteil Auftragsfertigung**
  - Europa: **48%** Volume, **71%** Spezialist, 50% Gesamt, **5%** USA
  - Deutschland: **58%** in 1994, **62%** in 1999
- **Lieferzeiten für Auftragsfertigung (Europa)**
  - **60 Tage** in 1994, **48 Tage** in 1999
- **Kundentoleranz >30 Tage Lieferzeit**
  - Deutschland: **71%** in 1994, **52%** in 1999
- **Liefer(un)treue der Hersteller (Europa)**
  - **21%** verspätet in 1994, **19%** in 1999
- **Fertigfahrzeugbestand im Markt:**
  - Europa **58 Tage**; USA **78 Tage**
- **Potential in Europa durch build-to-order Fertigung:**
  - **11,4 Mrd. Euro einmalig, 4 Mrd. Euro jährlich**
- **Kompromissbereitschaft der Kunden**
  - **22%** kaufen Lagerfahrzeug mit abweichender Ausstattung.
  - **46%** davon erhalten Preisnachlässe von über **1000 USD.**
- **Lagerkosten (in den USA produziertes Fahrzeug)**
  - **1200 USD** pro Fahrzeug
- **Kapitalbindungskosten weltweit**
  - bis zu **300 Mrd. Euro**

- **Renault**: Project Nouvelle Distribution **(14 Tage)**
- **DaimlerChrysler**: Global Ordering / FastCar **(10 Tage)**
- **BMW**: KOVP **(10 Tage)**
- **Ford**: Order Fulfilment **(15 Tage)**
- **Volvo**: Distribution 90 **(anfangs 28, jetzt 8 bis 14 Tage)**
- **Volkswagen**: Kunde – Kunde **(14 Tage)**
- **Nissan**: SCOPE **(14 Tage)**
- **Porsche**: Integriertes Auftragskonzept

Quelle: ICDP 1992-2001, IPA Studien

EU 5 Day Car Initiative

ADAPT-EC – Advanced Design of Adaptive Processes and Product Technologies for the European Car Industry

proposed to the European commission

duration: 48 Month

budget: 22 Mio. Euro

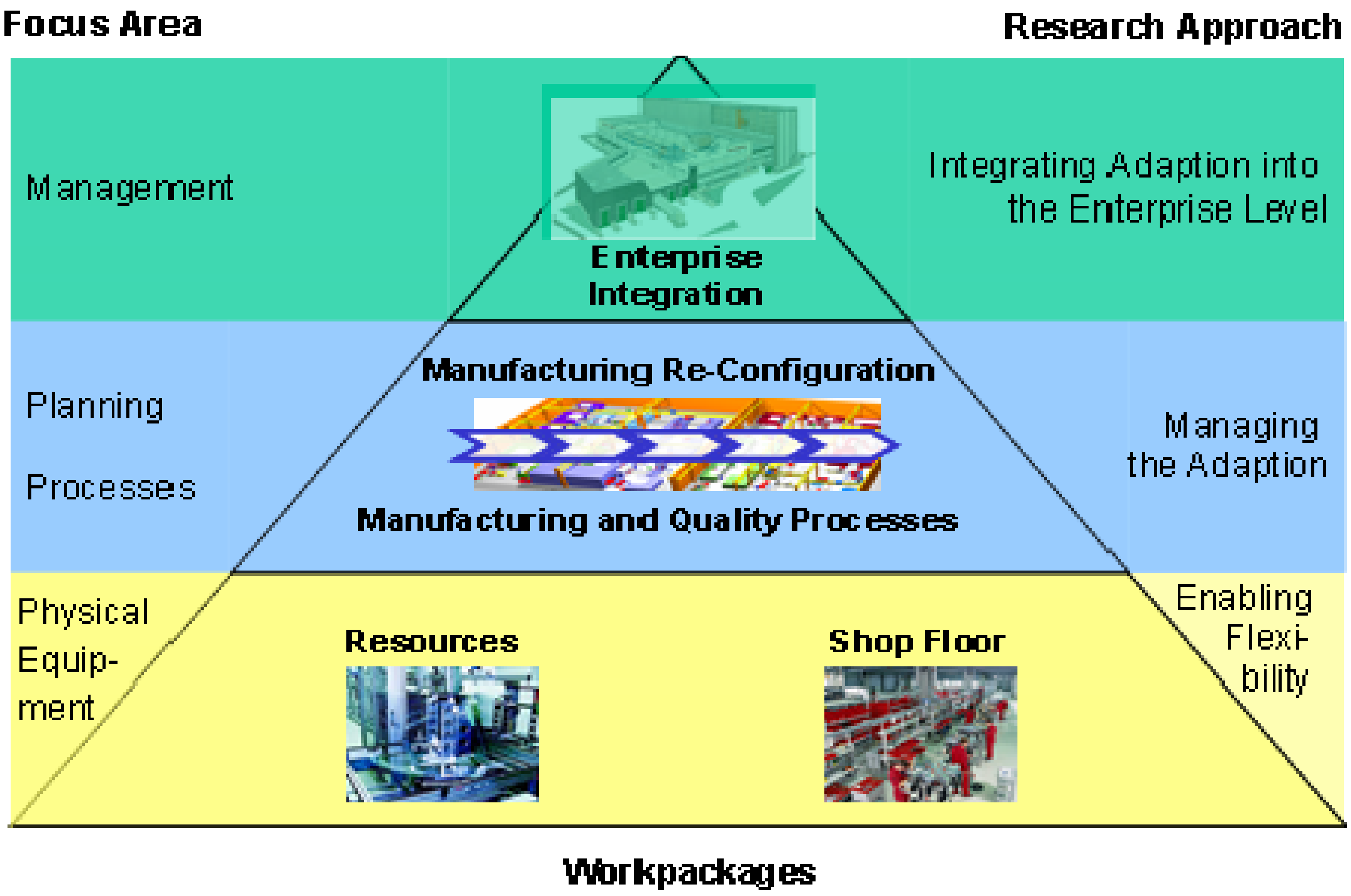
Coordination: CLEPA / Fraunhofer

In Addition to the Optimisation of the inter-enterprise logistics it is necessary to improve the manufacturing area dramatically. The target therefore is a quantum jump in flexibility and adaptivity of production and assembly.

New integrated project:
ADAPT-EC - Advanced Design of Adaptive Processes and Product Technologies for European Car industry

...to develop a highly cost effective, adaptive and flexible 5-DayCar enterprise, inspired by new modular product technologies **for highly customised cars**, linked **in the multi stakeholder environment of new high performance automotive networks**, and capable to high speed reactions in different time horizons and enterprise levels.

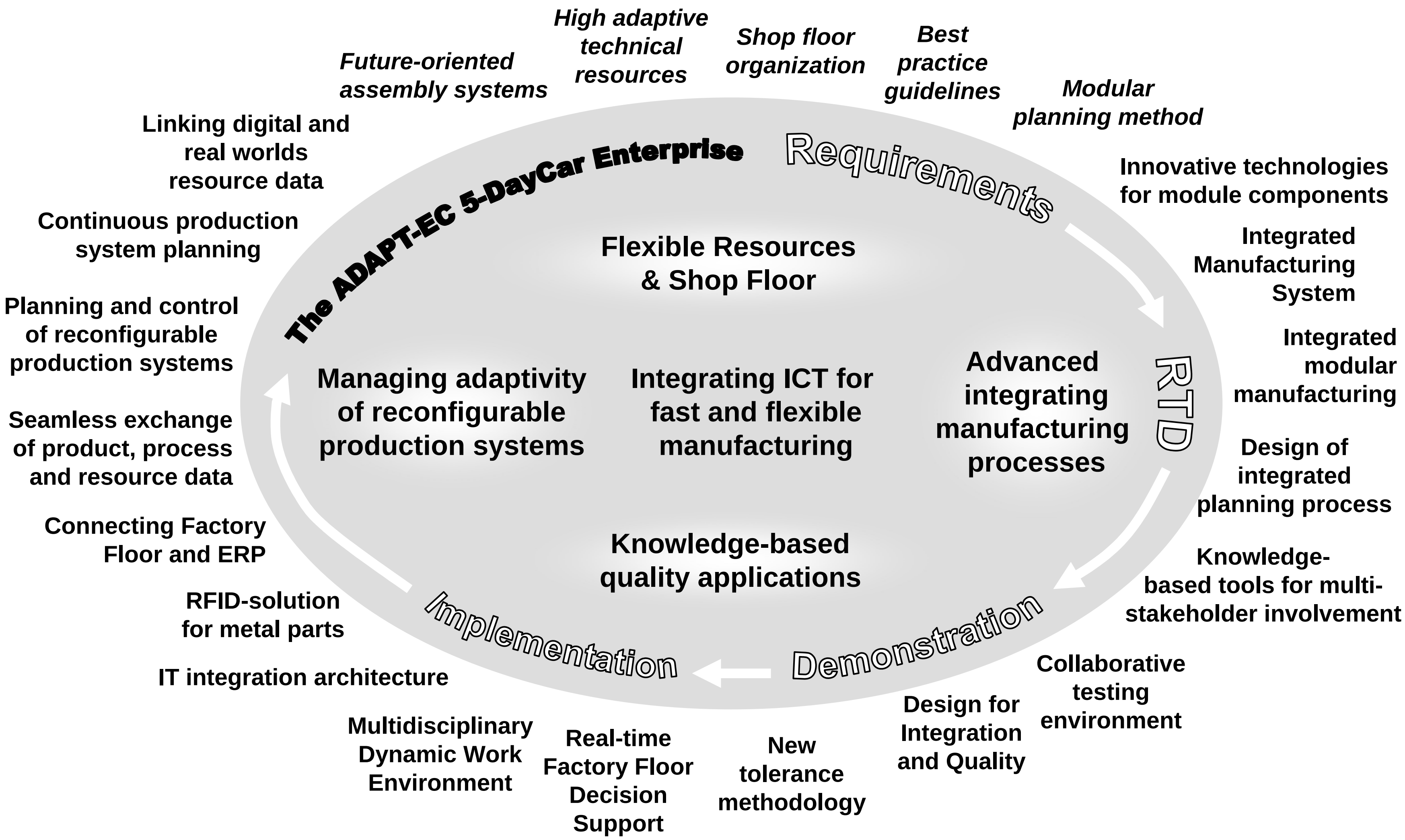
ADAPT-EC: Approach of the IP



ADAPT-EC: Consortium

32 Partners from 16 European countries

The ADAPT-EC factory of the future



Thank you for listening

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Recent Developments in the Automotive Supplier Industry in Japan and the EU
日本とEUにおける自動車サプライヤー産業の発展