FAST 2030 - SUMMARY
FUTURE AUTOMOTIVE INDUSTRY STRUCTURE UNTIL 2030
THE IMPACT OF CURRENT TRENDS ON VALUE CREATION
AND THEIR IMPLICATIONS FOR THE AUTO INDUSTRY

MAY 2018
Study outline

Outline

• The automotive industry remains on track for success – also in recent years. After the crisis years 2008–10, both OEMs and suppliers have experienced a prosperous phase

• However, this might turn out to be a short-lived chapter in light of the “Mighty Seven Industry Trends” – a perfect storm of transformative technologies and changing customer behavior – which challenge the core business pillars the industry is built on

• As a consequence, the shape of automotive value creation is expected to simultaneously shift in three dimensions until 2030 – horizontally between vehicle systems, vertically between industry players, and regionally

• Nine new business models are emerging and auto suppliers have to not only foster holistic performance improvement, but also re-define their role and operating model in order to retain competitiveness

Value creation model

• Scenario-based impact quantification of different trends (e.g. autonomous vehicles, powertrain electrification) on automotive value creation until 2030; scenarios defined on individual trend levels (e.g. “breakthrough” vs. “stay as-is”)

• The model’s unique feature is the granular assessment of value shifts by region, vehicle system, player archetype, vehicle segment, and value creation type (production vs. R&D) – hence, simultaneous disclosure of multidimensional shifts

• As a result, the model comprises more than 30 variables and >800,000 output data fields per future scenario

Sources

• More than 100 expert interviews with global top managers in the automotive industry as well as further external industry specialists

• Triangulation of a vast set of market publications, industry reports, and other external sources to gather additional both quantitative and qualitative insights on current and future developments

• Insights from Oliver Wyman’s global internal expert network, knowledge repository and recent intellectual proprietary on industry dynamics and transformative trends (amongst others, “E-Mobility 2035 study”, “Mobility 2040 study”, “HMI point of view”)

Limitations

• Forecast horizon 2030 – some directional views on the time beyond

• Consolidation of suppliers tiers on one level (“automotive suppliers”)

• No separate display of value creation from pure software development

• No consideration of value shifts aside vehicle production (e.g. aftermarket business and mobility services)

• Vehicle types aggregated into premium, volume & small vehicle segments incl. pickup trucks and commercial vans
## Authors

<table>
<thead>
<tr>
<th>Automotive Practice</th>
<th>Detroit</th>
<th>Automotive Practice</th>
<th>Munich</th>
<th>Automotive Practice</th>
<th>Munich</th>
<th>Automotive Practice</th>
<th>Berlin</th>
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</thead>
<tbody>
<tr>
<td>Over 25 year of consulting and auto industry experience</td>
<td>Over 10 years consulting in the automotive industry</td>
<td>Five years of consulting and auto industry experience</td>
<td>10 years of consulting and auto industry experience</td>
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<tr>
<td>Co-Lead: Global Supplier</td>
<td>Oliver Wyman Global Supplier Team</td>
<td>Focus on strategic business transformation, (digital) business model development, and mobility services</td>
<td>Focus on growth and portfolio strategies, mergers and acquisitions and new (digital) business models</td>
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<tr>
<td>Focus on enterprise-wide improvements/restructuring and corporate, product and technology strategies</td>
<td>Focus on strategy development, operations improvement and transformations</td>
<td>Extensive international work with focus on all of Europe</td>
<td>Expert in disruptive automotive industry trends</td>
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<tr>
<td>Extensive international work in the US, Mexico, EU, Japan, and Korea</td>
<td>Author of various Oliver Wyman studies e.g.: Digital Industry/Industry 4.0, E-Mobility 2035, Management of Obsolescence</td>
<td>Extensive international work experience in Germany, India, North and South America</td>
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- Digital Industry/Industry 4.0
- E-Mobility 2035
- Management of Obsolescence
- FAST 2025
- Value and Cost Migration
Content

1. **Status**: Current status of the automotive industry
2. **Trends**: Current and emerging trends changing the automotive industry
3. **Value**: Automotive value creation development until 2030
4. **Impact**: Areas of impact and strategic business model options for automotive suppliers
STATUS: Current status of the automotive industry
Current status of the automotive industry – Overview

Overall, the automotive industry remains strong and continues to grow; suppliers are well positioned, but the road ahead is challenging.

1. Strong global growth of the automotive industry
   - Light vehicle production has grown to ~95 mn vehicles in 2017
   - CAGR (2010-2017): +3%

2. Regional value shifts in key markets
   - Emerging markets have been the key growth drivers with China leading at...
   - CAGR (2005-2017): +15%

3. Pressure both from need for increased customer value and on prices
   - Concurrently, products have become more complex at unchanged price levels
   - # PATENTS (2008-2016): x1.6

4. Healthy profit margins for suppliers
   - Despite the tension, suppliers have shown sound financial performance
   - EBIT MARGIN (average, 2015): 7%

5. ...but increasing challenges for suppliers emerge
   - Disconnect between growth, new tech, and organizational readiness manifests in multiple issues such as quality
   - RECALL QUOTA: x3, x7

Source: Oliver Wyman analysis
TRENDS: Current and emerging trends changing the automotive industry
The Mighty Seven – Automotive industry trends until 2030
Seven fundamental trends drive the automotive industry until 2030, enabled and accelerated by Digitalization, AI and Machine Learning

- **CONNECTED VEHICLE**
  Additional safety and (services) revenues through increasing connectedness

- **AUTONOMOUS VEHICLES**
  Progression of today’s partially automated driving into fully driver-less vehicles

- **E-MOBILITY**
  Increasing electrification of powertrains, resulting in decreasing penetration of ICEs

- **HUMAN-MACHINE-INTERFACE**
  New and digitized control concepts for driver/car interaction

- **CHANGING CUSTOMER STRUCTURE**
  Partial replacement of individual vehicle buyers by large fleet or group buying driven by mobility-on-demand services

- **NEW DISTRIBUTION CHANNEL PAY-PER-USE**
  Provision of selected vehicle features as pay-per-use for certain target groups of vehicle owners

- **DIGITAL INDUSTRY**
  Increasing digitization of processes through predictive and adaptive data capability

Source: Oliver Wyman analysis
**Changing customer structure**

**TREND**

- Increasing shift from vehicle ownership to usership (“mobility on demand”)
- New mobility fleet operators enter the market and increasingly replace individual vehicle buyers

**DRIVERS**

- Urbanization
- Customer preferences
- Demographic change

**TREND REALIZATION**

Mobility spend for passenger transport 2015 vs. 2040 by mode; total vs. 2015

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2040</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td></td>
<td></td>
<td>+95%</td>
</tr>
<tr>
<td>USA</td>
<td></td>
<td></td>
<td>+114%</td>
</tr>
<tr>
<td>China</td>
<td></td>
<td></td>
<td>+358%</td>
</tr>
</tbody>
</table>

**IMPACT ON VALUE CREATION**

Value creation per vehicle module (2017)

**Key potential impact on:**

- Overall vehicle design to be more robust/low-maintenance, and less safe (for AD vehicles only)
- Vehicle interior to be more functional to meet customer usage patterns (e.g. robust materials, self-cleaning systems)

Source: Oliver Wyman study "Mobility 2040", Oliver Wyman analysis
Changing customer structure – Automotive value chain under attack

With particular vehicle usage patterns and increasing market power, fleet and group-buying customers could change today’s picture of value creation.

### Vehicle utilization/bargaining power per customer type

**Illustrative**

<table>
<thead>
<tr>
<th>Assumed market power</th>
<th>HIGH</th>
<th>MEDIUM</th>
<th>LOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP CUSTOMER (TODAY)</td>
<td>NEW FLEET CUSTOMER (TOMORROW)</td>
<td>FLEET CUSTOMER (TODAY)</td>
<td>INDIVID. BUYER</td>
</tr>
<tr>
<td>e.g. companies</td>
<td>e.g. multi-city car sharing operators</td>
<td>With increasing fleet size</td>
<td></td>
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</tbody>
</table>

### VEHICLE USAGE PATTERN

<table>
<thead>
<tr>
<th>Mobility Fleets</th>
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<tbody>
<tr>
<td>• Changing vehicle users (&gt;100 p.a./veh.)</td>
</tr>
<tr>
<td>• High vehicle utilization</td>
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### USE OF MARKET POWER TO...

<table>
<thead>
<tr>
<th>IMPLICATION ON VALUE CREATION</th>
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<tbody>
<tr>
<td>• Negotiate price discounts/favorable master agreement conditions</td>
</tr>
<tr>
<td>• Demand individual vehicle options</td>
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</tbody>
</table>

### IMPLICATION ON VALUE CREATION

- **Decrease in margins and price pressure**
- **Develop/produce new components in addition to existing portfolio**

- **Very limited decrease in margins (if any)**

- **High potential impact**
- **Medium potential impact**
- **No or very limited potential impact**

Source: Oliver Wyman analysis
New distribution channel pay-per-use

**TREND**

- Customers ask for individualized, selective, on-demand mobility and service solutions, captured by pay-per-use business models.
- These business opportunities occur in a variety of vehicle modules, opening up new revenue generation models.

**Drivers**

- Customer preferences
- Technology

**TREND REALIZATION**

**2017**

- Pay-per-use functions/services are technically feasible and envisioned.

**2030**

- Pay-per-use will be implemented in specific, best suitable (sub-)modules.

**2060**

- Pay-per-use functions/services become more the rule than exception.

**IMPACT ON VALUE CREATION**

Value creation per vehicle module (2017)

Key potential impact on:

- **Interior functions**, e.g. massage, park assistant and 3D sound
- **Performance features**, e.g. add. HP/kW and battery range extension
- **Exterior functions**, e.g. infrared/laser light, rain sensor

Source: Oliver Wyman analysis
New distribution channel pay-per-use
The interplay of increasing pay-per-use penetration and thus, component requirements, will significantly affect suppliers’ cash flows

Potential development of pay-per-use and value creation impact
Exemplary cost and revenues for one pay-per-use feature

- By incorporating components that allow pay-per-use features, total cost per vehicle would increase, while no revenues are generated at vehicle sale unless negotiated as higher fixed prices to the OEM upfront.
- With increasing penetration in new vehicles sales, cost per component could decrease through economies of scale/standardization/lower variability.
- However, revenues and finally profits from pay-per-use are highly dependent on customer acceptance, the consequent adoption rate and OEMs willingness to pass-through pay-per-use revenues.
- Additionally, cash flows would differ significantly compared to today as revenues are generated only when customers are using features.

Comments
**Digital industry**

**TREND**
- Digitization of processes through predictive and adaptive data capability:
- **Digitization and optimization** of core processes to support target customer experience
- Build up of superior data analytics, machine learning and “big data” competencies to deliver one holistic customer-centric experience

**TREND REALIZATION**

Development of the industrial era

<table>
<thead>
<tr>
<th>Year</th>
<th>Trend</th>
<th>Description</th>
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<tbody>
<tr>
<td>1800</td>
<td>1.0</td>
<td>Usage of water- and steam-power for mechanical manufacturing</td>
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<tr>
<td>1900</td>
<td>2.0</td>
<td>Electrically-powered mass production based on the division of labor</td>
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<tr>
<td>2000</td>
<td>3.0</td>
<td>Leverage of electronics and IT to achieve further automation of manufacturing</td>
</tr>
<tr>
<td>2100</td>
<td>4.0</td>
<td>Cyber-Physical Systems to integrate production systems as well as product and production process</td>
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**IMPACT ON VALUE CREATION**

“Digital industry” potential in 2030

Margin impact

- Idea-to-produce
- Sales-to-delivery
- Operations and services

**Average impact** relative to industry revenue in 2030: 5%

1. Gross effect not including downside, basic production efficiency and pricing effects as well as specific business case considerations (i.e. investments); Value spaces were estimated based on industry-specific cost structures and were applied on approximated global value creation in 2030 (GDP growth assumed); Source: Oliver Wyman “Digital Industry” study
Digital industry
Driven by changing customer preferences and new technical solutions, the “Digital Industry” is gaining ground

Changing customer preferences
- Product individualization
- Permanent connectivity
- Personalization through Big Data
- Product as a service
- Hassle-free solutions
- Willingness to share data

Digital automotive industry
- Idea-to-produce
- Sales-to-delivery
- Operations and services

Technical enablers
- Data availability
- Declining technology costs
- Mechanical development progress
- Accelerating innovation cycles
- New production techniques
- Changing R&D patterns

Source: Oliver Wyman analysis

© Oliver Wyman
E-Mobility – Overview

**TREND**

- **Electrified vehicles** are emerging as alternative powertrains to the internal combustion engine

**DRIVERS**

**IMPACT ON VALUE CREATION**

Value creation per vehicle module (2017)

**TREND REALIZATION SCENARIOS**

Ramp-up new EV sales 2015–2030 (%)

- Strong legislation (full ICE ban)
  - Urban legislation (bans) and incentives
  - Focus on incentives for urban areas
- No further legislation or incentives

Main impact on:

- **Complete powertrain**, replacing combustion engine with fuel tank and exhaust system by battery with electric infrastructure
- **Electrics/electronics systems** related to E-Mobility (e.g. BMS and battery wiring)

Source: Oliver Wyman analysis
Global ramp-up scenario for alternative powertrain technologies
Production volume in million units (% share of total)

- **Strong ramp-up** of e-mobility already between 2020 and 2025
- Tightening emission regulation will result in >60% of all vehicles sold being electrified to some extent to meet given targets by 2030
- **PHEV** will overall only play a minor role due to above-average cost of technology
- Electrification will differ essentially by region by 2030:
  - **China**: due to regulation, one out of three cars sold will be fully electric
  - **Africa/South America**: no prevailing of EVs by 2030
  - **W. Europe**: 25% BEV share
  - **Japan/N. America**: relatively high share of hybrids (~60%)

Comment

- **ICE** = Internal Combustion Engine; **HEV** = Hybrid Electric Vehicle; **PHEV** = Plug-in Hybrid Electric Vehicle; **REEV** = Range-Extended Electric Vehicle; **BEV** = Battery Electric Vehicle; **FCEV** = Fuel-Cell Electric Vehicle; Source: Oliver Wyman analysis
Autonomous vehicles – Overview

**TREND**

- **Advanced driver assistance systems** are already reality and allow the owner to hand over “driving” to the vehicle in certain situations.
- Partially automated (L2) driving will progress into fully automated (L5) in the long run.

**TREND REALIZATION**

New autonomous vehicle sales (# LV)¹

Base case: Automation Level 2/Level 4
Best case: Automation Level 2/Level 4
Worst case: Automation Level 2/Level 4

**IMPACT ON VALUE CREATION**

Value creation per vehicle module (2017)

Main impact on electric/electronics systems:

- **Sensors** (incl. camera, radar etc.)
- **Information and communication** (maps/V2X communication)
- **Actuation**
- **Control unit** (“Intelligence”)

1. Level 2 = Partial automation, where drivers still have to monitor the system at all times but systems takes over control in specific use cases; Level 4 = High automation, i.e. driver is not required during defined use case; Source: a16z, NHTSA, SAE, Oliver Wyman analysis
Autonomous vehicles – The evolution has already begun
Autonomous driving is still in early stages but is expected to reach full automation levels between 2025 and 2030

Level 0
Driver Only

Level 1
Assisted

Level 2
Partial Automation

Level 3
Conditional Automation

Level 4
High Automation

Level 5
Full Automation

Source: NHTSA, SAE, Oliver Wyman analysis
Human-Machine-Interface (HMI)

**TREND**

- Technological advancements and consumer pull for convenience and comfort will further drive the shift from analog to more intuitive and augmented HMI technology.

**Drivers**

- Customer expectation
- Digitalization

**TREND REALIZATION**

**Automotive HMI market, 2017 vs. 2030 (in € BN)**

- 2017: 20.7
- 2030: 35.8
- +4% CAGR

**IMPACT ON VALUE CREATION**

Value creation per vehicle module (2017)

- 0%
- 20%
- 40%
- 60%
- 80%
- 100%

**Proximity/gesture/voice recognition**

- Fast growing, but smallest HMI market
- Fast growing segment, becoming the fourth largest HMI market by 2030
- Moderately growing, becoming the largest HMI market by 2030 (joint pole position with instrument cluster category)

- +19% CAGR
- +15% CAGR
- +5% CAGR

**Main impact on cockpit through ongoing digitalization:**

- (Central stack) displays
- Multifunctional controls
- Digital instrument cluster
- HUDs
- …

Source: Oliver Wyman analysis
# HMI – Increasing demand for comfort and connectedness

Currently emerging technologies are expected to reach > 50% penetration already before 2030; ongoing digitalization of controls and instruments

## Penetration rate of HMI technologies
In % of total vehicles, 2017–2030

<table>
<thead>
<tr>
<th>Technology</th>
<th>2017 Penetration (%)</th>
<th>2030 Penetration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center stack hardkeys &amp; buttons</td>
<td></td>
<td></td>
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<tr>
<td>MuFu controller</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Touchpads</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital IC</td>
<td></td>
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<tr>
<td>Digital/analog IC</td>
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<tr>
<td>Analog IC</td>
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<tr>
<td>Non-touch CSD</td>
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<tr>
<td>Touch CSD</td>
<td></td>
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<tr>
<td>Steering wheel controls</td>
<td></td>
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<tr>
<td>Windscreen HUD</td>
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<tr>
<td>Combiner HUD</td>
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<tr>
<td>Augmented reality</td>
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<tr>
<td>Speech recognition</td>
<td></td>
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<tr>
<td>Proximity/gesture recognition</td>
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### Comments
- The future cockpit will deliver an increasingly intuitive, innovative and personalized user experiences.
- This next-generation HMI is expected to prevail until 2030, smartly combining voice control, touchscreens and conventional controls depending on application and passengers.
- Development will be fueled by ongoing vehicle automation, and – predominantly – the achievement of critical mass together with increasing functions/components integration.

Note: MuFu = Multi-Function, CSD = Center stack display, IC = Instrument cluster, HUD = Head-up display.
Source: Oliver Wyman HMI Point of view
Connected vehicle

**TREND**

- **Urbanization and the demographic change** put “digital natives” in the driver seat.
- Consumer expectations shift, making **individualization** and convenient device/service **integration** key.
- Further, continuous **smart device and mobility** availability is fueled by the rate of change of converging industries.

**TREND REALIZATION**

Penetration rates of embedded connectivity units in LV production

- 2017: 61%
- 2030: ~80%

**IMPACT ON VALUE CREATION**

Value creation per vehicle module (2017)

Main impact by creating add-on connected services, such as:

- Telematics-enabled **insurance services**
- **Fleet management** services
- **Safety and remote** services

Source: Oliver Wyman analysis
Connected vehicle – Battlefield for revenues and customer access

Consequently, many players of the connected car ecosystem are getting into position with a focus on entering and monetizing (data based) services.

Exemplary companies

<table>
<thead>
<tr>
<th>Automotive OEMs</th>
<th>Suppliers</th>
<th>Mobile device players</th>
<th>(Operation) software players</th>
<th>Network operators</th>
<th>Web service companies</th>
<th>Independent aftermarket players</th>
<th>Fleet operators</th>
<th>Bank, finance and insurance</th>
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<tr>
<td>e.g. Daimler with PayCash</td>
<td>e.g. Daimler with Moovel</td>
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</tbody>
</table>

BATTLE FOR ADDITIONAL REVENUE STREAMS AND CUSTOMER INTERFACE

Focus plays | Expansion moves | Not yet active

Source: Oliver Wyman analysis
3  VALUE: Automotive value creation development until 2030
Regional shifts in automotive value creation until 2030
Emerging markets continue to catch-up and gain around 10 p.p. value creation share by 2030

Development of value creation by region/segment
In € BN

North America
- 2017: 196
- 2030: 222
- Change: +1%
- CAGR: +2.9p.p

Europe
- 2017: 266
- 2030: 310
- Change: +1%
- CAGR: +1%

China
- 2017: 178
- 2030: 308
- Change: +4%
- CAGR: +6.5p.p

Korea and Japan
- 2017: 161
- 2030: 160
- Change: 0%
- CAGR: -4.3p.p

South America
- 2017: 20
- 2030: 33
- Change: +4%
- CAGR: +0.6p.p

RoW
- 2017: 19
- 2030: 28
- Change: +3%
- CAGR: +0.3p.p

India
- 2017: 28
- 2030: 64
- Change: +6%
- CAGR: +2.3p.p

Rest of Asia
- 2017: 29
- 2030: 45
- Change: +3%
- CAGR: +0.6p.p

Source: Oliver Wyman value creation model
Horizontal shifts in automotive value creation until 2030

Value creation continues to grow along most steps of the value chain and modules with strong shift from value creation in ICE to electric drive systems

Development of value creation
In % of total

<table>
<thead>
<tr>
<th>2017</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Σ = €897 BN</td>
<td>Σ = €1,169 BN</td>
</tr>
</tbody>
</table>

- **E-drive gains** significantly share (+14%)
- In contrast traditional **ICE powertrain and auxiliary systems loose** share continuously
- Comparably **high growth of E/E** eased by today’s high level of R&D efforts to rapidly foster trend technologies
- **Body-in-white, chassis and interior** expected to **grow below market**; But also in these categories **growth pockets exist**

Source: Oliver Wyman value creation model
Horizontal shifts in automotive value creation until 2030
Shifts in value creation include a decreasing share of electric drive and electric and electronic (E/E) in R&D, but increase share in production

### Development of value creation – R&D

<table>
<thead>
<tr>
<th>In € BN</th>
<th>2017</th>
<th>2030</th>
<th>CAGR '17–'30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly</td>
<td>135</td>
<td>141</td>
<td>0.3%</td>
</tr>
<tr>
<td>Chassis</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Drivetrain</td>
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<td></td>
<td></td>
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<tr>
<td>ICE/aux. Systems</td>
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<tr>
<td>Electric Drive Systems</td>
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<tr>
<td>Body Structure</td>
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<tr>
<td>Exterior</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Interior</td>
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</tr>
<tr>
<td>E/E</td>
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</tbody>
</table>

### Development of value creation – Production

<table>
<thead>
<tr>
<th>In € BN</th>
<th>2017</th>
<th>2030</th>
<th>CAGR '17–'30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly</td>
<td>1,028</td>
<td>763</td>
<td>2.3%</td>
</tr>
<tr>
<td>Chassis</td>
<td></td>
<td></td>
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<tr>
<td>Drivetrain</td>
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<tr>
<td>ICE/aux. Systems</td>
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<tr>
<td>Electric Drive Systems</td>
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<tr>
<td>Body Structure</td>
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<td></td>
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<tr>
<td>Exterior</td>
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<td>Interior</td>
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<tr>
<td>E/E</td>
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Source: Oliver Wyman value creation model
Horizontal shifts in automotive value creation until 2030
Significant shifts in value creation will also happen within the different vehicle systems at a sub-system, module and even component level

Automotive value creation by component 2017–2030
In %

1. Compound annual growth rate
Source: Oliver Wyman value creation model
Vertical shifts in automotive value creation until 2030
Outsourcing from OEMs to suppliers will continue but slow down; in E-Drive, OEMs will gradually build up own competence and rely for ADAS on suppliers.

<table>
<thead>
<tr>
<th>Category</th>
<th>2012 (vs. 2002)</th>
<th>2017</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chassis</td>
<td>OEMs</td>
<td>Suppliers</td>
<td>OEMs</td>
</tr>
<tr>
<td>Drivetrain</td>
<td>OEMs</td>
<td>Suppliers</td>
<td>OEMs</td>
</tr>
<tr>
<td>ICE/aux. Systems</td>
<td>OEMs</td>
<td>Suppliers</td>
<td>OEMs</td>
</tr>
<tr>
<td>E-Drive (incl. battery)</td>
<td>OEMs</td>
<td>Suppliers</td>
<td>OEMs</td>
</tr>
<tr>
<td>Body structure</td>
<td>OEMs</td>
<td>Suppliers</td>
<td>OEMs</td>
</tr>
<tr>
<td>Exterior</td>
<td>OEMs</td>
<td>Suppliers</td>
<td>OEMs</td>
</tr>
<tr>
<td>Interior</td>
<td>OEMs</td>
<td>Suppliers</td>
<td>OEMs</td>
</tr>
<tr>
<td>E/E¹</td>
<td>OEMs</td>
<td>Suppliers</td>
<td>OEMs</td>
</tr>
</tbody>
</table>

1. Driven by advancement of ADAS and autonomous driving (AD)
Source: Oliver Wyman value creation model
IMPACT:
Areas of impact and strategic business model options for automotive suppliers
Supplier business models 2030
Driven by the current and emerging trends, new supplier business models are being established along the automotive value chain.

Automotive value chain

1. Ramp-down of fading technologies
   - Digital technology specialist

2. Tier 0.5
   - Digital module/system integrator

3. E-drive and battery specialist

4. Parts/component supplier

5. Module/system supplier

6. Vehicle integration

7. "White-label" vehicle manufacturer

8. Mobility service provider
   - Data-based service provider

9. Aftermarket/service provider
   - Direct channel aftersales

Vehicle modules
- Chassis
- Drivetrain
- ICE/aux. systems
- E-drive system
- Body structure
- Exterior
- Interior
- E/E

Services
- Advanced engineering services/software provider

Source: Oliver Wyman analysis
Impact on Suppliers & OEMs: Many fronts
Holistic performance improvement to absorb investment and cost pressure will be required for suppliers and OEMs alike to remain competitive

Source: VDA, Oliver Wyman analysis