Presentationexcerpt

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Future Vehicle Technology Trends and their implications on (engineering) suppliers

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European Automotive Research Partners Association (EARPA)
General Meeting, Brussels, 17.04.03

Contents

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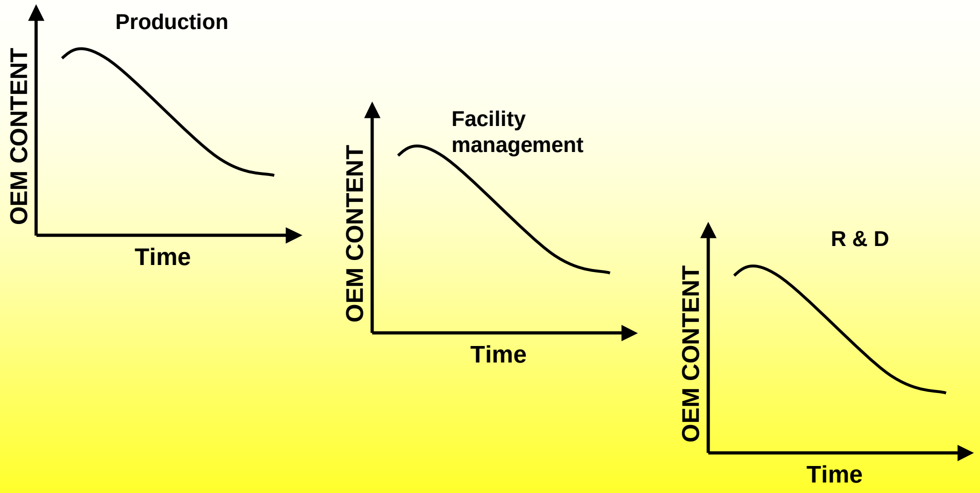
Background



Identified and selected trends within
product technologies

Chassis:
- Ceramic brake discs
- Active chassis compo-nents
- Brake-by-wire (EHB, EMB)
- Steer-by-wire
- Superposition steering
- Collision avoidance
- Tyre sensor system
- Use of materials

Body:
- Pedestrian protection
- Space-frame-structures (aluminium, steel)
- Multi-material mix
- Adjustable crash structures
- Exterior illumination systems
- Use of materials

Powertrain:
- Diesel injection systems
- Otto injection systems
- Fuel cell, gas-, rotary piston engines
- Electro mechanical valve gear
- Hybrid- and E-cars
- Integrated starter generator
- Transmission technologies
- Auxiliary Power Units
- Drive train monitoring systems
- Use of materials

Interior:
- Thermomanagement
- Telematics
- Passive safety in the passenger compartment
- Interior concepts
- Business and entertainment
- Use of materials

Electronics:
- 42V power supply
- Mechatronical systems
- Information- and communication systems

Industry-based results

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General industry trends

- Less vehicle volumes, more derivates ->
  higher engineering amount
- More OEM cooperations ->
  reduced engineering and manufacturing amount
- Reduced OEM content in engineering, facility management and production ->
  increased supplier shares
- Reduced number of independent OEM's ->
  higher OEM market power

-> contradicting trends with regard to supplier (engineering) content

-> implications on future (engineering) supplier volumes?

Technology-based results

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Different OEM focus on technologies with corresponding consequences

- Engine stays core competence ->
  OEM collaboration
- Drive train faces outsourcing activities ->
  supplier gains
- Chassis OEM competences reduces ->
  supplier gain more and more complete systems
- Body structure: BIW mainly core competence, other modules face outsourcing ->
  already high supplier content
- Electronics system stays core competence due to integration need, modules and components face outsourcing ->
  supplier gains
- Interior stays partly core competence ->
  supplier gains

-> contradicting trends with regard to supplier (engineering) content

-> implications on future (engineering) supplier volumes?

Summary

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- Future technologies will be subjected in high distinct interdependences regarding its advancement and the market entrance.
- General industry environment and OEM model policies will lead to further engineering outsourcing
- Large suppliers will be able to stay in the market as system integrators, at the same time the component sector offers various chances for smaller and middle-size companies.
- Small- and middle-size companies will not cope complete tasks alone, need for partners and competence growth.
- In many segments of the vehicle the cooperation needs rise seriously due to the increasing complexity of technologies.