Schaeffler E-Mobility
J.P.Morgan Investor Call

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Global megatrends and resulting automotive trends

- **Environment**
  - Climate change
- **Society**
  - Demographic change
- **Economy**
  - Globalization
- **Technology**
  - Digitalization
- **Health**
  - Impact of pandemic on the global economy

**CO₂ emissions**

**CO₂ emission as key driver**

- **Climate change**
- **Environment**
- **Demographic change**
- **Globalization**
- **Economy**
- **Digitalization**
- **Comfort & safety**
- **New fields (autonomous vehicle, people mover, …)**
- **Higher xEV incentives and global supply chain**

Source = ICCT, June 2019

*China’s target reflects gasoline vehicles only. U.S. CO₂ emission values are derived from fuel economy standards set by NHTSA, reflecting tailpipe GHG emission (i.e., they exclude low-GWP refrigerant credits incorporated in the U.S. EPA GHG regulation). Gasoline in Brazil contains 22% ethanol (E22); all data in the chart has been converted to the gasoline (E00) equivalent. Supporting data can be found at [www.theicct.org/info-tools/global-passenger-vehicle-standards](http://www.theicct.org/info-tools/global-passenger-vehicle-standards)*
The base of our E-Mobility strategy is our vision of the future automotive market

Vision Powertrain 2030
Global Automotive Production [mn]

Our powertrain scenario 30-40-30 is confirmed and unchanged for 2030
Covid has a significant impact in 2020ff, however the relative growth of Hybrids and xEVs will continue
### Major Milestones of E-Mobility at Schaeffler

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>Image/Description</th>
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<tbody>
<tr>
<td>1999-2017</td>
<td>E-Mobility history @ Schaeffler</td>
<td><img src="image1.png" alt="Diagram" /></td>
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<tr>
<td>Q1/2018</td>
<td>Business Division E-Mobility established</td>
<td><img src="image2.png" alt="Diagram" /></td>
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<td>Q2/2018</td>
<td>SOP Audi eTron E-Axle Transmissions</td>
<td><img src="image3.png" alt="Image" /></td>
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<tr>
<td>Q1/2019</td>
<td>SOP Ford MHT Hybrid Module</td>
<td><img src="image4.png" alt="Image" /></td>
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<td>Q1/2019</td>
<td>1st Nomination for E-Axle „2in1“ System</td>
<td><img src="image5.png" alt="Image" /></td>
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<tr>
<td>Q2/2019</td>
<td>1st E-Motor Nomination of a premium supplier</td>
<td><img src="image6.png" alt="Image" /></td>
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<tr>
<td>Q3/2019</td>
<td>Hybrid Module nomination incl. EM designed &amp; prod. @ Schaeffler</td>
<td><img src="image7.png" alt="Image" /></td>
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<tr>
<td>Q4/2019</td>
<td>1st nomination for a 3in1 (Dedicated Hybrid Transmission)</td>
<td><img src="image8.png" alt="Image" /></td>
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<tr>
<td>Q2/2020</td>
<td>Start of construction E-Mobility production plant Szombathely 2</td>
<td><img src="image9.png" alt="Image" /></td>
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<tr>
<td>Q2/2020</td>
<td>1st 800V „3in1“ E-Axle nomination of a performance application</td>
<td><img src="image10.png" alt="Image" /></td>
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*LuK Expert Conference: E-Motor in the drive-train*

*Build-up of P2 Hybrid concept car on 42 V*

*Start of construction E-Mobility production plant Szombathely 2*
The strength of Schaeffler USP covers both powertrain system integration and component manufacturing.
Schaeffler transformation is our key for success in E-Mobility

What do we stand for **today:**

- Customers trust since more than 50 years in automotive
- Highly innovative product portfolio
- Deep and profound powertrain know-how in:
  - Transmission systems and components
  - Engine systems and components
- Strong in manufacturing and high vertical integration

Our current **transformation process**

- We **transformed** more than 1,150 specialists\(^1\) internally from transmission & engine business divisions
- We **hired** more than 350 new specialists\(^2\) externally
- More than **100** Fit4Mechantronic **training programs** set-up running with over **1,200 participants**
- Strategic **acquisitions** to accelerate filling remaining competence gabs

Where do we move to **tomorrow:**

- Further development of customers trust in automotive
- Continue innovating our component portfolio
  + Become the preferred supplier of electrified drivetrains & components
  + Manufacturing of whole electric drivetrain systems
  + E-Motors supplier
  + Mechatronic & Electronic component supplier
  + Customers trust as major E-Mobility system supplier

\(^1\)since 2018
Start of production of our E-Mobility products in the next years

With our growing product portfolio and number of customer programs we will increasingly drive the E-Mobility growth

Order intake target corridor of EUR 1.5 - 2.0 bn per year with products for HEV and BEV

1 Nominated before 2018
Business division E-Mobility in key figures – strong position and continuous growth

What do we stand for **today:**

- **Sales growth YoY of ~30% in 2019**
- **680 mn EUR Net Sales 2019**
- **14 locations worldwide and 4 main R&D Centers**
- **More than 1,500 specialists worldwide in E-Mobility**

Where do we move to **tomorrow?**

- **CAGR >15% from 2020 till 2025**
- **>1,500 mn EUR Net Sales 2025**
- **Consistent growth of our global footprint**
- **More than 1,800 specialists worldwide in E-Mobility**

Our growth expectation is based on our powertrain scenario and our order intake annual target corridor

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Our E-Motors are key components for our system products and convince customers also on component level.

**SCHAEFFLER E-Motors**

Full value add in E-Motors from Schaeffler

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<th>Stator Manufacturing Processes</th>
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<td>stacking</td>
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<td>testing Stator EOL</td>
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<th>Rotor Manufacturing Processes</th>
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<td>joining rotor / shaft</td>
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<td>magnetizing incl. testing</td>
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<td>testing Rotor EOL</td>
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High automated assembly lines

**Strategic relevance:**
- Own E-Motors are used as a base for innovative systems
- Elmotec & Compact Dynamic strengthen our position as a highly innovative E-Motor supplier
- Use manufacturing competence of Schaeffer for high value add

**USPs:**
- Highest power density & efficiency of our E-Motors
- Innovative winding technology made by Elmotec, e.g. wave winding
- Outstanding innovation platform with Compact Dynamics
- Modular designs for a flexible inhouse production and more variance
- High vertical integration with our inhouse machinery & manufacturing

Our E-Motor competence combines innovation with experienced mass production skills and full vertical integration.

in series production at Schaeffler today
New E-Mobility plant in Hungary – a sustainable factory for tomorrow

Overview:
− E-Mobility competence center for manufacturing of systems & components
− First product SOP in 2021
− Highly efficient production processes
− 18,000 m$^3$ thereof 15,000 m$^3$ production space (30 hectares area)
− DGNB$^1$ Gold certification
− Nearly CO$_2$ neutral

Features:
− Energy-saving (LED) and intelligent lighting
− Heat recovery compressors
− Photovoltaic system
− Green service-, rain- and wastewater treatment
− and much more

Our first pure E-Mobility plant in Szombathely is the next milestone in our E-Mobility transformation. It gives us space to grow and is a major step towards our sustainable production footprint of tomorrow.

$^1$ Deutsche Gesellschaft für Nachhaltiges Bauen e.V.
We delivered on our promise - Schaeffler achieved the target to become a 3in1 E-Axle supplier

### 3in1 Performance E-Axle

**Strategic relevance:**
- High volume application for 3in1 E-Axle system for Schaeffler
- Highly innovative 800V performance E-Axle
- Modular kit with 5 variants for medium premium and sportscars

**USPs:**
- Development of a complete 3in1 powertrain portfolio for E-Axle
- Fully functional, integrated system of the E-Axle and components
- Best in class efficiency
- Outstanding power density supported by integrated cooling concept
- Innovative 800 V Inverter with complete system control
- Novel E-Motor technology with outstanding performance and efficiency

With our new 3in1 E-Axle we will step forward technologically in performance application, set a new benchmark in the market and enter with highly innovative concepts into future E-Axles
„Race to road“ at Schaeffler E-Mobility – Leveraging our race track experience

- Off road sport cars
- Full Hybrid drivetrain (P3) 3in1 E-Axle and battery integration
- Start: 2022

- High performance drivetrain based on battery
- E-Motor, PEU & gearbox parts
- Start: 2014

- Almost zero emission racing league - highly innovative
- Hydrogen powertrain development
- Start: 2023

- Inhouse concept with over 1000 PS
- Platform for further predevelopments
- Start: 2018

- Our racing experience go directly into our development departments
- We have a broad spread represented with our different products

With our “Race to road” strategy we innovate on the racetrack and shape our revolutionary future products
We successfully shape our E-Mobility business

1. Our powertrain vision 30-40-30 remains our strategic guideline and we are fully prepared with our expanding product portfolio for the future mobility.

2. We produce highly innovative E-Mobility components and systems in a sustainable production network.

3. With our new innovative high performance 3in1 E-Axle project we delivered on our promises. We further complete and grow our product portfolio.

4. With our wide range of products and deep process know-how we have a strong position in the market, and we will continue to grow.

Schaeffler E-Mobility strategy is materializing successfully.

We are following our strategic path to become the preferred supplier of electrified drivetrain systems & components for our customers!