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# Premium Platform Electric (PPE)

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Audi A6 e-tron concept: The vehicle shown here is a concept car that is not available as a production model.

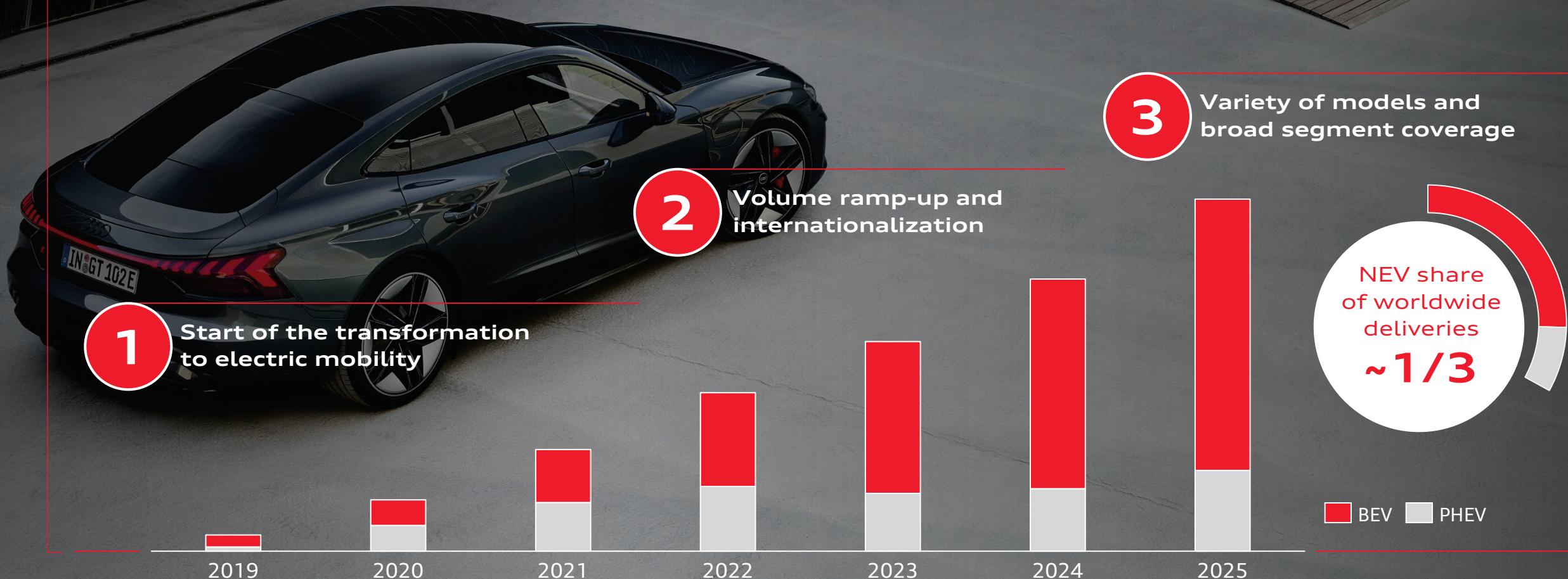
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A negative development relating to ongoing claims or investigations, the continuation of COVID-19, an unexpected fall in demand or economic stagnation in our key sales markets, such as in Western Europe (and especially Germany) or in the USA, Brazil or China, and trade disputes among major trading partners will have a corresponding impact on the development of our business. The same applies in the event of a significant shift in current exchange rates in particular relative to the US dollar, sterling, yen, Brazilian real, Chinese renminbi and Czech koruna. If any of these or other risks occur, or if the assumptions underlying any of these statements prove incorrect, the actual results may significantly differ from those expressed or implied by such statements. We do not update forward-looking statements retrospectively. Such statements are valid on the date of publication and can be superseded.

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# Audi's E-Roadmap is well on track – from 2026, Audi will only launch new all-electric models.



1) Chinese market in evaluation;

Audi RS e-tron GT: Combined electric power consumption in kWh/100 km: 20.2–19.3 (NEDC), 22.5–20.6 (WLTP); combined CO<sub>2</sub> emissions in g/km: 0; Information on fuel/power consumption and CO<sub>2</sub> emissions in ranges depending on the chosen equipment level of the car.

**production start of the last new combustion engine model<sup>1)</sup>**

After establishing Audi as a credible BEV brand with e-tron, Audi is scaling its BEV portfolio with vehicles based on dedicated electric Platforms.

### e-tron

THE PIONEER

over  
~100k  
sold  
since SOP



### e-tron GT

THE BRAND SHAPER



### Q4 e-tron

THE ACCESSIBLE E-TRON



### PPE

THE NEXT LEVEL



Audi e-tron: Combined electric power consumption in kWh/100 km: 24.3 – 21.0 (NEDC); Combined CO<sub>2</sub> emissions in g/km: 0; Audi RS e-tron GT: Combined electric power consumption in kWh/100 km: 20.2–19.3 (NEDC), 22.5–20.6 (WLTP); combined CO<sub>2</sub> emissions in g/km: 0; Audi Q4 Sportback 50 e-tron quattro: Combined electric power consumption in kWh/100 km: 20.9 – 17.6 (WLTP); 17.9 – 16.4 (NEDC); Combined CO<sub>2</sub> emissions in g/km: 0; Information on fuel/power consumption and CO<sub>2</sub> emissions in ranges depending on the chosen equipment level of the car. Audi A6 e-tron concept: The vehicle shown here is a concept car that is not available as a production model.

We benefit greatly from the synergies in the Volkswagen Group both in hardware and software: PPE scales high-performance features for the broader market.

## Hardware BEV PLATFORMS

J1

PPE

MEB



## Software

C A R I A D

UNIFIED TECHNOLOGY  
AND SOFTWARE PLATFORM  
FOR ALL VEHICLES  
IN THE VOLKSWAGEN GROUP

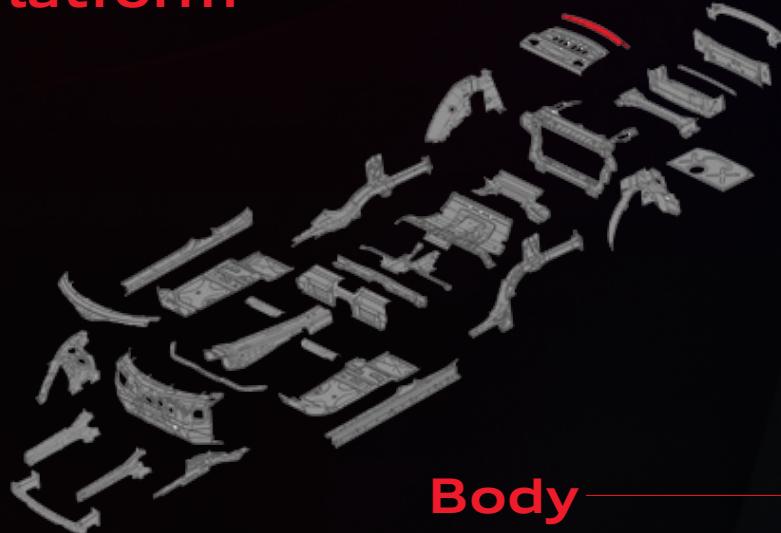
With the MEB Audi has effectively realized synergies and achieved substantial cost savings.



Audi Q4 Sportback 50 e-tron quattro: Combined electric power consumption\* in kWh/100 km: 20.9 – 17.6 (WLTP); 17.9 – 16.4 (NEDC); Combined CO<sub>2</sub> emissions\* in g/km: 0 (NEDC); Information on fuel/power consumption and CO<sub>2</sub> emissions in ranges depending on the chosen equipment level of the car.

Audi e-tron GT and Porsche Taycan are using carry-over parts on a large scale, thanks to J1 platform.

## Platform



Body



Interior



carry-over parts

modified parts

new parts

## Shared platform is not an obstacle to realize brand-specific vehicle design and characteristics.

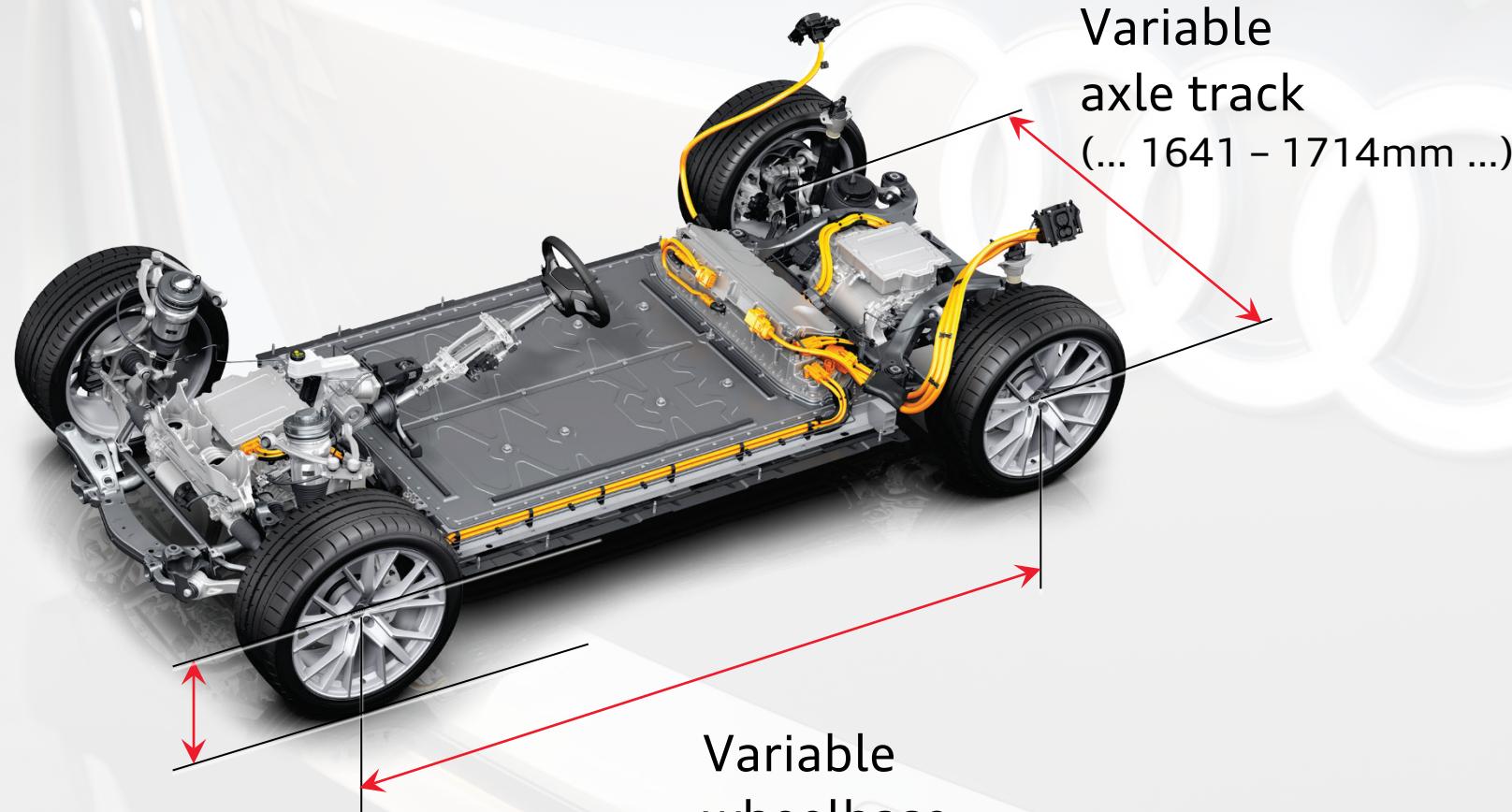


Taycan 4S : Combined electric power consumption\* in kWh/100 km: 28.7 - 26.2 (NEDC); combined CO<sub>2</sub> emissions\* in g/km: 0 (NEDC); Information on fuel/power consumption and CO<sub>2</sub> emissions in ranges depending on the chosen equipment level of the car.



Audi RS e-tron GT: Combined electric power consumption\* in kWh/100 km: 20.2-19.3 (NEDC), 22.5-20.6 (WLTP); combined CO<sub>2</sub> emissions\* in g/km: 0 (NEDC); Information on fuel/power consumption and CO<sub>2</sub> emissions in ranges depending on the chosen equipment level of the car.

PPE provides high level of flexibility, enabling products in B to D segment across the Volkswagen Group.

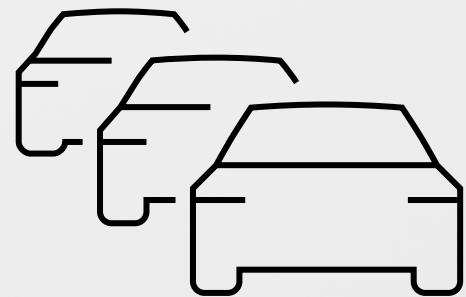


Variable  
ground clearance  
enabling Sedans & SUV  
(... 152 – 217mm ...)

Variable  
wheelbase  
(... 2890 – 3080mm ...)

Variable  
axle track  
(... 1641 – 1714mm ...)

**high platform  
flexibility**  
**enables broad  
range of models**



## A6 e-tron concept shows: the PPE platform will enable superior performance.



### Design

Breathtaking design with  
a cW value of just 0.22  
>700 km WLTP range



### Charging

800V charging with  
up to 270 kW  
300 km in 10 min  
5 → 80% in <25 min



### Performance

power output up to 350 kW  
and a torque of 800 Nm  
Audi air suspension with  
adaptive dampers



Audi A6 e-tron concept: The vehicle shown here is a concept car that is not available as a production model.

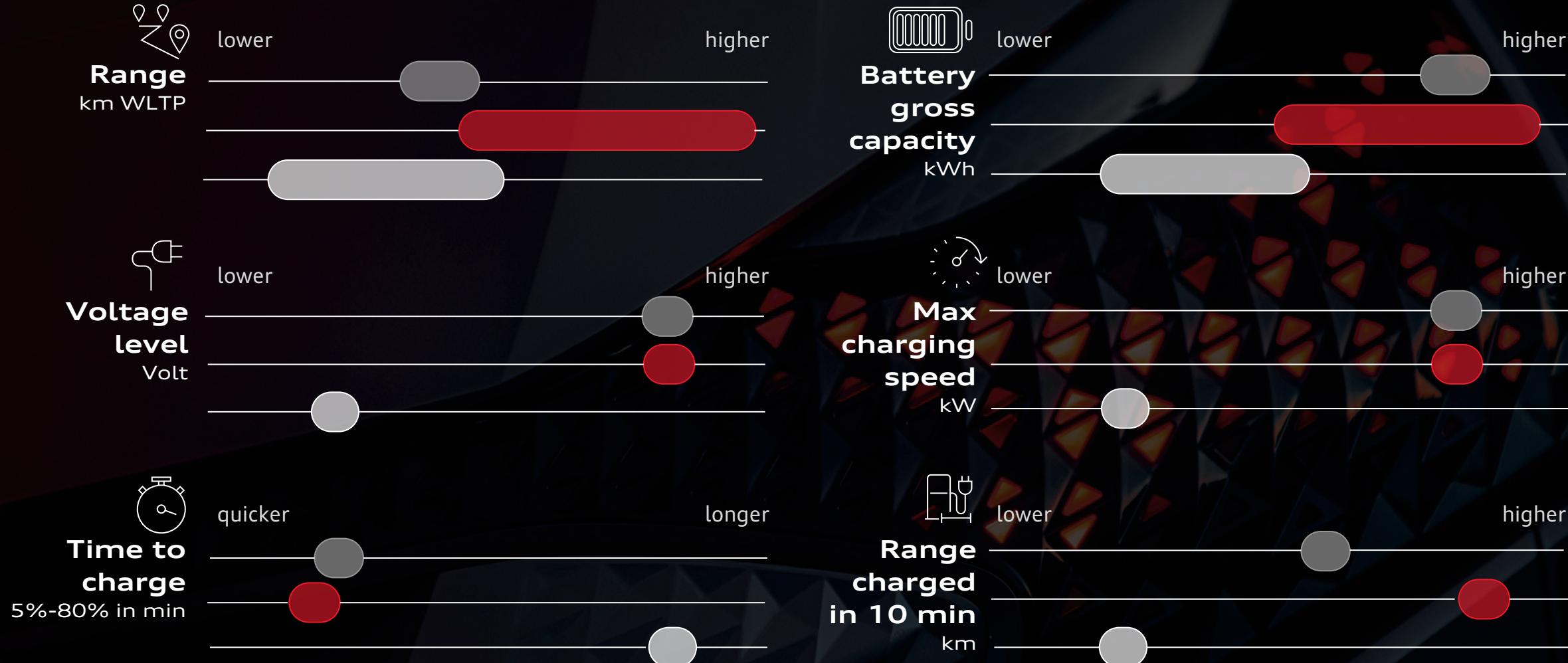
With the PPE we scale the high-end performance of the J1 platform and cover broad range of customer segments.

## Comparative performance



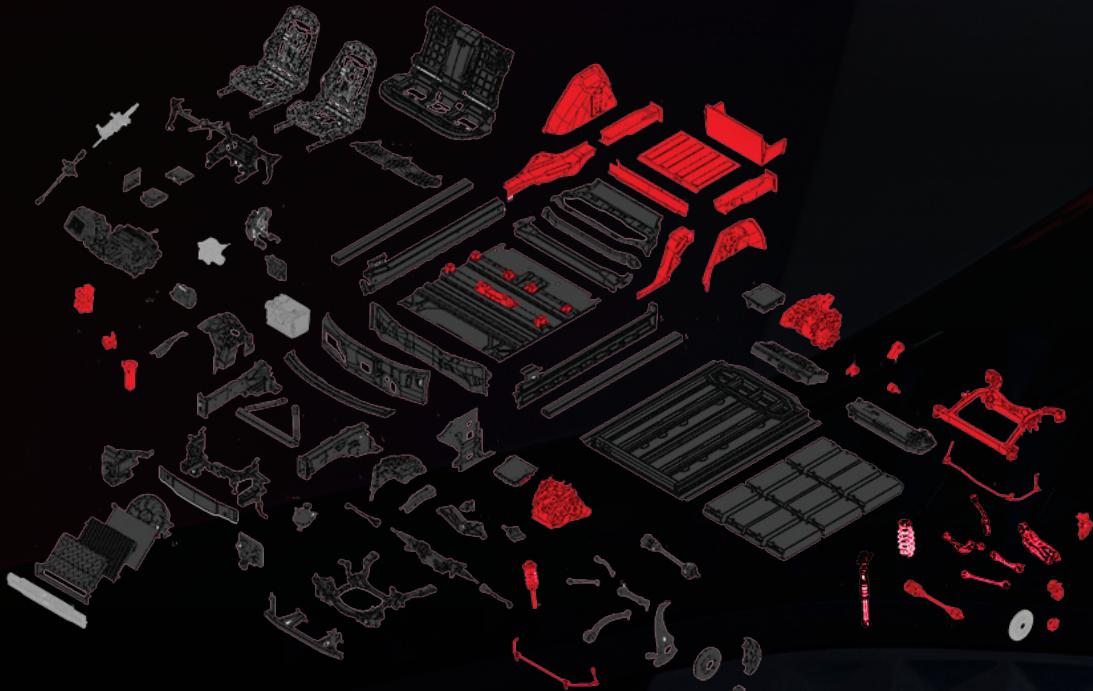
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## Comparative performance

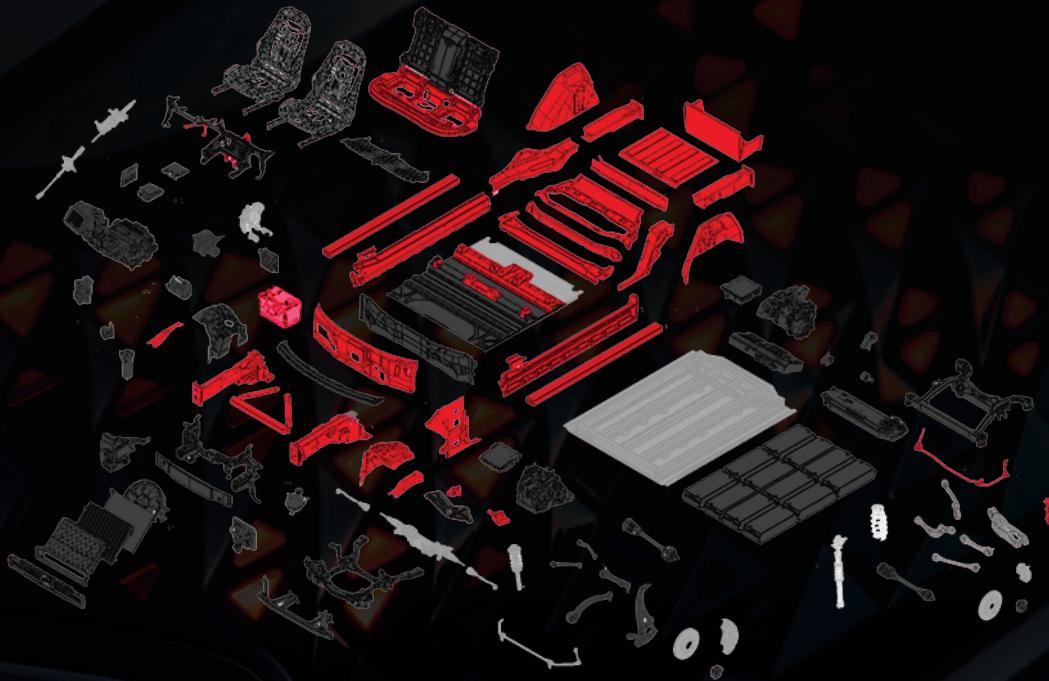


With the PPE platform we continue to balance differentiation with the use of carry-over parts.

**Audi Q6 e-tron  
vs. Porsche Macan  
(BEV)**



**Audi Q6 e-tron  
vs. Audi A6 e-tron**

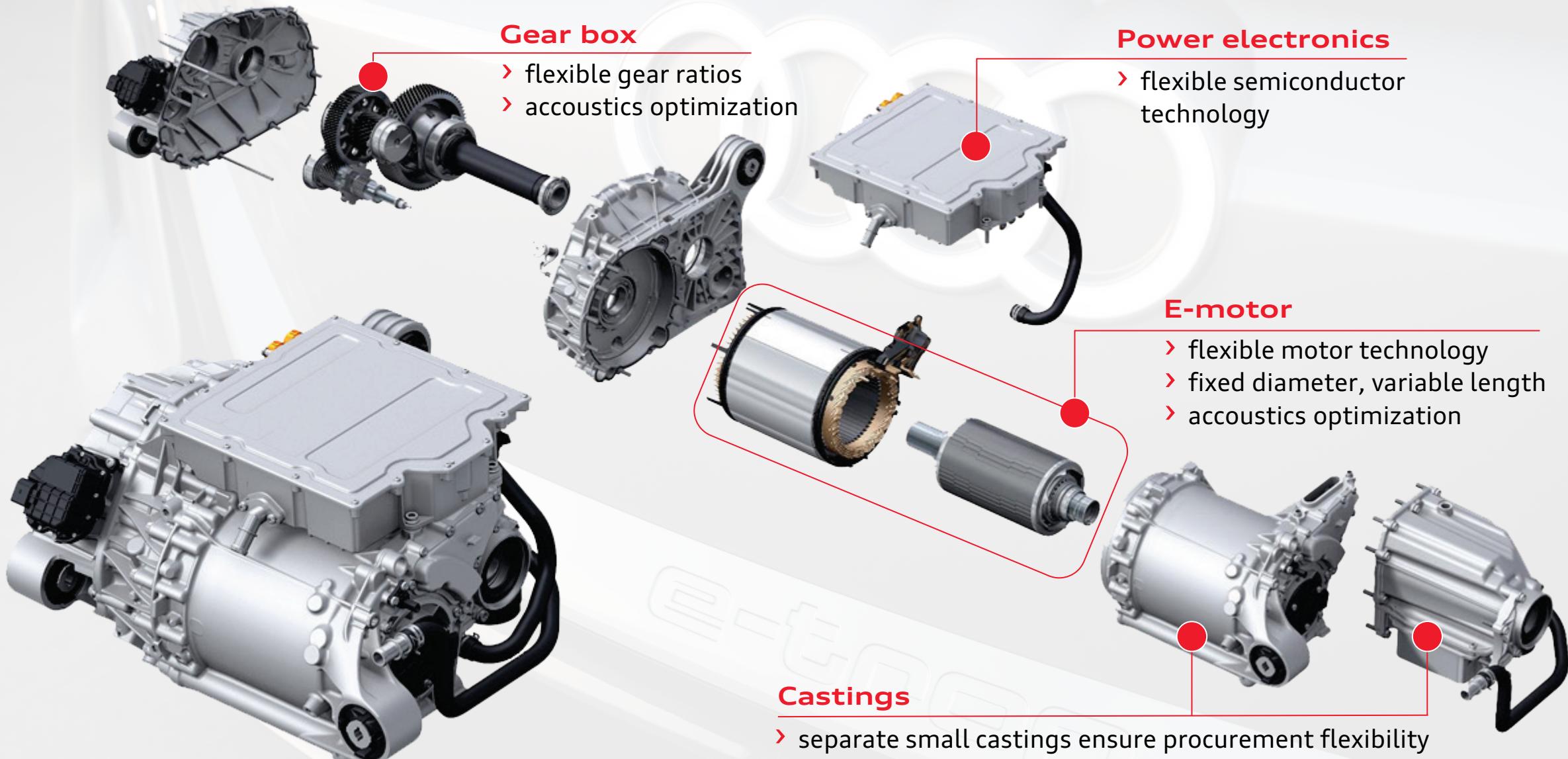


carry-over parts

modified parts

new parts

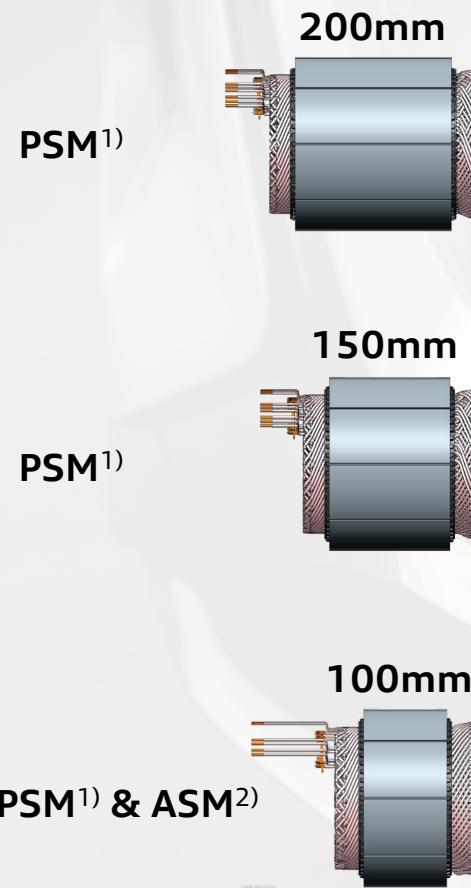
## E-axle development with the design-to cost approach: reduced variance combined with flexibility in key components enabling highest efficiency and performance.



The key components in the PPE e-axle kit follow a strict modular logic with a high level of carry-over parts.

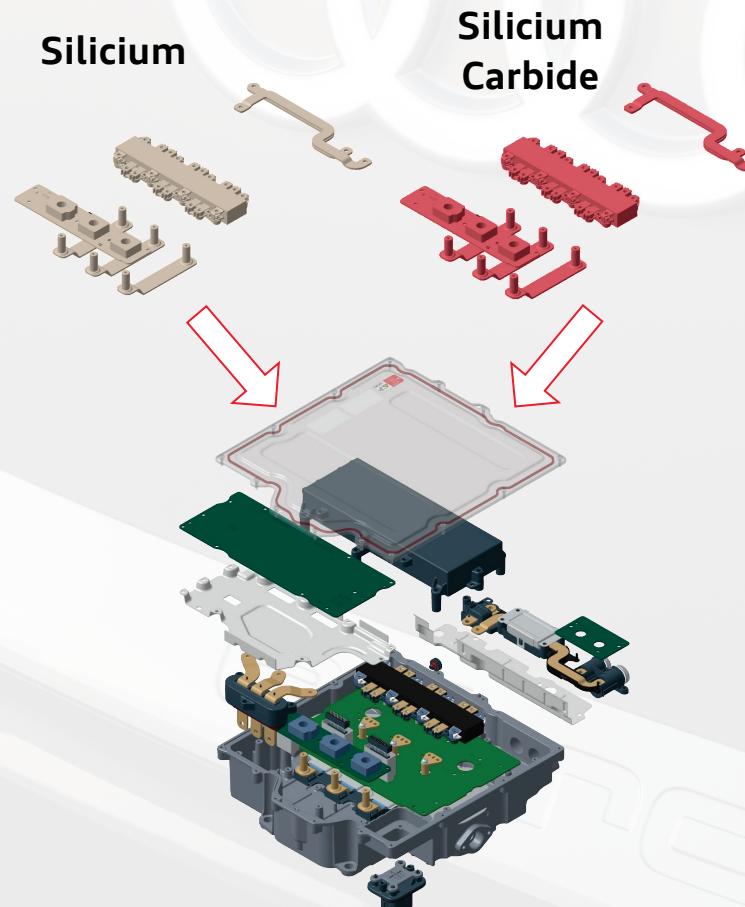
## Electric motors

same diameter / 3 different lengths



## Power electronics

semiconductors Si & SiC

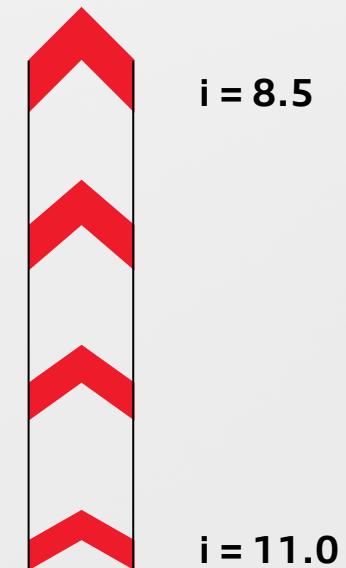


## Gearbox

up to 4 different gear ratios realized via 1<sup>st</sup> reduction stage



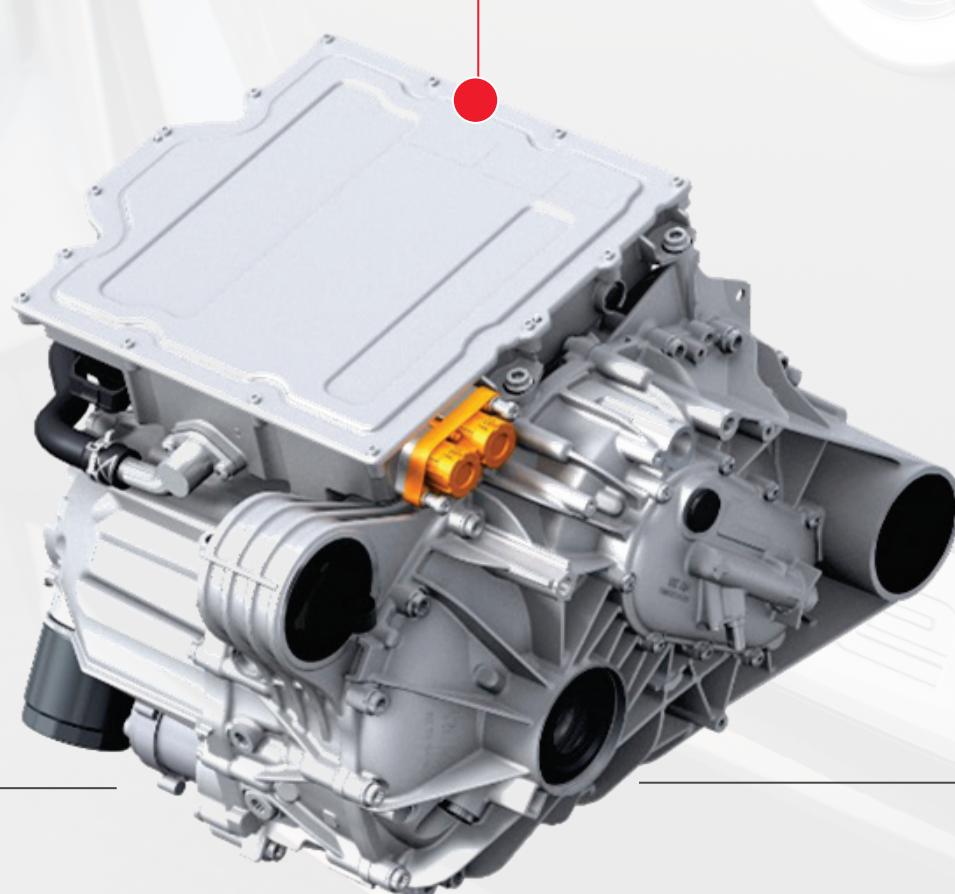
$i = 8.5$



<sup>1)</sup> PSM: Permanenterregte Synchron Maschine (permanent synchronous motor); <sup>2)</sup> ASM: Asynchron Maschine (asynchronous motor)

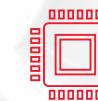
Technological advances and comprehensive system optimization lead to improved efficiency and performance.

**PPE e-axle**



**800V HV system**

→ ultra fast charging capability



**Silicium carbide semiconductors**

→ highest efficiency in power electronics



**Oil system for gears and e-motor with electric oil pump and dry sump lubrication**

→ low friction and enhanced efficiency

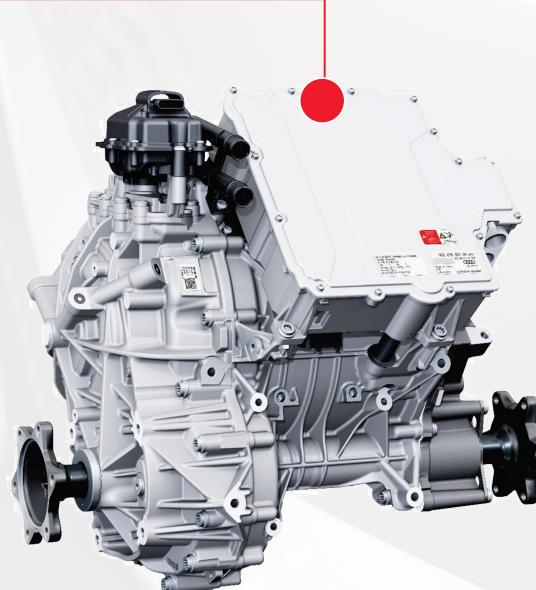


**E-motor with hairpin winding and direct oil cooling for stator and rotor**

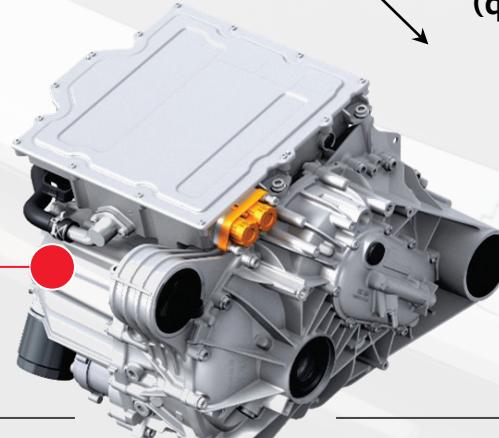
→ high power density / reduction of rare earths

Major improvements in e-axle parameters result from know-how ramp up thanks to in-house development and industrialization.

**e-tron electric front e-axle**



**comparable PPE electric front e-axle**



e-axle box dimensions

- ~30%



e-axle weight

- ~20%



e-motor dimensions

- ~35%



e-axle efficiency losses

halved

Component level

vehicle level  
(quattro)



system performance

+ ~33%



drivetrain costs

- ~15%



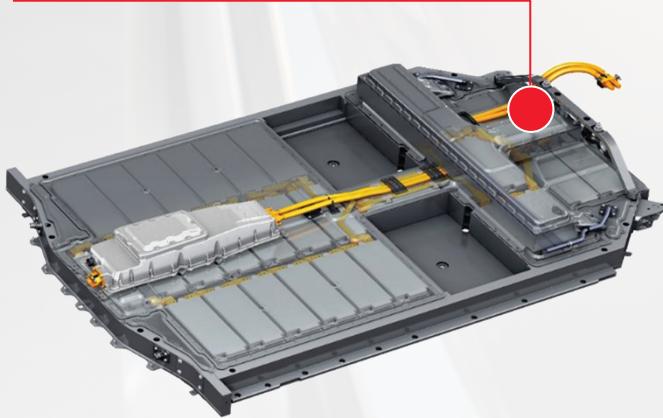
energy consumption<sup>1)</sup>

- ~30%

<sup>1)</sup> Based on the full vehicle, including efficiency improvements in other components.

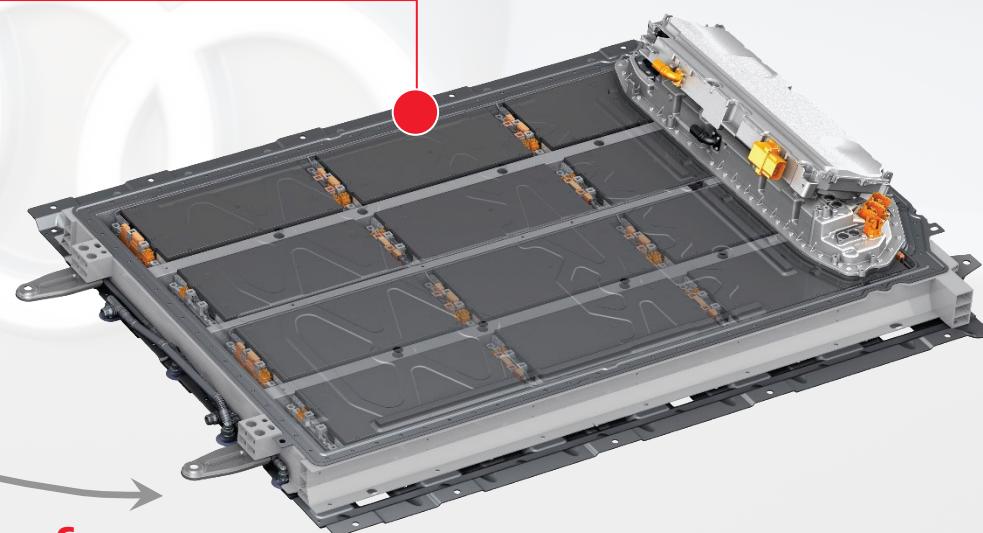
PPE battery system is “best of two worlds“ – combines high performance with industrialization benefits and ensures capabilities to integrate new technology.

**J1 battery system**



- › 800V
- › 93kWh (gross)
- › 32 modules (pouch)
- › Performance: 475kW
- › Charging power: 270kW
- › High-tech thermal management
- › Vehicle specific design
- › Low volume manufacture

**PPE battery system**



“best of  
two worlds“

**MEB battery system**



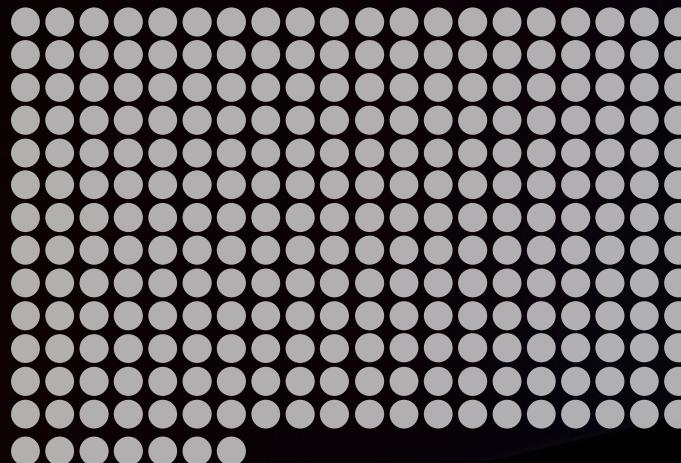
- › 400 V
- › 82kWh (gross)
- › 12 modules (prismatic & pouch)
- › Performance: 220kW
- › Charging power: 125kW
- › Compact design
- › High volume
- › Industrialization

- › 800V
- › 100 kWh (gross)
- › 12 modules (prismatic)
- › Performance: ~ 475kW
- › Charging power: 270kW
- › High-tech thermal management
- › Compact design
- › High volume
- › Industrialization

Premium customer experience: Transition from single option to focused option packages enables reduction of complexity.

## Today

### Single options



### Option packages



## Q6 e-tron

example



Packages definition based on customer experiences



Convenient decision making by customer



Sustainable premium look and feel through point-based evaluation



Stable residual values

The Chinese market plays an important role in leveraging scale advantages –  
Audi FAW NEV Company will be a major pillar.



# Audi FAW New Energy Vehicle Company

Audi A6 e-tron concept: The vehicle shown here is a concept car that is not available as a production model.



Local production of PPE-based vehicles in Changchun



Scheduled production start in 2024



60% share held by AUDI AG and Volkswagen Group China



Major contribution to CO<sub>2</sub> emissions reduction in China



Cost-effective realization of the market specific models



Contribution reflected in the operating result

End-to-end electronics architecture E<sup>3</sup> 2.0 is the key technology on the way to a software enabled car company.

## E<sup>3</sup> 2.0 Architecture CAR | A | D



Hardware



Software (incl. VW.OS)



Cloud

Focus on **seamless hardware & software**

Worldwide scalable from **A0 to D segment**

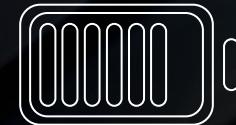
Basis for new business models

Innovative customer functions such as **highly automated driving L4 and Digital Assistant**

**Over-the-air updates & upgrades** enable continuous extension and advancement in customer experience

Big Loop foundation by data collection

# The next stage in the Volkswagen Group battery strategy will be the unified cell.



**Optimized  
procurement**

**Unified cell /  
Cell-to-pack rollout**



## **Value chain CO<sub>2</sub> emissions optimization**

Supplier/partner selection takes CO<sub>2</sub> emissions into account e. g. Northvolt



## **Know-how build up and new technology readiness**

Technical possibility of integration of new cell chemistries in the unified cell



## **Cost & complexity reduction**

80% of VW Group applications covered by unified cell by 2030

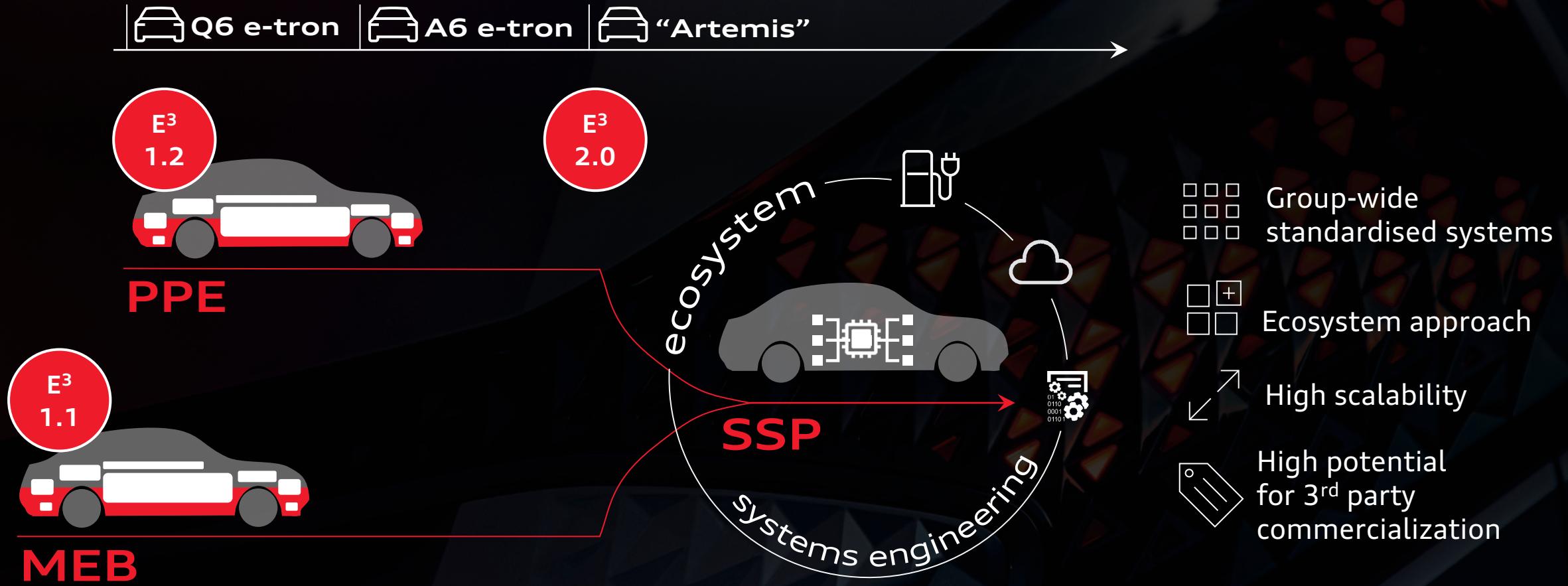


Cell design	-15%
Production process	-10%
Cathode/anode material	-20%
Battery system concept	-5%

The integration of hard- and software will be complete with the SSP (Scalable Systems Platform).

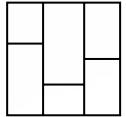
## Modular Toolkit

## Scalable Systems Platform



Schematic representation does not reflect number of modules.

“Vorsprung” ready for the next level.



**Transforming our claim of  
technological leadership  
for the future**



**Focus on the ecosystem  
beyond the vehicle**



**Software competence thanks to  
close alliance with CARIAD**



**Volkswagen Group-wide synergistic  
end-to-end approach:  
systems engineering**





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