



Aumann AG

A global leader in modular machines for E-mobility

Commerzbank Sector Conference

29 August 2018

## Aumann at a glance

### Right business

Fully automated E-drivetrain production lines ...



...based on modular machines and exclusive motor winding technologies...



...leveraging know-how from special machinery of Aumann's Classic segment



### Right capabilities

**80** years of winding experience

**30** years partner of automotive OEMs

~ **1,270<sup>1)</sup>** highly skilled professionals

**6** locations in Germany, China and USA

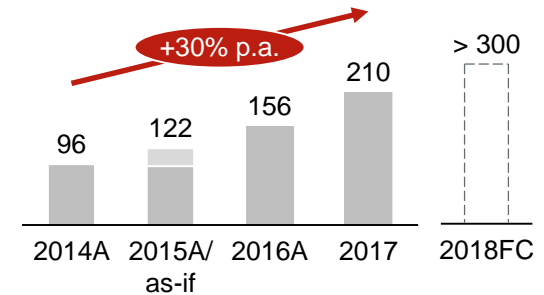
~ **45,000** sqm of shop floor

### Select customers

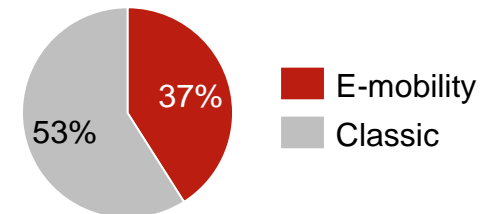


### Strong growth

Revenue<sup>2)</sup>  
in million €



Segments  
As of 30 June 2018

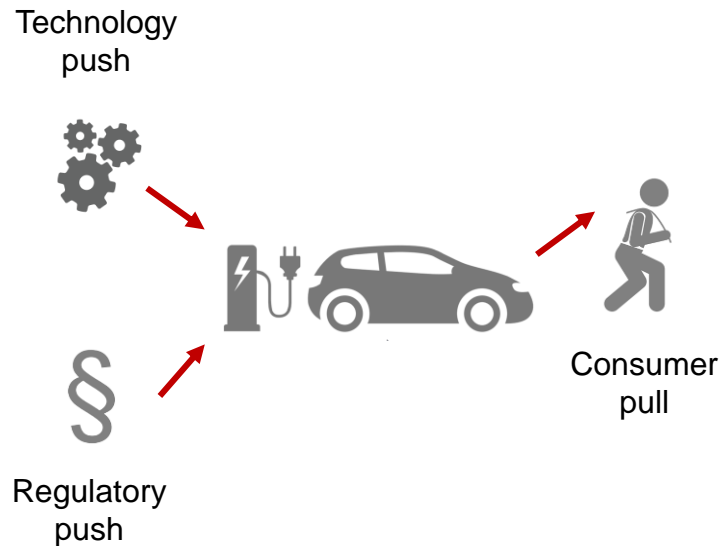


## Key highlights of Aumann

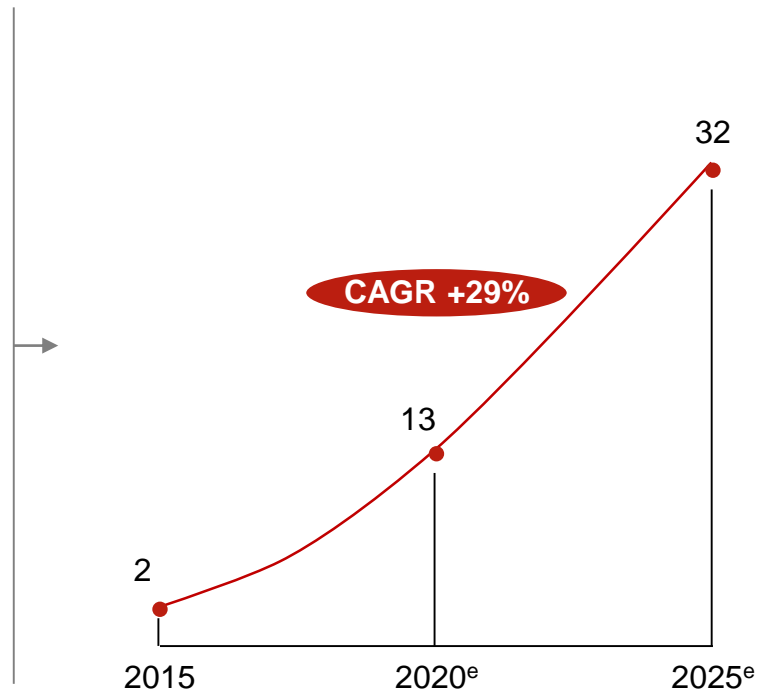
- 1 **Strong growth** due to **E-mobility revolution** in the automotive industry
- 2 Exclusive **winding technologies** in combination with deep **automation know-how**
- 3 Decades of **automotive experience** and trusted **relationships with OEMs**
- 4 **Profitable** and **asset-light growth** with good visibility
- 5 Clear **expansion strategy** with possibility of add-on acquisitions

## An E-mobility revolution is underway

Three factors put electric vehicles on the road



Electric vehicles\*  
Global production in million vehicles per year



## Increasingly strong impulses towards E-mobility

### Strong momentum from OEMs



**25 electrified** and **12 all-electric models** by 2025



**All car models** to be electric or hybrid from 2019



**All car models** electrified by 2022



**80 electric models** by 2025 and **€34 billion** Capex



**24 electrified** and **16 all-electric models** by 2020



**8 plug-in** or **all-electric models** by 2022



At least **20 all-electric models** by 2023

### Typical design and order process for Aumann

OEM develops product design



Joint optimisation of product design and automation process in Aumann's R&D center



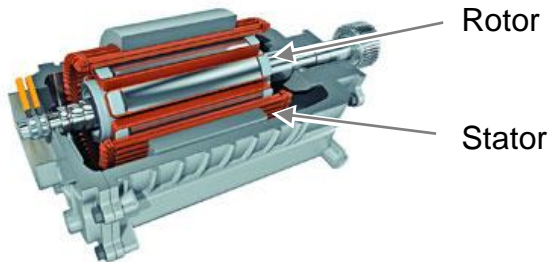
Customer places order



Start of production (SOP)

Aumann automates the production of electric drivetrains with focus on the electric motor

Electric motor



*Winding of stator and/or rotor*

Energy storage /conversion



*Assembly of modules, packs, fuel cells*

Electric drivetrain



Aumann offers highly automated production technologies for traction motors

## Thin wire

### Conventional Insert-in



Indirect Winding

Lower automation

High stress on wire

Random wire positions

### Distributed Needle Winding



Direct Winding

High automation

Low stress on wire

Defined wire positions

 **aumann**  
exclusive

## Thick/flat wire

### Conventional Hairpin



Assembly

High automation

Many welding points

Larger copper heads

 **aumann**

### Continuous Hairpin

Winding / Assembly

High automation

No welding points

Smaller copper heads

 **aumann**  
exclusive

Aumann has a unique combination of capabilities, industry experience and corporate setup

**Technological  
leadership**



Exclusive  
winding  
technologies

Highest  
degree of  
automation

Complete  
production  
lines

**E-mobility  
focus**



Decades of  
automotive  
focus

Relationships to  
major OEMs / Tier-  
1s

Technologies  
for E-drivetrain

**Corporate  
setup and size**

**> 300m**

> €300 million  
revenue 2018FC

6 locations in  
Europe, China,  
USA

Experience with  
large order  
volumes

Global leadership in highly automated production lines for E-mobility

## The acquisition of USK is a real success story

### Why Aumann acquired USK in Q4 2017

#### Engineering & delivering capacities

€70 million turnover  
> 370 employees



#### Automotive experience

OEMs/Tier-1s  
Automator



#### Technology

Build-to-print competence  
Sensors and fuel cells



### Where Aumann and USK stand in Q2 2018

#### Capacity balancing between sites

First orders shifted to USK in 2017  
Partial retargeting of sales engineers



#### E-mobility growth at USK

First traction motor order at USK in Q1  
High interest in USK fuel cell technology



#### Ongoing integration and expansion

Step-wise integration of processes and IT  
New plans for expansion at USK site



## Qualified employees are Aumann's key to success

### Gaining talents



Attractiveness of e-mobility

Internal headhunters

Regional cooperations and employee exchanges

### Training successfully



First-class vocational training

Training center

Strong relations with universities

### Retaining the best



Rewarding performance

Attractive working time models

International career opportunities

# Close partnerships with blue chip customers enable Aumann's E-mobility growth

Longstanding customer relationships...

Indicative cumulative orders last 25 years



> € 460m

Relationship since 1990



> € 400m

Relationship since 1990



thyssenkrupp

> € 250m

Relationship since 1999



€ 200-250m

Relationship since 1986



€ 75-100m

Relationship since 1985

...leading to an accelerated E-mobility business

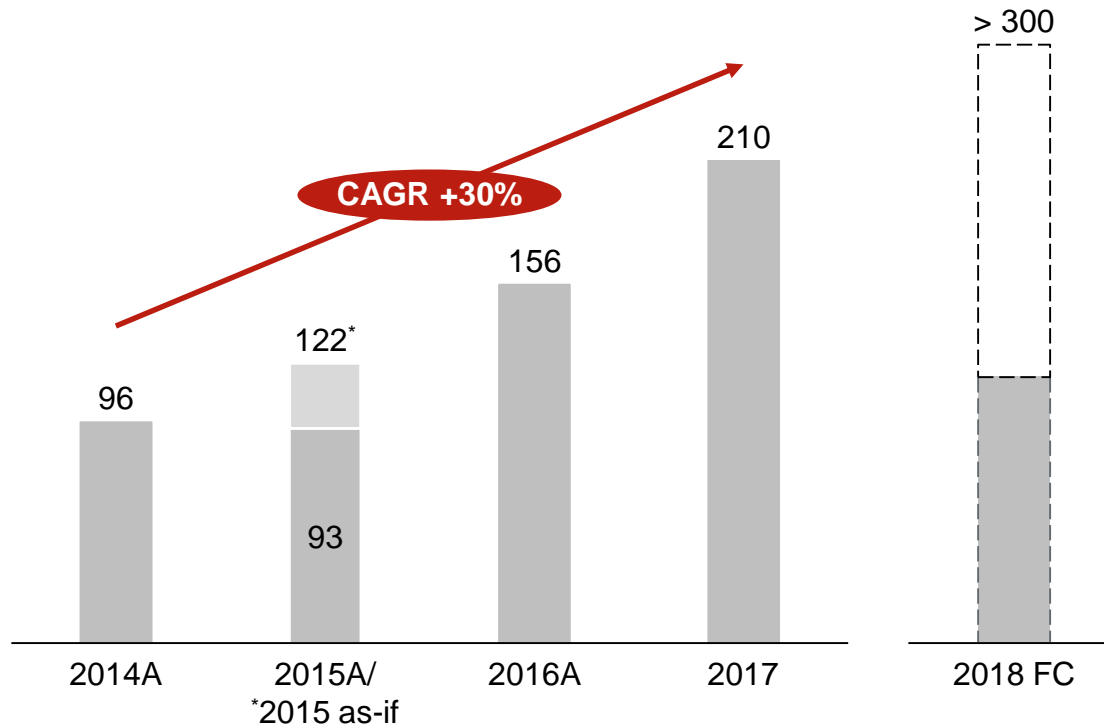


...based on experience in ICE drivetrain, automation and winding for non-automotive customers

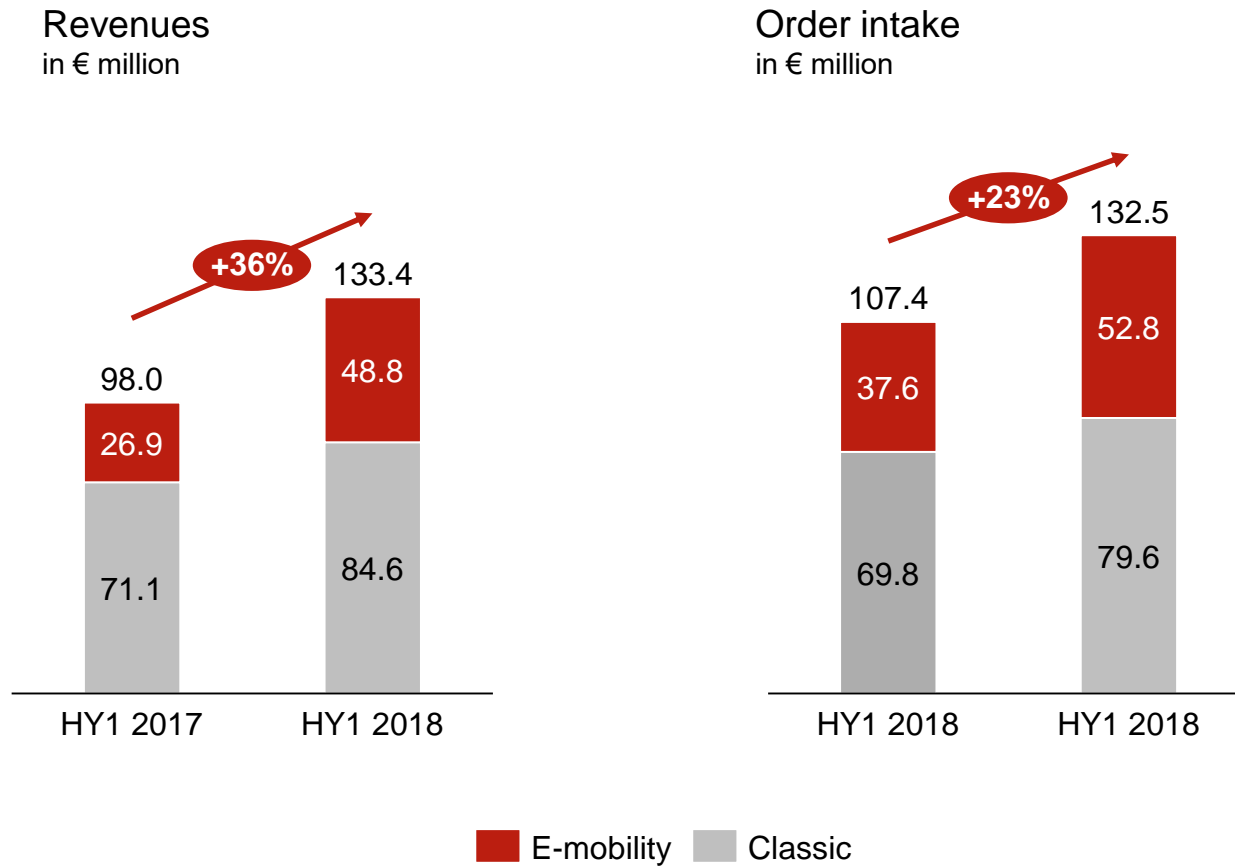


Growth is our priority for 2018 and we aim at revenues of more than €300 million

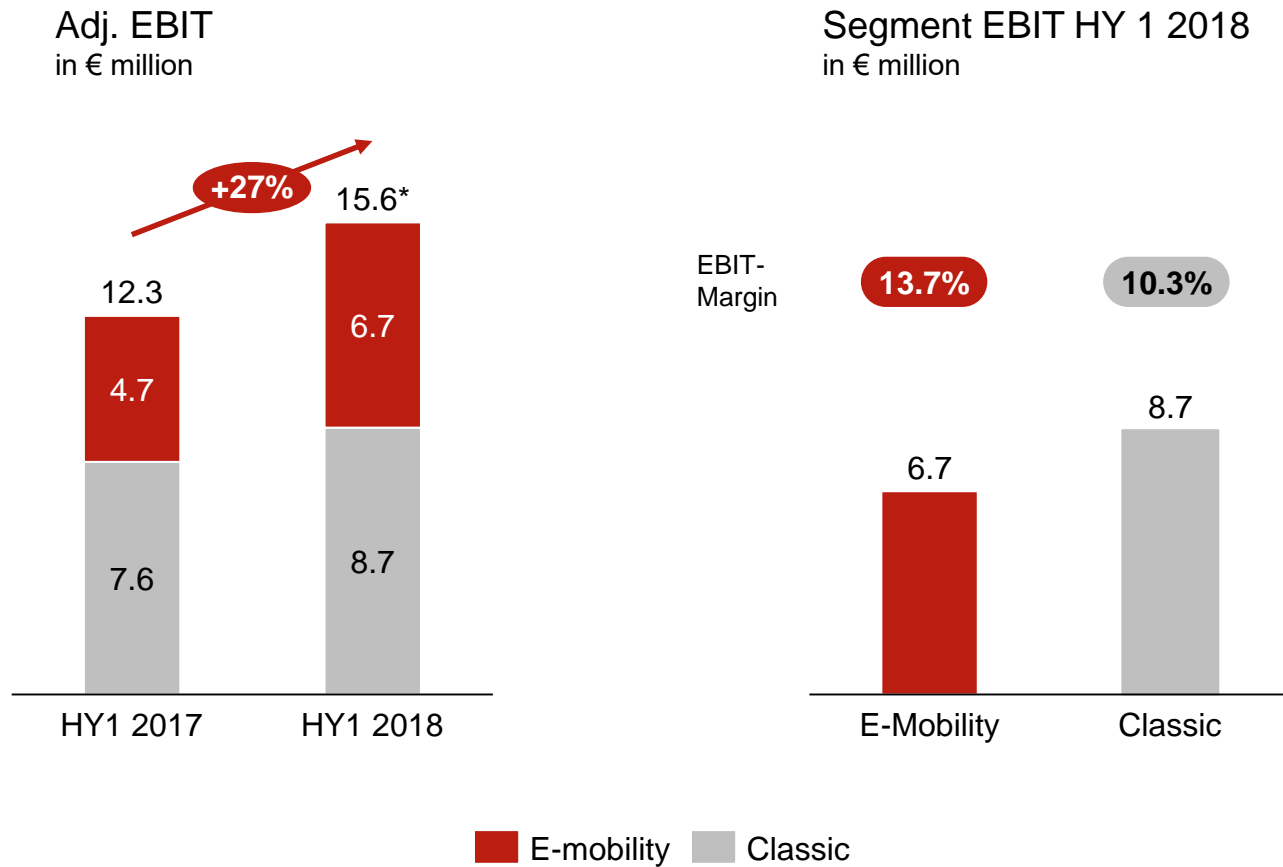
Total revenues  
in € million



In the first half year 2018, Aumann grew at all levels



In the first half year 2018, profitability has further increased

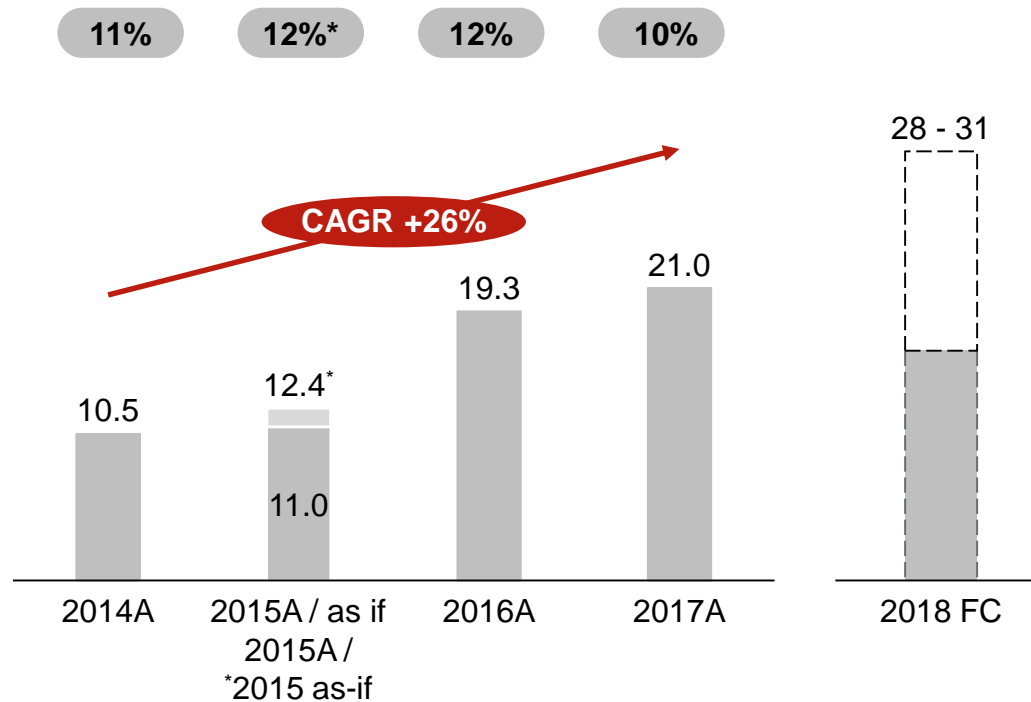


\* Not shown: €0.2m from adjusted reconciliation

We are currently at the upper end of our forecast for 2018

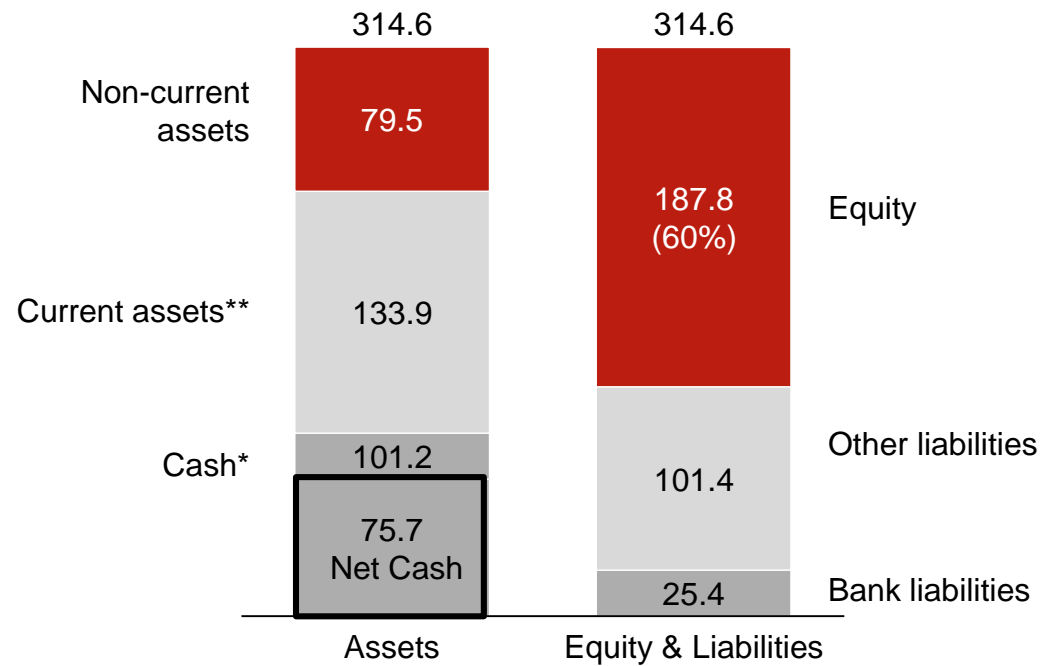
## Adjusted EBIT

in € million and in % of revenues



## A strong balance sheet allows further investments into Aumann's growth

Balance sheet 30 June 2018  
in € million



\* Liquidity & securities

\*\* without cash

## We have made significant progress on strategic roadmap to market leadership





No matter who will prevail in the E-mobility  
revolution, they will need Aumann's  
machines for **electric drivetrain  
manufacturing**

[www.aumann-ag.com](http://www.aumann-ag.com)

## Financial Calendar

|   |                         |
|---|-------------------------|
| Commerbank Sector Conference (Frankfurt, Germany)   | 29 August 2018          |
| Berenberg/GS Corporate Conference (Munich, Germany) | 25 September 2018       |
| <b>Quarterly Report Q3/2018</b>                     | <b>16 November 2018</b> |
| Deutsches Eigenkapitalforum (Frankfurt, Germany)    | 26 November 2018        |
| Berenberg European Conference (Pennyhill, UK)       | 4 December 2018         |
| <b>End of fiscal year</b>                           | <b>31 December 2018</b> |

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## Appendix

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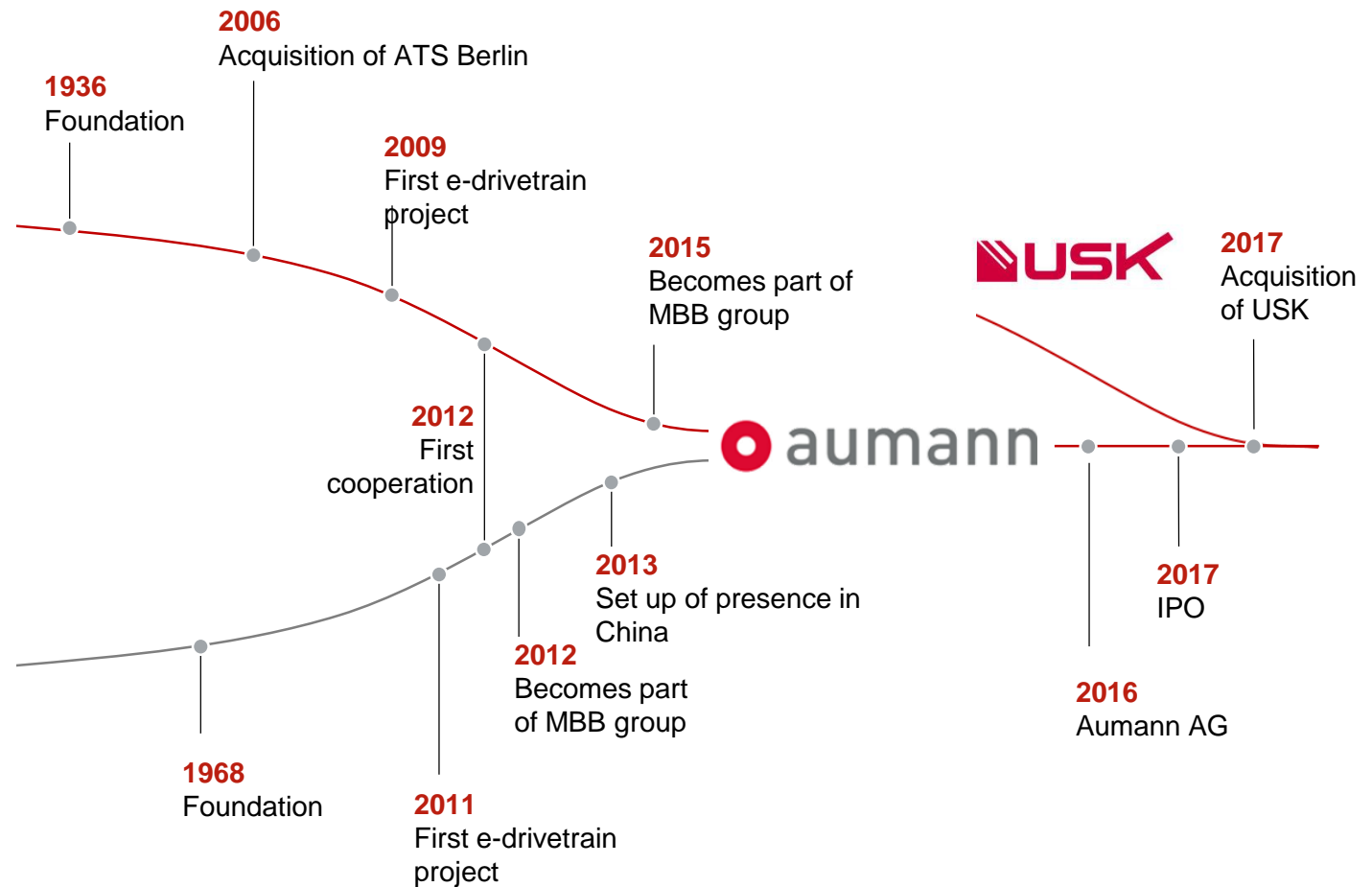
## The historical roots of Aumann



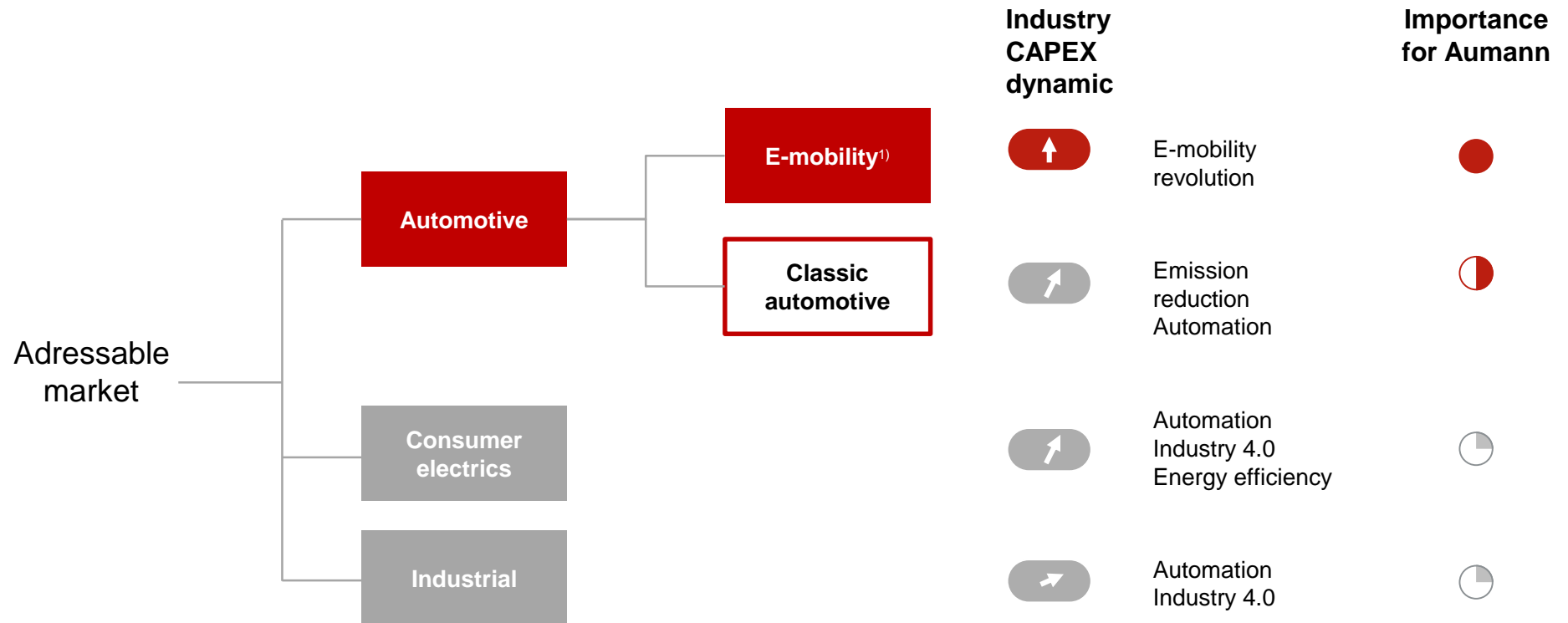
- ▶ E-mobility focus
- ▶ E-mobility references
- ▶ Winding technology



- ▶ Automation know-how and production scalability
- ▶ E-mobility experience and process excellence
- ▶ OEM relationships



# Key markets and growth dynamics



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