



## Leading and shaping change – Focus on technology

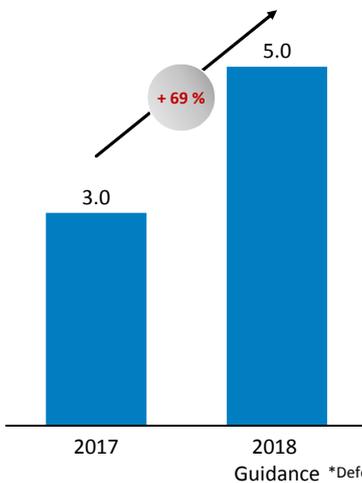
Armin Papperger, CEO

Capital Markets Day 2018, 29 November, Berlin

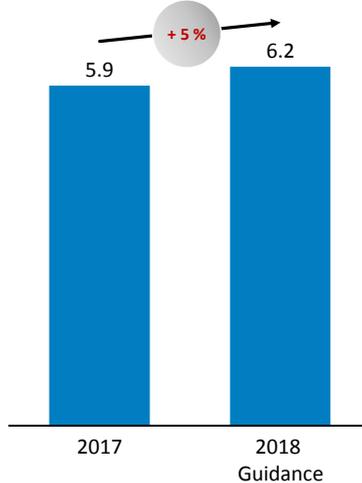


### Rheinmetall Group On track for the best year in Rheinmetall's history

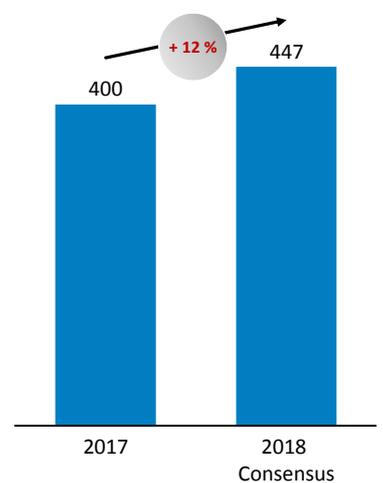
**Order entry\***  
in €bn



**Sales**  
in €bn

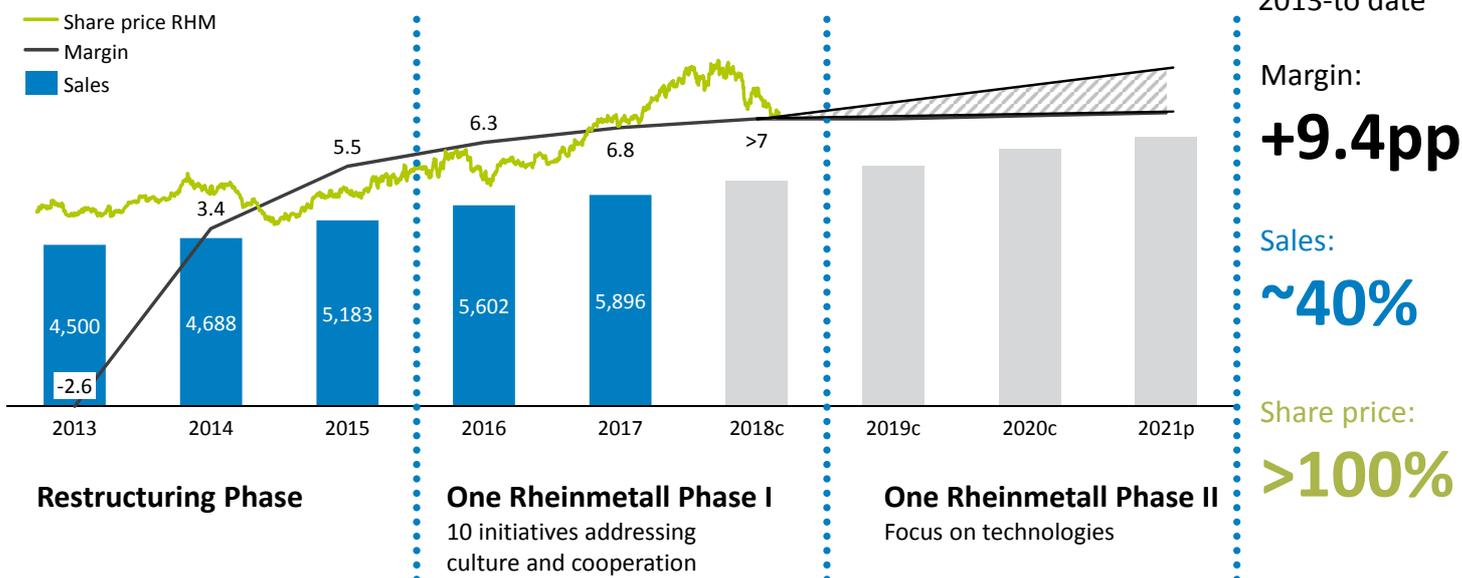


**Operating result**  
in €m



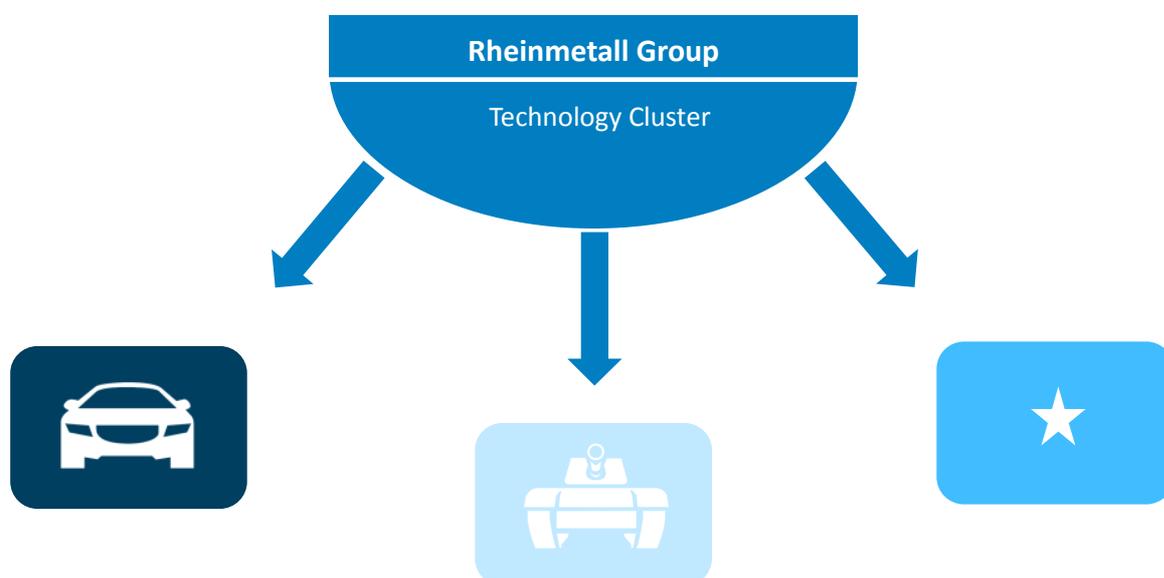
# Rheinmetall Group

## Markets have acknowledged operational development



# Rheinmetall Technology Cluster

## Focus on technology



# Rheinmetall Technology Cluster

## Top five technology cluster identified



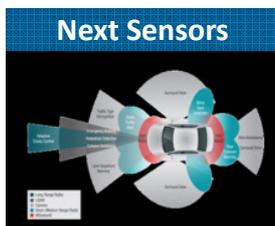
### Automation

- Advanced assistant systems for driving, sensing, protection and weaponing



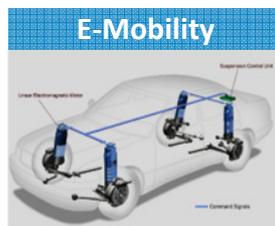
### Digitalization

- New, digitalized vehicle architectures
- Virtual prototyping and digital twins
- System / health monitoring, predictive maintenance, logistics



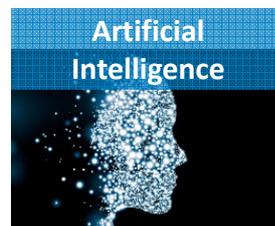
### Next Sensors

- New LIDAR\* / Radar sensors
- Resistant to jamming / spoofing
- Next generation IR sensors



### E-Mobility

- Hybrid drive
- E-drive
- Micro mobility



### Artificial Intelligence

- AI supported technologies
  - to handle complex situations
  - for decision support
  - for information superiority

\*LIDAR=light detection and ranging

# Rheinmetall Technology Cluster

## Automation – combining existing skills for new solutions

### Existing demonstrators with already realized functionalities

		MULE Function	Follower Function	Networks	Drive-by-wire
		Multi-Target Tracker	Teleoperation	Emergency Breaking	Traffic Signs
		Force-Feedback	Force-Feedback	Sensor/Weapon/Stabilization	
		Fire Control	Target Recognition & Tracking, Weapon Assignment (ZZW)		

- 90 engineers and scientists
- Multiple sites
- Aligned under the umbrella of ONE Rheinmetall



# Rheinmetall Technology Cluster

## Next Sensors – combining existing skills for new solutions / markets

### Defence



Radar based on Active Electronically Scanned Array (AESA)



Target markers, range finders, laser illuminators, projection systems



High res. daylight cameras, HD IR arrays, enhanced SWIR, dual-color IR, gated viewing, hyperspectral imaging

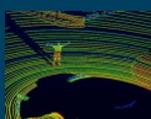


Stabilized Electro-Optical Sighting System, Multi Sensor Platform, FIRST, etc.

### Automotive projection



Miniaturized radar module with enhanced security features



Build LiDAR competency



IR arrays for night vision, Gated Viewing for improved weather performance

- New sensor concepts for future applications based on existing core competencies
- 150 engineers and scientists
- Multiple sites
- Aligned under the umbrella of ONE Rheinmetall

# Rheinmetall Technology Cluster

## E-Mobility as an example of existing cooperation



### Pass-Car E-mobility



### Micro E-mobility



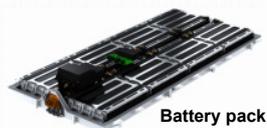
### Electrification



- Electrical traction/Drive units
- Energy storage systems
- Periphery systems and components
  - E-Motor housing
  - Battery tray
  - Heat-pump system
  - Electrified climate compressor
  - Electrified coolant pump



E-traction unit



Battery pack



Electrical drive unit



Battery Pack



Control unit



Electrified vacuum pumps



Electrified oil pumps



Electrified refrigerant compressor



Electrified heat-pump

80+ employees are working on E-mobility solutions

# ONE Rheinmetall

## Pedelec – An example of an existing cooperation



# Future vision

## Technology as the integrating bracket



**We are an integrated technology group for mobility and security!**

#### Disclaimer

This presentation contains “forward-looking statements” within the meaning of the US Private Securities Litigation Reform Act of 1995 with respect to Rheinmetall’s financial condition, results of operations and businesses and certain of Rheinmetall’s plans and objectives. These forward-looking statements reflect the current views of Rheinmetall’s management with respect to future events.

In particular, such forward-looking statements include the financial guidance contained in the outlook for 2018.

Forward-looking statements are sometimes, but not always, identified by their use of a date in the future or such words as “will”, “anticipates”, “aims”, “could”, “may”, “should”, “expects”, “believes”, “intends”, “plans” or “targets”. By their nature, forward-looking statements are inherently predictive, speculative and involve risk and uncertainty because they relate to events and depend on circumstances that will occur in the future. There are a number of factors that could cause actual results and developments to differ materially from those expressed or implied by these forward-looking statements. In particular, such factors may have a material adverse effect on the costs and revenue development of Rheinmetall. Further, the economic downturn in Rheinmetall’s markets, and changes in interest and currency exchange rates, may also have an impact on Rheinmetall’s business development and the availability of financing on favorable conditions. The factors that could affect Rheinmetall’s future financial results are discussed more fully in Rheinmetall’s most recent annual and quarterly reports which can be found on its website at [www.rheinmetall.com](http://www.rheinmetall.com).

All written or oral forward-looking statements attributable to Rheinmetall or any group company of Rheinmetall or any persons acting on their behalf contained in or made in connection with this presentation are expressly qualified in their entirety by factors of the kind referred to above. No assurances can be given that the forward-looking statements in this presentation will be realized. Except as otherwise stated herein and as may be required to comply with applicable law and regulations, Rheinmetall does not intend to update these forward-looking statements and does not undertake any obligation to do so. This presentation does not constitute an offering of securities or otherwise constitute an invitation or inducement to any person to underwrite, subscribe for or otherwise acquire or dispose of securities in Rheinmetall AG or any of its direct or indirect subsidiaries.

Rheinmetall AG | Rheinmetall Platz 1 | 40476 Düsseldorf  
Tel. +49 211 473-4718 | Fax +49 211 473-4157 | [www.rheinmetall.com](http://www.rheinmetall.com)

---

© Rheinmetall AG / CMD 2018 / Group

# MOBILITY. SECURITY. PASSION.