



DRIVING DIGITALIZATION

FACT BOOK



KNORR-BREMSE

Agenda

- **Introduction**
- Key Company Highlights
- Rail Vehicle Systems (RVS)
- Commercial Vehicle Systems (CVS)
- R&D Focus
- Financials
- Sustainability/ ESG
- KB shares/ KB bonds
- Appendix



The Knorr-Bremse leadership team



Marc Llistosella,
Member of the Board, CEO

- 2023-present: Knorr-Bremse | CEO
- 2021-present: Vaionic Technologies GmbH | Board Member and investor
- 2019-present: Einride AB | Board Member and investor
- 2008-2018: Daimler Trucks Asia | 2015-2018 President & CEO, Mitsubishi Fuso Truck & Bus Corporation; Head of Daimler Trucks Asia | 2008-2014: Managing Director & CEO, Daimler India Commercial Vehicles
- Diploma in Bus. Administration

with Knorr-Bremse since **01/23**



Frank Weber
Member of the Board, CFO

- 2020-present: Knorr-Bremse | CFO
- 2016-2020: Daimler AG | Head of Corporate Development
- 2019-2020: Mercedes-Benz AG | Head of Transformation
- 2013-2016: Daimler Trucks Asia | CFO
- 2011-2013 Mitsubishi Fuso Trucks & Bus Corporation | CFO
- Diploma in Bus. Administration

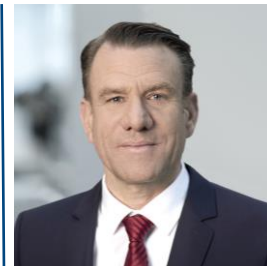
Years with Knorr-Bremse **2**



Dr. Claudia Mayfeld
Member of the Board,
Integrity & Legal

- 2021-present: Knorr-Bremse | Head of Integrity & Legal
- 2013-2019: RWE Pensionsfond | Member of the Executive Board
- 2016-2020: Innogy SE | Senior Vice President Group Legal & Compliance, General Counsel
- 2013-2016: RWE AG | Senior Vice President Group Legal & Compliance, General Counsel
- PhD in Accounting Principles

Years with Knorr-Bremse **1**



Bernd Spies
Member of the Board, CVS

- 2022-present: Knorr-Bremse | Head of CVS
- 2014-2022: Knorr-Bremse | Member (2013-2015) and Chairman (since 2014) of the Management Board, CVS
- 2008-2013: Hella KGaA Hueck & Co | Member of the Management Board, Global Sales
- 2006-2008: Robert Bosch GmbH | Head of Commercial Vehicles product division, Starters and Alternators
- Diploma in Electrical Engineering

Years with Knorr-Bremse **8**



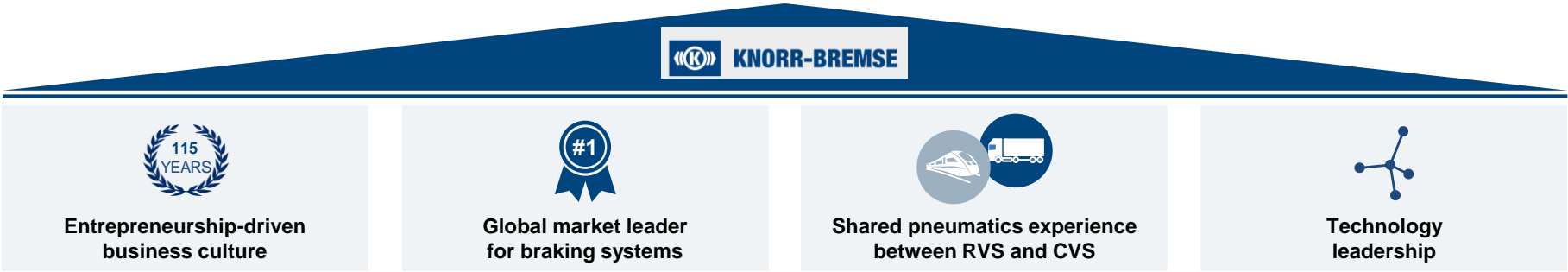
Dr. Jürgen Wilder
Member of the Board, RVS

- 2018-present: Knorr-Bremse | Head of RVS
- 2015-2017: DB Cargo AG | CEO
- 2013-2015: Siemens AG | CEO Mainline Transportation Global Business Unit
- 2011-2013: Siemens AG | Head of Strategy Infrastructure and Cities Sector
- PhD in Physics

Years with Knorr-Bremse **4**



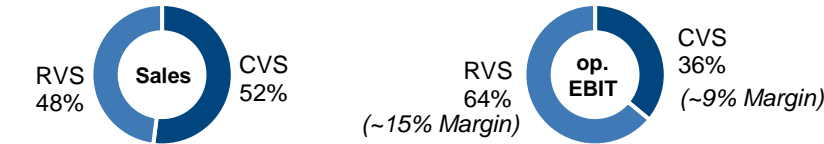
Knorr-Bremse – One of Germany’s most successful industrial companies



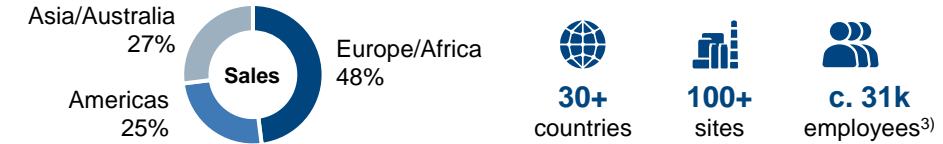
2022 Key financials



BALANCED PORTFOLIO²⁾ ...

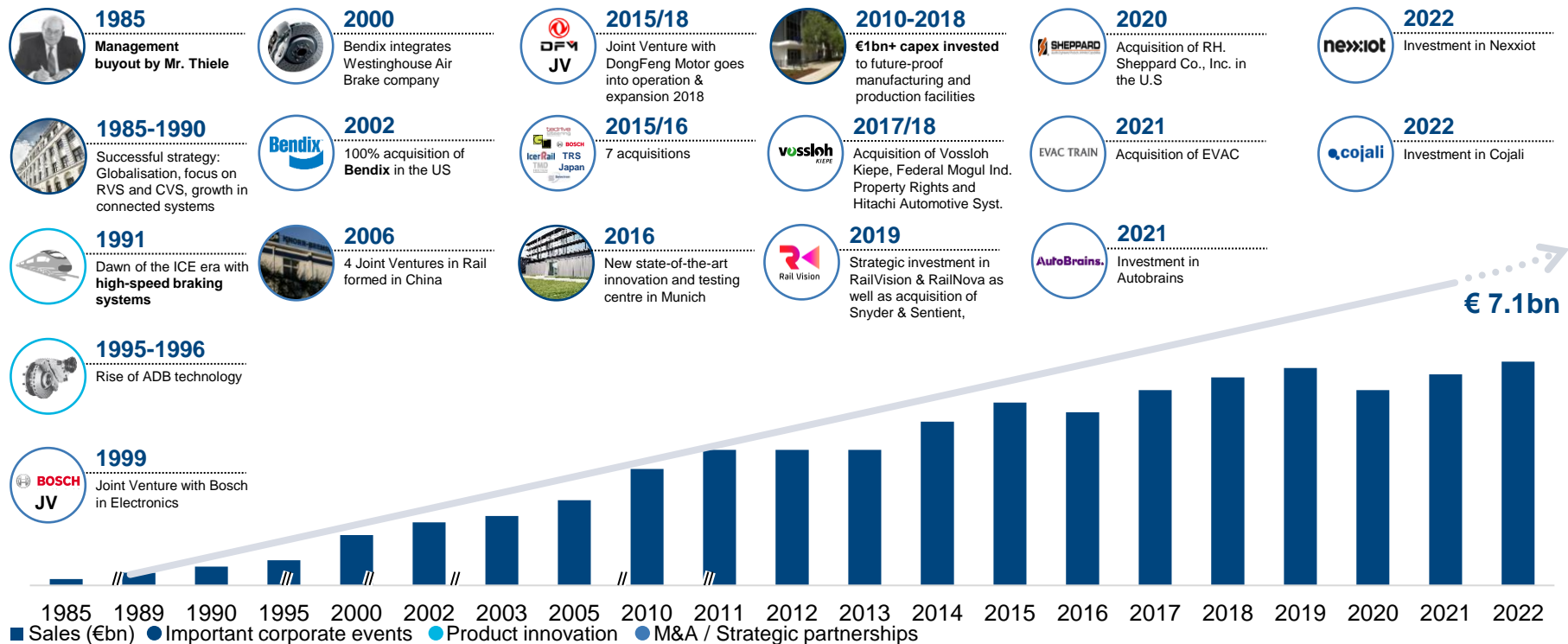


... AND DIVERSIFIED GLOBAL FOOTPRINT WITH HIGH LOCAL CONTENT



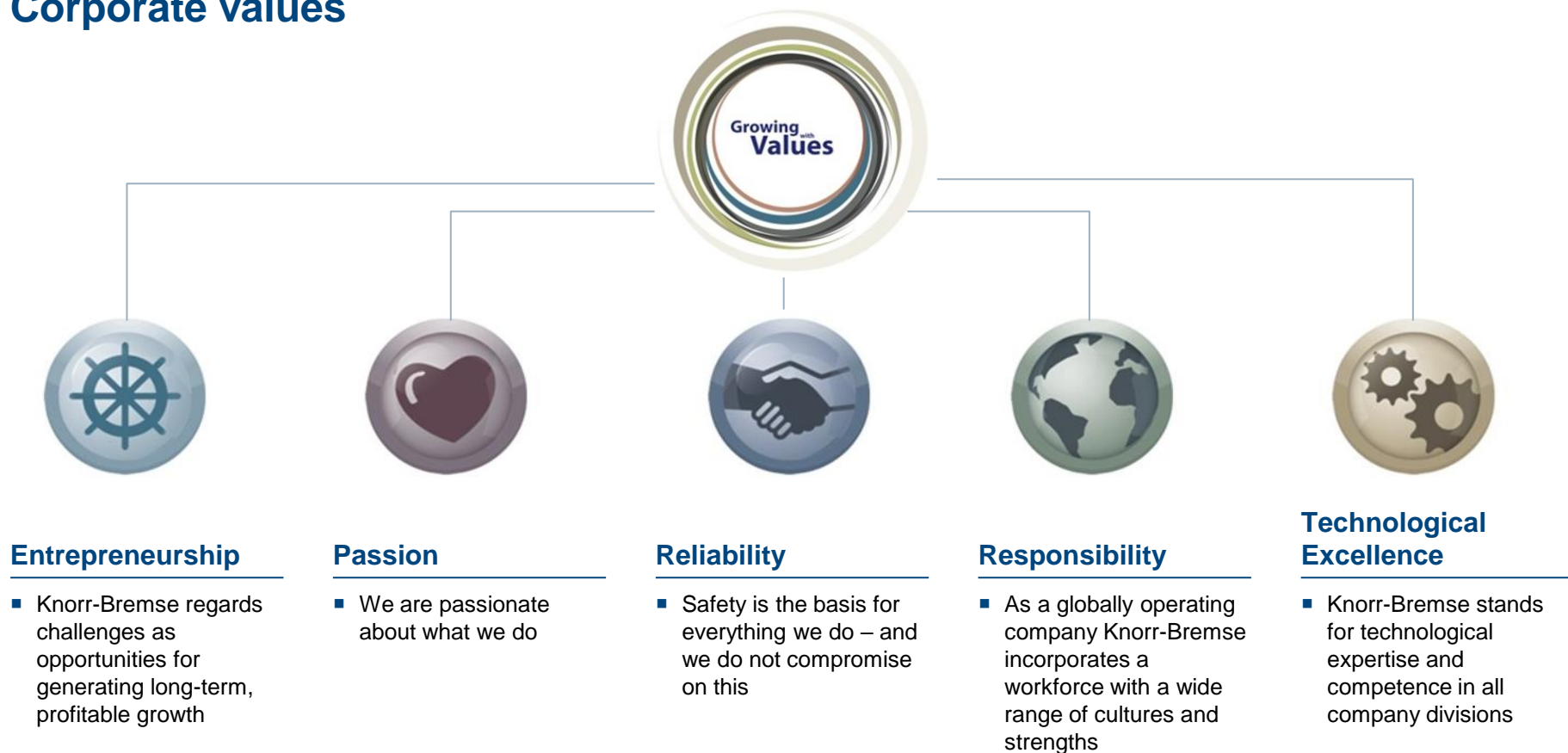
Notes: Sales, EBITDA, EBITA, and EBIT for 2020 based on annual report prepared in accordance with IFRS, other financial figures for 2020 prepared in accordance with German GAAP (HGB); Aftermarket share based on German GAAP (HGB) where BilRUG sales allocated proportionally between OE and aftermarket; RVS – Rail Vehicle Systems; CVS – Commercial Vehicle Systems; 1) CAGR 1989–2019 based on German GAAP (HGB), 1989 – first year when consolidated accounts are available; 2) Excluding consolidation/other; 3) Including human resources leased staff; Source: Knorr-Bremse information

Over 30 years of consistent strong growth



Notes: 1986-2016 based on financial statements prepared in accordance with German GAAP (HGB) and 2017-2019 based on financial statements prepared in accordance with IFRS. 1) 1989 – first year when consolidated accounts are available

Corporate values



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Global market leader in rail and truck



Market leadership

A global market leader

~50% market share¹ in RVS brakes

~23% market share¹ in CVS brakes



Market outperformance

Track record of **above industry growth**



Innovation edge

Shaping industry trends by focusing on **safety** and **mission critical** applications



Sustainability/ESG are part of our DNA

Our technologies are the **foundation for sustainable and safe transportation**



High safety requirements

Key supplier with global core technology know-how and capabilities
Clearly ahead in global **homologation** processes



Resilience

38% aftermarket share¹

Well-balanced **portfolio**
Cost-efficient operations



Profitability

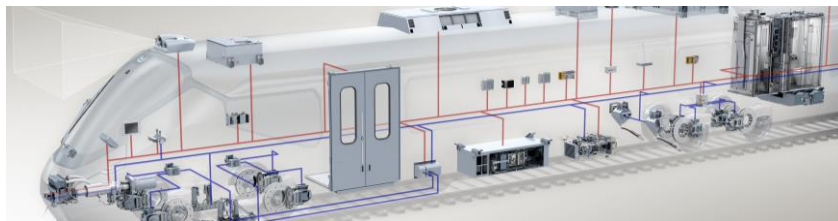
Focus on **attractive** rail and truck **end markets**

1) In 2022

Global #1 – Leading supplier of safety-critical rail and commercial vehicle systems

RVS offering (2022: 48% of sales, 64% of EBIT)

| | | | | |
|---------------|------------------|--------------------|----------------------------------|------------------------------------|
| Brake systems | Entrance systems | HVAC ¹⁾ | Train Control Management Systems | LRV ²⁾ traction systems |
|---------------|------------------|--------------------|----------------------------------|------------------------------------|



| | | |
|---------------------------|------------------|----------------------|
| Power electronics | Sanitary systems | Signaling systems |
| Modernisation and support | | Aftermarket business |

Our customers

Example car builders



Example operators



CVS offering (2022: 52% of sales, 36% of EBIT)

| | |
|---|--|
| Fuel efficiency <ul style="list-style-type: none"> Engine components Transmission | Brake systems, steering & vehicle dynamics <ul style="list-style-type: none"> Brake control Brake systems Automated driving Steering systems |
|---|--|



| | | |
|---|--------------|-----------------|
| Energy supply & distribution | Connectivity | Electrification |
| Aftermarket services including Alltrucks network ³⁾ ALLTRUCKS | | |

Notes: 2020 financials based on IFRS excluding consolidation/other; 1)HVAC – Heating, ventilation and air conditioning; 2)LRV – Light rail vehicle; 3) Joint Venture between Bosch, Knorr-Bremse and ZF providing a range of workshop services relating to the repair and maintenance of commercial vehicles across all brands; 4) OEM – Original Equipment Manufacturer

Global #1 – ... protected by high barriers to entry

Barriers to entry for RVS and CVS markets

Regulation / homologation

Low volumes, high number of variants with high level of customisation

High initial capital requirements, highly protected IP landscape and economies of scale

Highest quality and safety requirements

Long life-cycle with resulting customer loyalty, long gestation period for aftermarket

Same industry leaders since creation of the industry over 100 years ago

Market specifics

RVS

Only supplier world-wide

certified for all global and local standards and norms (GOST, UIC, AAR, ARA)

Vast array of product variants to homologate

(e.g. >100k active brake articles by Knorr-Bremse)

Homologation time typically 4-8 years

for recent Knorr-Bremse products

CVS

One of only two suppliers able to offer harmonised products globally

Continuously increasing safety and emission standards requirements

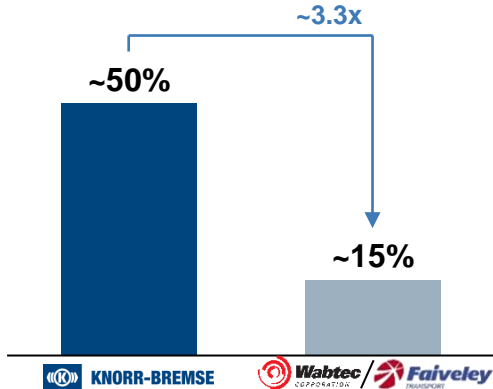
KB has maintained and expanded its market leading positions



Market positions key product groups¹

Global brakes market shares¹

- #1 Brake systems
- #1 Entrance systems
- #1 HVAC systems²



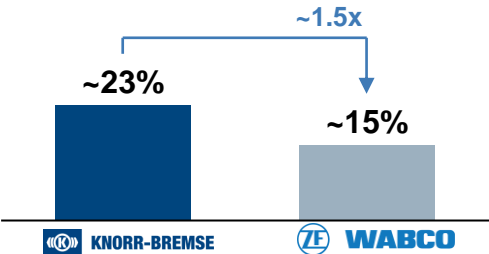
*Example global market leader
for brakes¹*



Market positions key product groups³

Global brakes market shares³

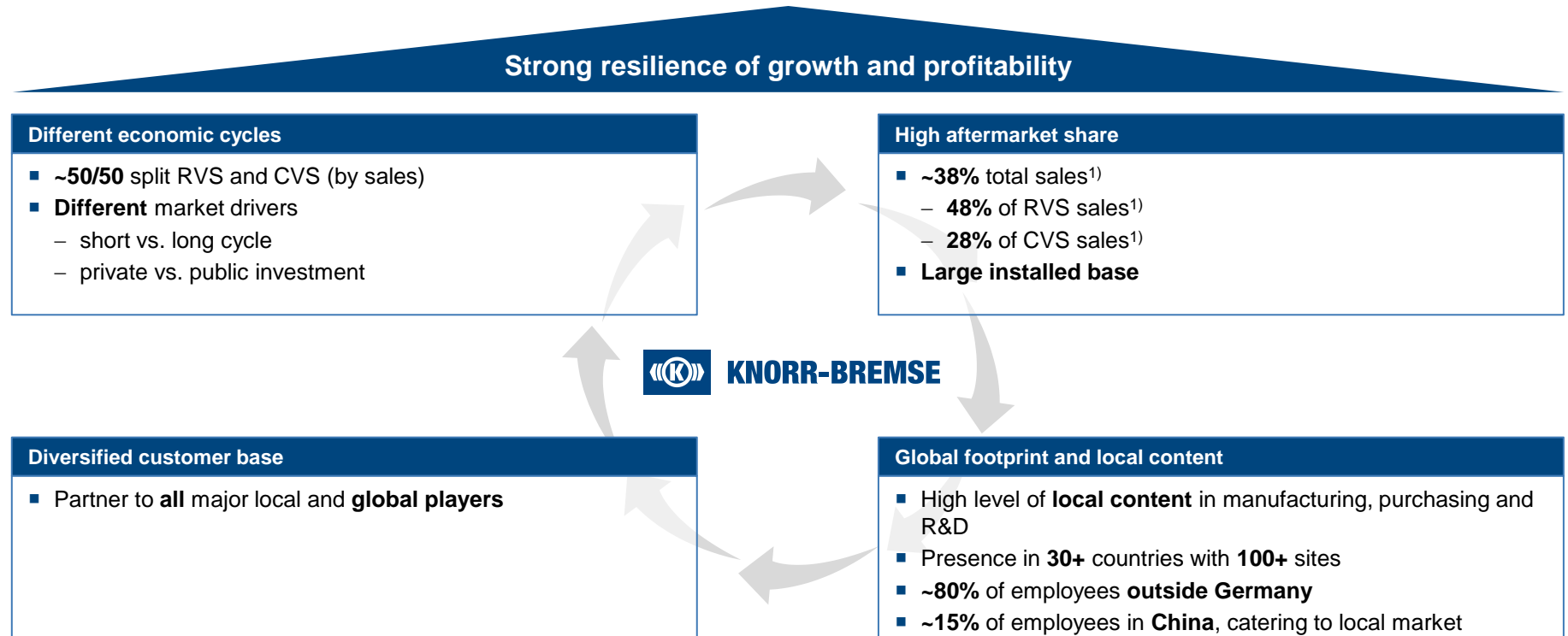
- #1 Brake systems & vehicle dynamics⁴
- #1 Energy supply & distribution⁵
- #1 Fuel efficiency⁶



*Example global market leader for
brake systems & vehicle dynamics⁴*

1) 2020 estimates for OE and aftersales without labor; Wabtec includes Faiveley; For competitor, an estimate was used; Market shares rounded to the nearest multiple of 5% 2) Heating Ventilation Air Conditioning
3) For 2020 global addressable Truck, Bus and Trailer OE market, excl. aftermarket 4) Air disc brake, valves / pedal unit, actuators, foundation drum brake, steering, brake control (ABS, EBS, ESP), ADAS, ELC, others 5) Compressors, air treatment 6) Vibration dampers, engine air control, transmission – gear and clutch actuation/ control; Source: internal market research

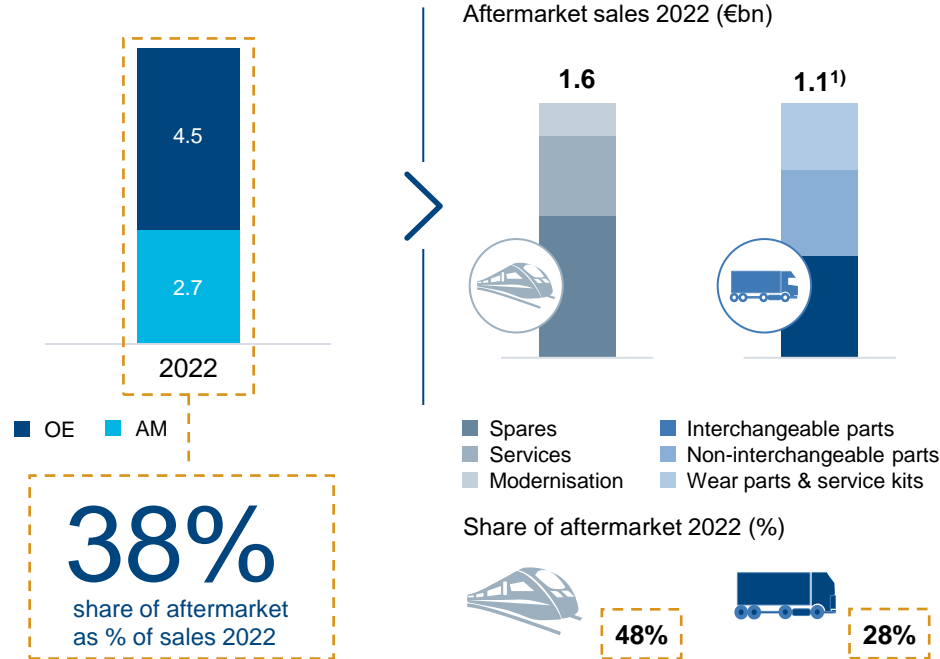
Resilience – Strong business model



Notes: 1) Based on IFRS in 2022

Resilience – Attractive aftermarket business with comprehensive service offering drives profitability and contains high future potential

Aftermarket is the growth and resilience backbone



Key features

Annuity-like

- Regulated maintenance intervals
- Leverages high installed base
- 20-30 years long relationships

Close to the customer

- RVS
 - 36 service centres²⁾
 - 20 service locations at customers' premises
- CVS
 - >1,600 certified service partners
 - >700 Alltrucks workshops

Strong customer retention (homologation)

- High switching costs
- Focus on safety and quality
- IP protection

Innovative business model

- New connectivity-based business models
- Preventive
- Predictive

Notes: 1) Total CVS aftermarket sales and independent aftermarket sales EMEA (excl. South Africa & Skach) as proxy for the global split; 2) Does not include service locations at customers' premises

Synergistic business – Technology and scale benefits between Rail and Commercial Vehicles

Interdependence of RVS and CVS

- Same core technologies
- Shared components and materials
- Co-located R&D centers
- Shared overhead functions

Future technology development

- Shared research centres
- ADAS¹⁾ / HAD²⁾ technology transfer
- Condition monitoring, condition-based and predictive maintenance
- Electrification and connectivity
- Electromechanical brake systems

Differences of RVS and CVS

- Serial business (CVS) vs. project business (RVS)
- Different customer group

RVS



CVS



Electric compressors
Friction materials
Air disc brakes (ADB)

Driver assistance
Trailer control valve
Electronic air supply

Notes: 1) ADAS – Advanced driver assistance system; 2) HAD – Highly automated driving

Innovation is the basis of KB's technology leadership and long-term success



True Scale:

>4,000 R&D employees
Thereof 740 software engineers
5 global R&D centers (3 co-located)



Agile R&D methods implemented



Extensive partnership network & collaboration with tech players



In-house incubator



Pioneering innovations (examples)

RVS



Digital automatic coupler for freight (DAC)



Reproducible braking distance



LIFEDrive sliding doors

CVS



Electric power steering



Electronic parking brake



eCompressor

Long-term R&D ratio: 6 – 7 %

We confirm our successful strategy

- «1» Systematically **develop base portfolio**
- «2» **Focus on attractive segments** for future outperformance in **rail** and **truck**
- «3» Drive **innovation & digitalization**
- «4» **Clear M&A strategy**
- «5» **Operational excellence**
- «6» **ESG and sustainability**
- «7» **Strong financial performance**



Knorr-Bremse is ideally positioned to shape the trends of the future



Urbanization



Sustainability



Digitalization



Mobility

Industry trends: addressing industry trends with superior technological solutions

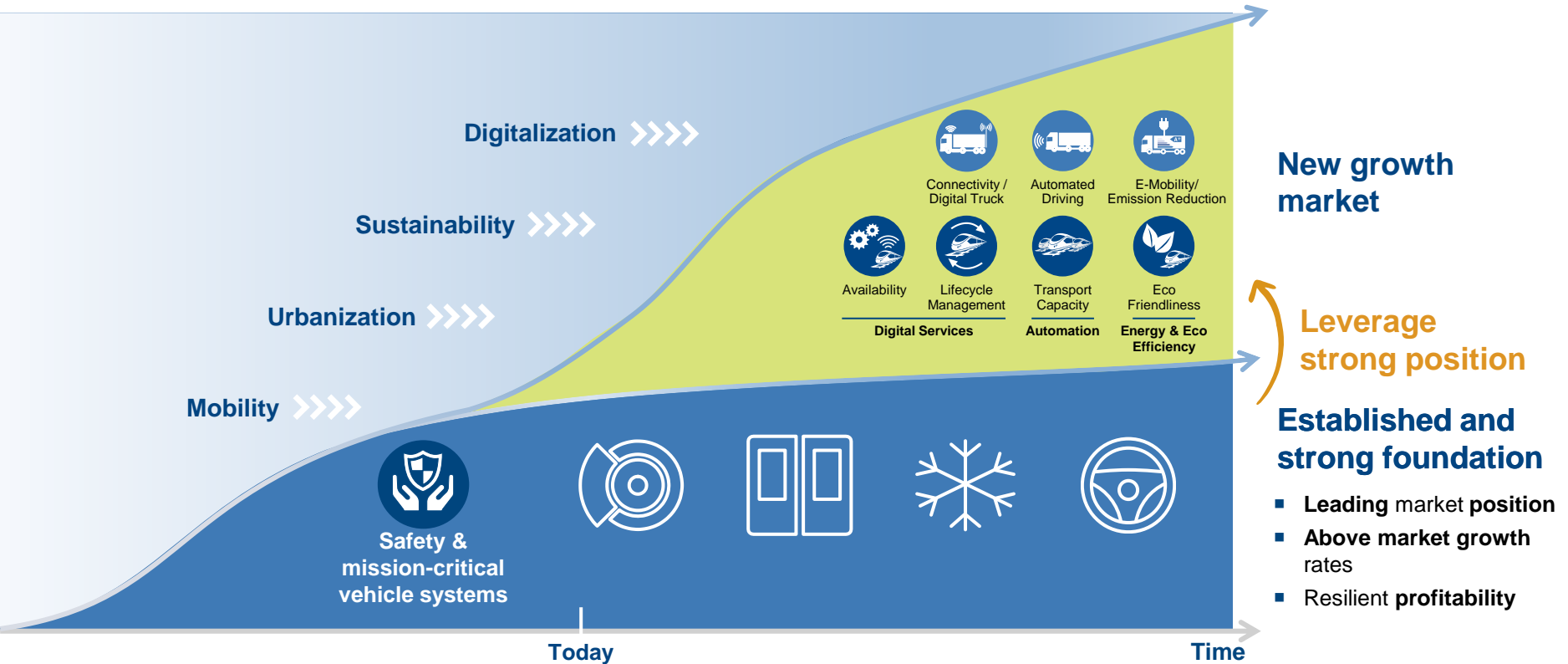


Transport Capacity
Availability
Eco Friendliness
Life Cycle Management



Traffic Safety
Emission Reduction & E-Mobility
Automated Driving
Connectivity

Knorr-Bremse will continue to grow its core business further and will also develop new levers of growth



Knorr-Bremse continues to systematically develop its portfolio of mission critical products and digital solutions

Mechanical products

Mechatronic products

Smart & digital products

— **Strong basis** —



Pneumatic
brake
system



Air disc
brake



Electronically
controlled
pneumatic
brake



ABS & EBS



Smart brake
control (Cube
Control)



GSBC &
rGSBC

Digitalization empowers KB's growth engine



Majority investment



Capabilities

- ✓ All-Makes workshop diagnostics
- ✓ Telematics incl. remote vehicle diagnostics
- ✓ Data analytics & big data

Applications

Aftermarket ecosystem



Predictive maintenance



Data monetization



Impact



Strong growth & profitability



~ 15% revenue CAGR until 2026



Strategic partnership & minority investment



nexxiot

- ✓ Specialist in IoT-technologies
- ✓ Diagnostics & telematics
- ✓ Cloud-based ecosystem

Multiple transport segments¹



Condition monitoring



Predictive maintenance



€ 50-70m new dig. KB rev. in 2026²



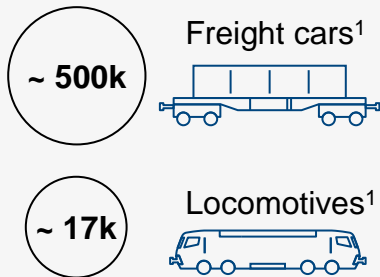
~ 1.5m installations until 2024³

1. Segments include rail freight, maritime freight and rail non-freight & DAC 2. Digitally-enabled revenue by Nexxiot 3. In connected wagons & intermodal containers

RVS in strong position to tap into digital automatic couplers



Digital Automatic Couplers | Enabling faster processing and enhanced safety




Vast untapped future market in 2030+

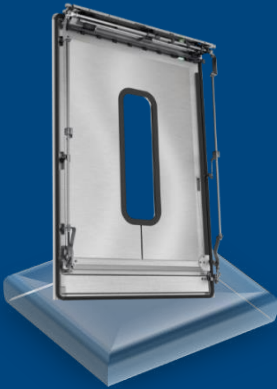

RVS at the forefront of innovation



1. Current numbers for EU market only, representing potential future market in Europe

Condition monitoring to become a major source of digital offering

Key performance of door systems defined by:



Availability
All doors in service



Reliability
Highest MTBF¹



Passenger safety
Safety functions fully operational

RVS helps customers to efficiently monitor and measure KPIs:



Condition monitoring @ IFE

> 5,000

Doors connected
in 245 trains

~ € 33m

RS contract value²

> 15,000

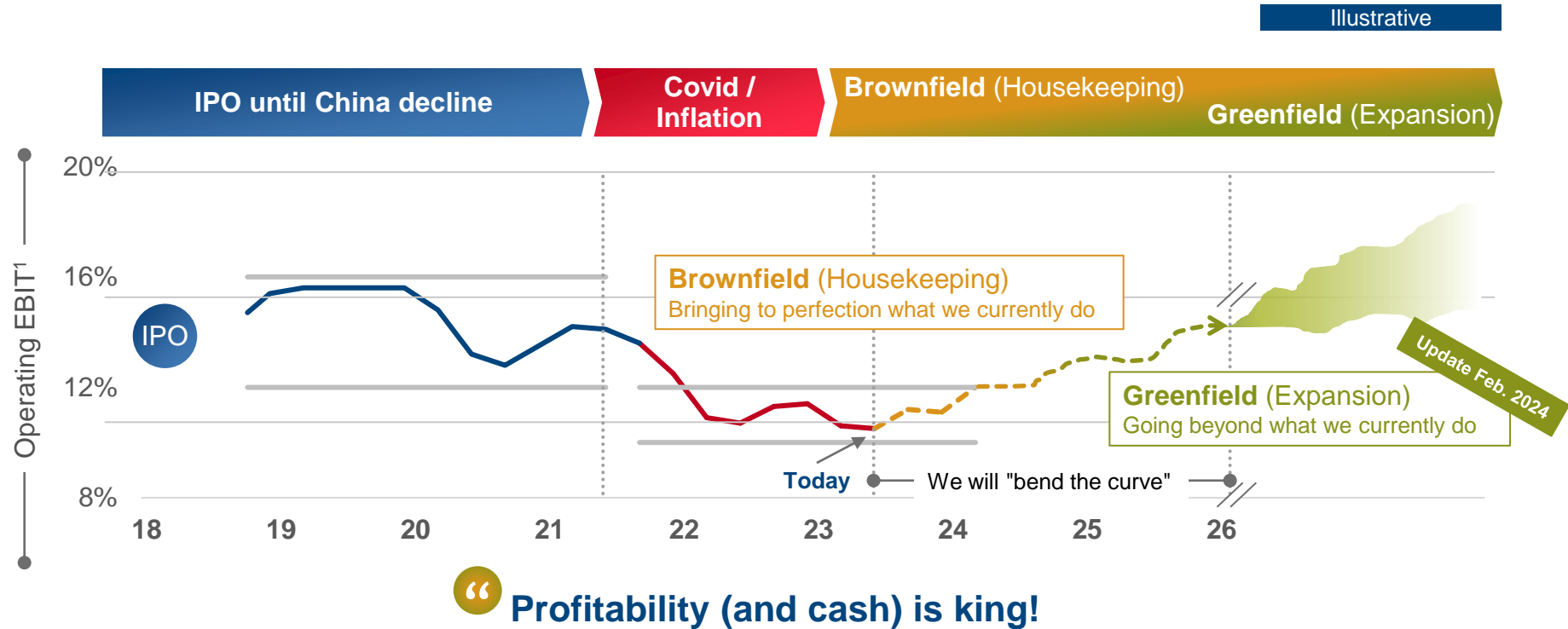
Future potential
for connected doors



... Predictive maintenance to come next

1. MTBF: Mean Time Between Failures 2. Monitoring offered as part of long-term supply agreements (LTSA) only; includes active and ordered volume














We will "bend the curve" to bring KB to the next level






1. Indicative reported EBIT; Note: All figures after today are illustrative only

BOOST¹ program with clear responsibilities to reach the next level

BOOST 2026

| Strategic initiatives |  Products |  People |  Processes |
|--|--|---|--|
|  Brownfield (Housekeeping) | 2 Revitalizing the core  | 1 Culture development  | 3 Efficiency programs (PCPP)  |
| | 4 Portfolio right-sizing  | Organizational transformation | |
| | 4 Fix-it program  | Talent mgmt. (HR Connect)  | NWC optim. (Project Collect) |
| | 5 Renewal of innovation power | | SG&A, legal entity reduction  |
| | Expansion of aftermarket | | IT excellence (S4Hana)  |
|  Greenfield (Expansion) | 6 Driving digitalization (growth) | Strong EVP ² | Driving digitalization (efficien.) |
| | 7 Enabling ESG for our customers (incl. CO ₂ emission reduction) | | |
| | 8 Selective M&A | | |

1. Knorr-Bremse Operational Optimization Strategy and Transformation 2. Employer value proposition  Initiative started   Deep dives in the following

Clear vision for 2026: Become strong capital goods company by successfully managing portfolio of robust assets

Strong capital goods company



Culture development – team, commitment, responsibility & execution



Operational excellence in everything we do → **BOOST**

Targets 2026: Ambitious financial targets to drive value creation

Strong capital goods company



**€ 8-9bn
revenues**



**80-90%
cash
conversion**



**> 14%
Op. EBIT margin**

Growth

Revenue **€ 8-9bn**

Profitability

Op. EBIT margin **> 14%**

CVS > 13.5%

RVS > 16.5%

ROCE **> 20%**

Free Cash Flow

CCR **80-90%
sustainably**

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RVS: outperformance and resilience



Market leadership

Global #1 market leader across products and regions (e.g. ~50% market share in brake systems)



Strong growth profile

RVS with **long track record of outperforming underlying markets**



Technology innovation

- **Strong technology innovator** shaping industry standards
- Continuation of **R&D investments**



High barriers to entry

- **Safety-critical products** with significant homologation barriers
- RVS only supplier certified for all standards and norms globally



Resilience

- **Expansion of business** through customer-region-product mix
- **Strong aftermarket** (~48% revenue share)



Profitability

Outstanding profit margins with track record of margin expansion and disciplined cost management

RVS: the leading safety critical systems supplier for rail with a track record of market outperformance



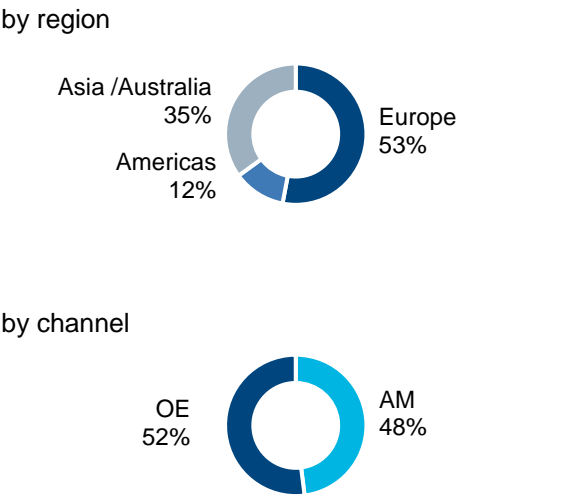
Highlights

-  Rail brake systems supplier globally¹⁾
-  Rail entrance systems supplier globally¹⁾
-  HVAC systems supplier globally¹⁾
-  Global brakes market share¹⁾
-  Present in 50-55% of global installed base²⁾
-  c.16k employees

2022 key financials

| |
|-------------------------------------|
| € 3.4bn sales |
| ~5% CAGR 2010-2022 ³⁾ |
| € 638m op. EBITDA (18.8% margin) |
| € 507m op. EBIT (14.9% margin) |
| 48% aftermarket share ⁴⁾ |

2022 sales split

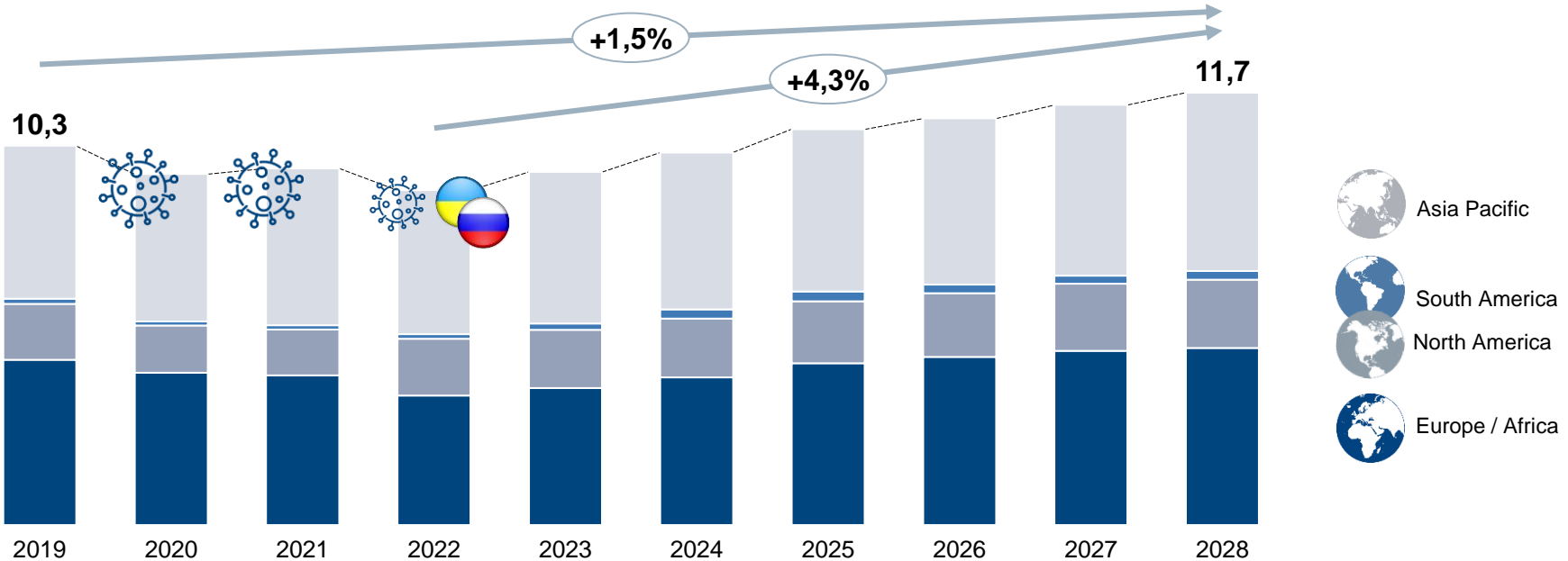


Notes: BilRUG sales allocated proportionally between OE and aftermarket; 1) RVS market share estimates for OE and aftersales without labour; 2) All active rail vehicles without freight cars with a minimum of one Knorr-Bremse system related to brakes, entrance systems and HVAC installed; 3) Total reported RVS sales growth including OE and aftermarket based on German GAAP (HGB) 2010-2016; from 2016 IFRS 4) BilRUG sales allocated proportionally between OE and aftermarket

Long-term growth in global rail will continue, despite Covid aftermath and Russian invasion into Ukraine



Development of relevant sub-systems market volume¹ (OE + AM in €bn)



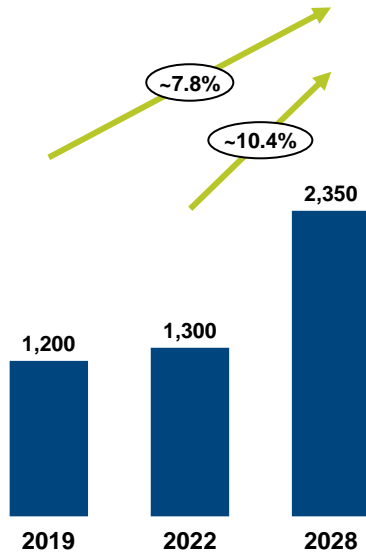
1) Big Five - Brakes, Doors, HVAC, Power Electronics, TCMS; Source: Knorr-Bremse information and internal market research

Future growth will come from markets in Europe, Asia and Americas



Market development OE in €m, CAGR in %¹

Selected biggest growth markets



| | CAGR '22-'28 | Market position ³ |
|---------------------------------|-----------------|------------------------------|
| North America & Mexico MT | ~10% | #2 |
| South America | ~21% | #1 |
| Austria | ~13% | #1 |
| France | ~11% | #2 |
| Germany | ~7% | #1 |
| Scandinavia | ~18% | #1 |
| Spain & Portugal | ~10% | #1 |
| India (High Grade) | ~8% | #1 |
| South East Asia | ~24% | #1 |
| South Korea | ~9% | #2 |
| Selected biggest growth markets | ~10% | #1 |
| RoW ² | ~2% | #1 |

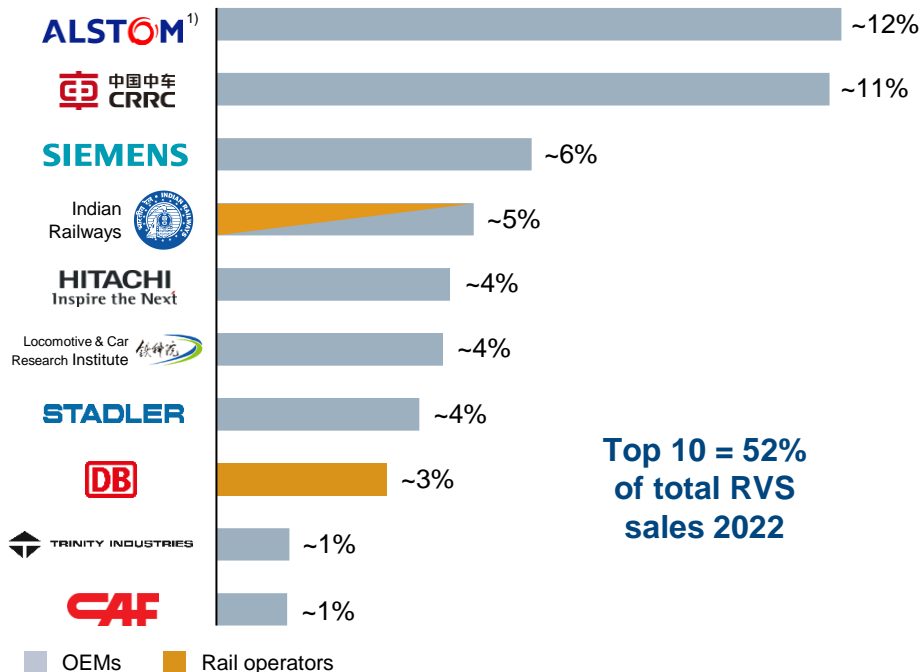
1) Brakes, Doors, HVAC, rounded to the nearest 50 2) Rest of World w/o selected biggest growth markets & w/o Russia & CIS 3) Year 2022

Source: Knorr-Bremse internal market research; Values recognize FX rates

Global Tier-1 partner of choice for OEMs and rail operators in all regions



Top 10 customers 2022 (% of sales)



**Top 10 = 52%
of total RVS
sales 2022**

Other major Knorr-Bremse customers

>300 relevant rail operator customers

Europe / Africa



Americas



Asia / Australia



>50 relevant OEM customers

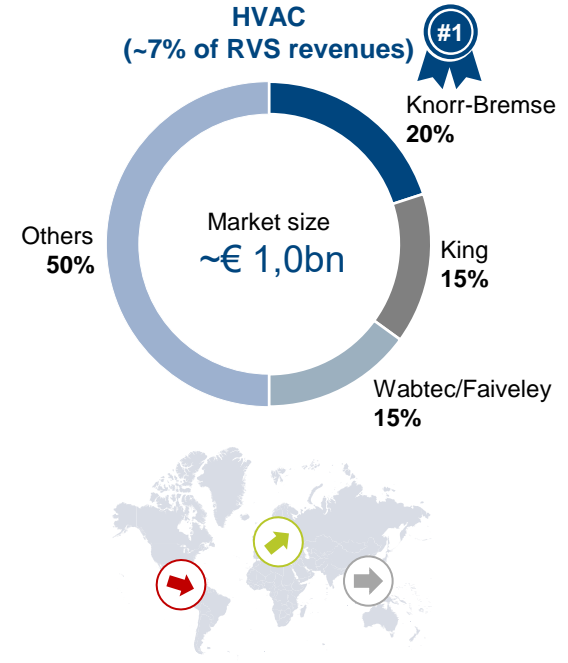
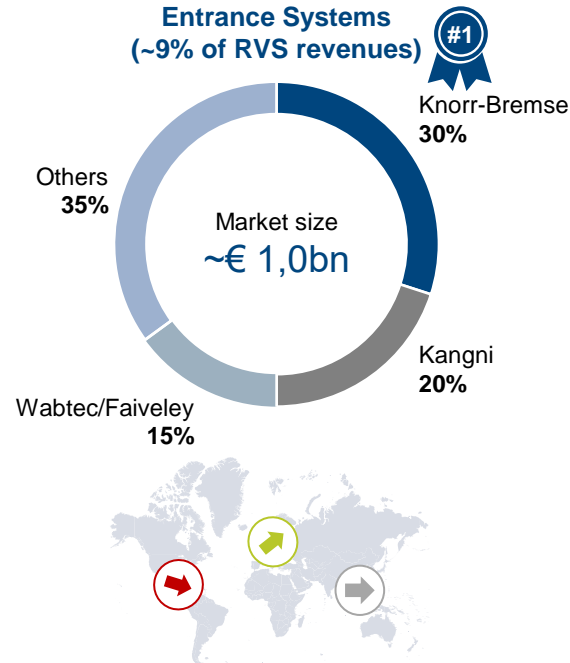
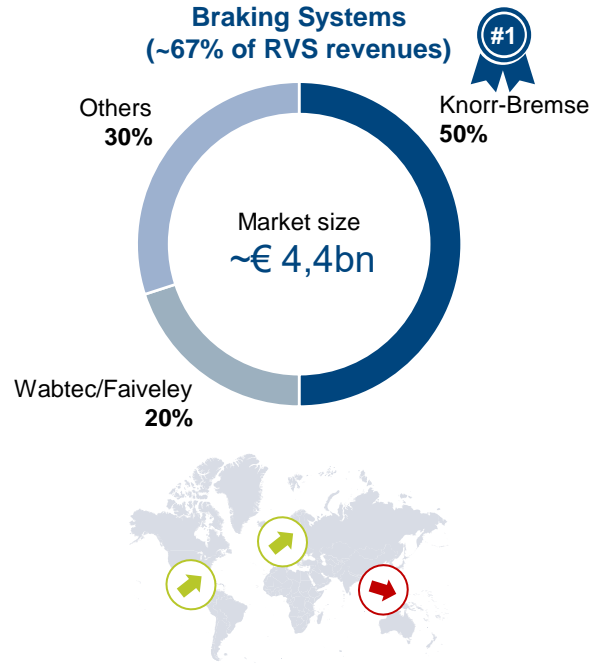


Notes: 2022 sales and customer data based on 31.12.2022; Share of top 10 customers as % RVS sales 2022 may not add up due to rounding; ¹⁾ incl. ex-Bombardier, excl. JV

RVS holds global #1 position across key product categories



Global market share 2022¹ (% of revenues)



1) Market share based on deliveries, estimates for OE and AM without labor, rounded to the nearest multiple of 5%; For competitors, a price estimate was used; Note: Based on German GAAP (HGB); Source: Knorr-Bremse information and internal market research

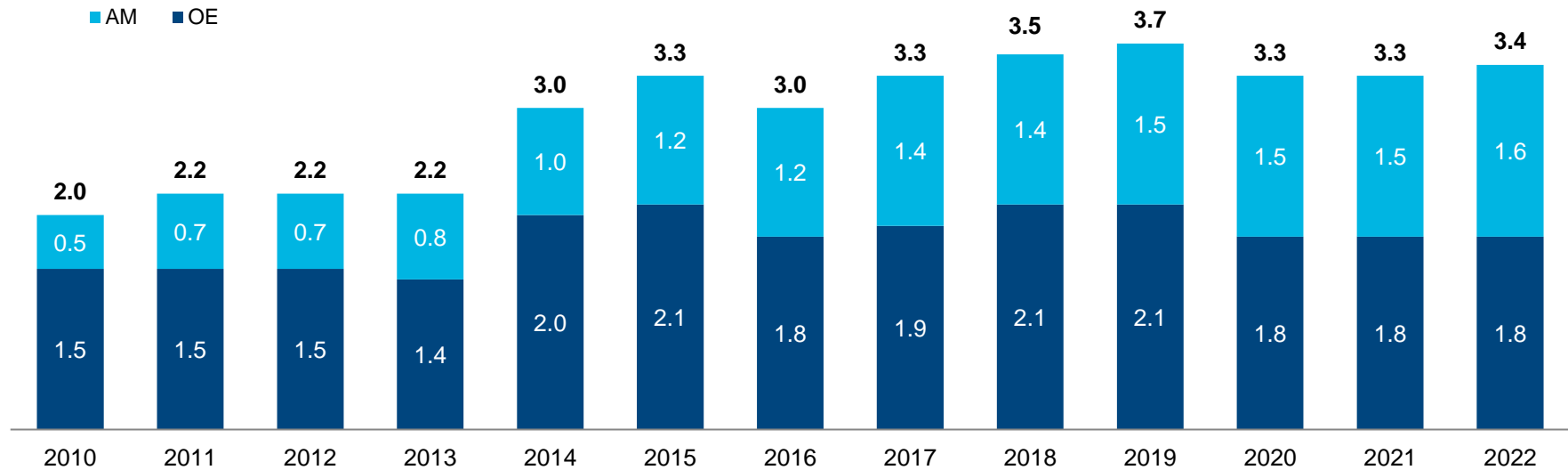
➡ Indication on Knorr-Bremse market share regional development 2021 to 2022 based on deliveries

Historic development of OE and AM business



Strong growth both in OE and AM

RVS sales by type (until 2017 German Gaap/HGB, 2018-2020 IFRS, €bn, 2010-2022) ¹⁾

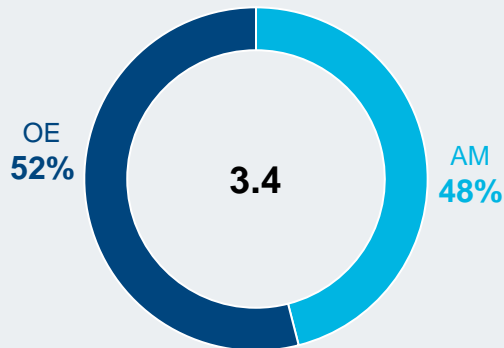


Note: some figures may not add up due to rounding; 1) BilRUG sales allocated proportionally between OE and aftermarket

Aftermarket business will continue to be an important growth engine



Revenue split
2022 in €bn



+ Opportunities



Use installed fleet



Modernization



New service models & digital solutions

— Challenges

- Competition by OEMs, focussing more on service
- Insourcing and lifecycle costs optimization, incl. stretching overhaul cycles

CO₂ emission targets not achievable in transportation without rail

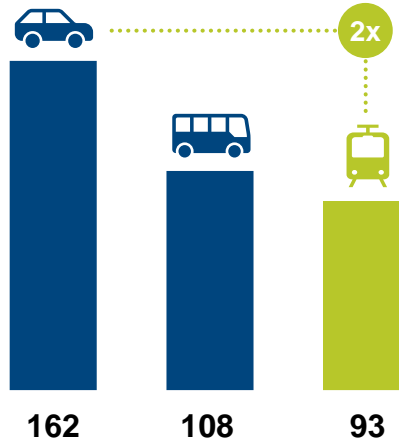


Greenhouse gas emissions from transport¹

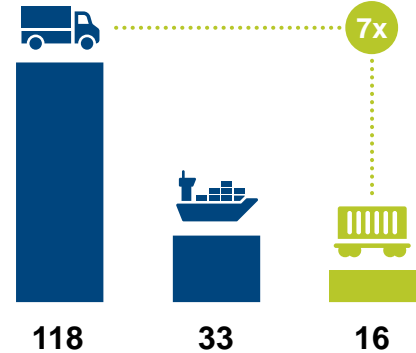
Passenger transport – long distance [in g/pkm]



Passenger transport – local transport [in g/pkm]



Freight transport [in g/tkm]









1) Reference year 2021, source: <https://www.umweltbundesamt.de/themen/verkehr/emissionsdaten>, accessed on May 16th, 2023

















RVS is the only supplier world-wide certified for all local standards and norms



Market protected by unique level of complexity ...

| | | |
|--|---|----------|
|  | Major global standards | 4 |
|  | Unique configurations for vehicle types | 7 |
|  | Brake subsystems | 3 |
|  | Safety-critical components | >100 |
|  | Country- and customer-specific variants | Multiple |
|  | 100k active brakes articles to homologate | |

... and long homologation time for each component

| Standard ¹⁾ | Key regions | Typical time-to-market | |
|---|---|---|---|
| | | Development (yrs) ²⁾ | Certification (yrs) ²⁾ |
|  |  |  4 |  4 |
|  |  |  4 |  3 |
|  |  |  3 |  1 |
|  |  |  3 |  1 |

Combination of IP ownership and homologation creates high barriers to entry

1) GOST based on recent homologation process, other norms based on expert estimates by Knorr-Bremse; 2) Estimated average required "time-to-market" of a basic freight car solution

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CVS with high-quality business model: outperformance and resilience



Market leadership

A global market leader
increasing market share (~23% for brake systems & vehicle dynamics)



Strong growth profile

Continuously **outperforming markets with rising content per vehicle** (5% sales CAGR vs. ~2% TPR growth between 2012-2021)



Technology innovation

Technology leader with continuous significant **investment in innovation and R&D**



High safety requirements

Global key supplier with **system know-how** and **vehicle dynamics capabilities**



Resilience

Strong aftermarket share (~28% revenue share), **cost efficiency**, regional **diversification** as well as track record in **strong cost management execution**



Profitability

Technology differentiation, superior products, systems approach, scale advantage and consequent **cost management**

CVS: one of two global leaders with an outstanding position in braking and safety-relevant systems



Highlights

Global market position¹⁾

Technology leader

Global market share

c.14k Employees

2022 key financials

€3.7bn sales

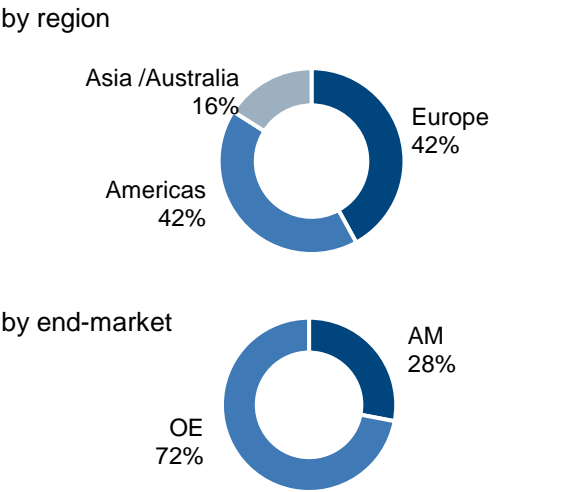
~8% CAGR 2010-2022²⁾

€486m op. EBITDA (13.0% margin)

€339m op. EBIT (9.0% margin)

28% aftermarket share

2022 sales split³⁾



Notes: Sales, EBITDA, EBIT and respective margins based on IFRS; other figures based on German GAAP (HGB) 1) 2020 global addressable Truck, Bus and Trailer OE market,; 2) Total reported CVS sales growth including OE and AM 3) Sales split by region based on IFRS; Other splits based on German GAAP (HGB)

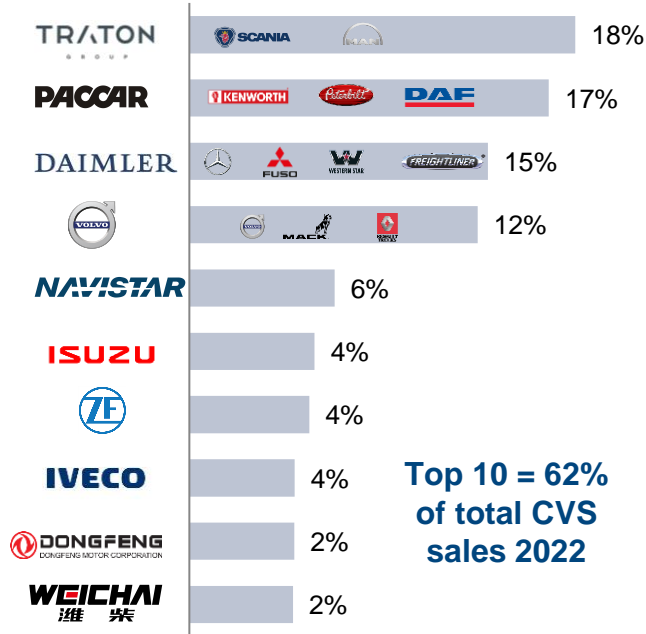
Knorr-Bremse is the partner of choice for global OEMs with long-standing relationships



Top 10 customers 2022 (% of sales)

Years of relationship

Other major Knorr-Bremse customers



| |
|-----|
| >90 |
| >30 |
| >90 |
| >30 |
| >20 |
| >30 |
| >30 |
| >90 |
| >5 |
| >5 |

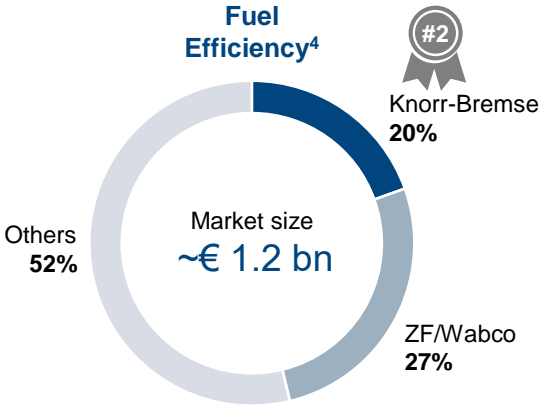
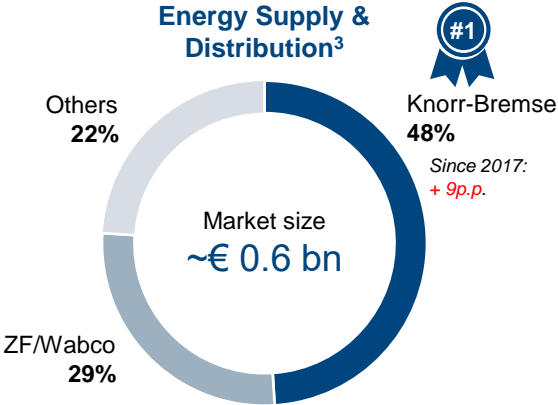
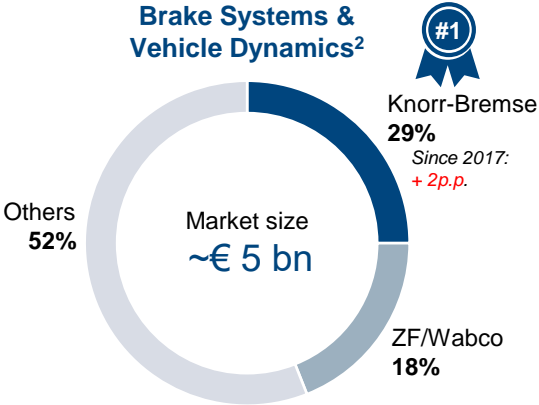


Note: Share of top 10 customers as % CVS sales 2022 may not add up due to rounding

CVS is market leader in all major product fields



Global market share 2022¹ (% of revenues)



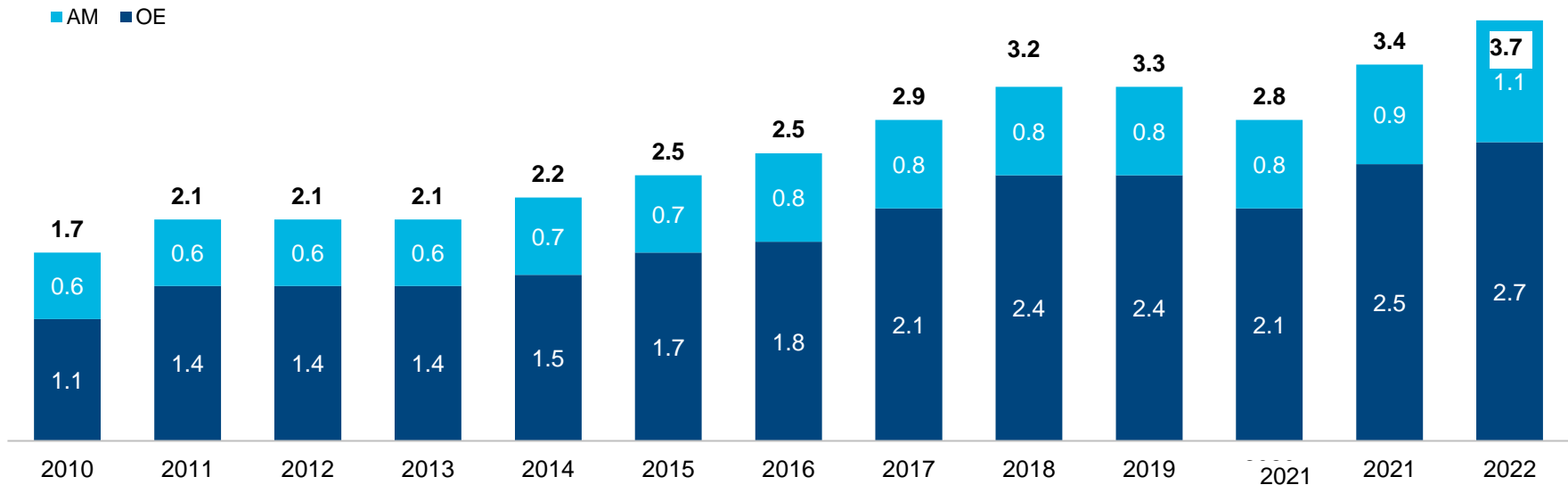
1) 2022 estimated addressable Truck, Bus and Trailer OE market, incl. "Brake Systems & Vehicle Dynamics (incl. Automated Driving)", "Energy Supply & Distribution" and "Fuel Efficiency"; excl. aftermarket; Knorr-Bremse data 2) Air Disc Brake, Valves / Pedal Unit, Actuators, Foundation Drum Brake, Steering, ABS, EBS, ESP, DAS, ELC; incl. segment Others 3) Compressors, Air Treatment 4) Vibration Dampers, Engine Air Control, Transmission – Gear and clutch actuation

Historic development of OE and AM business



Strong growth both in OE and AM

CVS sales by type (HGB, €bn, 2010-2017)1) 2018-21 IFRS

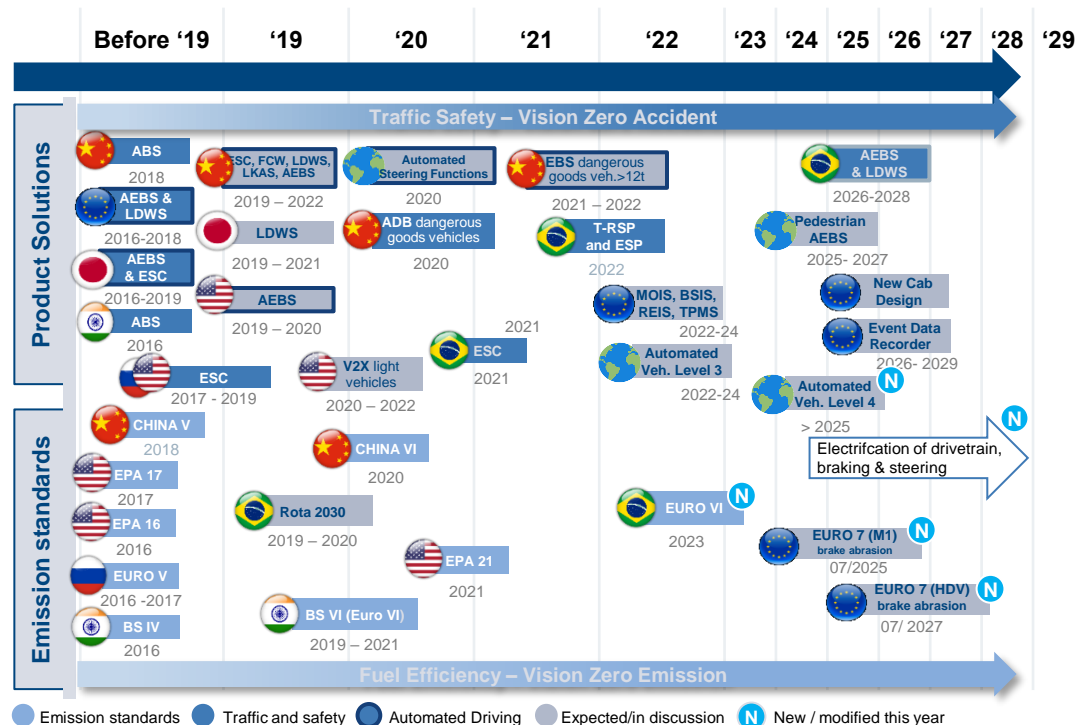


Notes: Some sales split may not add up due to rounding 1) BilRUG sales allocated proportionally between OE and aftermarket; 2) Global Truck and Bus market excluding aftermarket and Trailer; Source: Knorr-Bremse information and internal market research; IHS for truck production rate

Electrification, Brake Emissions and Software



Changes in Regulations as Growth Driver



Legislative decisions foster demand for Knorr-Bremse solutions

Higher Content per Vehicle (CpV) will fuel CVS's growth in the future

2023-2028E


CVS CpV
growth p.a.

Global

~ 4%
(average)

North America

Below average

Western Europe

On average

Asia

Above average

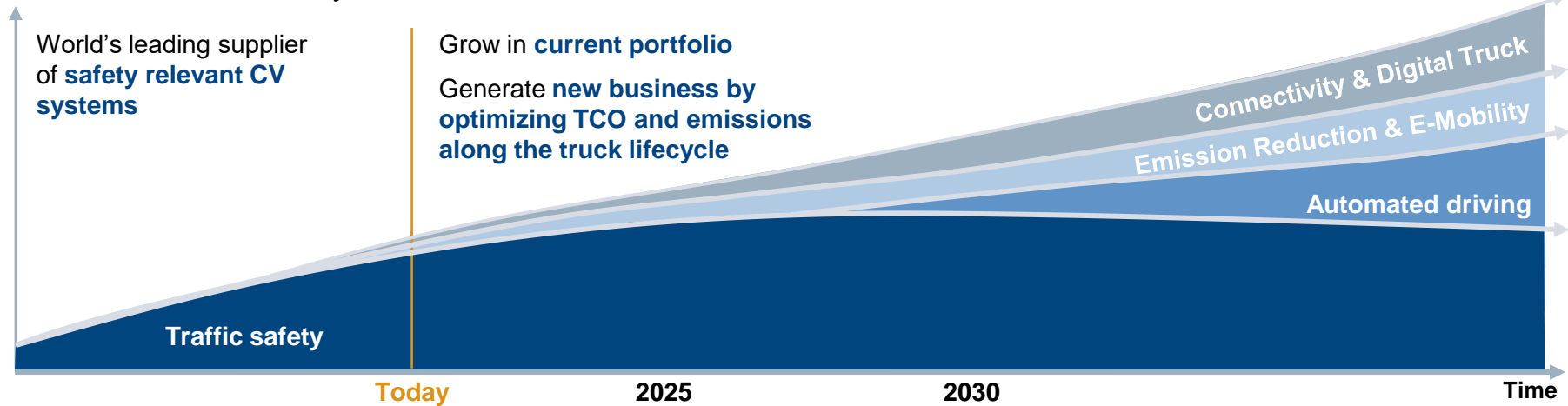
- E-mobility and autonomous driving to fuel CpV growth
- Advancement in safety features is a growth catalyst in Asia
- Especially, **China market growth** driven by **increases in Air Supply and Drivetrain**
- In North America, **KB CpV is already at high levels** – technological adaptations and enhancements prevail

New growth areas for CVS



Illustrative growth potential

Growth contribution of industry trends



Current CVS portfolio with focus on traffic safety perfectly fits market demands

In the future however, CVS will gain more content per vehicle growth with solutions for Automated Driving, Emission Reduction & E-Mobility and Connectivity

The Cojali Group is a Spanish Diagnostics expert with strong offerings in All-Makes Diagnostics, Remote Diagnostics and Alternative Specification

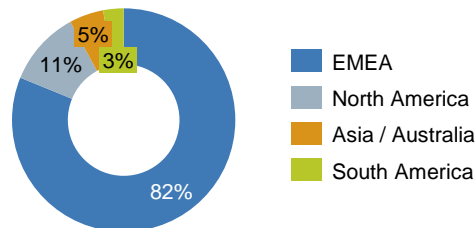
Key facts

- Headquarter:
 - Campo de Criptana, Spain
- Subsidiaries:
 - Cojali US
 - Cojali France
 - Cojali Italy



Regional presence

Cojali products are available in 135 countries



Financial KPIs

Sales 2022: **>90 mEUR**

R&D Share: **~7%**

Employees **~550**

Key Product Categories

Brands



All-makes Diagnostics & Workshop Tools

Solutions for trucks, trailers, buses as well as LCV, Off-Highway and Marine



214
BRANDS
6,027
MODELS

Telematics & Remote Diagnostics

Fleet Management and Remote Diagnostics for Commercial Vehicles

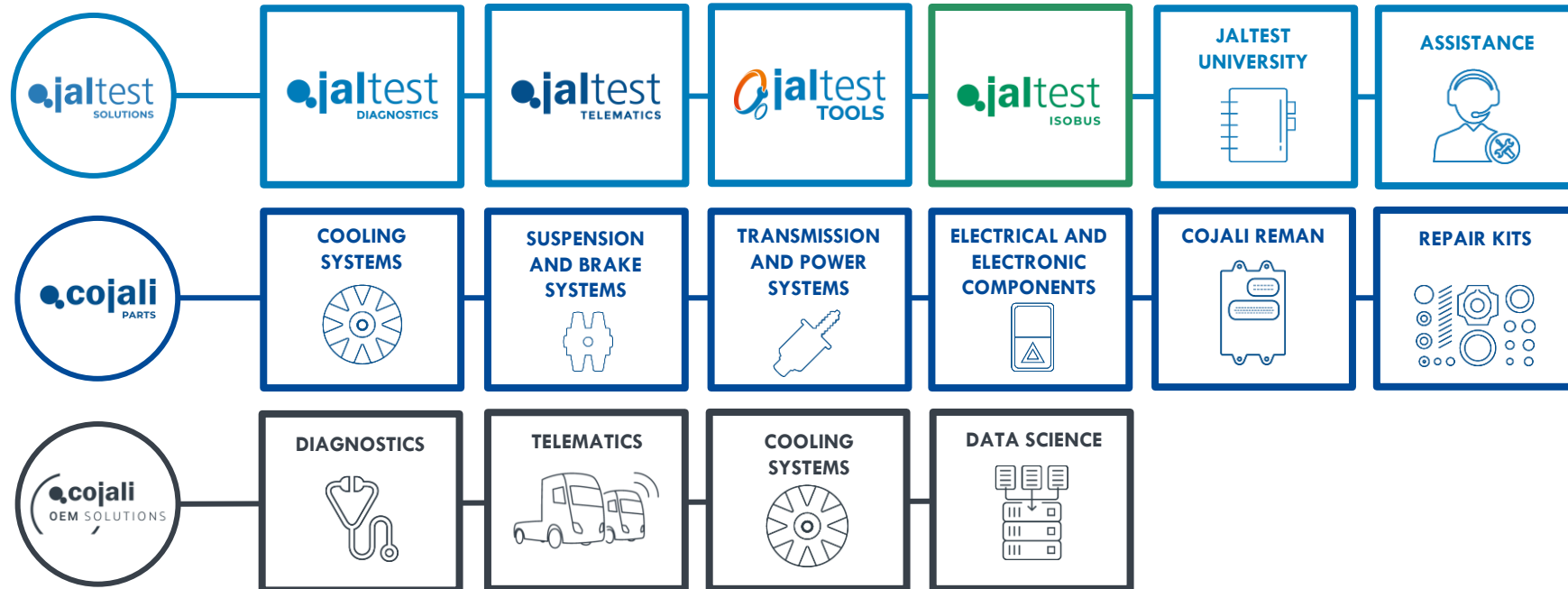


Alternative Specification

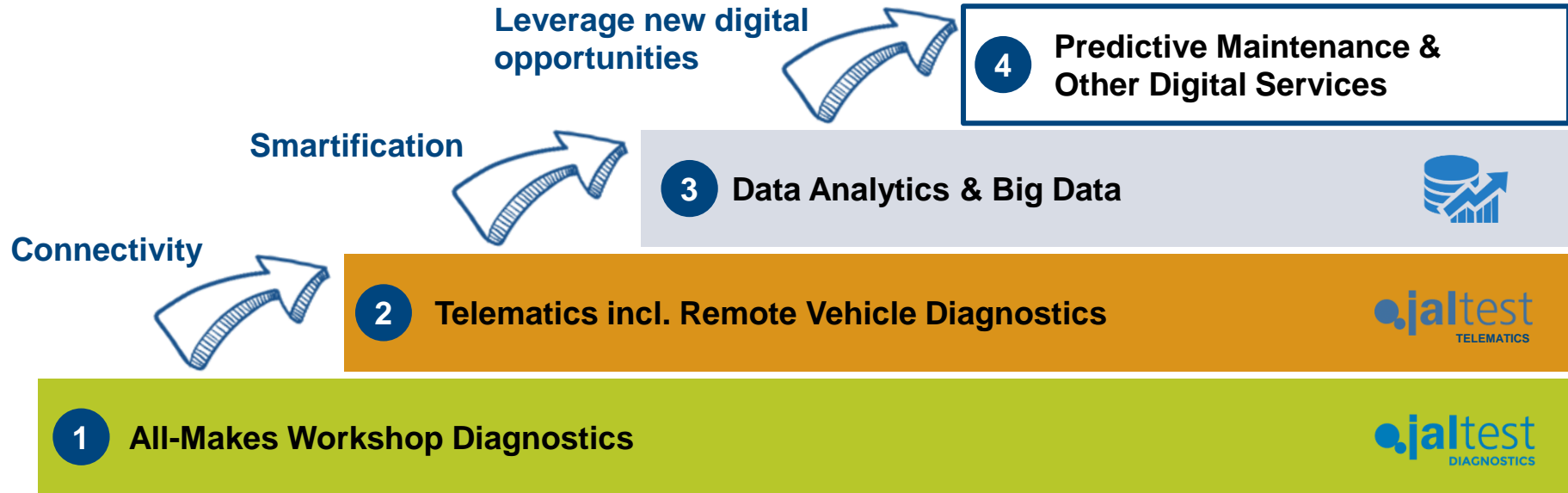
Air Brake, suspension, transmission, electric and cooling system components



Cojali's product offerings

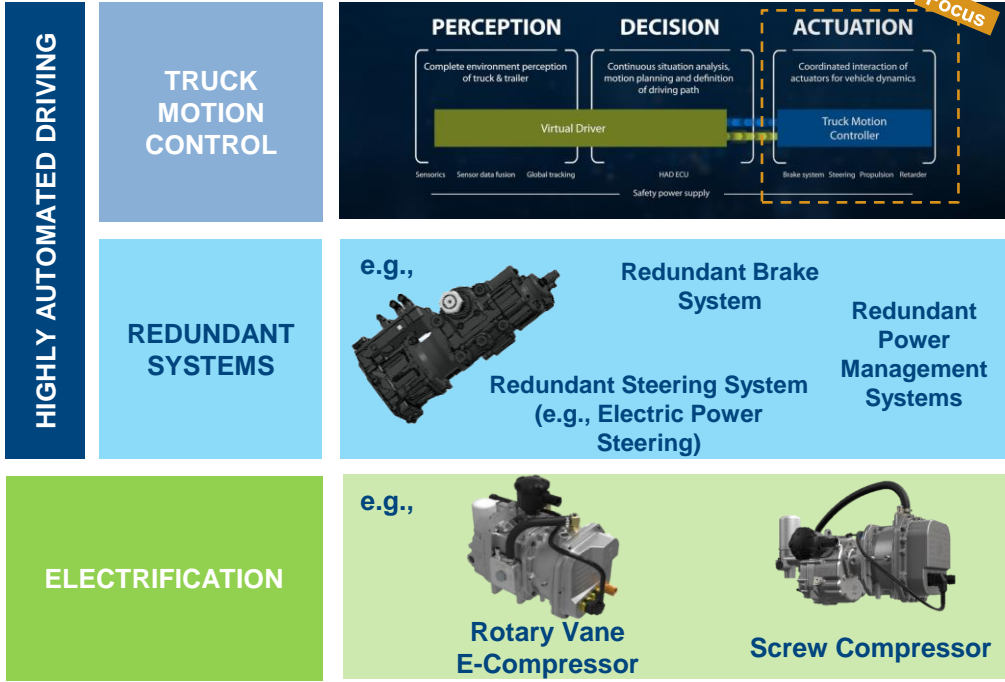


Cojali enables Knorr-Bremse to strengthen its position as system supplier in the global growth market of digital solutions and data-driven services



CVS – fascinating its customer with best-in-class products and setting clear focus areas on leading industry trade shows

Selection of focus areas



IAA Transportation



Automechanika

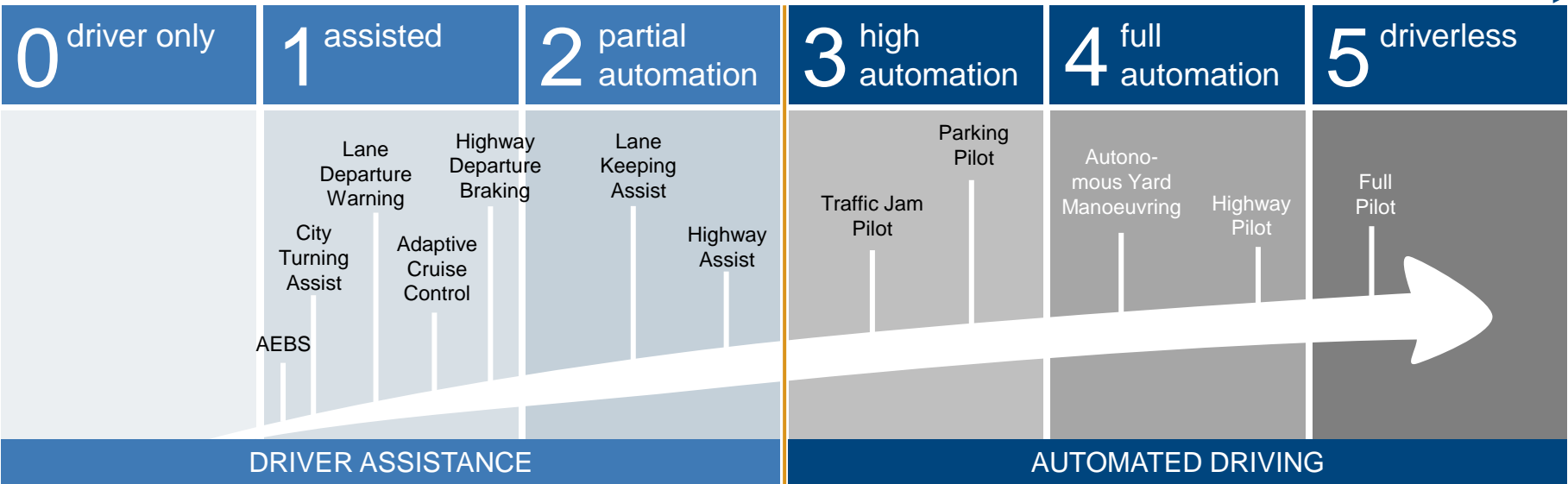


**Innovation award
at Automechanika for
“Parts & Technology
Solutions”**

CVS offers both driver assistance and automated driving solutions



degree of automation →



CVS as a system supplier

- Braking
- Steering
- Sensors
- Level 1 and 2 functions

Air Disc Brake

Steering

Brake Control

CVS as vehicle dynamics supplier

- Braking
- Steering
- Vehicle dynamics
- Related redundancy

Brake control

Steering

Vehicle dynamics / Truck Motion Control

CV system competence

CVS is offering a broad product portfolio for electric trucks



EV adapted portfolio

SELECTED
EXAMPLES

eCompressor

- Electric screw compressor
- Mid air demand eCompressor (rotary vane)
- Low air demand compressor for future EV requirements



EV brake control & vehicle dynamics

optimized and scalable holistic EV motion control, including energy recuperation



EV wheel brake

Building block system for future EV generations



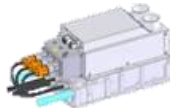
New EV product fields

SELECTED
EXAMPLES

Redundant power management system



EV brake resistor



Opportunities in H2 vehicles



on the market



market launch soon



in development



in assessment



KNORR-BREMSE

Agenda

- Introduction
- Key Company Highlights
- Rail Vehicle Systems (RVS)
- Commercial Vehicle Systems (CVS)
- **R&D Focus**
- Financials
- Sustainability/ ESG
- KB shares/ KB bonds
- Appendix



Focused R&D investments define product roadmap for KB

Strong R&D base...



5
Global R&D
centers



6-7%
Long-term
R&D ratio



~ € 490m
R&D expenses
(FY22)



> 12k
Patents
worldwide

...to shape product innovation¹...

Roll-over products:

Electric Power Steering

Product upgrades:

Condition monitoring

New products:

Digital automatic coupler

Scope increases:

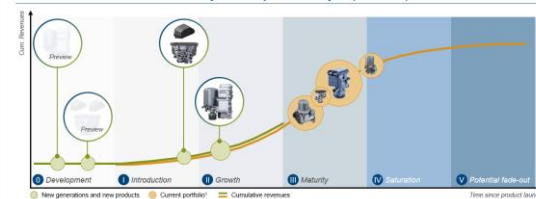
Aftermarket ecosystem

...with effective tracking in place

CVS brake control and air treatment systems – safeguarding long term technology leadership

CVS brake control and air treatment systems in product lifecycle (indicative)

Illustrative and exemplary

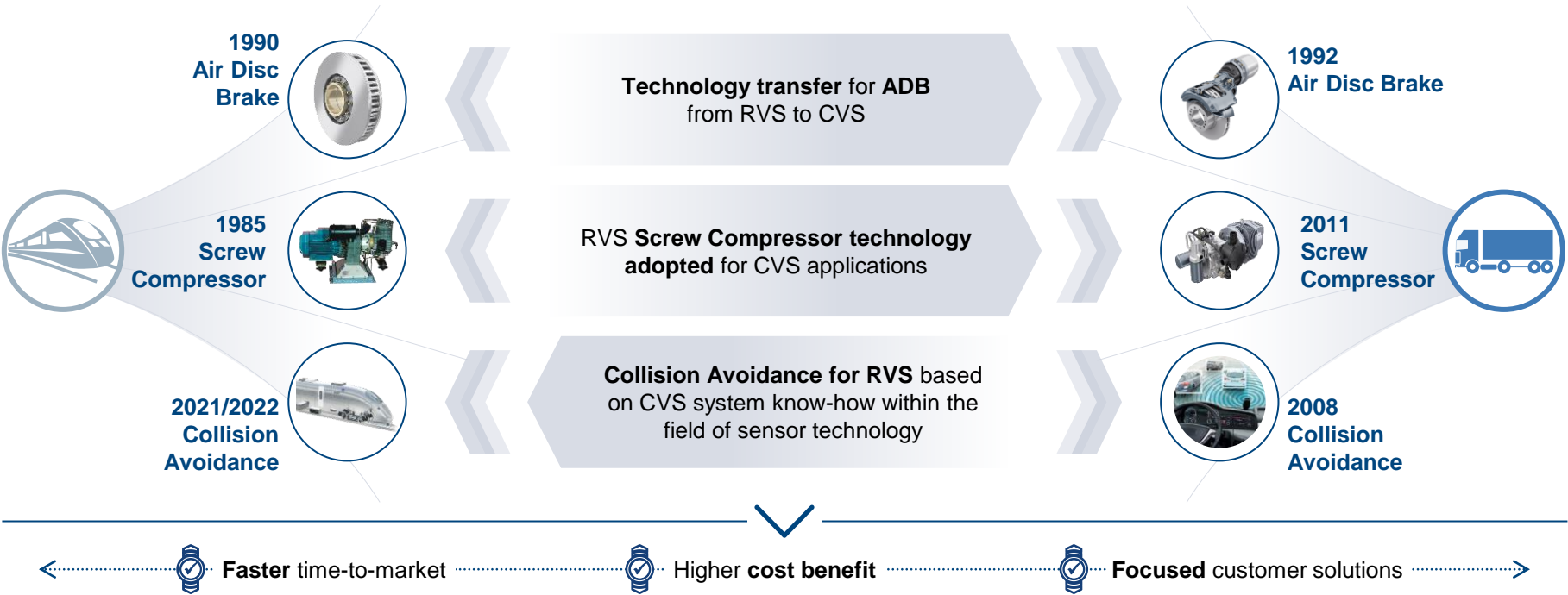


- R&D project tracking
- Rigorous monitoring of S-curves along maturity stages
- Analysis of roll-over products / substitution and new products

1. Including examples

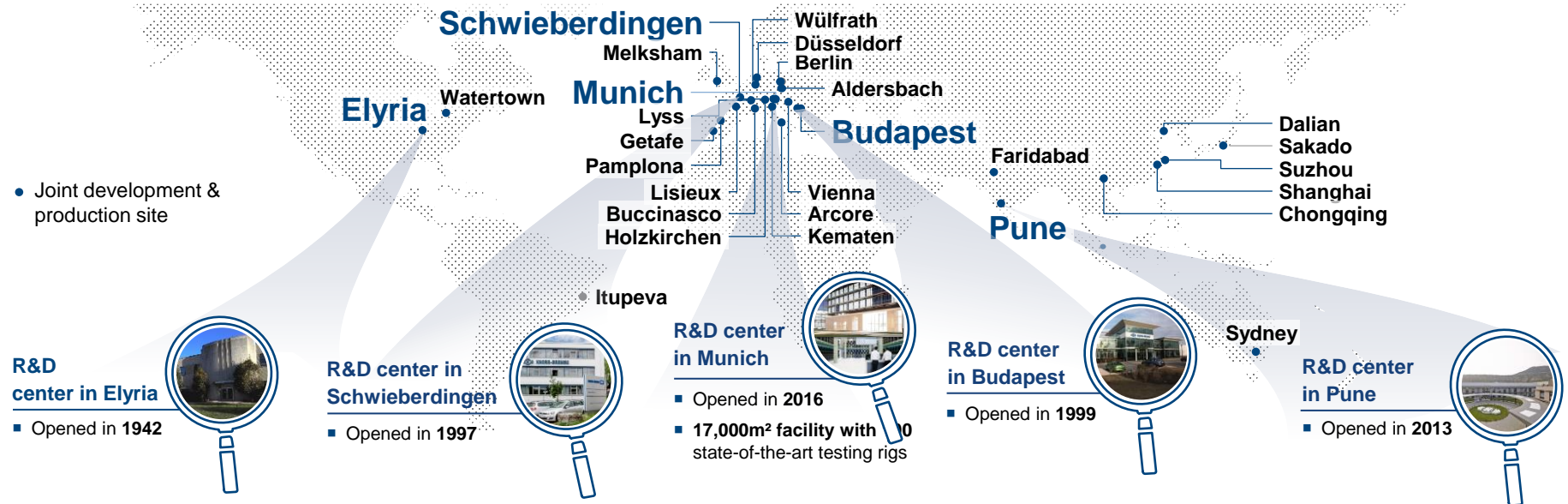
R&D: Synergies and cross-proliferation

Cross-divisional R&D examples



Leveraging Knorr-Bremse's synergies & partnerships: centres of excellence as basis for sustained technology leadership

Globally $\Sigma >4,000$ FTE



Knorr-Bremse's innovations are supported by a network of specialized development centres with joint production and R&D

Close co-operation with customers & strategic partners

Government partnerships

- Shift2Rail: EU supported initiative amongst suppliers and OEMs to jointly develop an efficient transportation system
- VDA¹⁾ participation in ~20 committees
- ✓ Design of norms/standards
- ✓ Early anticipation of industry trends
- ✓ Grants/subsidies



Partnerships with Universities

- Research cooperations
- ✓ Access to future talent
- ✓ Scouting of new technologies at minimal cost



Acceleration of
PRODUCT INNOVATION
in digital age requires
DIVERSE PARTNERSHIPS
to outperform competitors

VC partnerships with Start-ups

- Partnerships with accelerators
- Investment in start-ups
- ✓ Technology access
- ✓ R&D acceleration



JVS with OEMs / technology partners

- 18 joint ventures globally
- Joining complementary competences to extend product and service lines, and capacities
- ✓ IP protection
- ✓ Local presence
- ✓ Flexible solutions for customers



🌐 Countries Knorr-Bremse is present

Notes: 1) VDA - Verband der Automobilindustrie (German Association of the Automotive Industry)

Agenda

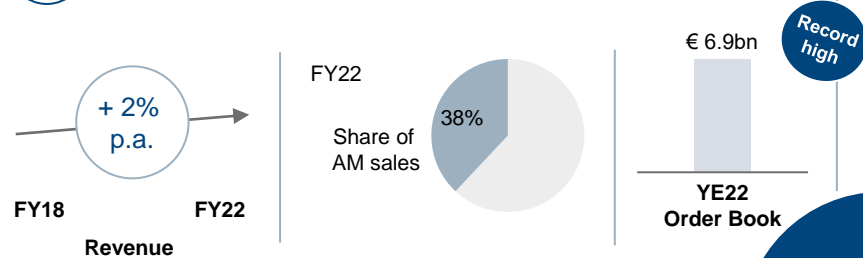
- Introduction
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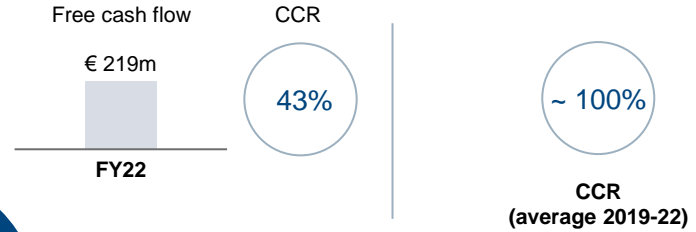
Status Quo | Despite a challenging environment, KB's very solid financials are a strong foundation for the transformation



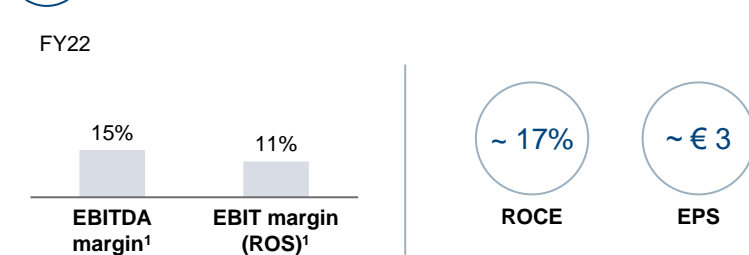
Robust topline growth & high AM share



High cash conversion potential

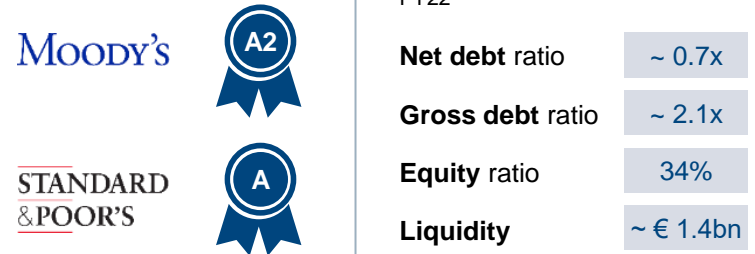


Strong profitability potential



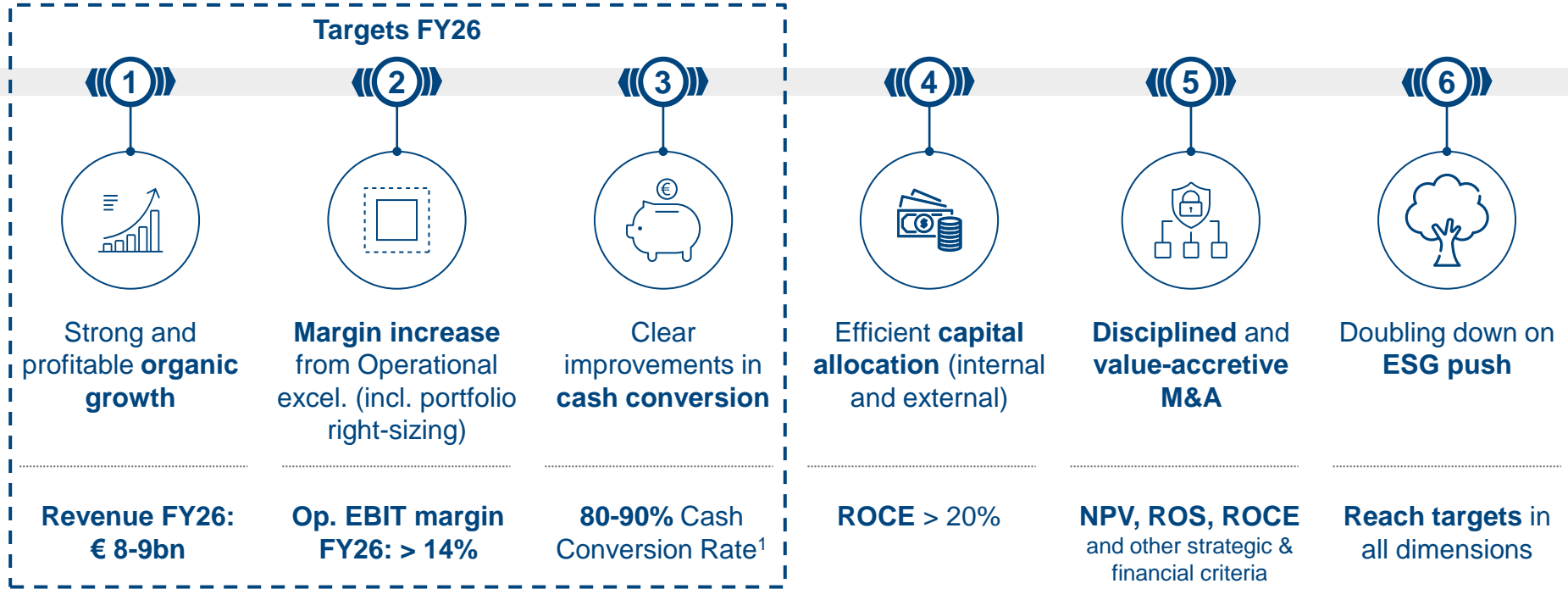
Financial position

Highly resilient balance sheet



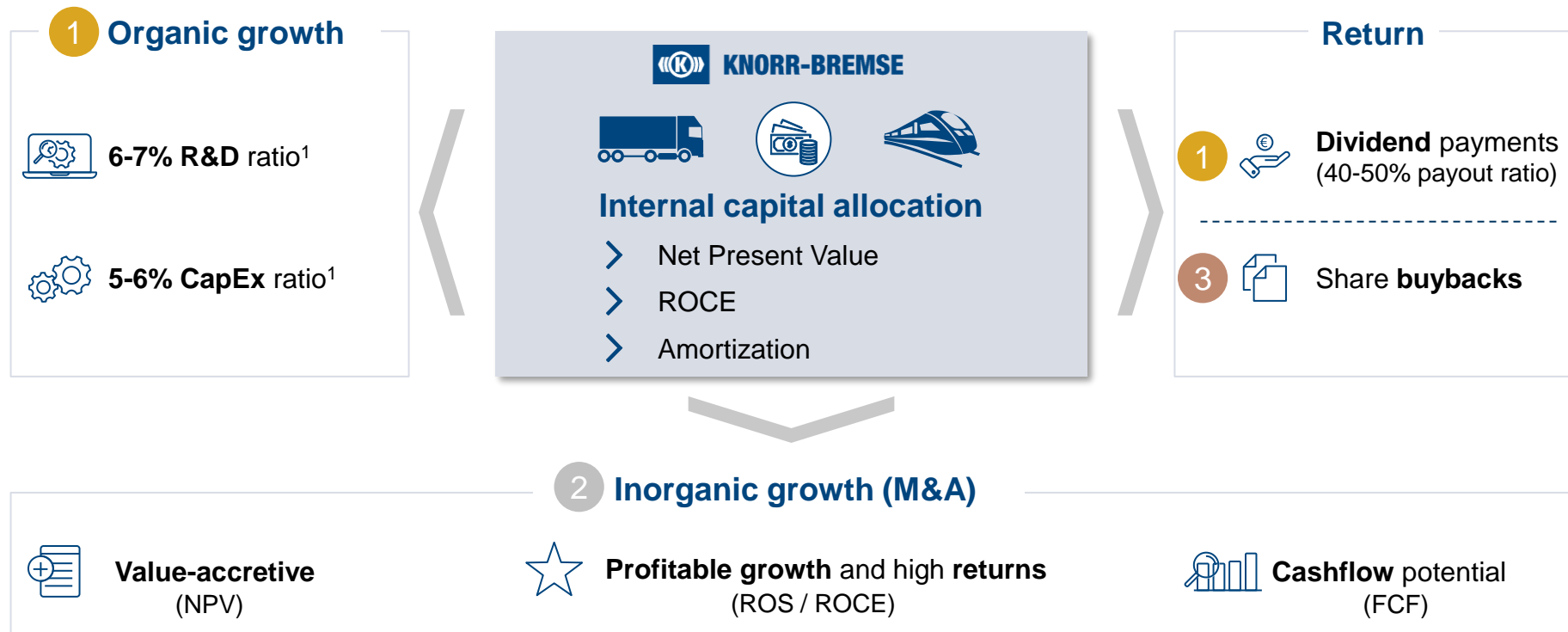
1. Operating EBITDA and EBIT

Financial Strategy | KB target picture translates into clear financial targets supporting profitability growth



1. CCR: Cash Conversion Rate = FCF / Net Income

Capital Allocation | Our clear priorities 1 - 3 to safeguard efficient capital allocation



1. In % of revenues

1 2 3 Level of priority

M&A | Disciplined approach based on a holistic set of updated M&A criteria will guide future acquisitions as add-on to organic growth

Strategic focus



Capital goods (no automotive)

and



Soft / hard synergies and / or KB as best owner

and



OE, aftermarket and / or **services**

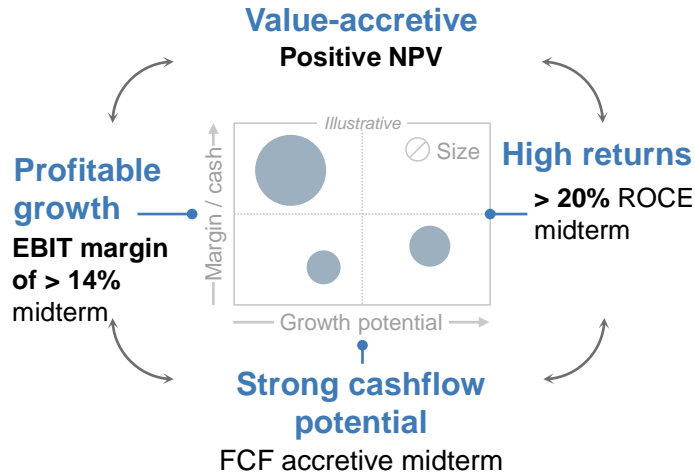
and / or



Digital capabilities and / or **solutions**



Financial guardrails for larger transactions

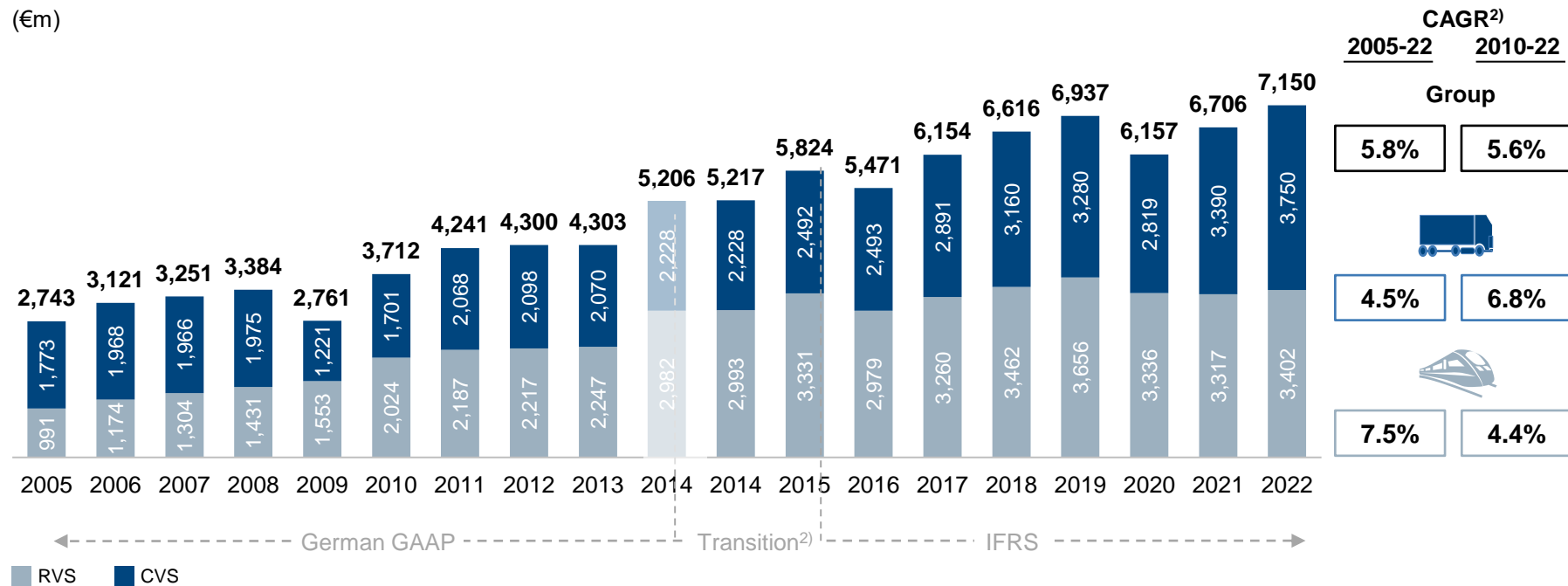


- **No larger restructuring cases** (< € 50m revenue)
- No significant barriers to **integration**
- Contribution of strong **AM business**
- **Leverage must support investment grade of KB**
- **Expansion beyond RVS and CVS (Greenfield)** only if KB is **best owner**

Track record of strong and sustainable top-line growth ...

Historical sales¹⁾²⁾ by division

(€m)

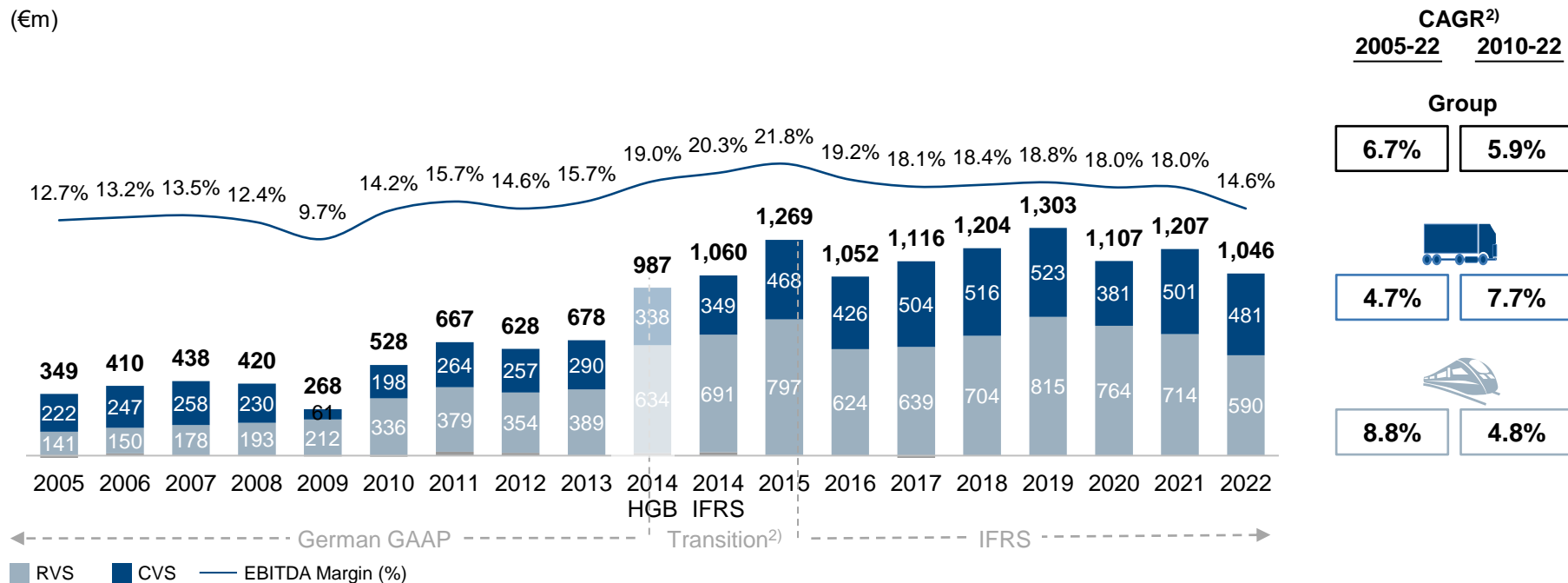


Notes: 1) Divisional historic figures do not add up to group sales excluding consolidations/other; 2) 2014 represents the first year that Knorr-Bremse prepared its financial statements in accordance with IFRS. Prior to 2014, financial statements were only prepared in accordance with German GAAP (HGB). IFRS differs in certain aspects from German GAAP (HGB), and accordingly data presented in accordance with German GAAP (HGB) may not be comparable to data prepared in accordance with IFRS; Source: Knorr-Bremse information

... combined with disproportionate EBITDA growth

Historical EBITDA¹⁾²⁾ profitability

(€m)



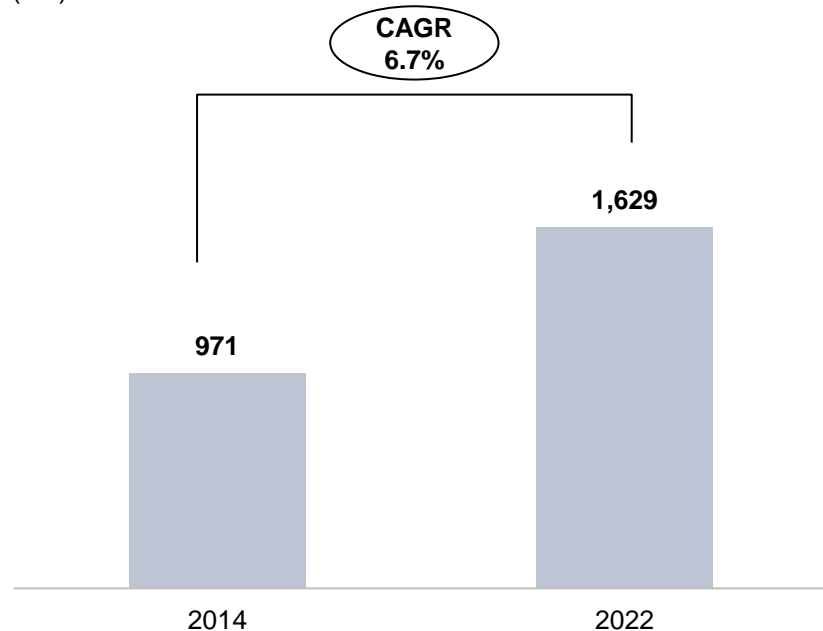
Notes: 1) Divisional historic figures do not add up to group sales excluding consolidations/other; 2) 2014 represents the first year that Knorr-Bremse prepared its financial statements in accordance with IFRS. Prior to 2014, financial statements were only prepared in accordance with German GAAP (HGB). IFRS differs in certain aspects from German GAAP (HGB), and accordingly data presented in accordance with German GAAP (HGB) may not be comparable to data prepared in accordance with IFRS; Source: Knorr-Bremse information

... all supported by solid aftermarket sales growth

RVS – Aftermarket sales¹⁾



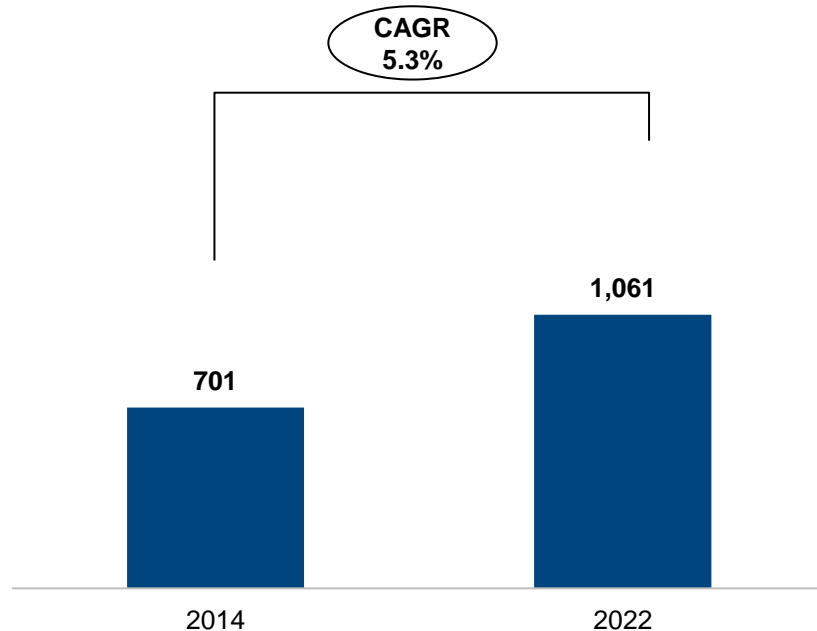
(€m)



CVS – Aftermarket sales¹⁾



(€m)

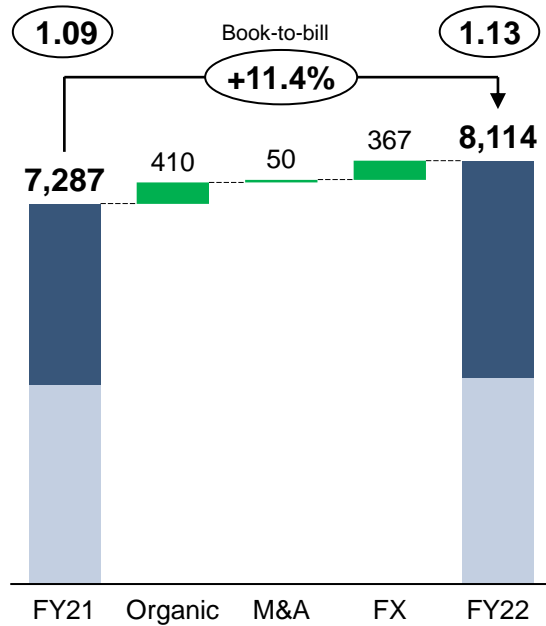


Notes: 1) Based on IFRS; BilRUG sales allocated proportionally between OE and aftermarket

FY22: order intake for Group, RVS & CVS

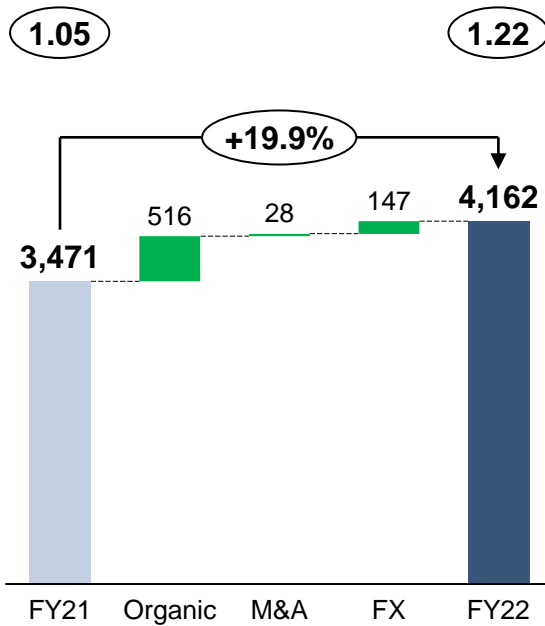
Group

(€m)



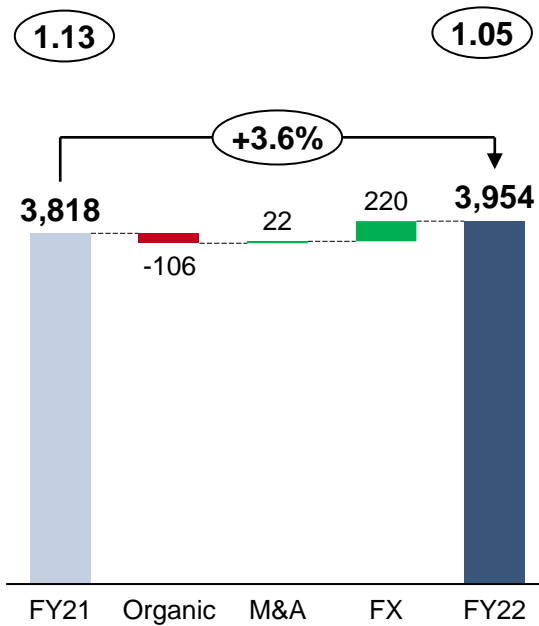
RVS

(€m)



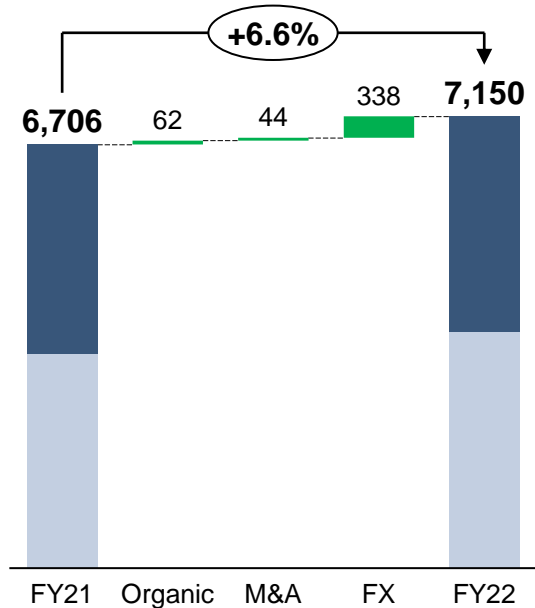
CVS

(€m)

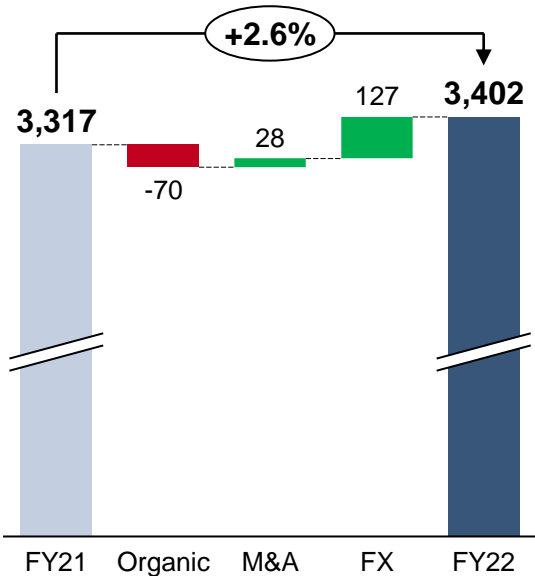


FY22: revenue for Group, RVS & CVS

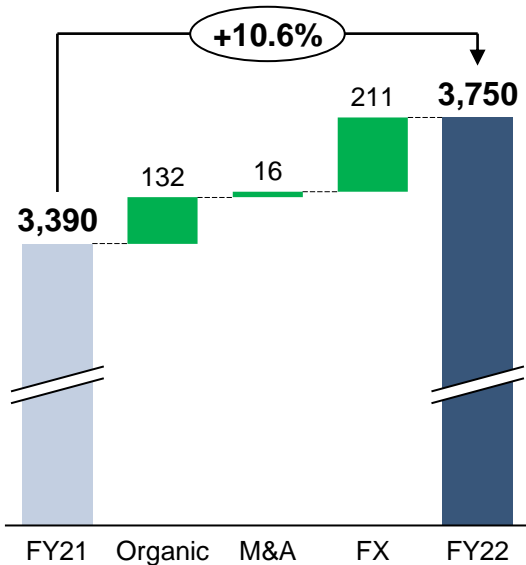
Group
(€m)



RVS
(€m)

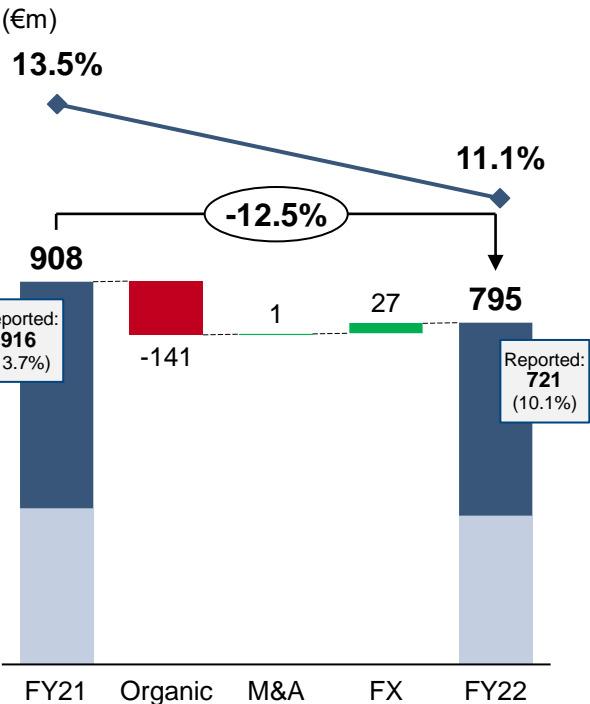


CVS
(€m)

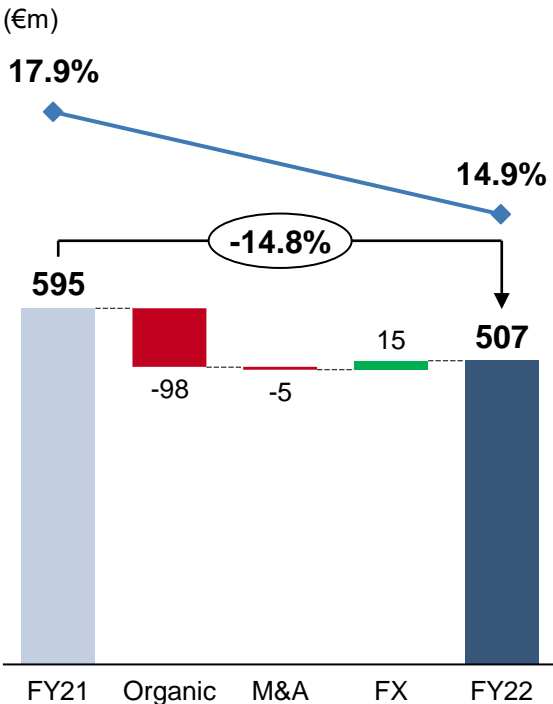


FY22: op. EBIT for Group, RVS & CVS

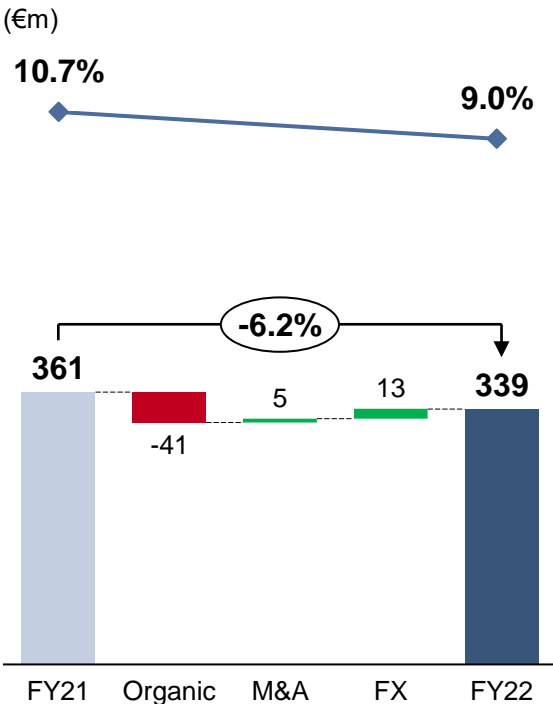
Group



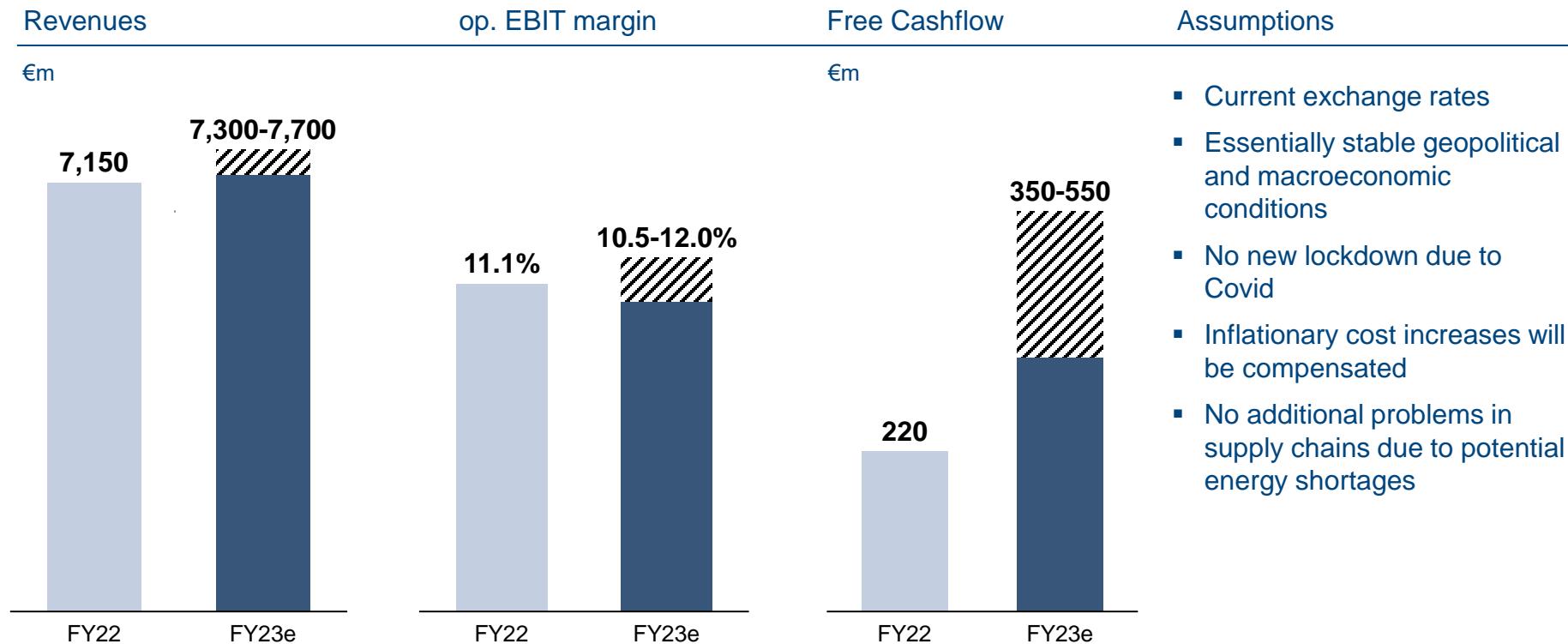
RVS



CVS



Group guidance FY23



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The basis of our responsibility

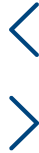
Our values

Growing with **Values.**



- Entrepreneurship
- Technological Excellence
- Reliability
- Passion
- Responsibility

UN Global Compact



Commitment to ten basic principles:

- Human rights
- Labor standards
- Environmental protection
- Anti-corruption

CR Policy



- Comprises our understanding of Corporate Responsibility
- Sets down guidelines for our CR focus areas
- Points out the main focus of our efforts to realize social and environmental responsibility

Our CR policy and focus areas

Strategy and management



We aim for **sustainable value creation**. By this we understand achieving long-term economic success while at the same time acting responsibly towards our employees and business partners as well as the environment and society.

We are committed to **sustainable corporate governance** that includes environmental and social aspects in strategic planning, management and corporate processes.

We act and work according to **legal and ethical principles** laid down in our Group-wide Code of Conduct.

Products and partners



We consistently work on developing **innovative products** and solutions that combine a high degree of customer value with a contribution to sustainable development. Safety is always our overriding goal.

We **work closely with our customers and suppliers** to jointly ensure continuous improvement of product quality and minimal undesirable impact on the environment and society.

We take into account and support the activities of our **business partners aimed at improving their environmental and social compatibility**.

Commitment and society



We are involved, as a member of society, in **social issues** and are engaged world-wide as a **good corporate citizen**. We supplement the activities of the charitable organization Knorr-Bremse Global Care e.V. with social projects implemented directly at our production sites (Local Care).

We encourage and support **social involvement on the part of our employees**.

We see ourselves as **partners for the regions** in which we live and work, and we support their long-term development.

Employees and governance



We create an attractive working environment in which the principles of **mutual trust, team-work, diversity and equality of opportunity** as well as fair and respectful treatment of each other are recognized and practiced.

We offer a **safe and healthy working environment** and enable our employees to develop their **own individual potential**.

We conduct an ongoing **dialogue with our managers** on the subject of value-oriented, sustainable corporate governance.

Environment and climate



We accept our **responsibility for ensuring a clean environment and protecting the climate** and operate in compliance with our **HSE Policy** (Healthy, Safety and Environment).

We have set ourselves the goal of handling **resources in a responsible manner**, consistently reducing **CO₂ emissions**, **minimizing** and where possible **avoiding** undesirable **impact** on nature and the environment and actively using opportunities to **protect the environment**.

We are concerned to optimize the **environmental compatibility** of our products across their **entire life-cycle**.

Communication and co-operation



We seek constructive **dialogue with our stakeholders** and provide them with regular and transparent updates on our sustainability activities.

We support social, educational and environmental projects and enter into **partnerships with organizations** that contribute towards sustainable development.





Knorr-Bremse selected its Core Sustainable Development Goals (SDGs)



ESG | Clear measures and implementation timing defined to achieve ambitious and tangible targets

Objectives

Key targets (examples)

| | | |
|---|--|---|
|  Environment | <ul style="list-style-type: none"> Enable green & safe mobility Significantly reduce emissions from scope 1-3 |  <i>Targets validated!</i> <div> <div>Reduction of scope 1 and 2 emissions</div> <div>~ 75%</div> <div>2030</div> </div> <div> <div>Reduction of scope 3 emissions</div> <div>~ 25%</div> <div>2030</div> </div> |
|  Social | <ul style="list-style-type: none"> Improve diversity, equality and inclusion Increase employee safety | <div> <div>Women in overall workforce / managing positions</div> <div>~ 25% / ~ 20%</div> <div>2027</div> </div> <div> <div>Accidents per 200k contracted working hours</div> <div>< 1</div> <div>≥ 2023</div> </div> |
|  Governance | <ul style="list-style-type: none"> Fully integrate ESG in business decisions & remuneration Assess & safeguard sustainability of suppliers | <div> <div>In STI & addit. targeted for LTI²</div> <div></div> <div>≥ 2024</div> </div> <div> <div>Of purchasing vol. covered by sustainability assessment</div> <div>~ 75%</div> <div>2025</div> </div> |



ESG Ratings 2022

S&P Global 50/100

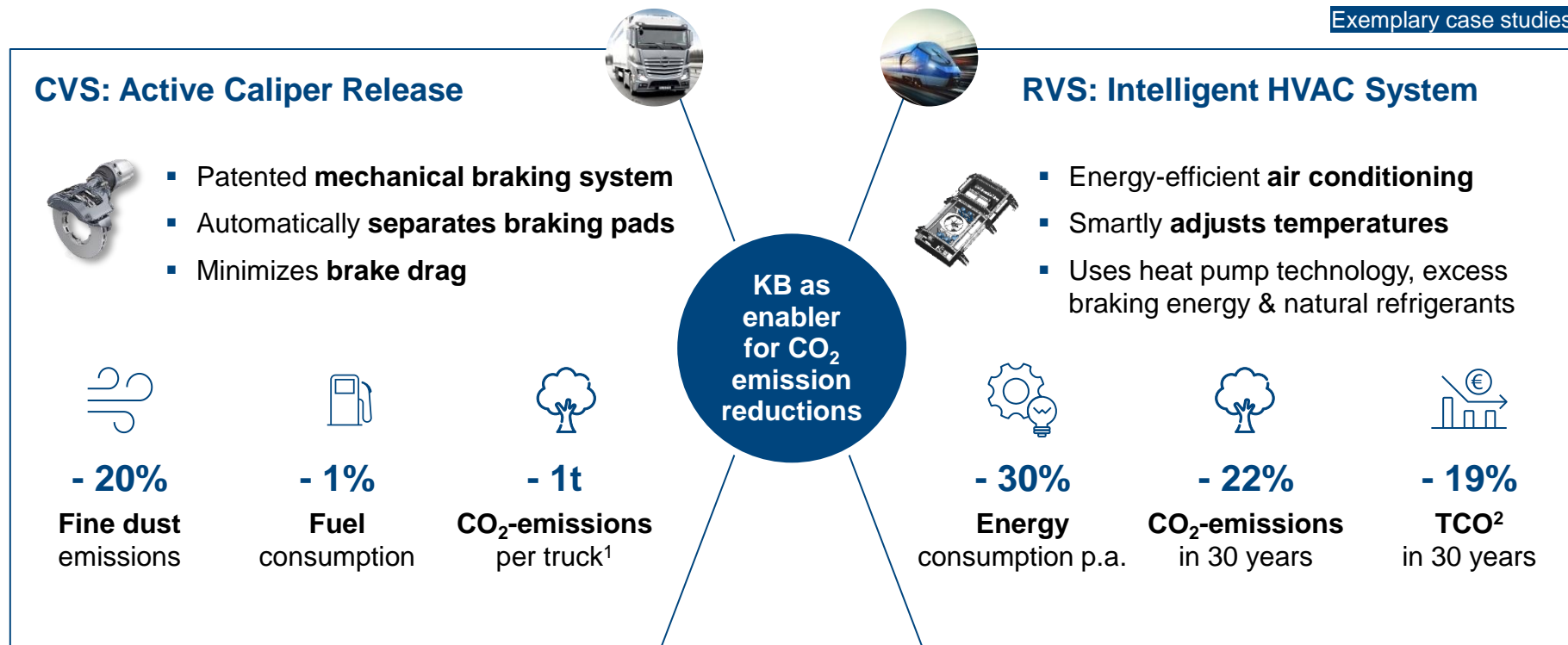
MSCI AA

ISS ESG C+ (Prime)

1. STI = Short Term Incentive, LTI = Long Term Incentive

KB with range of tailored solutions to support customers' green transition

Exemplary case studies



1. For average five-axle truck-trailer rig on long-distance service covering 100,000 km per year 2. Total cost of ownership; Note: Numbers are rounded

Knorr-Bremse takes active part in corporate memberships throughout the world

United Nations Global Compact (participation since 2010)



APTA - American Public Transportation Association, USA



AAR - Association of American Railroads, USA



AIAG - Automotive Industry Action Group, USA



MEMA - Motor & Equipment Manufacturers Association, USA



New York and New Jersey Minority Supplier Development Council, USA



UNIFE - Sustainable Transport Committee of the Union des Industries Ferroviaires Européennes, BEL



VDA - Verband der Automobilindustrie e. V., GER
Working Groups: Sustainable supply chain & products



RAILSPONSIBLE – founding member (sustainable rail supply chain initiative)



VDB - Fachgruppe Umwelt im Verband der Bahnindustrie e. V., GER



APRA - Automotive Parts Remanufacturers Association - Chairman Europe

Our 9 material (non-financial) corporate responsibility areas

Evaluation of non-financial facts was carried out on the basis of qualitative considerations regarding the extent of business relevance and its impact

| | | |
|--------------------------------------|---|--|
| Anti-corruption and fair competition | Product and system safety | Ecological product design |
| Energy and CO ₂ emissions | Personnel development | Sustainability standards in the supply chain |
| Employment conditions | Occupational safety and health protection | Diversity and equality |

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- Appendix

Share data

Share data

| | |
|---|---------------------------------|
| Type of share | Bearer shares with no-par value |
| Bloomberg ticker | KBX |
| Reuters ticker | KBX.DE |
| German security identification number (WKN) | KBX100 |
| ISIN | DE000KBX1006 |
| Shares outstanding as at December 31, 2018 | 161.200.000 |

Bond Data

Corporate Bond of Knorr-Bremse AG

| | |
|--|---|
| Security Identification Number | A2LQP5 |
| International Securities Identification Number | XS1837288494 |
| Issuer | Knorr-Bremse AG |
| Issuer ratings | A2/outlook stable (Moody's), A/outlook stable (Standard & Poor's) |
| Volume | EUR 750 million |
| Term | 7 years |
| Settlement | June 14, 2018 |
| Maturity | June 13, 2025 |
| Coupon | 1.125% p. a. |
| Reoffer spread | 1.188% p. a. |
| Listing | EURO MTF Luxembourg |
| Denomination | EUR 1,000 |
| Applicable law | German law |

Strong current rating: S&P (A) and Moody's (A2)

Bond Data

Sustainability-Linked Corporate Bond of Knorr-Bremse AG

| | |
|--|---|
| Security Identification Number | A30VPQ |
| International Securities Identification Number | XS2534891978 |
| Issuer | Knorr-Bremse AG |
| Issuer ratings | A2/outlook stable (Moody's), A/outlook negative (Standard & Poor's) |
| Volume | EUR 700 million |
| Term | 5 years |
| Settlement | September 21, 2022 |
| Maturity | September 21, 2027 |
| Coupon | 3.250% p. a. |
| Reoffer spread | 3.331% p. a. |
| Listing | Regulated Market of the Luxembourg Stock Exchange |
| Denomination | EUR 100,000 |
| Applicable law | German law |

Strong current rating: S&P (A) and Moody's (A2)

Agenda

- Introduction
- Key Company Highlights
- Rail Vehicle Systems (RVS)
- Commercial Vehicle Systems (CVS)
- R&D Focus
- Financials
- Sustainability/ ESG
- Capital Markets Summary
- **Appendix**

Glossary (1/2)

| | | | | | |
|--------------|---|----------------|--|-------------|--|
| % | Percentage | CF | Cash flow | ELC | Electronic leveling control |
| ABS | Anti-lock brake system | CFO | Chief Financial Officer | EOP | End of period |
| ACC | Adaptive Cruise Control | CKR | Czech Koruna | ESP | Electronic stability program |
| AD | Automated Driving | CNY | Chinese Yuan | EU | Europe, European Union |
| ADAS | Advanced driver assistance systems | CVS | Commercial Vehicle Systems | EUR | Euro |
| ADB | Air Disk Brake | D&A | Depreciation & Amortization | FTE | Full-time equivalent |
| AEBS | Advanced Emergency Braking System | DE | Germany | GAAP | Generally Accepted Accounting Principles |
| AG | Aktiengesellschaft (German: Stock Corporation) | DoI | Date of Implementation | GBP | British Pound |
| AM | Aftermarket | e | Expected | GDP | Gross domestic product |
| BDM | Brake Distance Management | EAC | Electronic Air Control | GSBC | Global Scalable Brake Control |
| bn | billion | EBIT | Earnings before Interest, Tax | HQ | Headquarters |
| CAGR | Compound Annual Growth Rate | EBITDA | Earnings before Interest, Tax, Depreciation, Amortization | HSR | High-speed rail |
| CAPEX | Capital expense | EBS | Electronic brake system | HU | Hungary |
| CEO | Chief Executive Officer | EGR | Exhaust Gas Reduction | HUF | Hungarian Forint |

Glossary (2/2)

| | | | | | |
|---------------|---|----------------|---------------------------------|------------|---------------------------------|
| HVAC | Heating, ventilation & air conditioning | LDW | Lane Departure Warning | TCO | Total cost of ownership |
| IAA | International Automobil-Ausstellung (German: International Motor Show) | m | million | TPR | Truck Production Rate |
| IAM | Independent Aftermarket | M&A | Merger & acquisitions | UIC | International union of railways |
| iCOM | Intelligent Condition-Oriented Maintenance | OEM, OE | Original equipment manufacturer | US | United States |
| IFRS | International Financial Reporting Standards | OES | Original equipment service | USD | US Dollars |
| IN | India | OPEX | Operating expense | WC | Working Capital |
| IoT | Internet of Things | p.a. | per annum | | |
| IPO | Initial Public Offering | PWM | Private Wealth Management | | |
| JV | Joint venture | R&D | Research & Development | | |
| KB | Knorr-Bremse | ROE | Return on Equity | | |
| KB2020 | Knorr-Bremse 2020 | ROS | Return on Sales | | |
| KPI | Key Performance Indicator | RVS | Rail Vehicle Systems | | |
| LCC | Life-cycle cost | TCMS | Train Control Management System | | |

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