



**Commercial Vehicle Solutions**

Department Finance  
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Date November 12, 2024

ZF Group · ZF Commercial Vehicle Control Systems India Limited, Chennai 600058

The Manager  
Listing Department  
BSE Limited, Phiroze Jeejeebhoy Towers  
Dalal Street, Mumbai 400 001

**Scrip code: 533023**

Listing Department  
National Stock Exchange of India Ltd  
Exchange Plaza, C-1, Block G  
Bandra - Kurla Complex  
Bandra (E), Mumbai 400 051

**Trading Symbol: ZFCVINDIA**

**ISIN : INE342J01019**

Dear Sir(s),

**Sub: Announcement under Regulation 30 of the SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015 - Investor Meet Presentation attached**

**Ref: Prior intimation dated November 7, 2024 on Analyst / Institutional Investor Meetings to be held on 12<sup>th</sup>, 13<sup>th</sup>, 14<sup>th</sup> and 18<sup>th</sup> November 2024.**

Pursuant to regulation 30 of the Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulations, 2015 and in continuation of our earlier letter dated 7<sup>th</sup> November 2024 intimating schedule of Analyst / Institutional Investor meetings, please find attached the presentation to be made thereat.

Request you to take the above information on record.

Thanking you,

Yours sincerely,  
For ZF Commercial Vehicle Control Systems India Limited

Muthulakshmi M  
Company Secretary

Encl. : as above

**ZF Group**

# ZF Commercial Vehicle Control Systems India Limited

November 2024



# Today's Presenters



Periakaruppa Kaniappan

MD & CEO

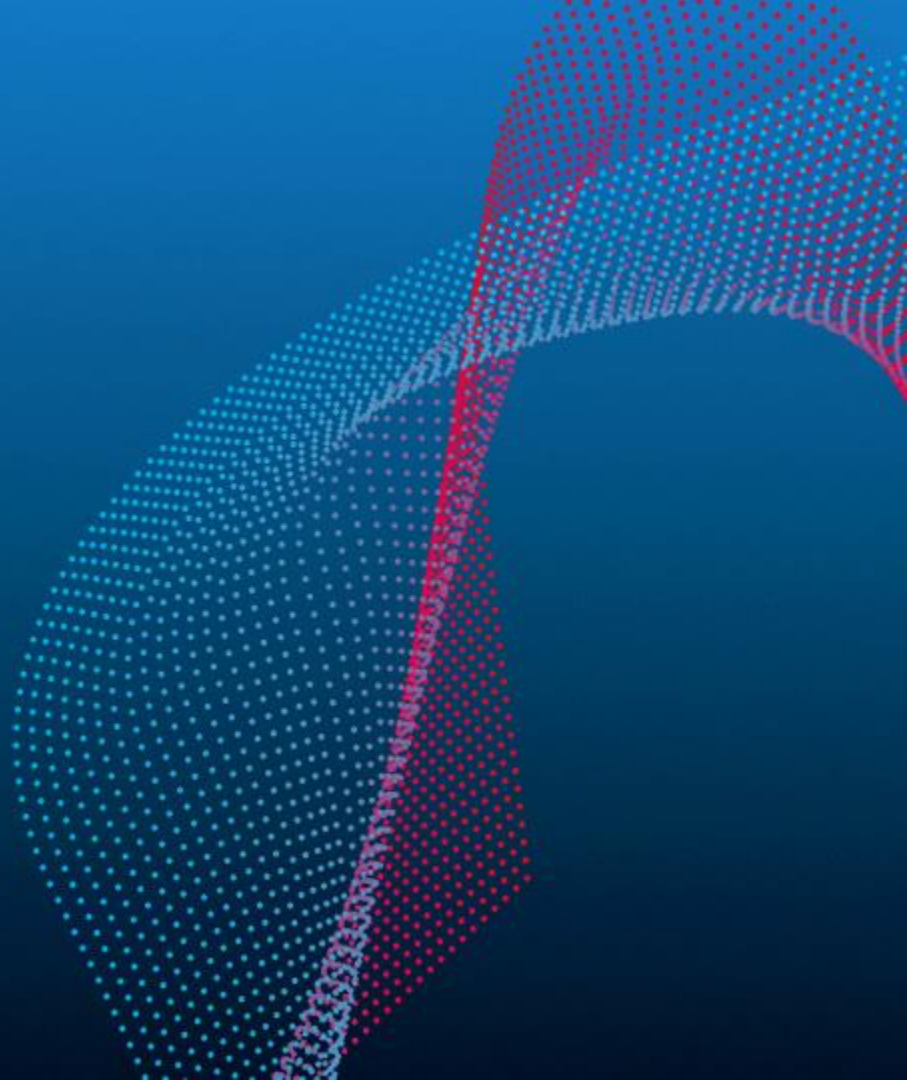


Sweta Agarwal

CFO

# 01

## About ZF Group



# ZF : A Global Technology Company & Solutions Provider

ZF is among the leading global technology groups and supplies advanced mobility products & systems for passenger cars, commercial vehicles and industrial technology. The company is a frontrunner in contributing to reducing emissions, protecting the climate as well as enhancing safe mobility.



# ZF's Leading Presence Globally Enables to Provide a Dense Network of Highly Qualified Contacts Close to Customers

## Key Highlights 2023A



74%

Cars and light commercial vehicles <6t



18%

Commercial vehicles >6t



8%

Construction and agricultural machinery, rail drives, marine craft and wind power



€46.6bn

Sales



€2.4bn

Adj. EBIT



€3.5bn

R&D Expenditure



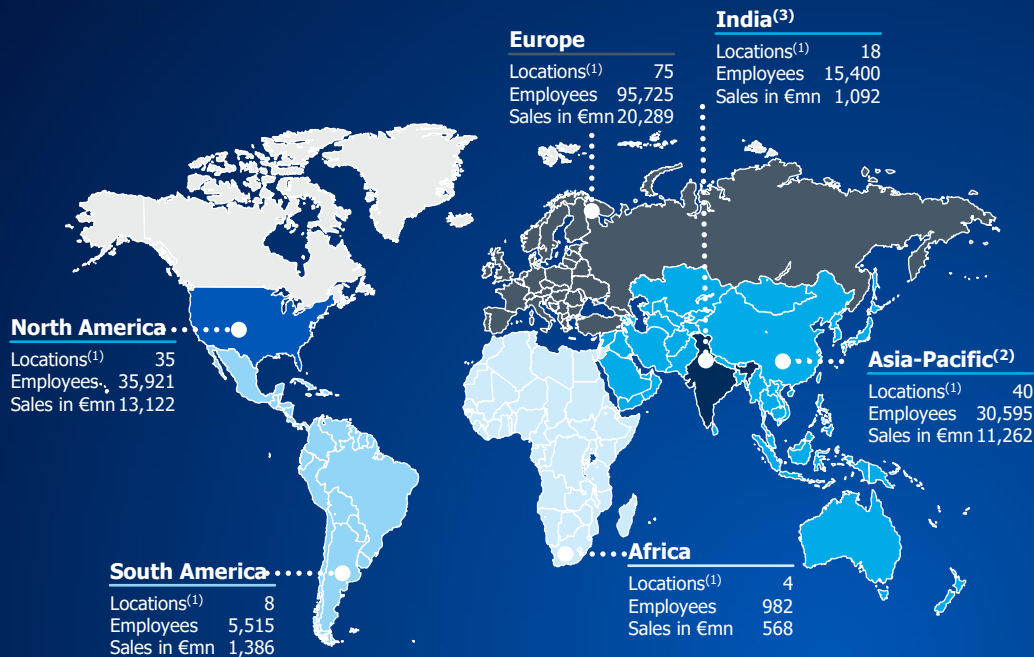
168,700

Employees

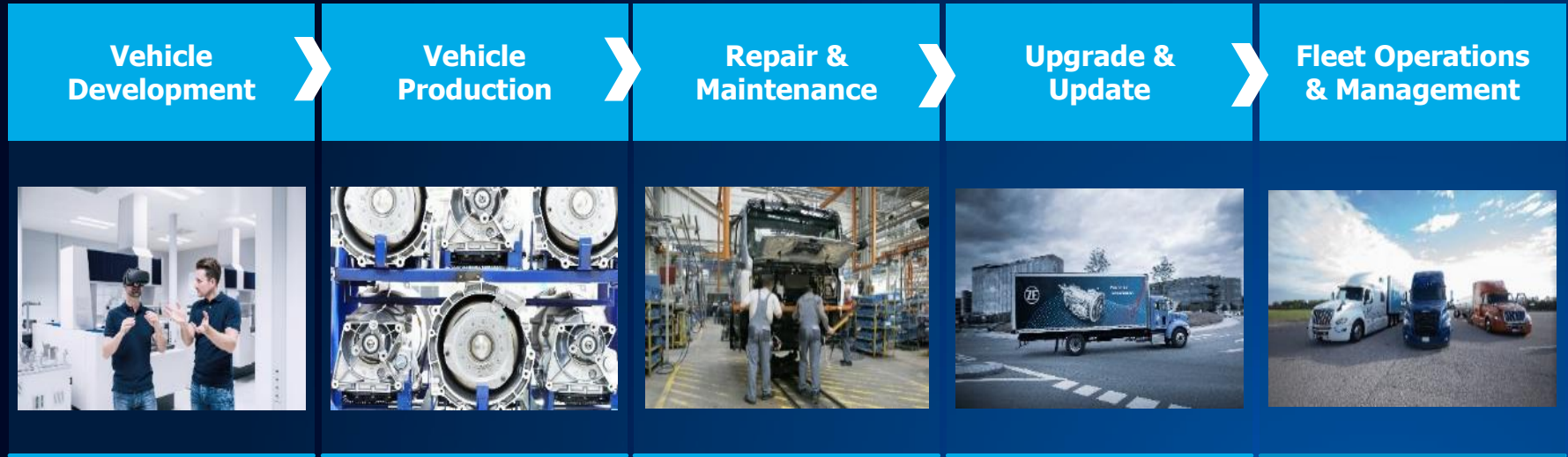


162

Production Facilities



# ZF CVS Division is the CV Industry's One-Stop-Shop

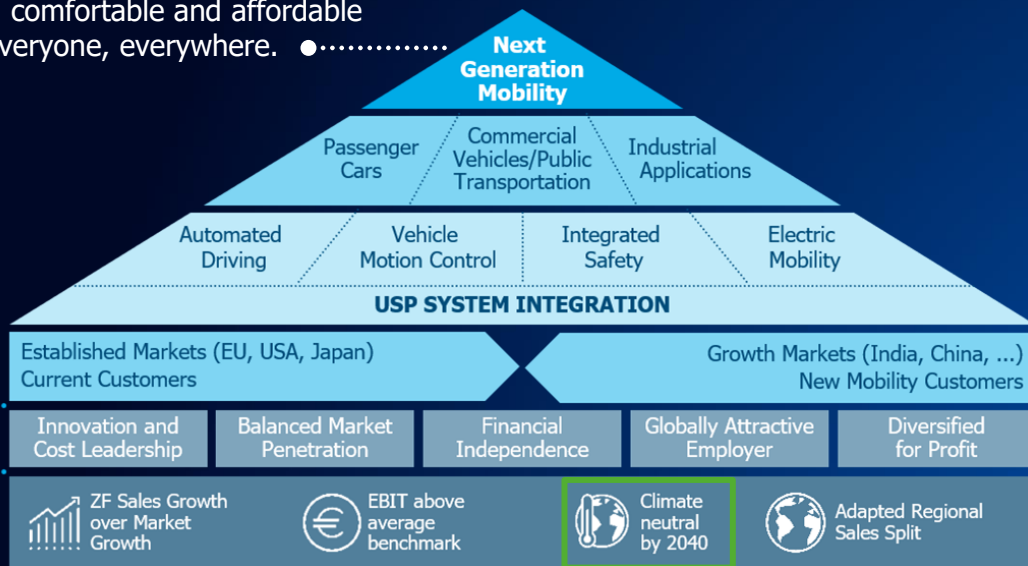


**Addresses diverse commercial transportation applications  
A powerful advantage for customers world-wide**

# ZF's Next Generation Mobility Strategy : Climate Neutrality

A clean, safe, comfortable and affordable mobility for everyone, everywhere. ●.....

**Our Mission and Strategy**



**Our Goals**

**Our KPI's**

## Climate Neutrality:

- **Reduce CO<sub>2</sub> emissions by 80%** (compared to 2019) by using green energy until 2030 (Scope 1 and 2)
- **Reduce CO<sub>2</sub> emissions of upstream value chain & product use until 2040** (Scope 3)

**ZF's ambitious climate strategy: Climate neutrality across all emission categories by 2040**

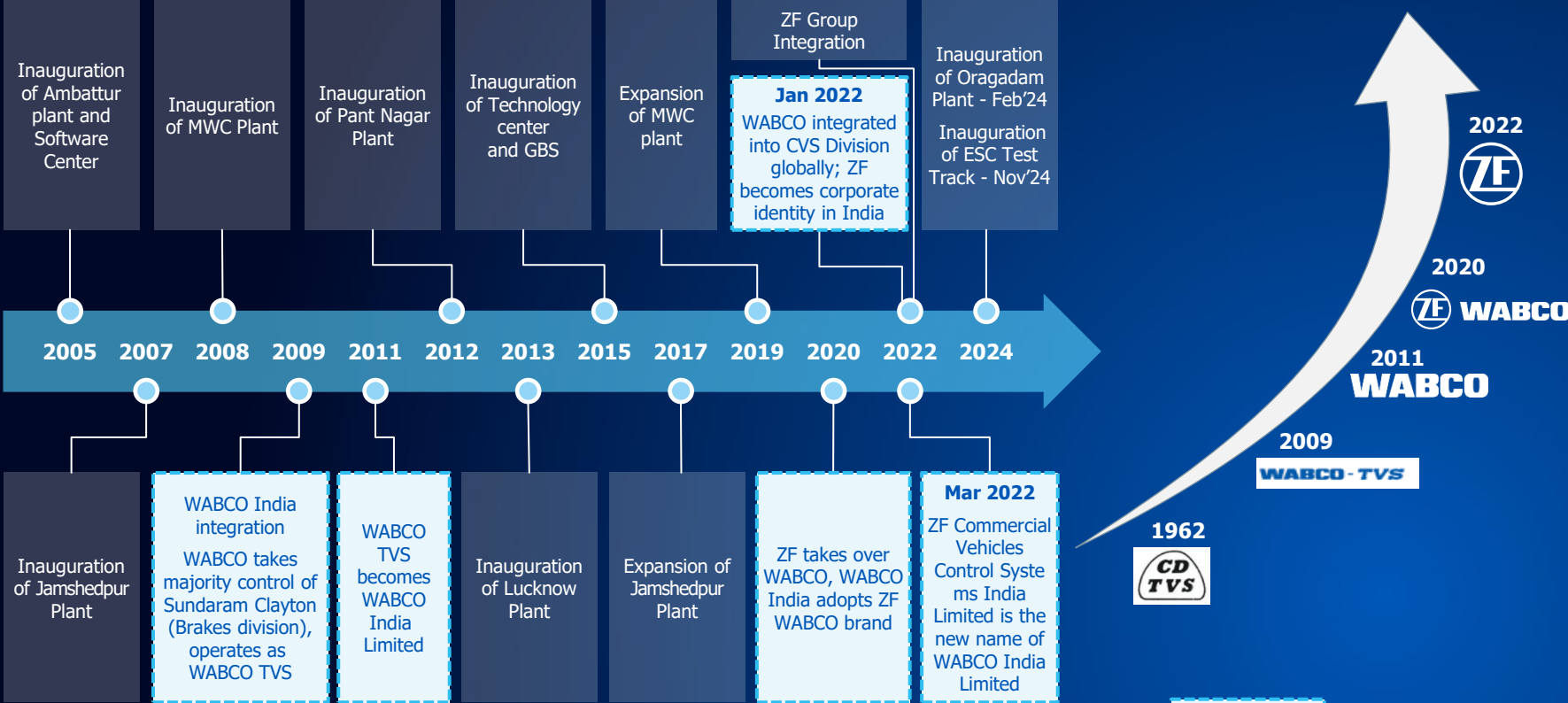


# 02

## ZF Commercial Vehicle Control Systems India Limited (“ZF CVCS”): Introduction & Strategy



# ZF CVCS : Building on a Strong Heritage



Brand Milestones

# ZF CVCS : At a Glance

## Over 6 Decades as a Market Leader

**6**

Manufacturing Plants

**4**

Global Engineering &  
Technology Centers

**~270**

Authorised Service  
Partners

**1**

Test Track

**~ 550**

Aftermarket Dealers/  
Distributors

**> 1,000**

Engineers, Global center  
for Digitalization and  
Software development

**Over 3,300**

Employees



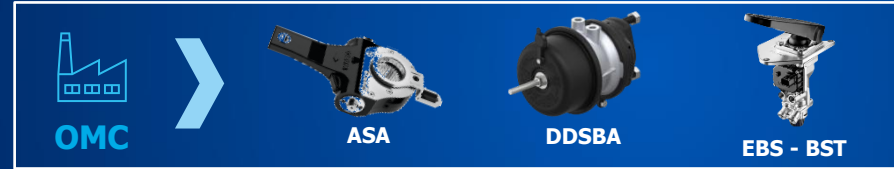
# ESC Track

- Developed a state-of-the-art ESC test track with a steering pad at the existing proving ground - Certified by TUV Rheinland and ARAI
- Positions ZF as a holistic end-to-end systems solution partner for advanced braking and active safety systems
- New track will cater towards end-to-end ESC system solutions, help to speed up the implementation of ESC systems for the commercial vehicle market
- Complements existing ABS test track at the same location
- Provides a controlled environment for testing vehicle stability, agility, and handling performance
- Supports testing across a wide range of vehicle types: 2-wheelers, passenger cars, LCVs, HCVs, and tractor-trailers
- Aligns with ZF CVS India's long-term strategic objectives to enhance safety and sustainability



# ZF Industrial Park, Oragadam

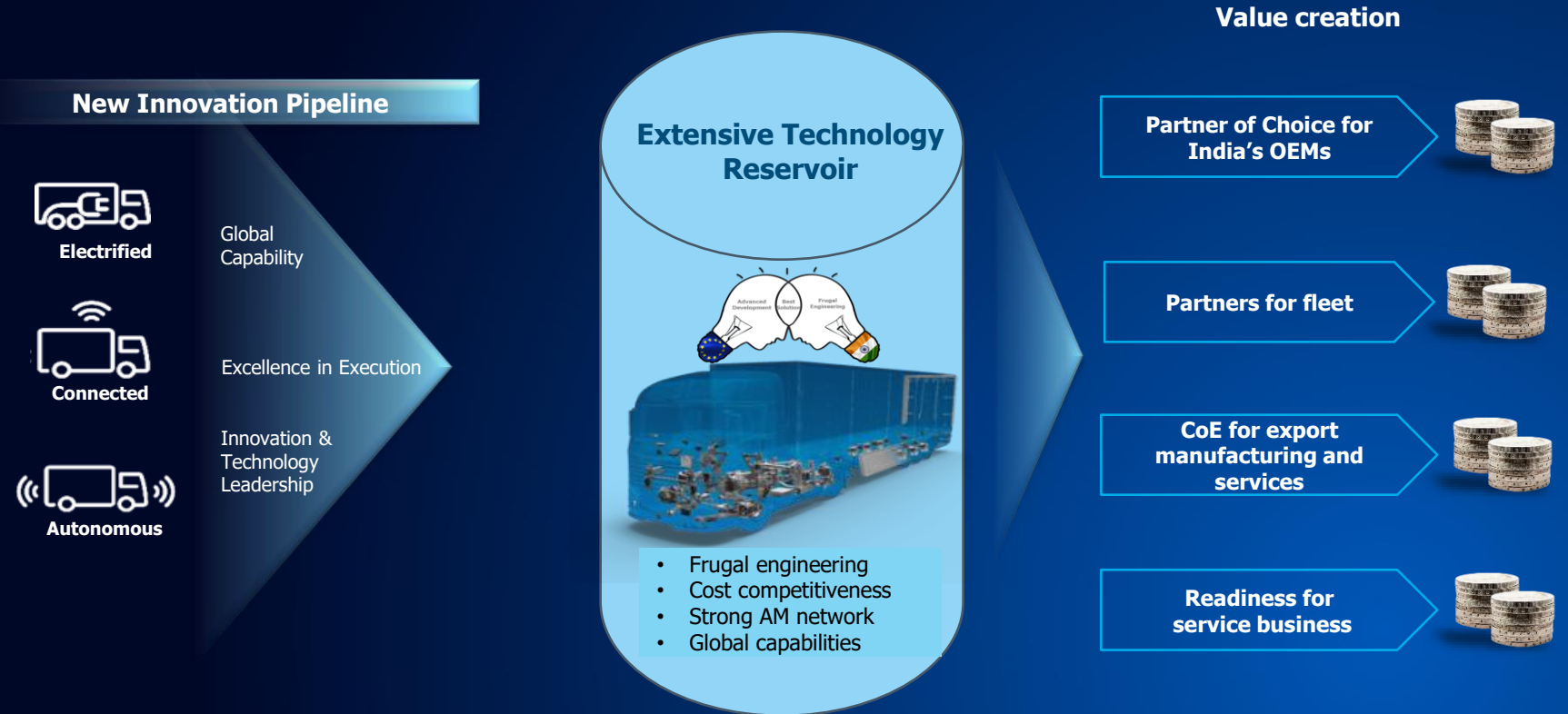
- ZF CVCS' 6<sup>th</sup> manufacturing facility in India & Cornerstone of ZF's strategic intent for **Make in India, for India & for the World**
- Facility powered by **100% renewable energy**
- Oragadam plant operated by **~80% women employees**
- MIPL: **Advanced technology solutions** towards
  - e-mobility (eCompressor) | Safety (Hydraulic ESC)
  - Efficiency (ASP Cartridge)
- OMC: New assembly setup for Automatic Slack Adjuster, DDSBA for export & domestic markets



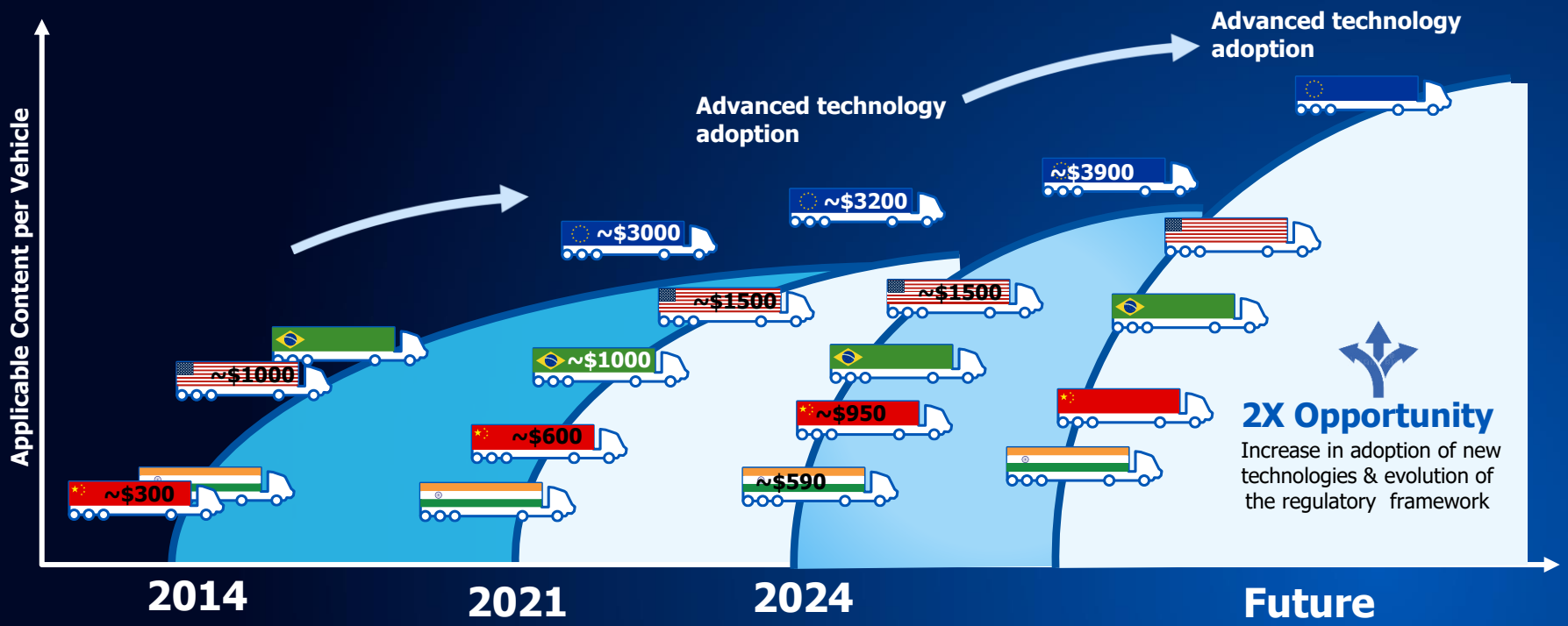
# ZFCVCS – A Leading Supplier of Technologies and Services to the Indian CV Industry



# Sustained Focus on Value Creation for Shareholders...



# ... by (1) Riding on India's Growth & Increasing Penetration of Advanced Technologies



\* At constant FX



# (2) Pioneering Customer & Market-oriented, Cost-optimized Solutions

## Solving the industry's key challenges

### Focused on efficiency

Product and system solutions for the reduction of operational costs (**TCO**) as well as lower **CO2 emissions**



- Automated Manual Transmission (AMT)
- Electronic Braking System (EBS)
- OPR Compressor
- Electronically Controlled Air Processing (ECAPU)

### Focused on safety

Assistance systems (**ADAS**) for the protection of road users, driver comfort and cargo integrity



- Electronic Stability control (ESC)
- Collision Mitigation system (CMS)
- Advanced Emergency Braking system (AEBS)
- Lane Departure Warning System (LDWS)
- BSIS/MOIS

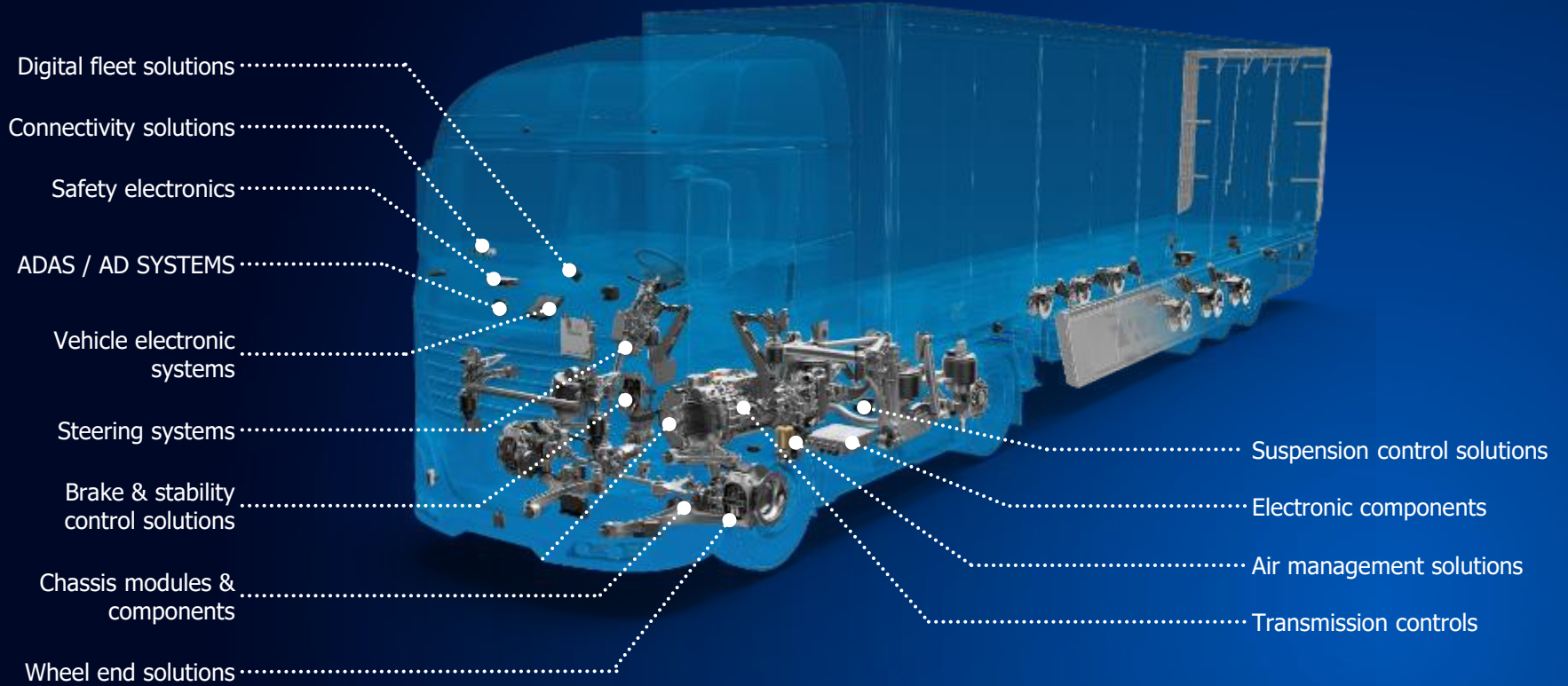
### Focused on digitalization

Connectivity & SW **solutions** for efficient processes (fleet mgmt. predictive maintenance, digital applications)



- SCALAR- HW/SW
- Trailer Pulse

# (3) Preferred Technology and Systems Solutions Partner to CV OEMs and Fleets



# (3A) Leading the Path to ACE

Solutions for each technology path in place

Leading player in ACE technologies and solutions



Increase of vehicle automation to higher safety and regulatory levels



Extend intelligent control system towards improving efficiency of the system



Transform braking, air Management technology from ICE to eMobility




Extend Digital products & Solution offerings

**Today**  
Technology leader in conventional products

  
**Safety & Autonomous**

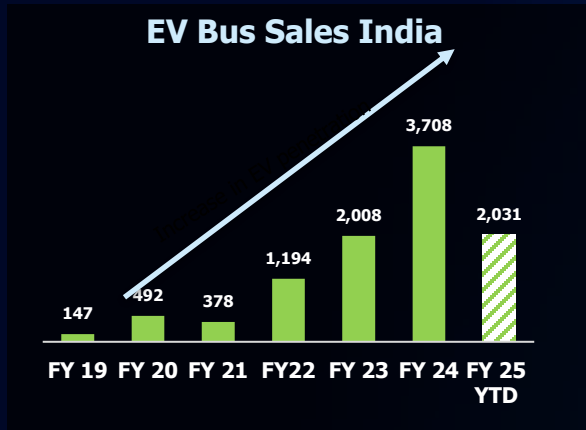
  
**Efficiency & Comfort**

  
**Electric**

  
**Connected**

Offering solutions across diverse customer needs

# (3B) EV Market Poised for Exponential Growth



### Factors Influencing the EV Penetration

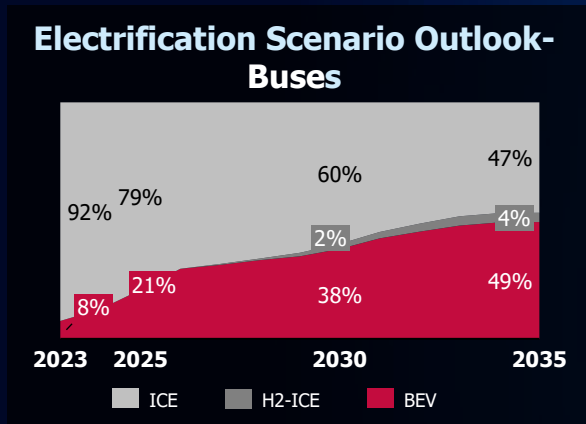
Government Initiatives

Infrastructure development

Climate Concern & initiatives of OEMs

Urbanization

EV Penetration in Buses expected to reach **>50%** by 2035



### Key Government Initiatives to boost the EV Penetration

Initiative	Value (INR Crore)	Value (~US\$ million)
FAME-1	895	136
FAME-2	10,000	1,429
FAME-2 Extension	11,500	1,614
EMPS 2024	500	60
PM E-Drive	10,900	1,313

PM E-drive

€ 487 Mn

E Bus

€ 55 Mn

E Trucks

The latest PM E-Drive (replaces FAME III) initiative represents a more targeted approach to India's EV ambition, balancing the need for public transport, charging infrastructure, and transparent subsidy mechanisms

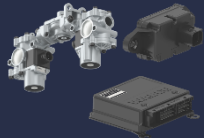
# (3B) Technology Solutions Ready for EV Migration



## Conventional ICE



Engine Driven compressor



ABS Based ESC System



Conventional Air Processing



Conventional Air Suspension

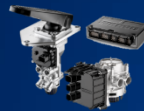


## Electrified



eCompressor

Electric compressor solution dedicated to electric & hybrid CV applications



EBS based ESC

EBS based ESC with improved regen efficiency & range



EC APU

Electronic controlled air processing for better efficiency & intelligent air management



ECAS

Electronic control air suspension with intelligent control & efficiency



# (3C) Advanced Driver Assistance Systems (ADAS)

Driving into the future

**Well Proven and New Functions**  
 AEB: Radar and Camera Integration with APB for Pedestrian and Cyclist and ACC  
 In Production since early 2020

**SEE**

Front Camera 6-PMHT, Front Radar AC1000T, Side Radar SCAT

**FUNCTION**  
 Integrated Front Looking Camera and Radar with Data fusion for Robust and Reliable AED and ADAS Performance

**THINK**

Image Processing Module 1.0, Gateway ECU

**ACT**

ABS EB / EBS 3.3 STD / EBS3.4 STD Braking System, ReAx Steering

**Hardware Roadmap to Meet India Regulations**

Standard	Regulation Features
AIS 162	AEB for Moving / Stationary
AIS 168	Lane Departure Warning
AIS 184	Driver Drowsiness Attention Warning through SAS
AIS 187	Moving off Information system (Additional Hardware: Side Radar)
AIS 186	Blind Spot Information System (Additional Hardware: Side Radar)
AIS 191	Automated Lane Keep Assist (Additional Hardware: ReAx Active Steering)

Pre-requisite for ADAS:  
 • Electronic Stability Control system  
 • ABS EB / EBS 3.3x STD Braking System

Pre-requisite for ADAS:  
 • Electronic Stability Control system  
 • ABS EB / EBS 3.3x STD Braking System

- Advanced driver assisted system towards improving safety
- Draft regulation approved by technology committee. Govt notification expected in H2 2024 (possible implementation time frame 24 to 36 months)
- Launched in 2018 with TATA Motors; successful market launch by TML in 2022
- **Leading OEM in India certified for LDWS/AEBS/ELKAS - SOP Jan 25**



- “One Stop Shop” for ADAS solutions incl. MOIS, ISA, DDAW, BSIS, REIS and TPMS to comply with the regulations
- Applies to truck, bus and coach applications



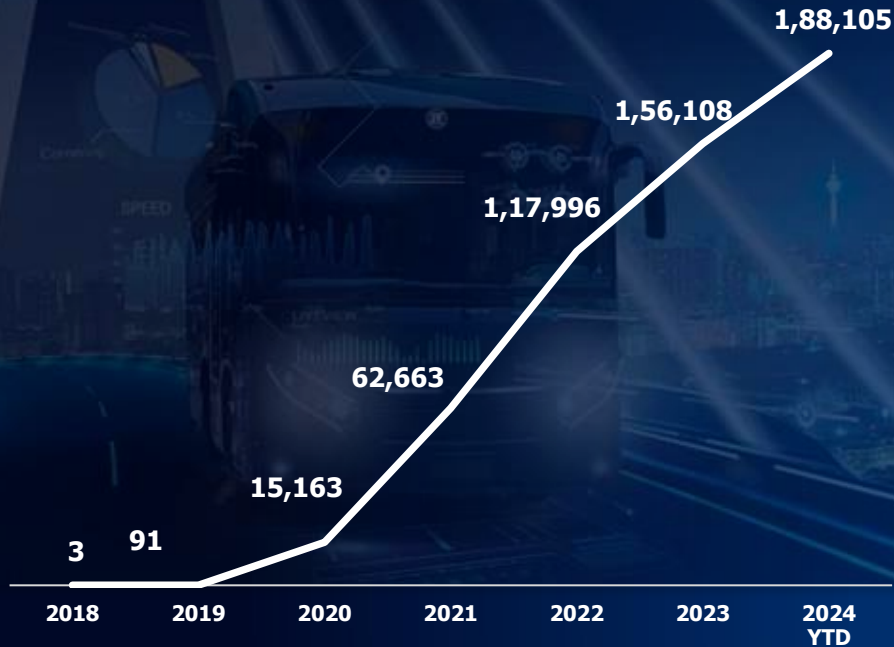
- AEBS regulation expected from 2026
- Targeting release with key OEMs

# (3D) SCALAR : Digital Fleet Orchestration Solution



# (3E) Connectivity Solutions to OEMs

## Connected Vehicles Trend



**188k+** vehicles connected with SCALAR



Highly secure hardware as per regulation



Data ingestion & API service to OEM cloud



SIM & KYC management



State level empanelment & vehicle tagging

### Features in Pipeline

- Vehicle & prognostic service
- Logistics & load connectivity solutions from SCALAR
- Multi brand diagnostics
- Software vehicle management system



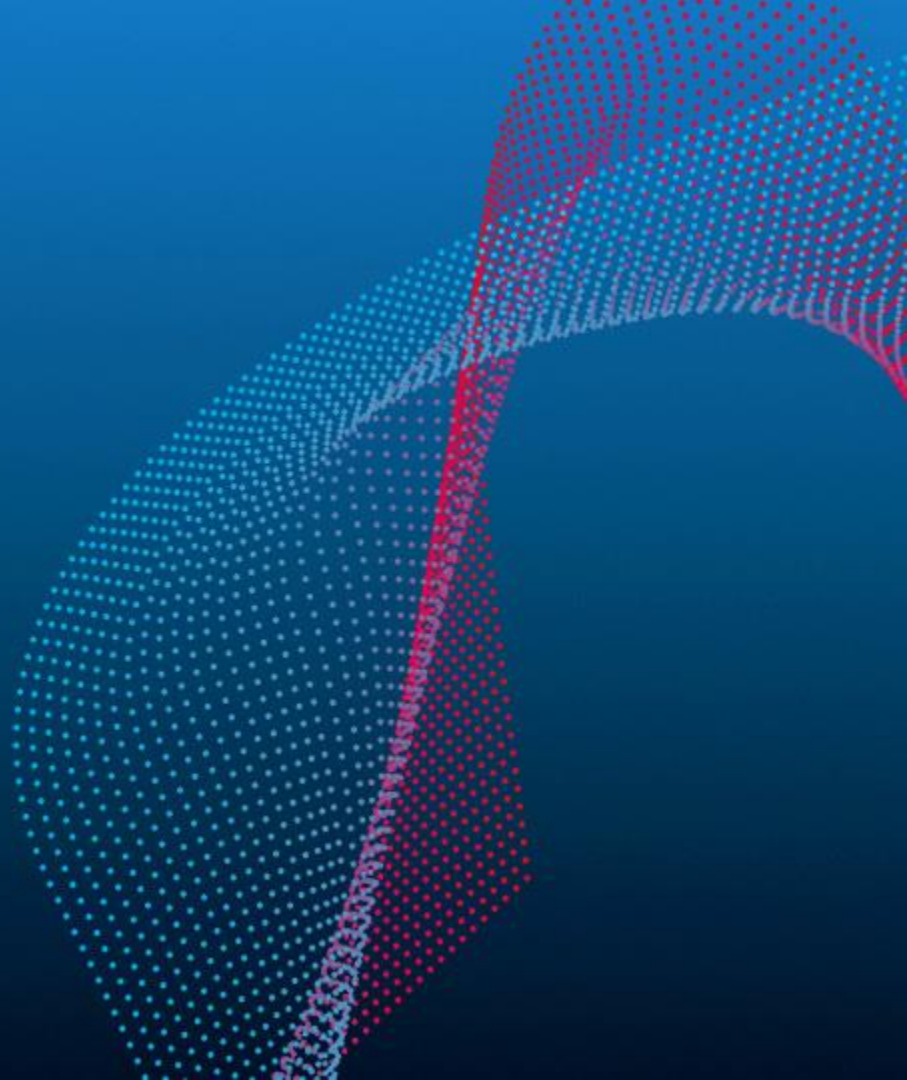
# ZF CVCS India Day at IAA 2024

- ZF CVCS hosted ZF India Day at Jeveresen Test Track during IAA Transportation 2024
- 30+ customer representatives from OEMs, including CXOs and teams from engineering, purchasing, and marketing attended
- Customers experienced live demonstrations of ZF's latest technologies in e-Mobility, Advanced active safety, and Vehicle motion control technologies
- Strengthens ongoing technology discussions with OEM partners
- Feedback from customers is highly positive



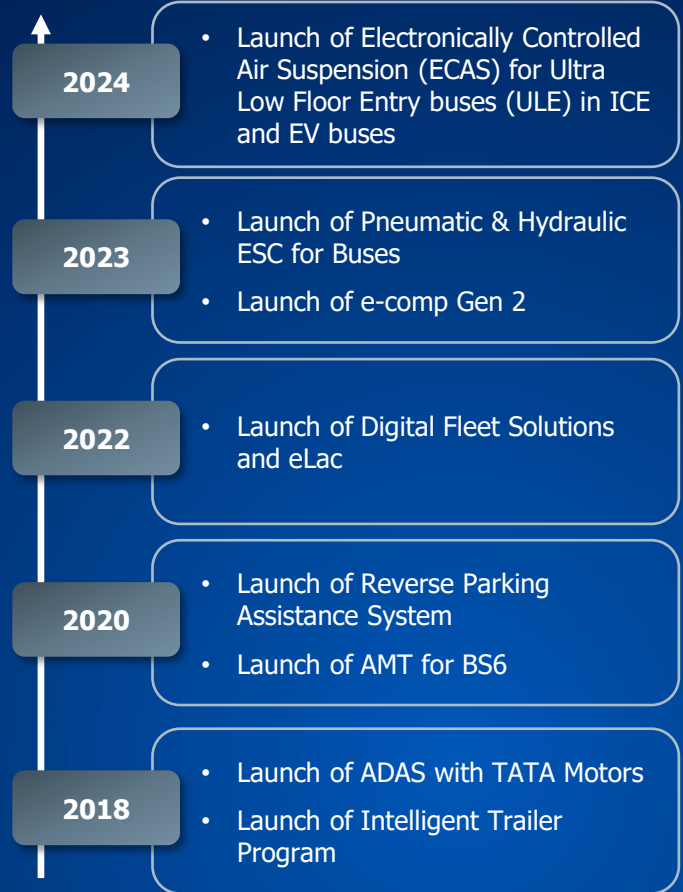
# 03

## ZFCVCS: Key Moats



# Trusted Innovation Partner for India's OEMs

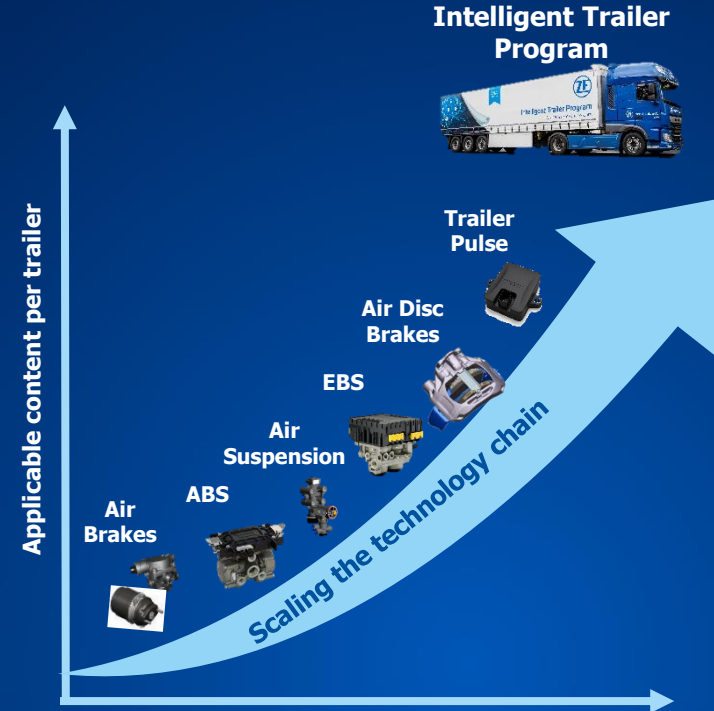
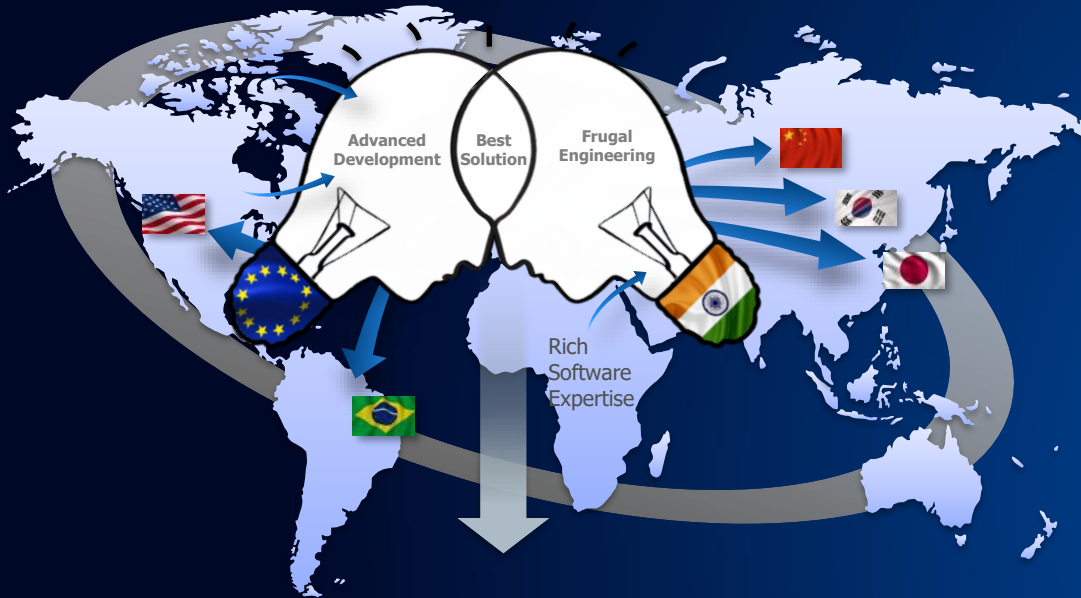
- First to bring advanced technology tailored for Indian CV market
  - **ABS, AMT, ESC, ADAS, ECAS, Intelligent Trailer Program**
- Advancing trailer safety and efficiency in India
- Development partner with deep local knowledge
- Serving industry through localized supply chain and country-wide service network
- Gateway to global operations to support Indian OEMs' export ambitions
- Proven technology ready to support advancing legislation



# Excellent Positioned to Deliver Advanced Technologies at Best Cost

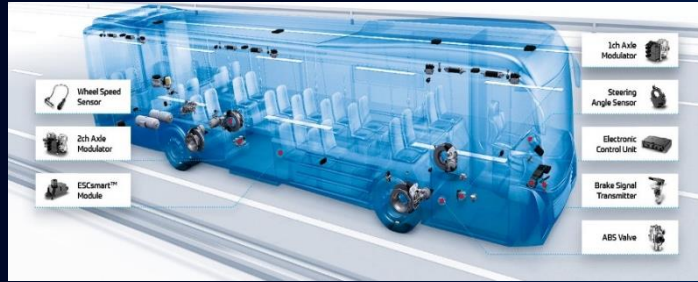
**Frugal engineering expertise** with an ability to redesign advanced technologies and mature products for price sensitive markets

**Skilled application engineers** provide excellent customer connectivity and support for adapting and homologating new technologies



# EBS and ESC for EV applications

Applied across all OEMs thus improving safety and regen efficiency



- Optimal grip under tough environmental conditions
- Ensures driving stability & steerability
- Maintain control of vehicle even on slippery surface



- Increased road safety
- Control vehicle under slippery conditions
- Improved vehicle stability



- Optimized regeneration and range improvement
- Lower insurance cost

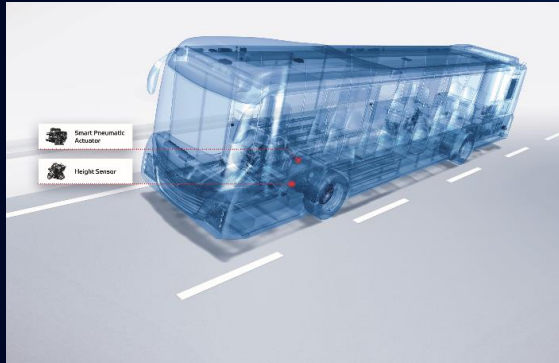


**3,500+**  
EV Buses  
with EBS + ESC



**15k+**  
ICE Buses  
with ESC

# ECAS – Electronically Controlled Air Suspension Applied in ICE and EV buses with Ultra low Floor Entry



- Modular and Scalable ECAS system
- Maintains Constant below pressure while motions
- Offers Outstanding suspension Quality



- Intelligent Kneeling
- Automatically returns to drive height when driver closes the doors based on intelligent system interaction with door control
- Increased Passenger Safety



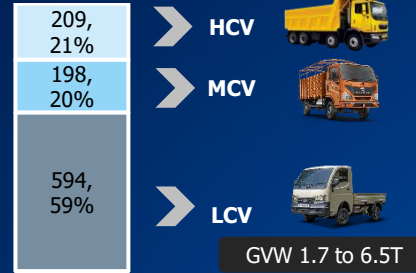
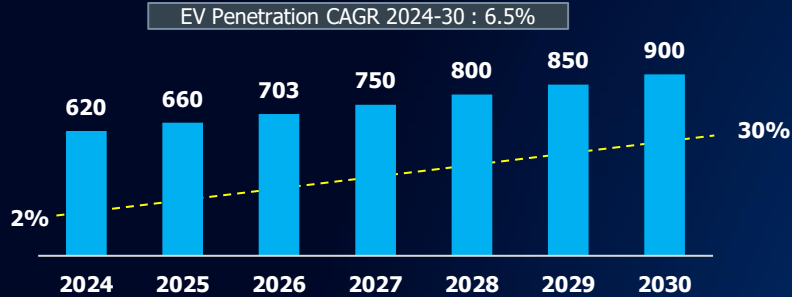
- Reduced Air Consumption
- Improved reliability of Air Suspension system



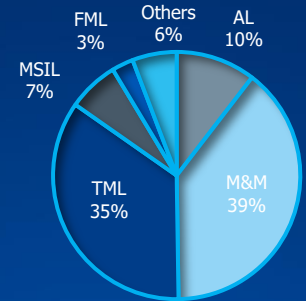
**1000+**  
Buses fitted with ECAS

# Strategic Focus - ZF CVCS's Entry into Light Duty CV Segment

## Vehicle Production Forecast (1000)

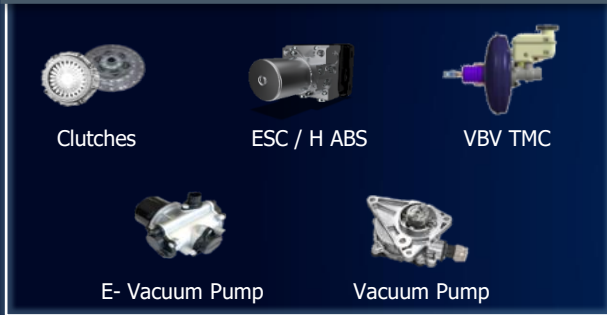


## LCV Market Share<sup>(1)</sup>



Total CV Volume 1 Million  
LCV is 59% and dominated by HCV OEMS (SIAM 2023-24)

### Short Term (2024-2026)



### Long Term (2027-2030)



**€90 Mn**  
Annual Sales

**Double-digit Profit**

# ZF Portfolio for India LCV Market

## Braking System



Hydraulic Antilock Braking System	①
Electronic Stability Control System (ESC)	①
Integrated Brake Control (IBC)	②
Vacuum Brake Booster	①
Mechanical Vacuum Pump	①
E Vacuum Pump	①



## ADAS, Connectivity & Others



ADAS	②
Fleet Management Solution	②
Rear Park Assist	①

## Foundation Brakes



Light Weight Caliper	②
Electric Park Brake	②

① → Phase 1 (Short Term 25- 27)    ② → Phase 2 (Mid term 27-30)



# ZF Aftermarket: Empowering Fleets with Intelligent Future-Ready Solutions

## End-to-end solutions and services

### Digital Services

Over **188k connected vehicles** on ZF's SCALAR platform; **1000+ trailers** on SCALAR Evo Pulse



### Pan India Sales & Service Network

**12k** retail outlets, **200+** authorized service centers; a ZF touch point every **100 km**



### Workshop Solutions

**Maximizing vehicle uptime** through diagnostics and predictive maintenance to improve fleet Utilization



**Delivering a complete range of product and service offerings**

## Spare parts along the lifetime of the vehicle

**Genuine Spare Parts**  
**Certified premium quality parts**  
across 12k retail outlets



**Retrofit Solutions**  
State-of-the-art technology upgrades incl **Door control system, Trailer ABS / EBS, Passive ADAS system**



**Professional Training and Consulting**  
**Skill enhancement programs** for fleets, OEM dealers and mechanics;

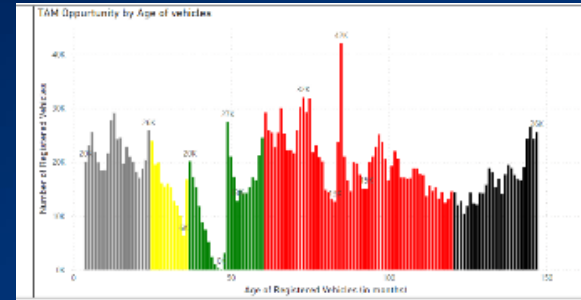


# Leveraging Digitalization & Data Analytics to Unlock Growth Opportunities in Aftermarket

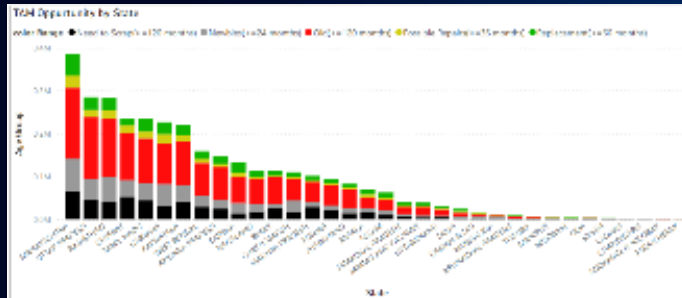
## Analysis of Vaahan Registration State Wise and Category Wise



## Insights from Vehicle Age Data Analytics



## State Level Analysis of Opportunities

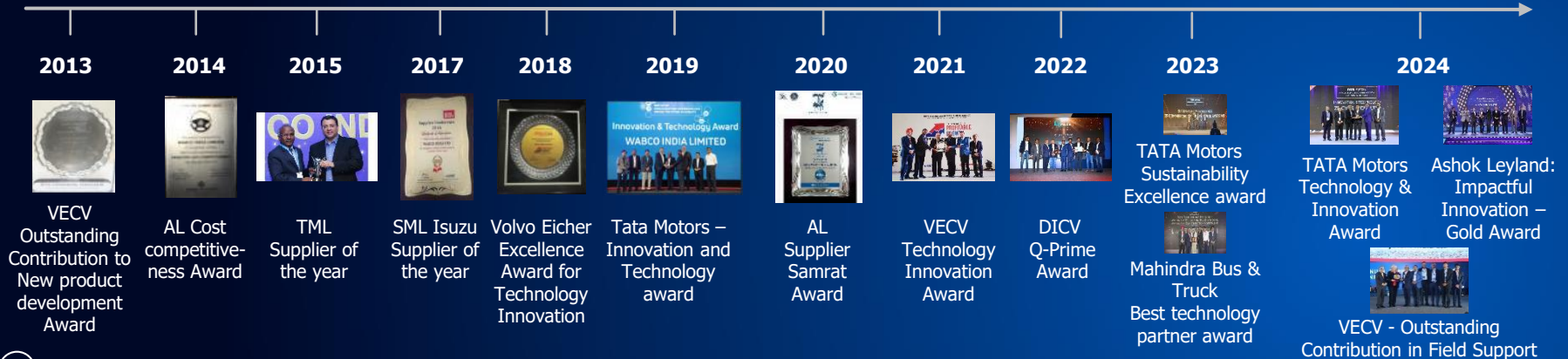


## Sales Analytics



# Recognition for Excellence in Execution

- Strong relationship with customers for over six decades
- Recognized by leading customers for innovation, technology partnership, cost competitiveness, quality and excellence
- Recipient of **30+** customer awards over the last decade+
  - **10 awards from Ashok Leyland** supplier samrat; overall quality excellence
  - **9 awards from TATA Motors** supplier of the year; innovation and technology award
  - **9 awards from VECV** best quality supplier; outstanding contribution in technology innovation
  - **3 awards from Daimler** – Q Prime, best supplier for innovation, partners for Asia
  - **1 award from Mahindra** – Best technology partner



# ESG Focused Business Model

E



## Driving Decarbonization for a Greener World

- Implementing technologies to improve vehicle efficiency and reduce carbon footprint – **eComp, AMT, EBS, ECAPU**
- Re-Manufacturing solutions to avoid Scrapage & to extend life
- 100% Renewable Energy and water positive across all manufacturing facilities

S



## Focusing on Road Safety

- **10,000+ drivers** upskilled in partnership with RTOs and STUs
- **Launching ADAS** technologies with active braking to significantly reduce accidents

G



## Building Success Through Governance

- Robust & effective corporate governance is the cornerstone of our business practices
- **4** highly qualified, well-acclaimed independent directors<sup>(1)</sup>

# Sustainability at ZF CVCS

## Be ahead of Targets – Scope 1 & Scope 2

- Reduction of CO<sub>2</sub> emissions to 90% by 2027 ahead of global targets 2030; all ZF CVCS plants to be driven by 100% renewable energy
- Ambattur , MWC and Oragadam plants (3 / 6 plants) driven by 100% renewable energy sources
- Group captive wind and solar long-term Purchasing Power Agreement (PPA) signed to support supply of > 90% renewable energy
- Collaboration with IIT Madras on Energy efficiency and decarbonization
- Phasing out fossil fuel in all canteen operations and using induction kitchen equipment at Ambattur & JSR by Dec24.
- USGBC –LEED Gold standard certification for Oragadam plant

## Be ahead of Targets – Scope 3

- Use of EVs in last-mile transportation (both upstream, and downstream)- initiated in one location
- 100% RE use in supply chain, one of the KPIs on increasing RE; workshop organised with supply chain partners along with TIIC



**LEED Gold certification**  
Received by Oragadam site



**Won CII National Energy Efficiency Award for Innovation in Energy Efficiency**



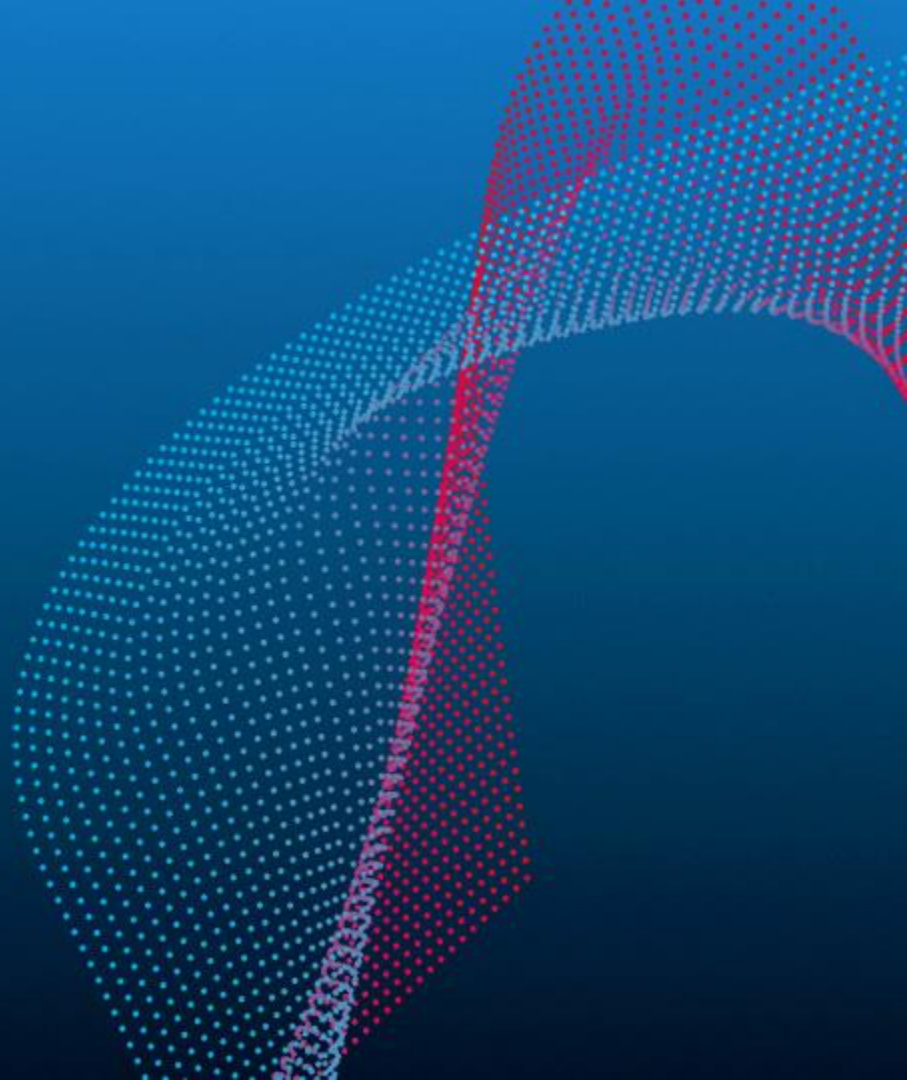
**Rainwater collection pond at Oragadam site supports 70% freshwater needs for domestic use**



**Won Sustainability Excellence Award from TATA Motors**

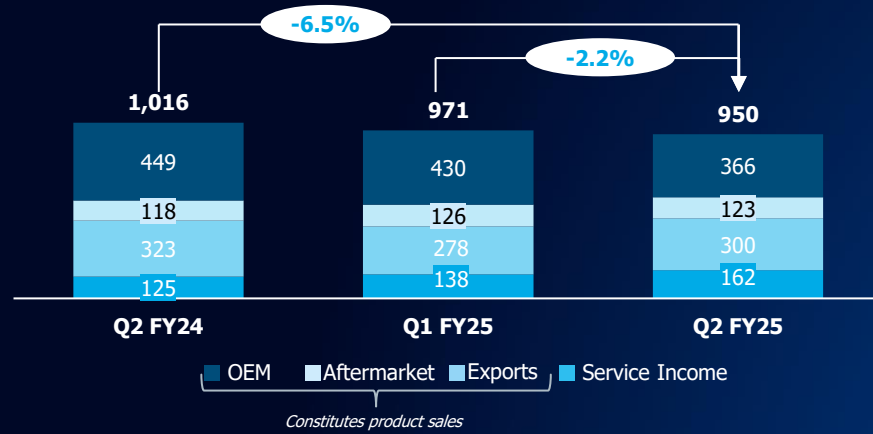
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## ZFCVCS: Q2 FY25



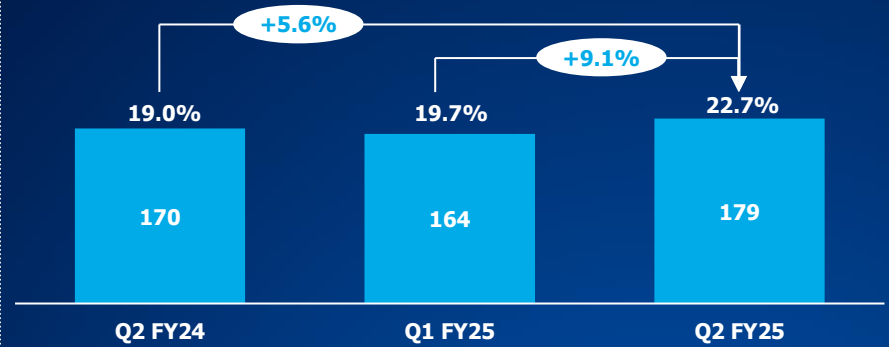
# ZF CVCS India Quarter Performance

## Total Revenue



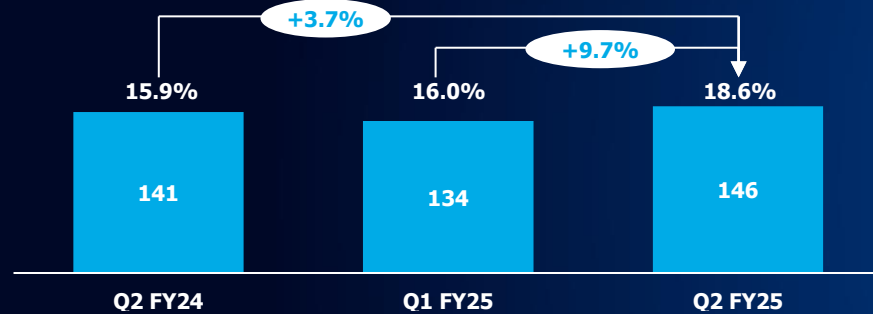
## EBITDA

(Rupees in crore)



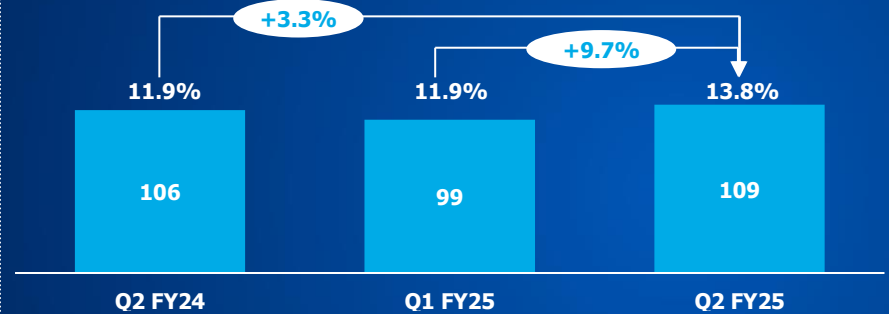
## PBT

% on Product Sales



## PAT

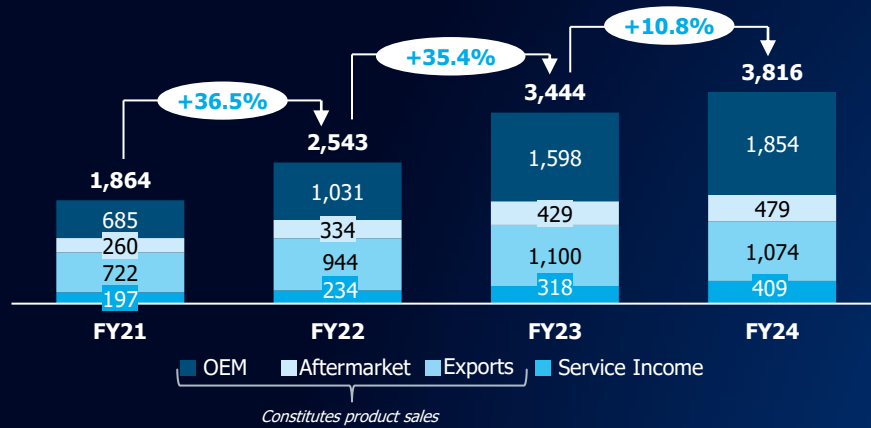
% on Product Sales



Notes: All figures refer to ZF CVCS consolidated numbers.

# ZF CVCS India Annual Performance

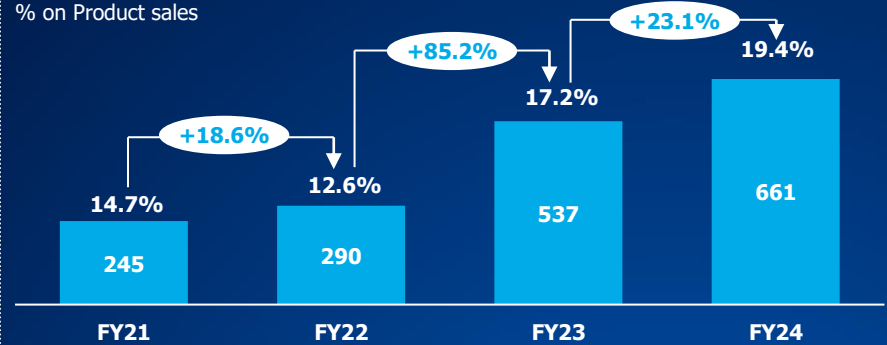
## Total Revenue



## EBITDA

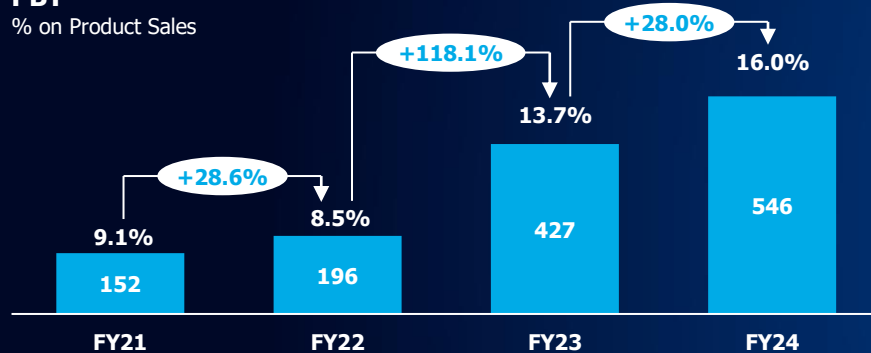
(Rupees in crore)

% on Product sales



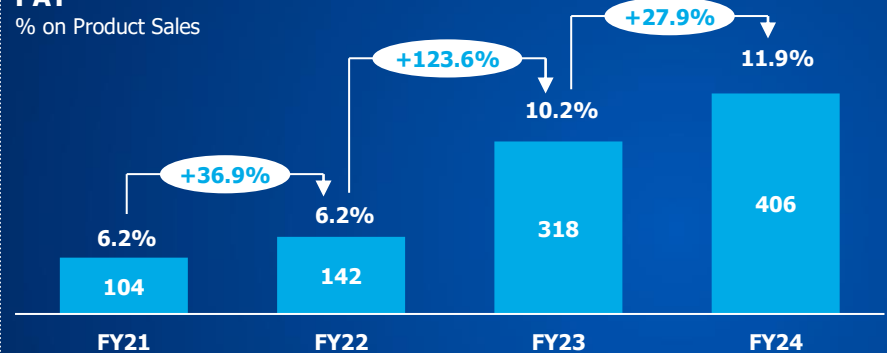
## PBT

% on Product Sales



## PAT

% on Product Sales



Notes: All figures refer to ZF CVCS consolidated numbers.



Thank you.

Welcome your questions and  
feedback.

