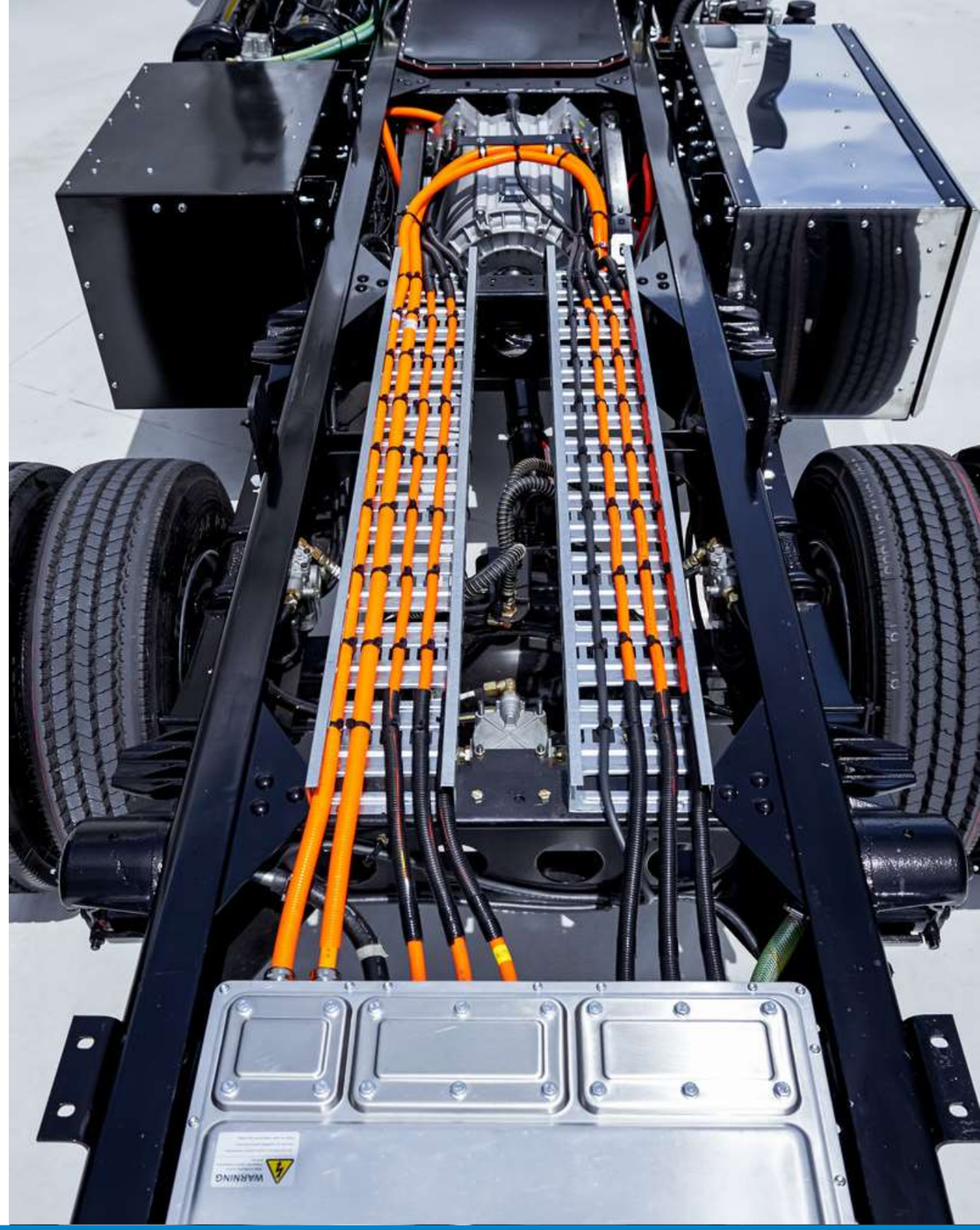
Investor Day

March 11, 2019

People Finding A Better Way®



Safe Harbor Statement

Certain statements and projections contained in this presentation are, by their nature, forward-looking within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements are based on our current expectations, estimates and projections about our industry and business, management's beliefs, and certain assumptions made by us, all of which are subject to change. Forward-looking statements can often be identified by words such as "anticipates," "expects," "intends," "plans," "predicts," "believes," "seeks," "estimates," "may," "will," "should," "would," "could," "potential," "continue," "ongoing," similar expressions, and variations or negatives of these words. These forward-looking statements are not guarantees of future results and are subject to risks, uncertainties and assumptions that could cause our actual results to differ materially and adversely from those expressed in any forward-looking statement. Dana's Annual Report on Form 10-K, subsequent Quarterly Reports on Form 10-Q, recent Current Reports on Form 8-K, and other Securities and Exchange Commission filings discuss important risk factors that could affect our business, results of operations and financial condition. The forward-looking statements in this presentation speak only as of this date. Dana does not undertake any obligation to revise or update publicly any forward-looking statement for any reason.

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Agenda

9:00 – 9:15	**Business Overview**
9:15 – 11:00	**Enterprise Strategy**
9:15 – 10:15	Overview *Leverage* The Core *Drive* Customer Centricity *Expand* Global Markets *Deliver* Innovative Solutions
	15 Minute Break
10:30 – 11:00	Electrification: An Expert Perspective *Lead* Electric Propulsion
11:00 – 11:30	**Financial Summary**
11:30 – 12:00	**Questions & Answers**

James Kamsickas
President & CEO

Jonathan Collins
EVP & CFO

Christophe Dominiak
SVP & CTO

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Business Overview

People Finding A Better Way®

Dana Snapshot

Founded in **1904**

2018 sales:
$8.1 billion
13% increase from prior year

~36,000
people

25
technical centers

145 major facilities
33 countries
6 continents
~15,000 customers in
141 countries

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Global Footprint

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Mission, Vision, Values

Our Mission

Our talented people power a customer-centric organization that is continuously improving the performance and efficiency of vehicles and machines around the globe. We will consistently deliver superior products and services to our customers and will generate exceptional value for our shareholders.

Our Vision

To be the global technology leader in efficient power conveyance and energy-management solutions that enable our customers to achieve their sustainability objectives.

Our Values

- Honesty and Integrity
- Good Corporate Citizenship
- Open Communication
- Continuous Improvement

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Business Overview

Markets

Light Vehicles

50%

Commercial Vehicles

29%

Off-Highway

21%

Segments

Light Vehicle Driveline Technologies

40%

Commercial Vehicle Driveline Technologies

28%

Off-Highway Drive and Motion Technologies

20%

Power Technologies

12%

Regions

North America

45%

Europe

28%

South America

6%

Asia Pacific

21%

Technologies

Products

Drive	Axles, driveshafts, transmissions, hydraulic wheel and track drives, drive units for electric and hybrid vehicles
Motion	Winches, slew drives, planetary gearboxes, hydraulic pumps, motors and valves, electronic controls
Electrodynamic	Electric motors, generators, power electronics, controls and software
Thermal	Transmission and engine oil cooling, battery and electronics cooling, charge air cooling, and exhaust-gas and heat recovery
Sealing	Gaskets and seals, transmission separator plates, cam covers and oil pan modules, heat shields, and fuel cell plates
Digital	Active and passive system controls, Software as a Service including descriptive and predictive analytics

Sales as of Dec. 31, 2018, including 100% of DDAC.

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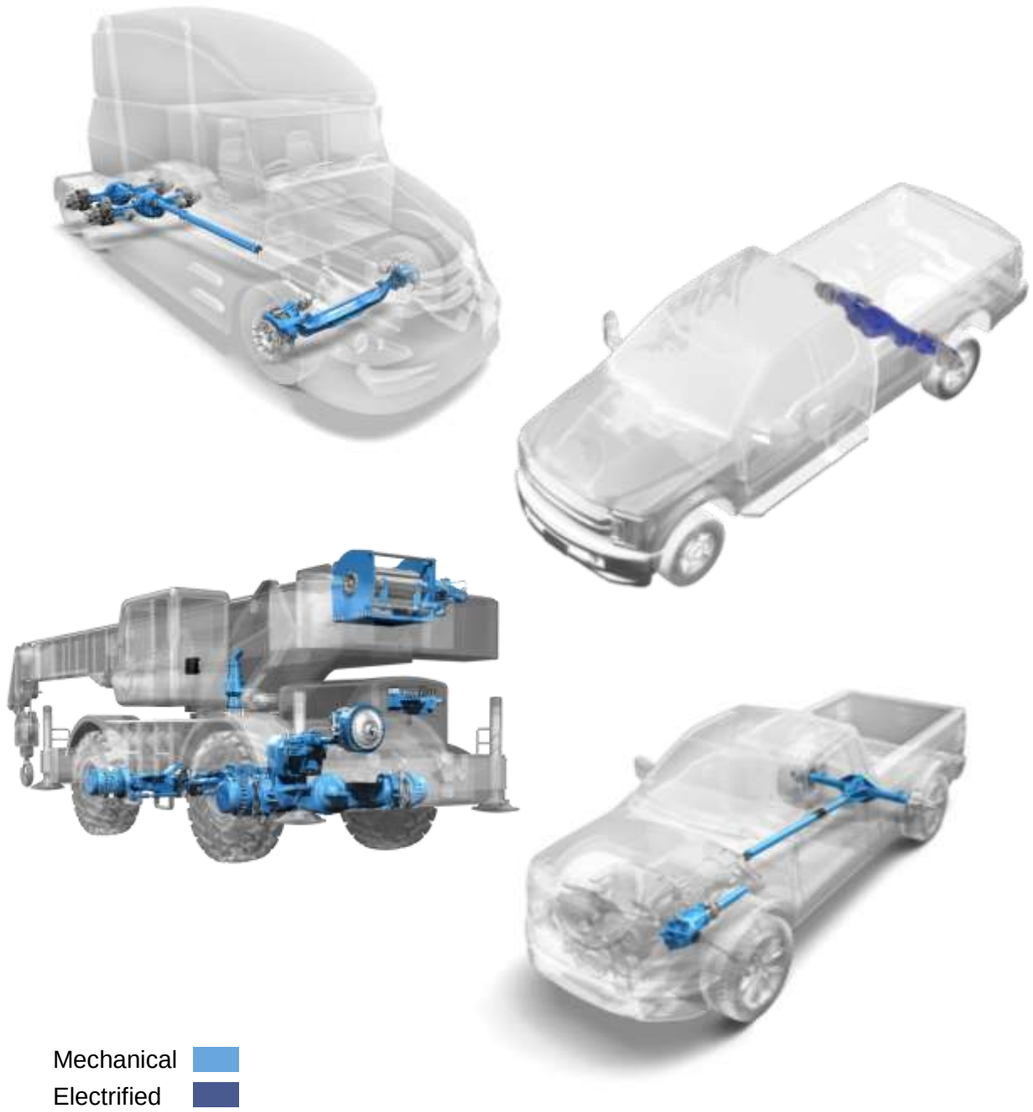
Product Overview



Mechanical
Electrified

Axles

- Drive Axles
- Steer Axles
- AWD System
- Disconnect System
- Planetary Hub Drives

Driveshaft

- Aluminum Driveshafts
- Steel Driveshafts
- Industrial Driveshafts
- Universal Joints
- Constant Velocity Joints

Motion

- Hydraulics & Controls
- Industrial Gearboxes
- Winches
- Slew Drives

Transmission

- Sealing & Cooling
- Active Warm Up
- Transmissions
  - Hydrostatic
  - Hydrodynamic
  - Hydromechanical
  - High Performance

Electromobility

- Electric Motors
- Power Electronics
- Controls & Software
- e-Gearboxes
- Battery Cooling
- Electronics Cooling
- Electric Axles
- Electric Drive Units

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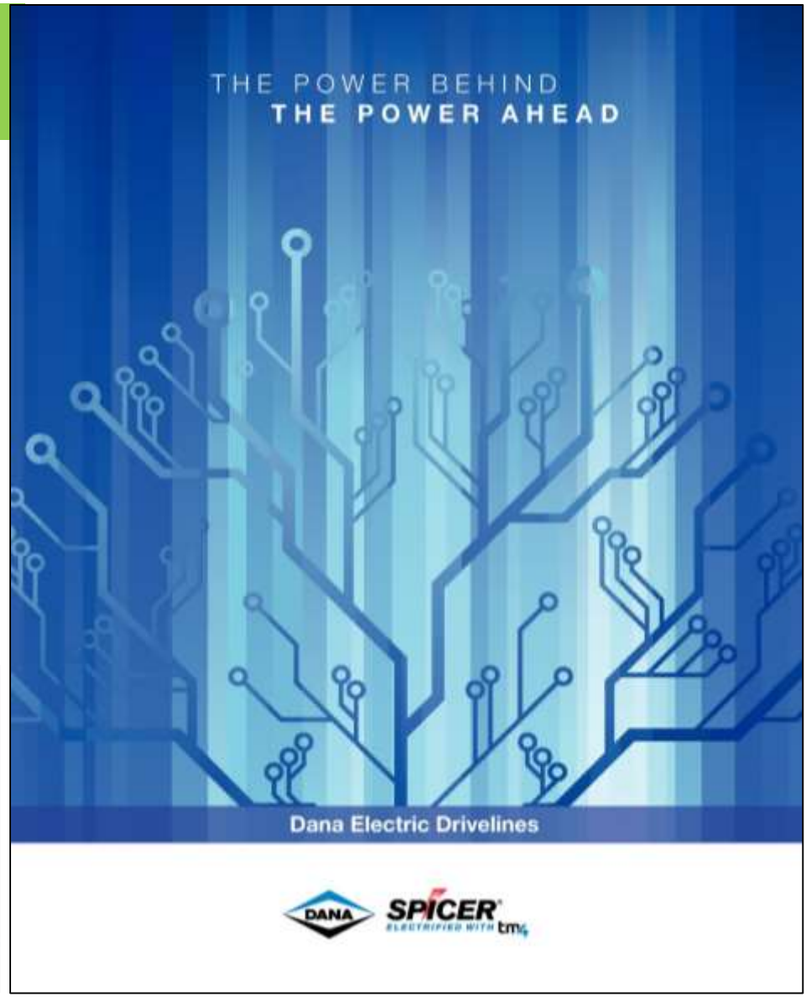
Sustainability Through Electrification

Over **95,000** tonnes of CO_2 saved since 2014 with Dana products

~585
million customer kilometers driven with TM4 motors

~12,000
vehicles on the roads today

645,000+
tonnes of CO_2 diverted from cities



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Employee Engagement

TOP WORK PLACES 2019

top EMPLOYER ITALIA 2019
CERTIFIED EXCELLENCE IN EMPLOYEE CONDITIONS

Great Place To Work.
Best Workplaces™
ASIA 2018

PRÊMIO
MELHORES EMPRESAS
PARA TRABALHADORES
COM DEFICIÊNCIA - 2018

People Finding A Better Way®

DEUTSCHER DIVERSITY TAG 2018
charta der vielfalt

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Oerlikon Drive Systems Acquisition

Enhances **Propulsion Technology Portfolio**

Increases **Asian Market Capabilities**

GRAZIANO®

Transmission Systems

Extends **Off-Highway Market Presence**

FAIRFIELD®

Custom Gears and Drives

Delivers **Significant Long-Term Value**

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Enterprise Strategy

People Finding A Better Way®

Exceeding Original 2019 Targets

sales

+$2.4

billion

35%

adj. EBITDA

+$275

million

32%

diluted adj. earnings per share

+$0.85

36%

On track to surpass top and bottom line long-term targets by more than 30%

See appendix for comments regarding the presentation of non-GAAP measures

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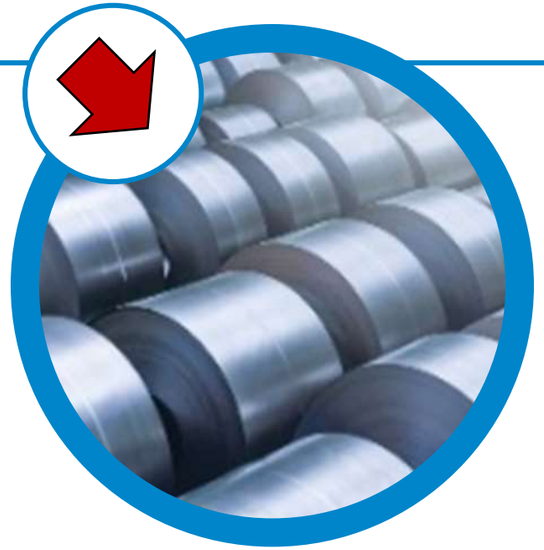
Business Dynamics

Market Demand



Commodities Global Trade

Electrification Adoption

Business Acquisitions

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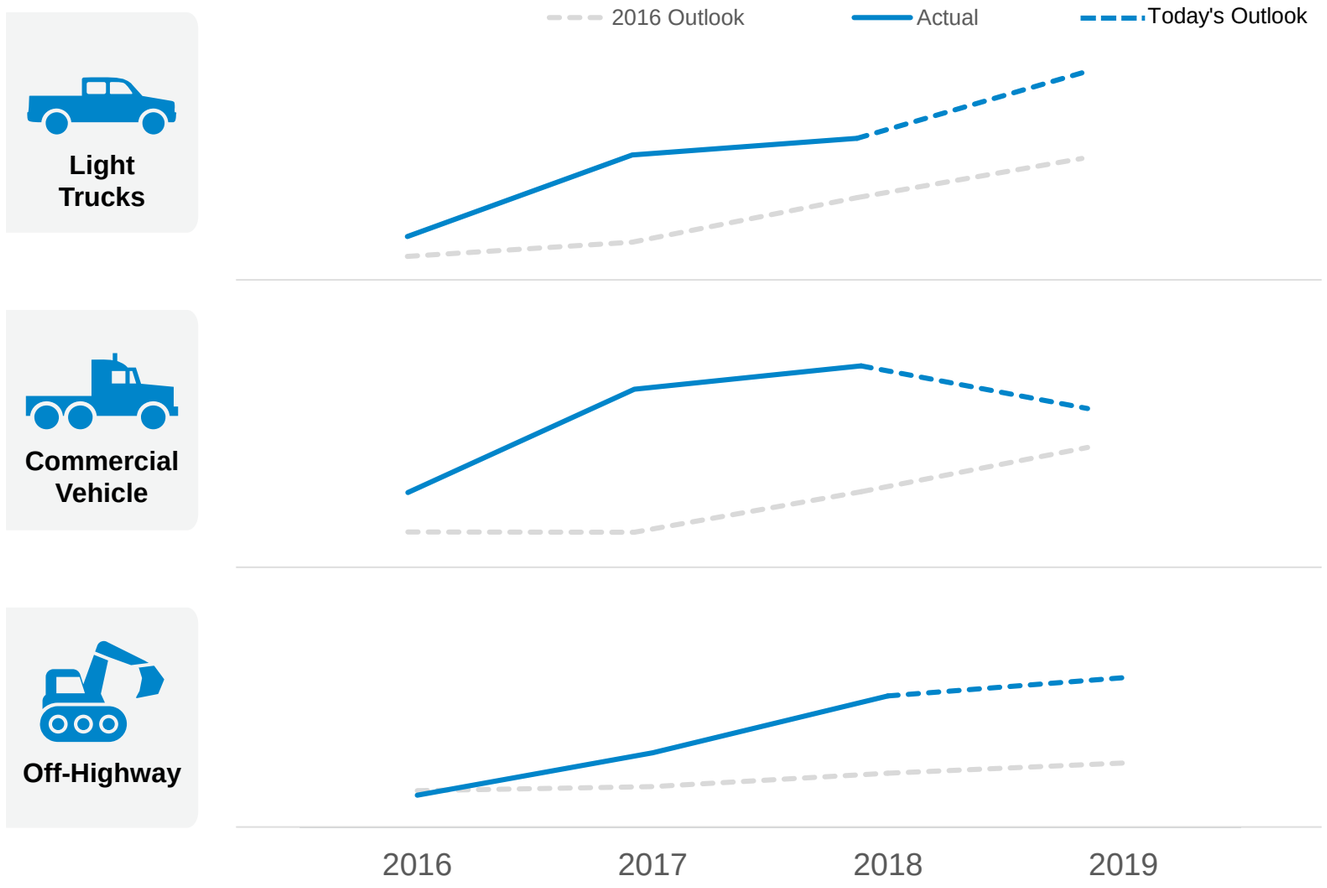
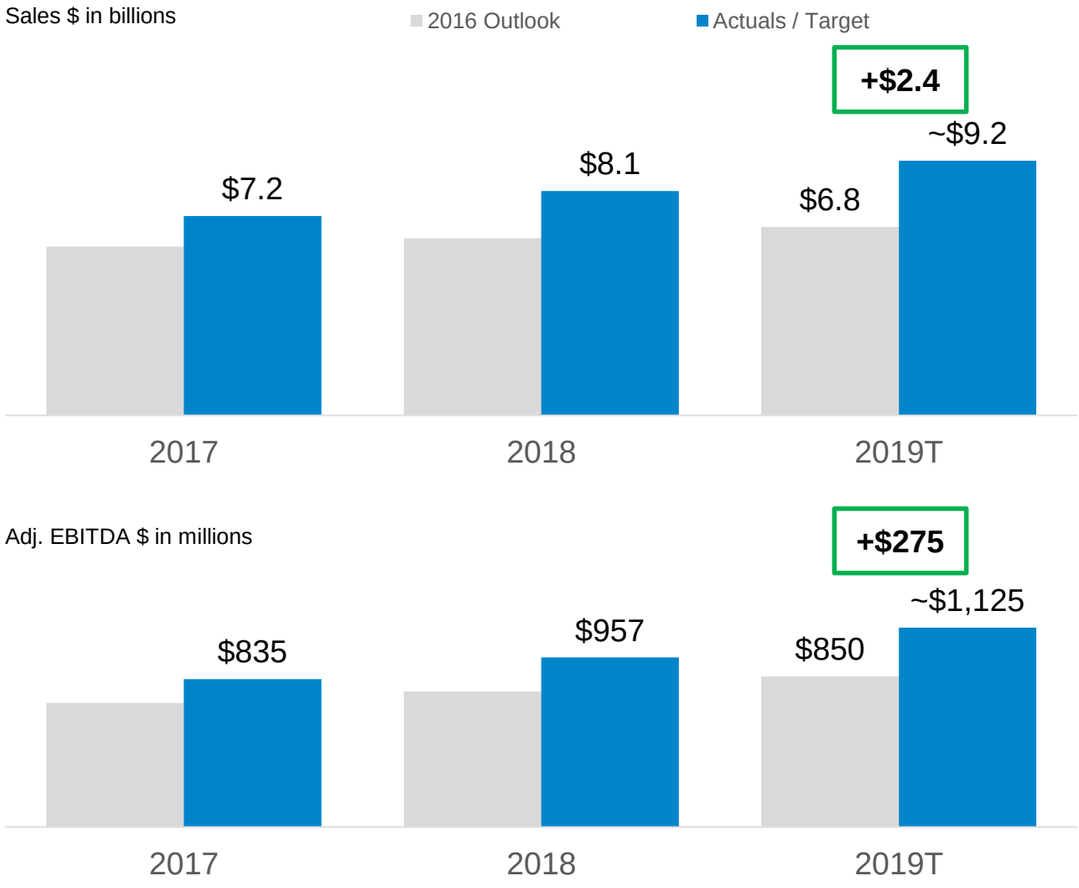
End Market Demand

Market Growth



Sales & Adjusted EBITDA[1]



Increased demand and acquisitions key to exceeding long-term financial targets

1. Today's outlook includes Oerlikon Drive Systems sales and adjusted EBITDA

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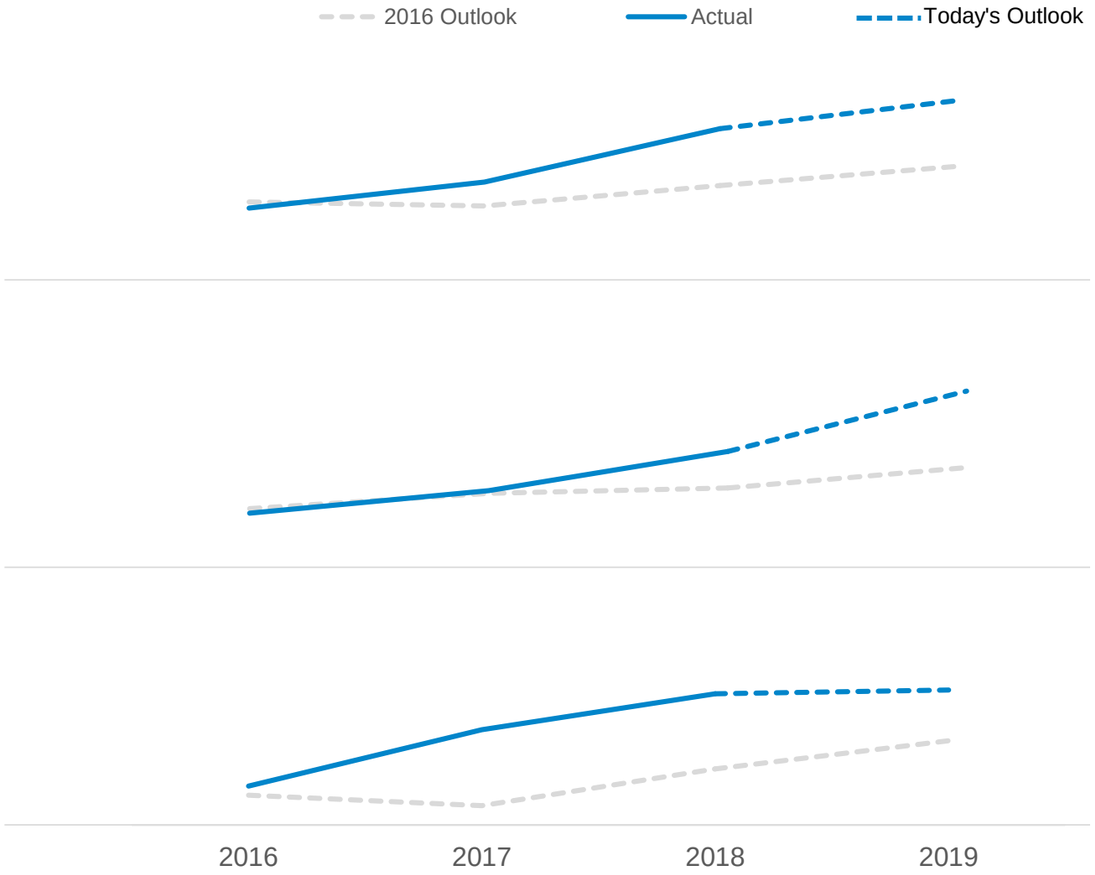
Commodity Costs

Market Prices

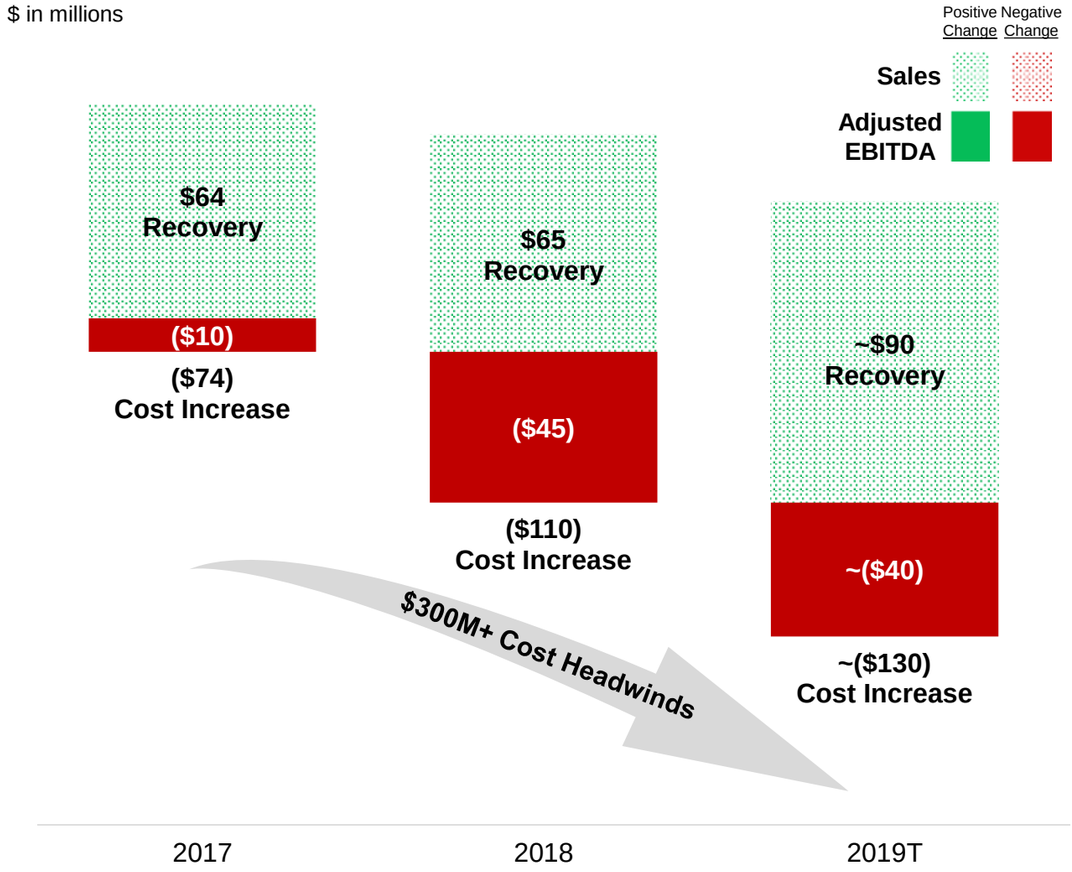
Steel

Specialty Steel

Aluminum



Commodity Cost Increases



Delivering 100 bps profit margin expansion in spite of commodity costs

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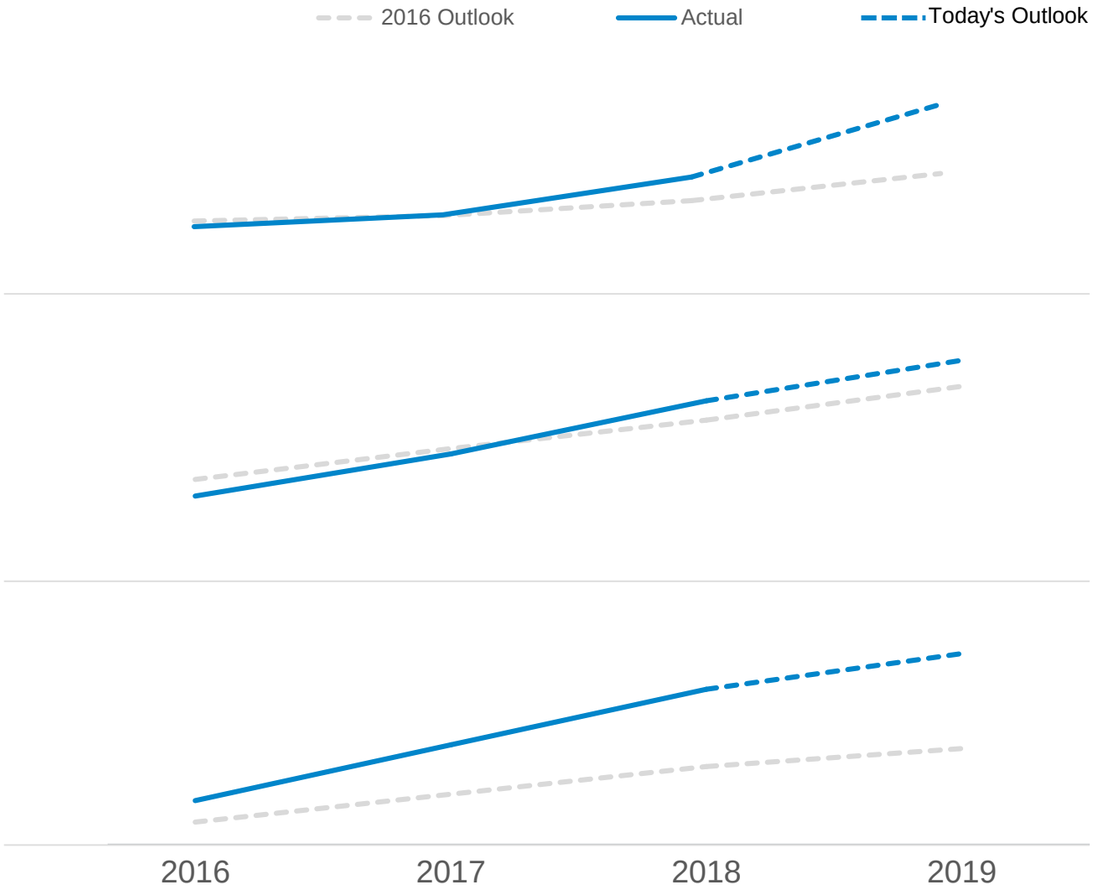
Electrification and Acquisitions

Core Market xEV Adoption[1]



Electrification Accomplishments

BPE Electronics | SME Group | tm4 | Ashwoods Electric Motors | Vocis

SINCE 1980s | 1980s | 1990s | 2000s | 2000s

500+ patents and applications

4+ decades of electrification expertise

300+ electrification-focused engineers

~12,000 vehicles on the road today

Positioned for significant growth as electrification adoption accelerates

1. Includes BEV, PHEV, and HEV. Off-Highway excludes forklifts and scissor lifts

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POWERING INTO e-DRIVE

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Strategy Evolution

SHIFTING INTO VERDRIVE

- Established enterprise strategy
- Reversed years of revenue declines
- Initiated focus on electrification
- Established and exceeded financial targets
- Delivered ~$2B+ of sales growth
- Expanded profit margin by 100bps
- Added $100M of adj. FCF

POWERING INTO e-DRIVE

- Refine enterprise strategy
- Sustain profitable growth trajectory to ~$10B+
- Lead electrification as growth vector
- Establish new financial targets
- Deliver another ~$2B+ of sales growth
- Expand profit margin by another 100bps
- Add ~$200M of adj. FCF and ~$2B through 2023

Strategy to drive sales to ~$10B+ and cumulative adj. FCF of ~$2B by 2023

See appendix for comments regarding the presentation of non-GAAP measures

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Expand Global Markets
3
Deliver Innovative Solutions
4
Drive Customer Centricity
2
Leverage The Core
1
Lead Electric Propulsion
5
People Finding A Better Way®

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Leverage The Core

Utilize capabilities in **power conveyance**, **thermal management**, and **mechatronics** across all three mobility markets to deliver a sustainable competitive advantage

Increase synergies

Position portfolio

Amplify innovation

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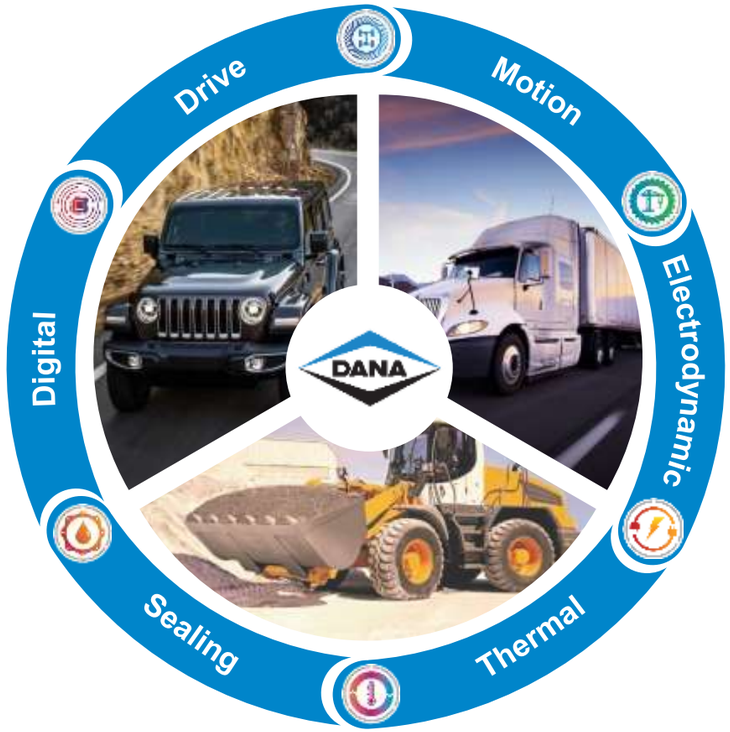
Create Value with Multi-Market Presence



Cost efficiencies delivered through **core technologies**

DANA SPICER® ELECTRIFIED WITH tm4

Technology **investment magnified** by shared R&D

Automotive News PACE™ AWARD 25 YEARS

EXCLUSIVE LEAD SPONSOR: APMA

2019 FINALIST
2018 FINALIST
2017 WINNER
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2016 FINALIST
2015 WINNER
2014 FINALIST
2013 WINNER
2012 WINNER

Speed of **innovation accelerated** through knowledge sharing

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Core Engineering

Common Products

Driveshafts

Axles

Motors

GVW Spectrum

- **Shared expertise** is leveraged across the enterprise
  - Research and development
  - Product design
  - Application engineering
- **Core technologies** spread to all end markets: light and commercial vehicles, off-highway equipment
- **Modular designs** applicable to all end markets
- **Supply chain** and **manufacturing** optimized to support all business units

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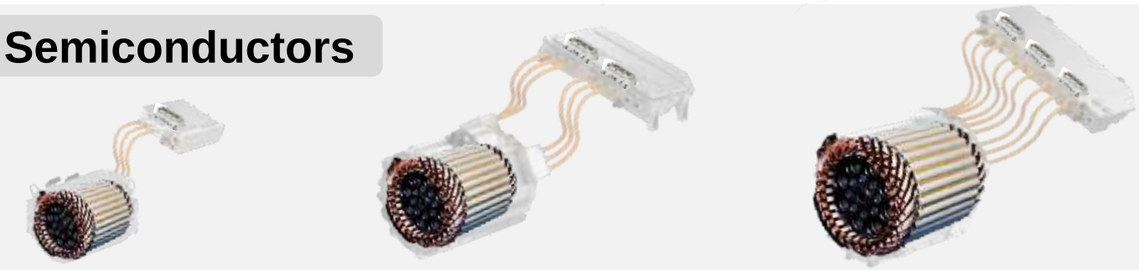
Purchasing and Supply Chain

Common Commodities

Forgings

Castings

Stators & Semiconductors



GVW Spectrum

- **Global commodity buyers** leverage common purchases across all segments and regions
- **Matched pairs:** engineering and purchasing functions formally teamed to reduce complexity through modular design and use of common parts across end markets
- **International purchasing offices** to support and enable global supply chains at the local level
- Cost per weight **analytics** deliver competitive value
- Reduce supply base to **leverage economies of scale**

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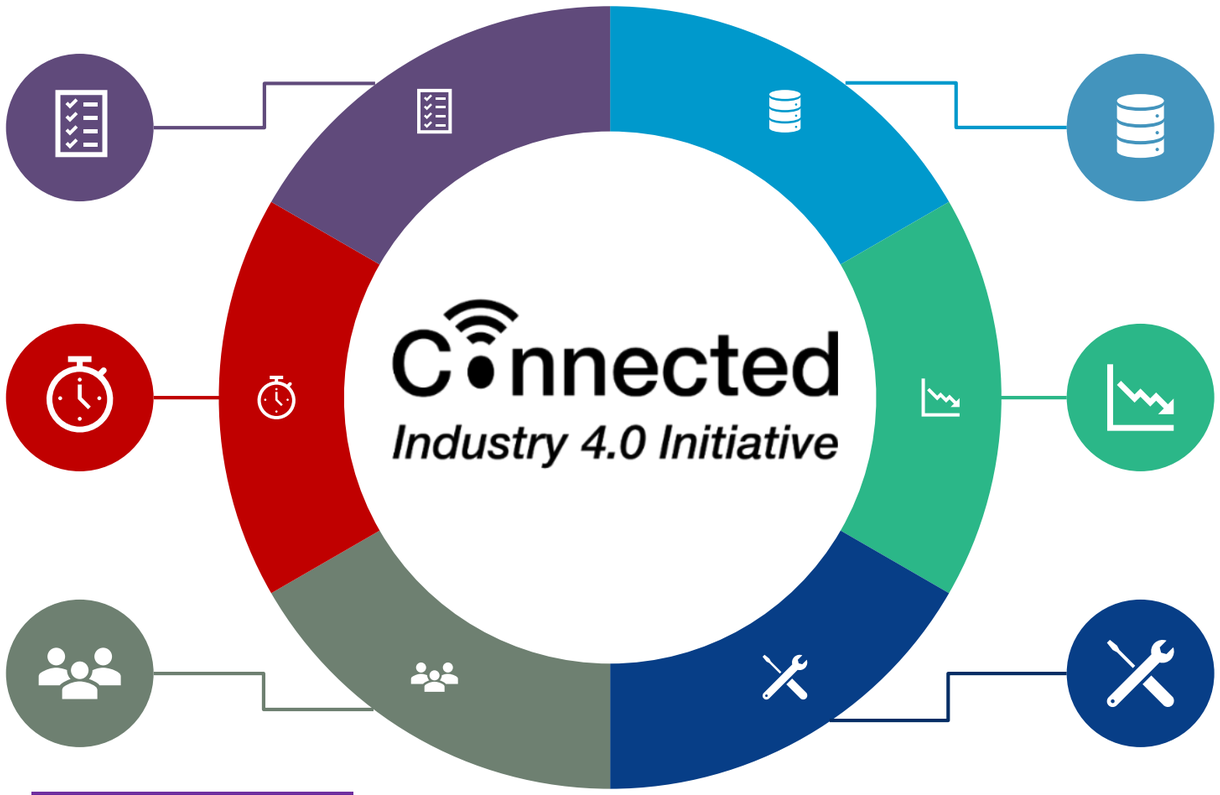
Manufacturing

Industry 4.0 Foundation



- **Real-time** asset **performance management** driving 3% productivity improvements
- **Digital scheduling** and inventory management enabled through connected manufacturing systems
- **Preventative** and **predictive** maintenance **analytics** delivering 10% downtime reduction
- Multiple variant analytics and **machine learning** reducing energy costs by 5%

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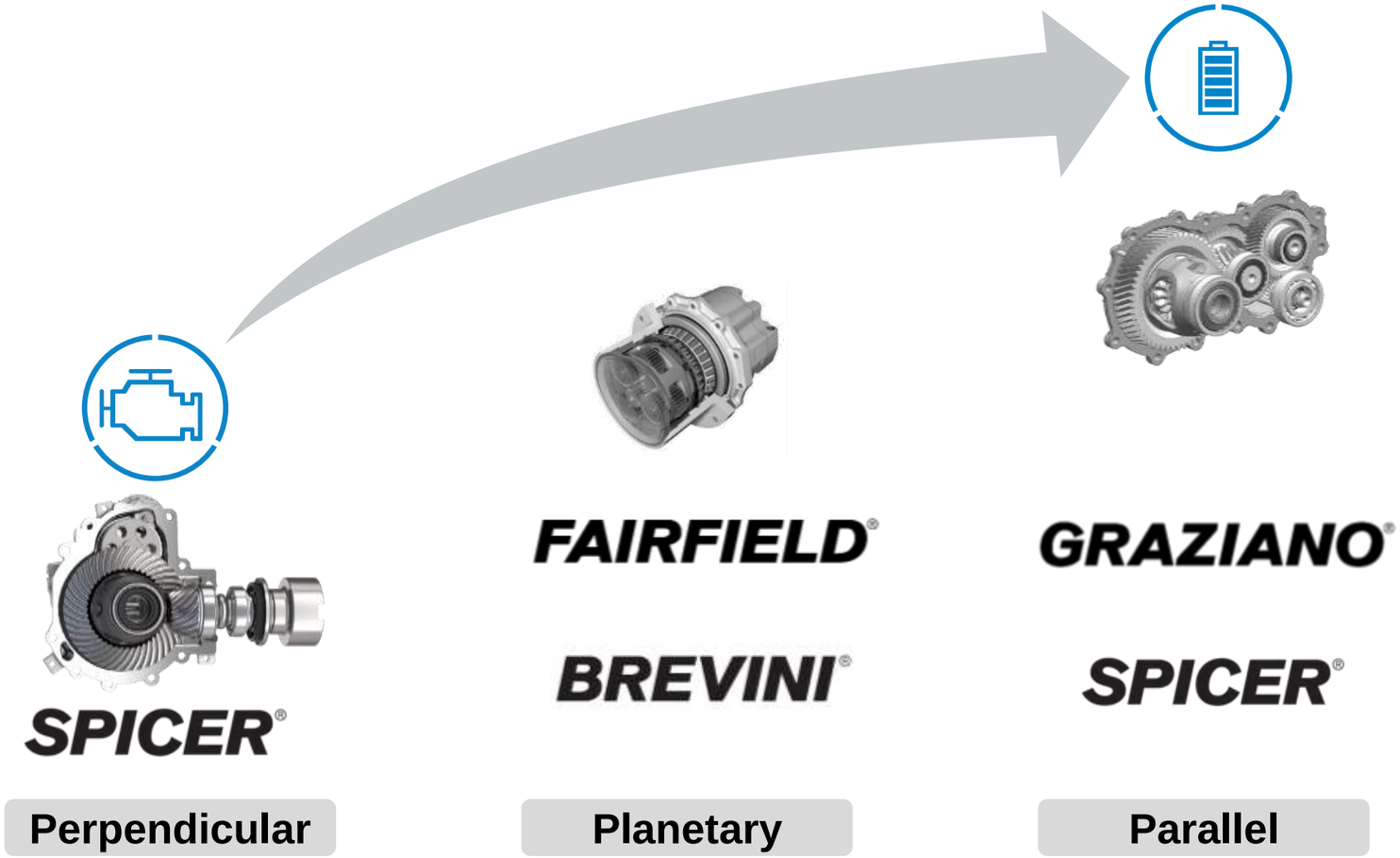
Mechanical Technology

Acquired Enhanced Gear Products for Electrification



- Historical competence centered around **perpendicular** transfer of high torque through **hypoid** gears
- Brevini and Fairfield acquisitions provide **planetary** gear capabilities highly relevant for heavy vehicle e-Propulsion
- Graziano acquisition also delivers leading **parallel** torque transfer via **helical** gears highly relevant for light vehicle e-Propulsion

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Electrodynamic Technology

Acquired Electrodynamic Products

	Motor	Inverter	Controller
tm4			
SME GROUP			
oerlikon drive systems	Ashwoods ELECTRIC MOTORS 		VOCIS 

- TM4 delivered **high-voltage permanent magnet** motors and power electronics
- SME brings **low-voltage induction motor** technology with power electronics
- ODS **augments motor and controls capabilities** via Ashwoods and VOCIS
- **Creates complete in-house** suite of motors and power electronics
- **Decades of combined expertise** in electrifying our core markets and **585M km electrically driven**
- Augmented by MMI and **sensing technology** from Brevini

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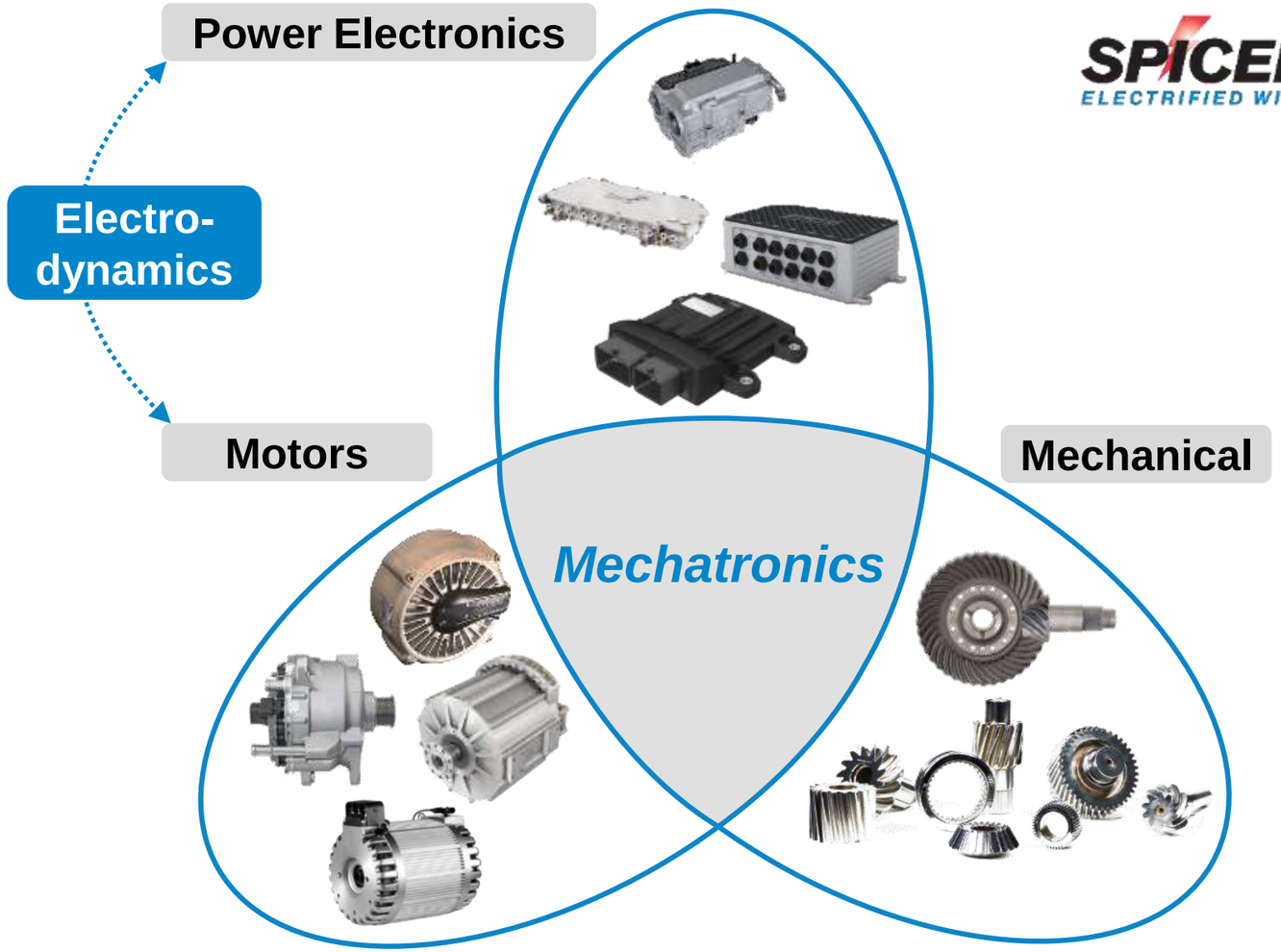
Mechatronics Competence

e-Propulsion Systems Capabilities



SPICER ELECTRIFIED WITH tm4

- Full suite of **power electronics**
  - Inverters
  - Converters
  - Software
  - Controllers
- Broad range of **motor types**
  - Permanent magnet
  - Induction
  - Synchronous reluctance
- Precision **mechanical** gears
  - Perpendicular, hypoid
  - Parallel, helical
  - Planetary

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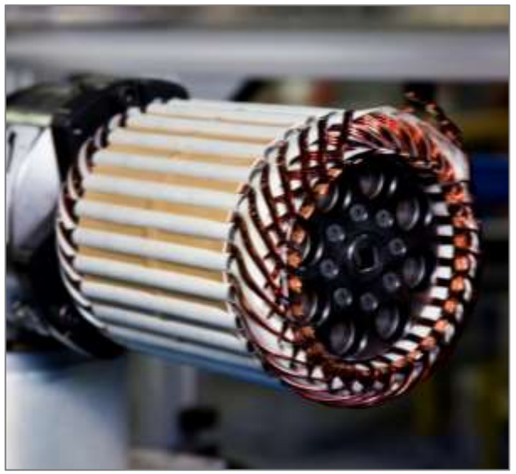
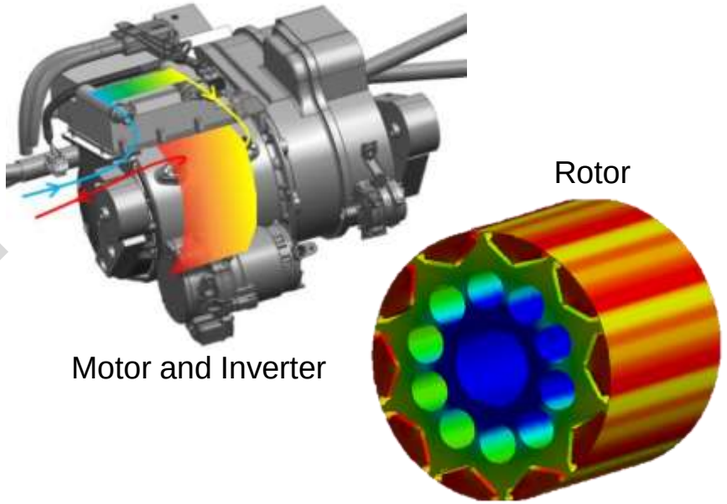
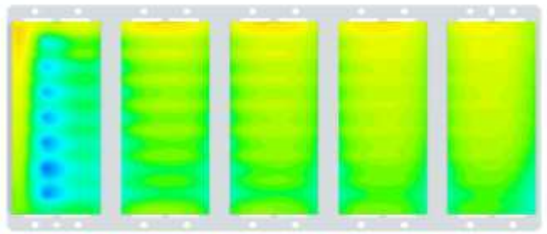
Thermal Technology

Thermal Management for e-Propulsion

Product	Thermal Image
	 Motor and Inverter
	 Battery Cold Plate

- Developing e-Propulsion systems requires strong thermal management capabilities as **motor and inverter temperatures** must be managed for optimum performance
- Thermal competency of Power Technologies is **leveraged across business units** to enhance their electrified product offerings
- Integrated cooling system enables **greater power density**, reduced weight, and smaller packaging
- **Efficient thermal dynamics** become increasingly important when motor and inverter are integrated into the axle

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Integrated e-Propulsion Systems

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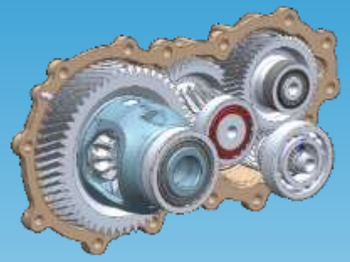
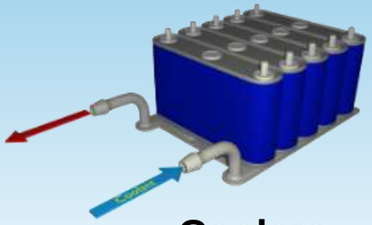
SPICER®



Gears

LONG®



Coolers

e-Axle

DANA

SPICER® ELECTRIFIED WITH tm4

e-Drive Unit

Hydro Québec tm4

Motors

Power Electronics

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Digital Technology

Growth Vectors

Rhombus TireAnalytics

Digitally Enabled Products

Digital Services

- **Physical products** are enhanced by digital solutions such as sensors and controls that enable:
  - Remote fleet management
  - Data- and analytics- driven decision making
  - Advanced diagnostics and prognostics
- **Digital service offerings** leverage customer and product knowledge to create value through:
  - Digitizing existing manual processes
  - Subscription and value-based revenue models
  - Control of customer experience

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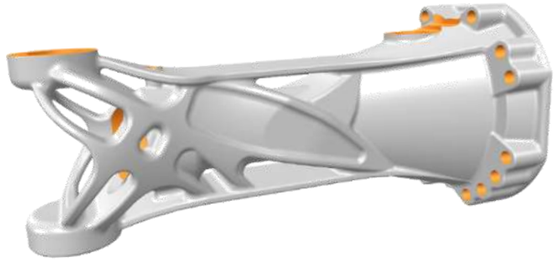
Additive Manufacturing

Axle Arm Application

Traditional

Additive



- **Additive manufacturing technology** allows for completely new approach to component design, engineering, and manufacturing compared with traditional methods

- Applicable for **tooling** and lower volume **production and service parts**
  Benefits include:
  - Reduced weight
  - Faster time to market
  - Ability to integrate new functionality
  - Less scrap / waste

- Axle arm example saw a **28% weight** reduction and **50% faster time** to market

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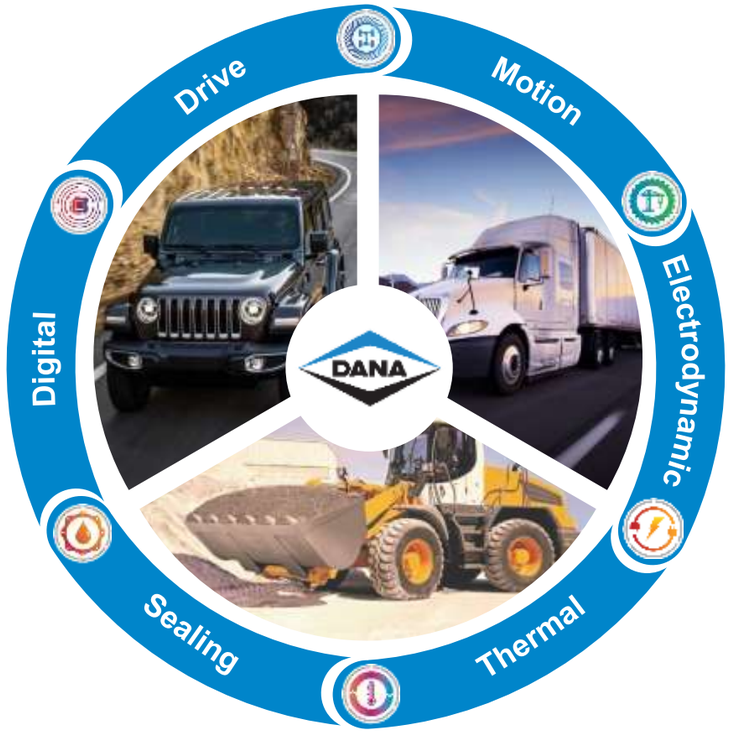
Create Value with Multi-Market Presence



Cost efficiencies delivered through **core technologies**

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2019 FINALIST
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2013 WINNER
2012 WINNER

Speed of **innovation accelerated** through knowledge sharing

Leveraging the core yields $175M in annual embedded cost synergies

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Drive Customer Centricity

Positioned to **win more than fair share** of drive systems business across all three mobility markets as OEMs **deploy capital towards megatrends** of mobility, autonomous driving, and digitization

- **Leverage global footprint**
- **Engineer solutions**
- **Digitize customer experience**

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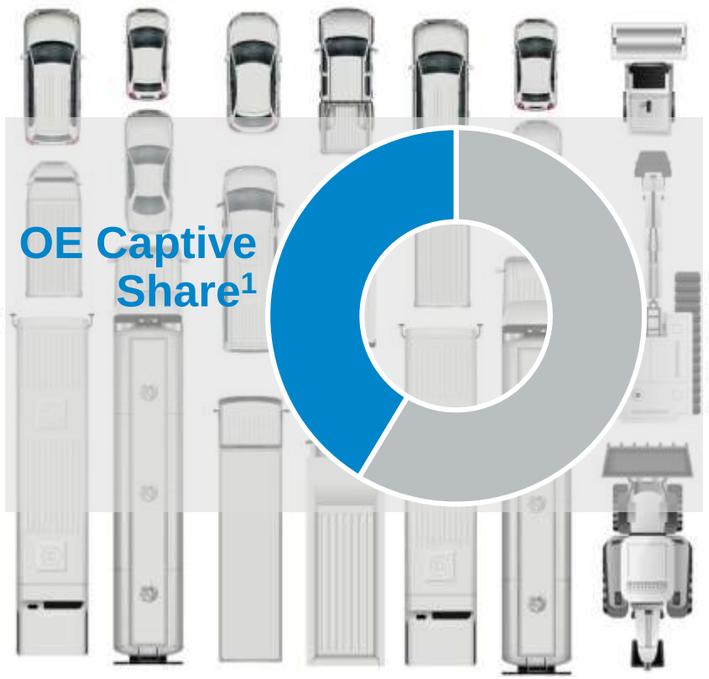
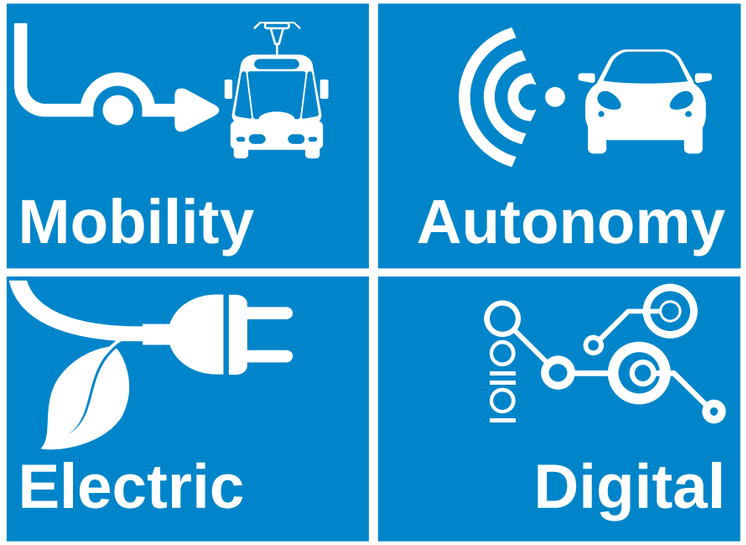
Gain Share Through Customer Centricity



Captive market represents significant opportunity



OEMs faced with **emerging megatrends**…

September 6, 2017 — WIRED

Why John Deere Just Spent $305 Million on a Lettuce-Farming Robot

February 22, 2019 — TechCrunch

Daimler and BMW Invest $1.1 Billion in Urban Mobility Services

August 27, 2018 — WSJ

Toyota Investing $500 Million in Uber in Driverless-Car Pact

October 3, 2018 — WSJ

Honda to Invest $2.75 Billion in GM's Self-Driving Car Unit

…and **redeploying capital** to remain competitive

1. Europe & North America

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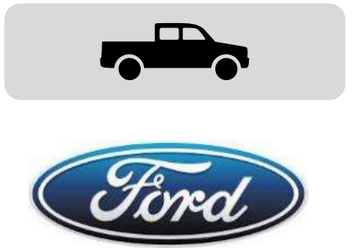
Global Platforms

Key Vehicles



Ford Ranger Manufacturing Footprint

- Footprint in all four major regions enables **light vehicle** business to be a leader in the compact truck segment with driveline content on 9 of the top 10 global programs
- Leveraging global presence in **commercial vehicle** to build stronger relationships in underserved markets and open new opportunities
- **Off-highway** customers are increasingly looking to source from suppliers with multi-region capabilities that can serve high-volume, global programs

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Customer Relationships

Improved Customer Breadth Through Acquisition

brevini — Manitowoc, CARGOTEC

tm4 — TATA, Yinlong, MEDATECH

SME GROUP — ARCIMOTO, VOLVO, BYD FORKLIFT

oerlikon drive systems — TESLA, FOTON, CNH INDUSTRIAL

- Acquisitions bring **new customer access** across all markets via:
  - Existing programs
  - New electrification wins
  - Complementary footprint
- Acquired companies **leverage Dana capabilities** to create new relationships
- Brevini and ODS acquisitions increase presence in **off-highway** markets
- SME and TM4 have strong reputations with key EV integrators and OEMs in the **commercial vehicle** market
- ODS gear and e-Propulsion technology for **light vehicle** market

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Differentiated Performance

Customer Recognition

PACCAR

JOHN DEERE

- Experienced **high level of end-market demand** over the last two years
  - Light vehicle up 10%
  - Commercial vehicle up 32%
  - Off-highway up 22%
- **Delivery** and **quality** performance for customers has been exceptional, resulting in multiple customer recognitions
- Strong performance has led to **new business wins** and **improved data book position,** particularly in the commercial vehicle segment

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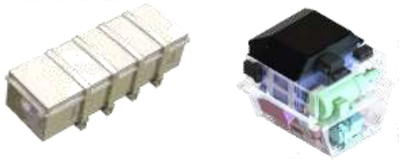
E-Vehicle Level Integration Partner

Full Electrified Powertrain Offering

DANA SPICER® ELECTRIFIED WITH tm4

e-Propulsion System

nordresa



Battery Management System

- Customers are requiring **complete electric powertrains** for multiple vehicle architectures
- **e-Propulsion** and **battery management** systems must be integrated into the vehicle controls to deliver efficient electric powertrains
- Dana has partnered with integrators and battery suppliers to provide technology solutions for customers and **drive adoption** of Spicer® Electrified e-Propulsion systems
- Dana's **tier one position** is augmented by system partnership

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Hybrid Electric System Partner

Class 8 Truck Application

- Entered **strategic partnership** with **system integrator** Hyliion
- Hyliion system turns a **traditional 6x2 truck into a hybrid** by adding an electric rear axle, battery, and energy-management system
- Dana **develops / supplies the fully integrated e-Axle** for Hyliion's 6x4HE hybrid system
- **High value proposition to fleets** due to lower fuel costs, lower emissions, and lower maintenance

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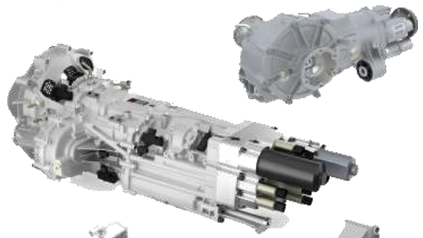
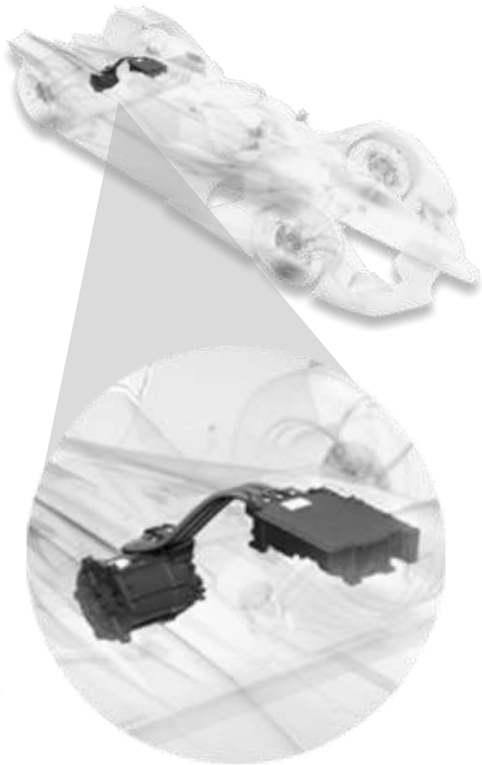
Off Road, High Performance, Formula-e

Pushing the Limits to Improve Product Offerings





- Applications that demand **extreme performance drive innovation**
- **Direct marketing** to high-profile enthusiast markets highlights brands and technology and stimulates pull-through sales
- **Formula-e racing** creates brand exposure for TM4 **high-voltage motors** and power electronics
- Engineering and supplying of **high-performance drivetrains** requires a high level of precision automation and cutting-edge technology

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Aftermarket ‘All Makes’

Full Driveline Product Offering

Genuine OE | **All Makes**

- Extends Spicer aftermarket offering to include **full range** of driveline components including those of competitors
  - Axle gear sets
  - Universal joints
  - Driveshaft end yolks
- Products engineered to provide **dependable performance**
- Product lines are purpose built to **maximize life** of aging vehicles
  - 18-month, 100,000-mile warranty
  - Maximizes aging vehicle uptime
  - Engineered to reduce vibration and noise

© 2019 Dana

Aftermarket e-Commerce Platform

DanaAftermarket.com

- Web-based, global platform is leveraged across **all mobility market segments** to improve customer satisfaction
- Ease of use helps to **reduce vehicle downtime** for operators
- Comprehensive and consistent **user experience** delivers competitive advantage:
  - Intuitive user interface and intelligent search function drive customer satisfaction
  - Recommendation engine drives sales
  - High-resolution images and complete dimension information

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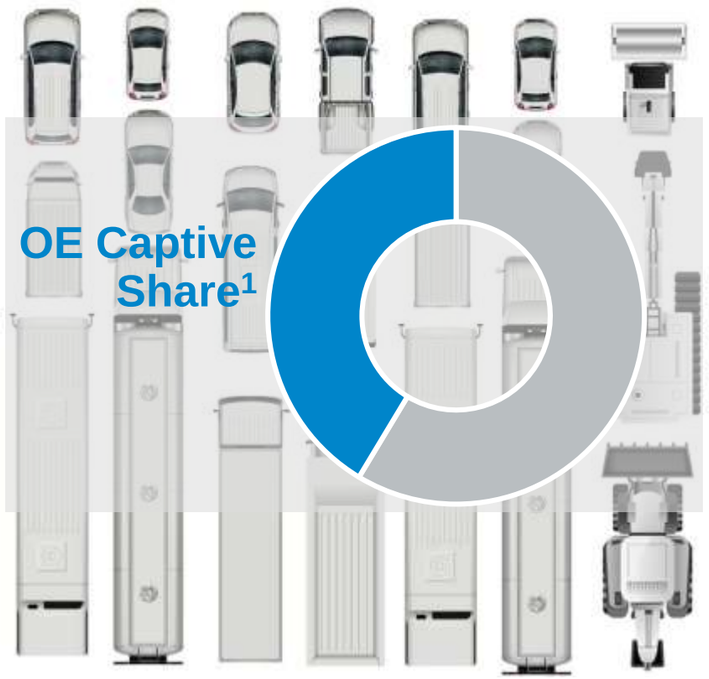
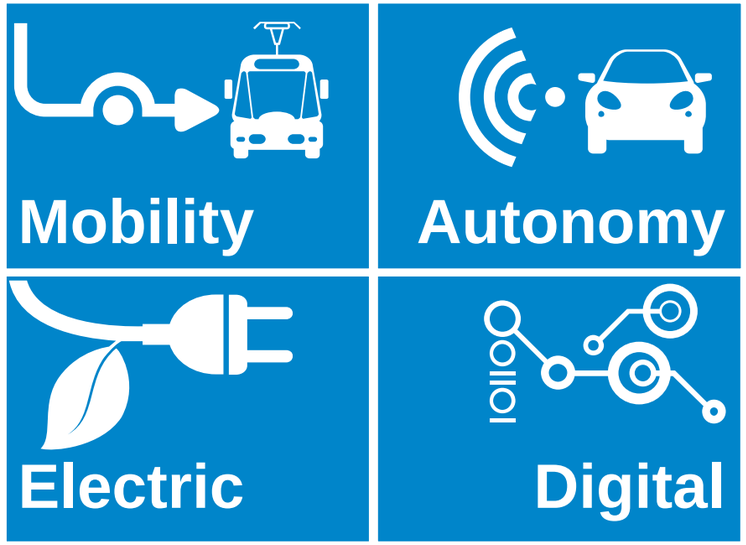
Gain Share Through Customer Centricity



Captive market represents significant opportunity



OEMs faced with **emerging megatrends**…

September 6, 2017 — WIRED

Why John Deere Just Spent $305 Million on a Lettuce-Farming Robot

February 22, 2019 — TechCrunch

Daimler and BMW Invest $1.1 Billion in Urban Mobility Services

August 27, 2018 — WSJ

Toyota Investing $500 Million in Uber in Driverless-Car Pact

October 3, 2018 — WSJ

Honda to Invest $2.75 Billion in GM's Self-Driving Car Unit

…and **redeploying capital** to remain competitive

Driving customer centricity yields more OEM outsourcing opportunities

1. Europe & North America

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Expand Global Markets

Disproportionately invest in capabilities to drive growth in **Asia-Pacific market** with **highest growth** rates and earliest **electrification adoption**

- **Forge partnerships**
- **Expand inorganically**
- **Grow organically**

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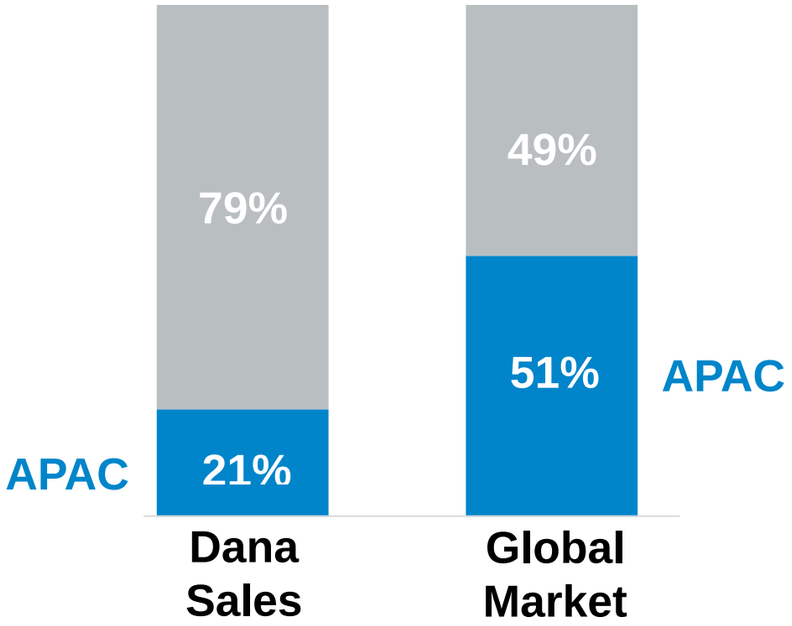
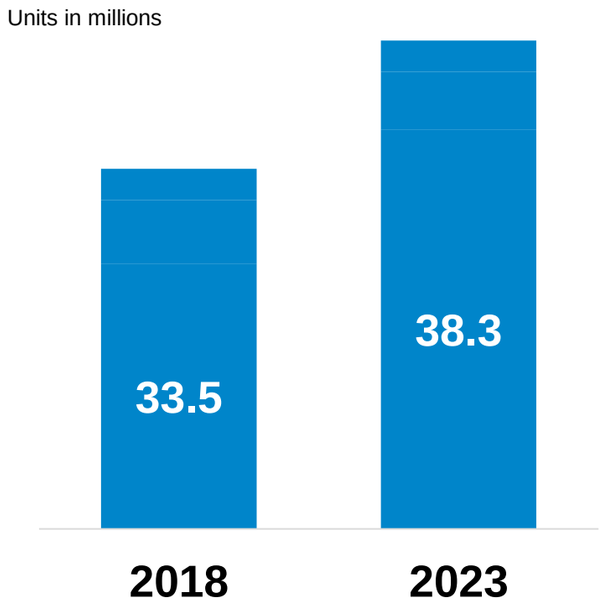
Deliver Growth by Investing in APAC

Opportunity in APAC



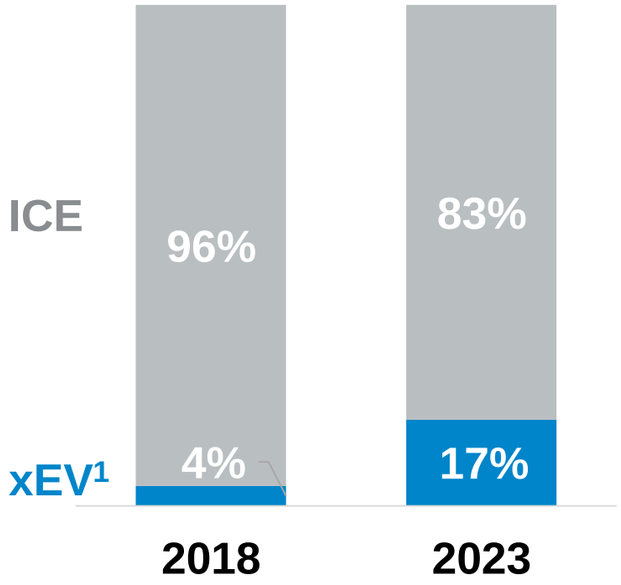
Gaining fair share represents **opportunity in APAC** markets

APAC Production Volume



Mobility markets are **growing rapidly** in APAC

APAC xEV Adoption



APAC is leading in the adoption of **electrification**

1. Estimate for China LV and CV markets

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Joint Venture Partners

Asian Partnerships

- **Spicer India Limited:** JV with Anand for production and sale of universal joints, driveshafts, light axles, transfer cases, and components for the **Indian** market
- **Axles India Limited:** manufactures axle housings and beams for medium and heavy-duty commercial vehicles
- **DDAC:** JV with Dongfeng Motor Co. for R&D, production, and sale of axles for the **Chinese** bus and truck markets
- **ROC Spicer:** JV with Yulon and China Motor Co. for production and sale of gears, transmissions, axles, propshafts, and universal joints for the **Chinese** market
- **Prestolite e-Propulsion Systems (PEPS):** JV with Prestolite Electric Beijing Ltd. for production and sale of electric motors and power electronics for the **Asian** markets

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Supplier Partners

External Supply Chain

- **High level of market demand** driving need for improved supply chain efficiencies
- **Fostering supplier relations** in best cost and quality locations to source components for final assembly in end markets
- **Cost, capacity, and delivery** performance while maintaining the highest quality are key to customer satisfaction
- Flexible, global supply chain across all three end markets allows for **rapid response to changing demand**

Final Assembly

Components

GNA AUTO TECH

KALYANI

DIC

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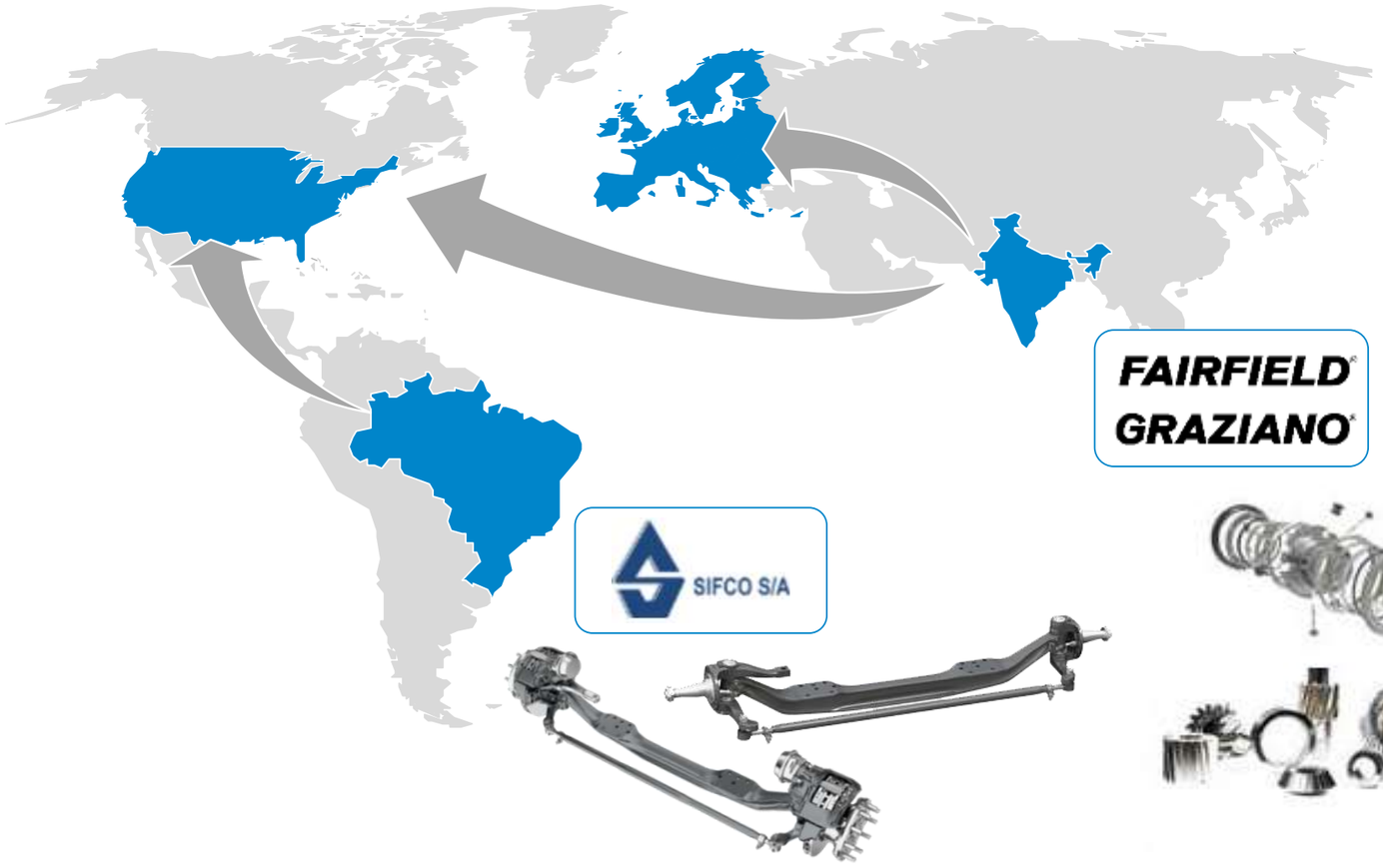
Acquired Internal Supply

Internal Supply Chain



- **Manufacture components** in strategic regions and ship to end markets for final assembly for key high-value products
- **Specialization** creates a more efficient supply chain, allowing for improved **cost, capacity, and delivery** performance while maintaining quality
- **Indian** facilities focus on small and medium size **component gears** for CV and OH applications
- **Brazilian** facilities acquired from SIFCO focus on **forged and machined components** for CV applications such as front steer axles

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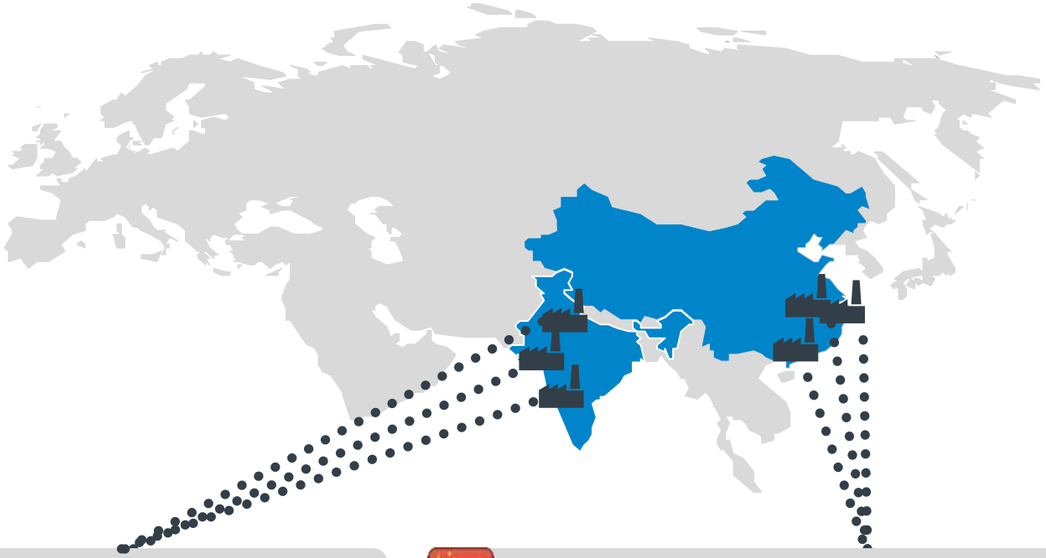
Acquired Local Market Presence

Key Asian Markets



Sanand, Noida, Belgaum

JCB

Suzhou, Changshu, Shanghai

FOTON

HYUNDAI

Baoli

- ODS acquisition adds manufacturing plants and tech centers in Asia that serve **domestic customers** in all end markets
- Acquisitions further **differentiate Dana in domestic markets:**
  - Significant Asian manufacturing capacity
  - Local engineering and customer support
  - Experience handling global complexity
- Opportunity for **future domestic growth** – two Chinese facilities under construction, and an Indian facility has opportunity for significant expansion

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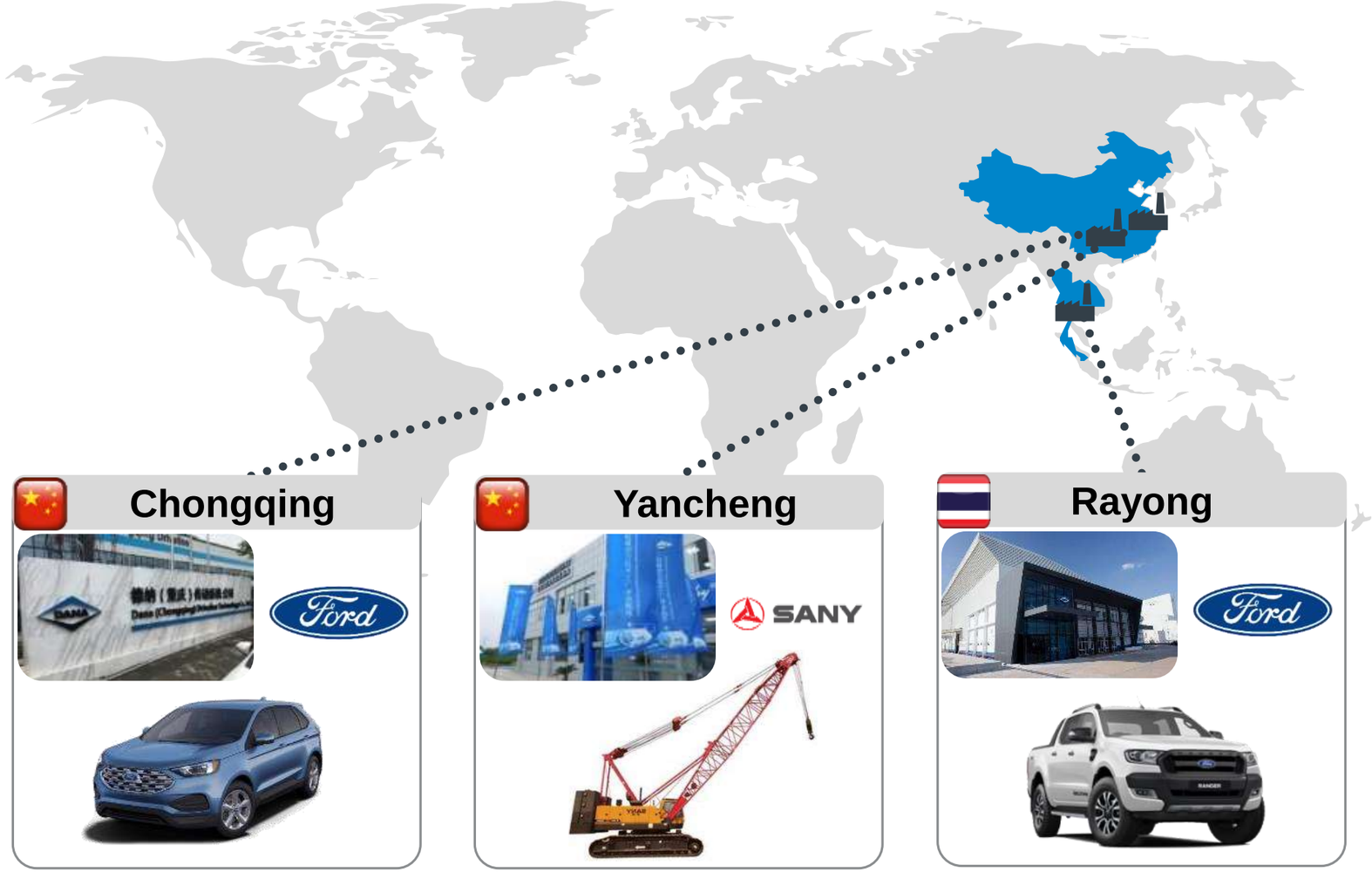
Organic Local Market Presence

Expanding Footprint



Chongqing

Yancheng

Rayong

- Experience serving and **managing complexity of global customers** across multiple regions
- Expanding, sharing, and **optimizing global footprint** to drive growth
- Recent investments include:
  - **Chongqing:** New plant to produce Dana's most advanced AWD system
  - **Yancheng:** Expanded planetary drive manufacturing; **repurposed** 2nd existing facility for thermal products
  - **Rayong:** Expanded gear capacity for **Asia Pacific LV customers**

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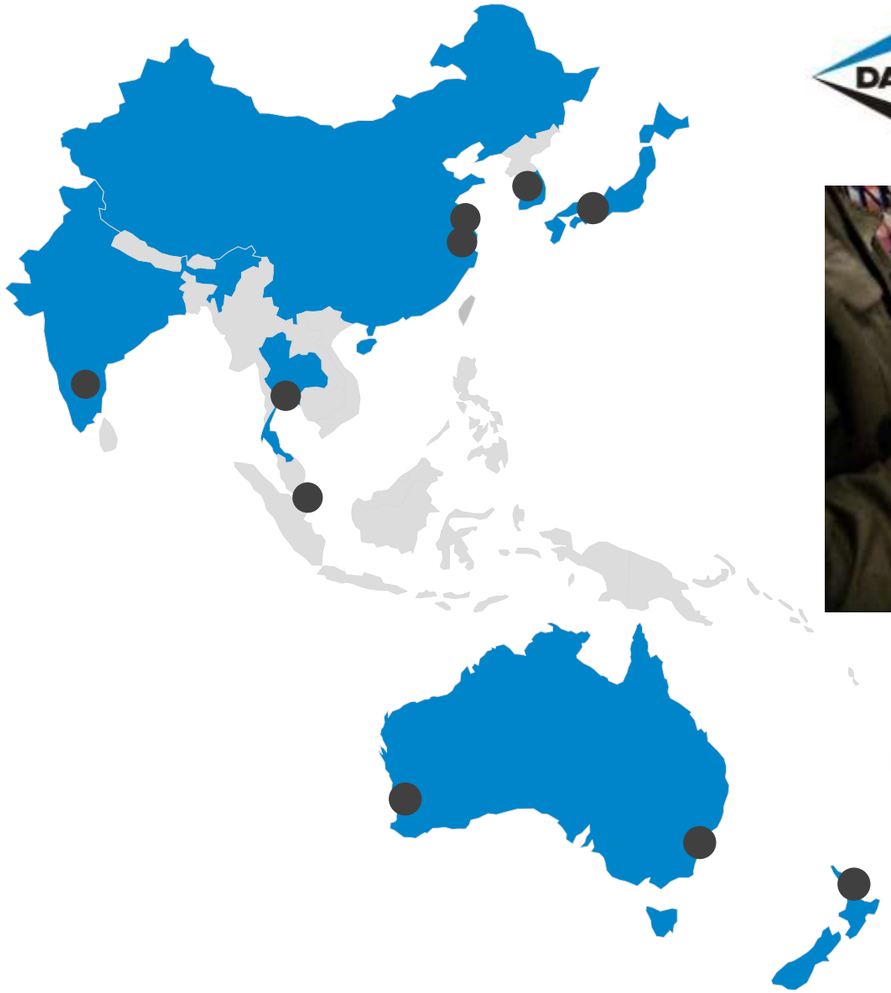
Aftermarket Distribution Network

Focus on Underserved Regions



DANA 售后分销中心
Aftermarket Distribution Center

- Opportunity for **expanded growth**
- **Enhancing capabilities** of local Service and Assembly Centers (SAC) and Product Distribution Centers (PDC) by adding service, sales, and engineering competencies across the globe
- **Expanding SAC footprint** for greater customer access
- **Asia Expansion**
  - Leveraging strong supply chain
  - Promoting Dana brands

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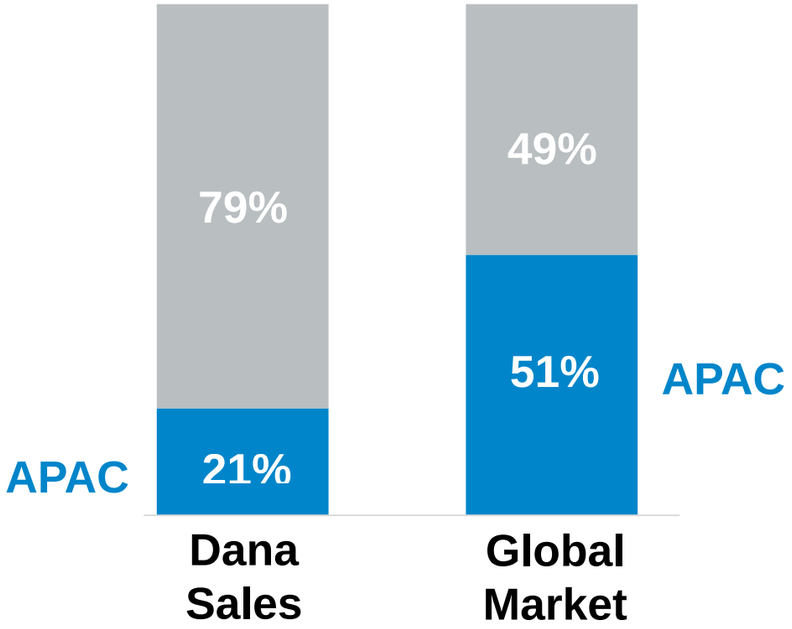
Deliver Growth by Investing in APAC

Opportunity in APAC



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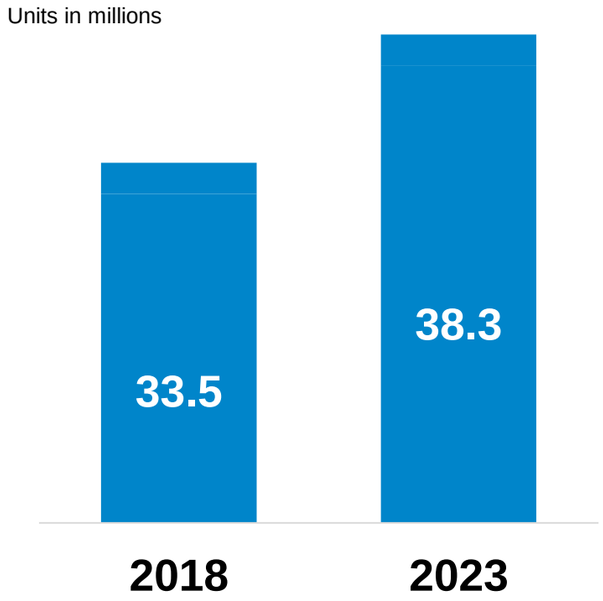

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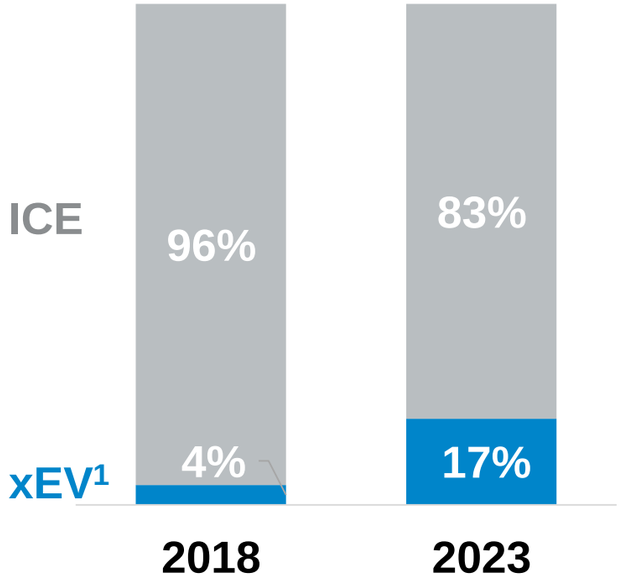

APAC is leading in the adoption of **electrification**

1. Estimate for China LV and CV markets

Investment in capabilities yields double-digit organic sales growth in APAC

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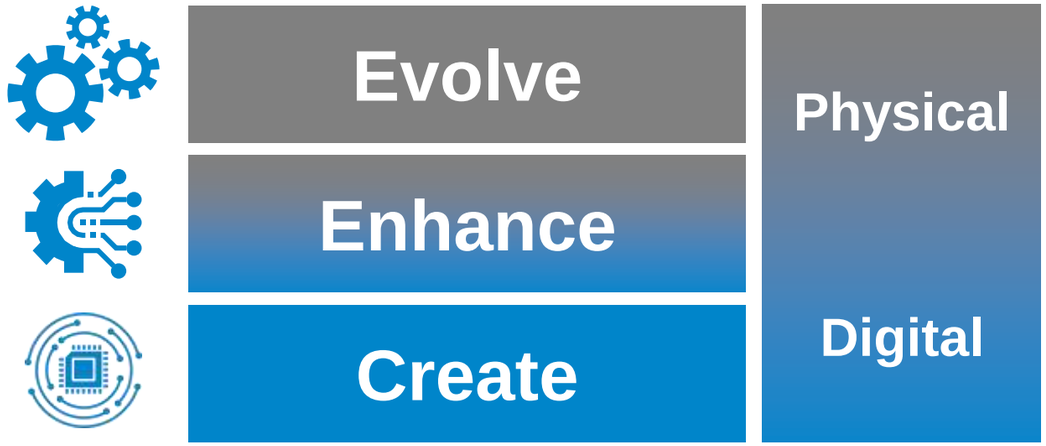
Deliver Innovative Solutions

Capitalize on secular growth trends that expand our addressable market by increasing content per vehicle as physical products evolve toward digital solutions



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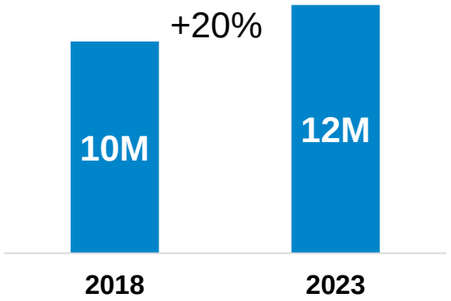
Increase Content Through Innovation

Engine Downsizing: 2018-2023

≤4 Cylinders ↑ 10%

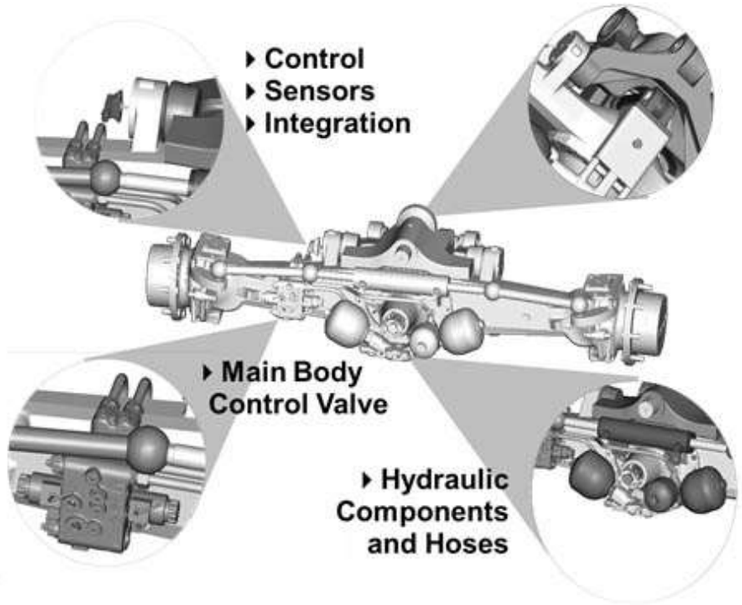
>4 Cylinders ↓ 13%

AWD Adoption



Engine **downsizing**, driveline **enhancement** offer significant opportunity

Component Digitization



Digitally enabling our physical products is driving **higher CPV**

Vehicle Management

Load Monitoring

Digital solutions provide **new growth vector**

Source: IHS

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AdvanTEK® Ultra™

Advanced Gear Design Application

Automotive News PACE AWARD 25 YEARS
EXCLUSIVE LEAD SPONSOR: APMA
2019 FINALIST

- **Most efficient axle** for automotive application – **30% better than current best-in-class solution**
- Delivers fuel economy savings equivalent to a **200-lb weight reduction** as estimated by the EPA
- **Cuts noise in half** over traditional design
- Launching globally on **Ford's transverse AWD vehicle programs**

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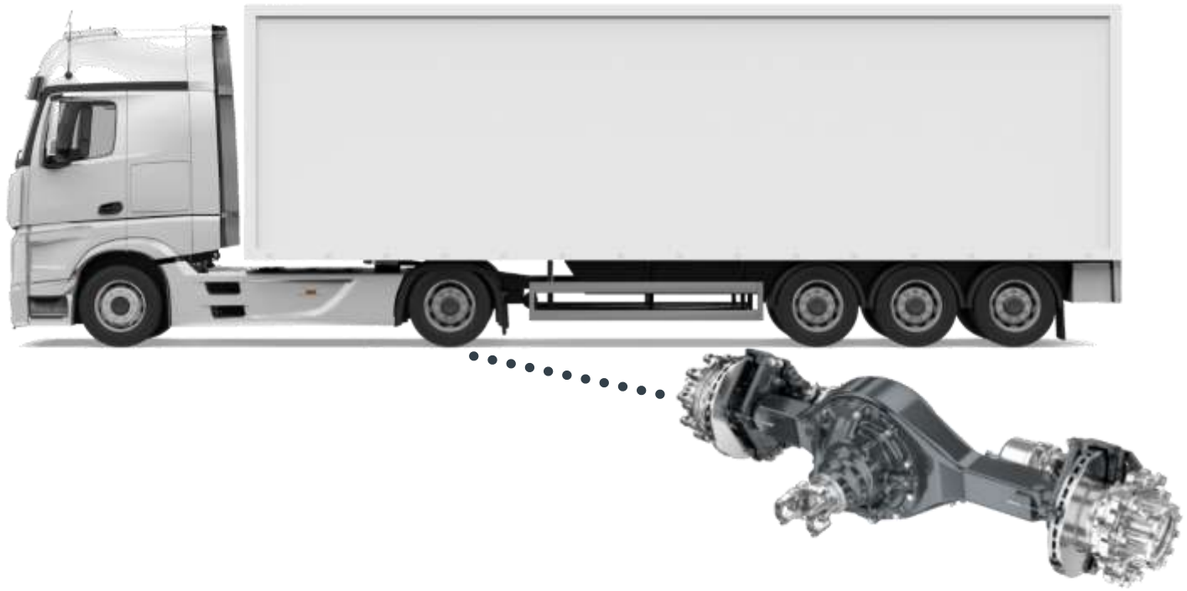
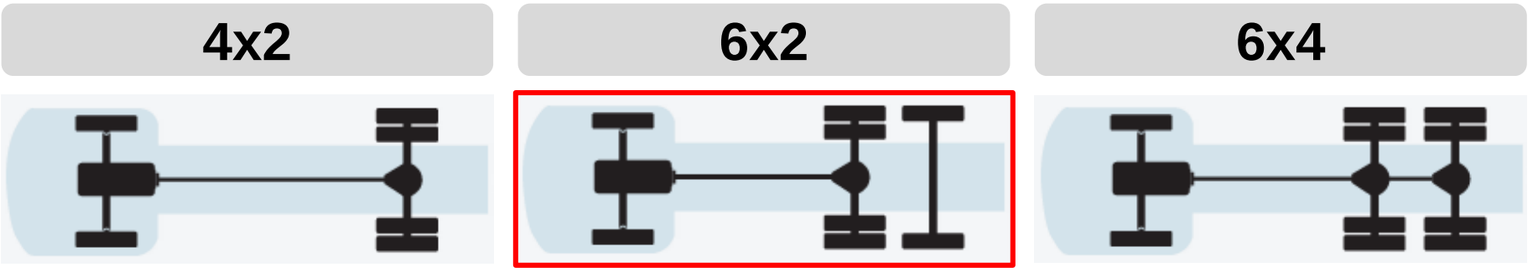
AdvanTEK® Heavy Duty Single Axle

Efficient 6x2 Driveline Application

SPICER® Drivetrain Systems





- Commercial vehicle axle utilizes **AdvanTEK®** gearing technology
- Opportunity for **growth outside North America**
- **Enables hybrid systems** by converting a 6x2 into a 6x4 configuration by adding an electric rear axle
- **Tailored designs** to match the geographic market in which the vehicle will be used
- Axle **weight reduction** of 60 lbs
- Lower lubricant requirements:
  - Estimated 7 pints fewer
  - Per unit **savings of ~$20**

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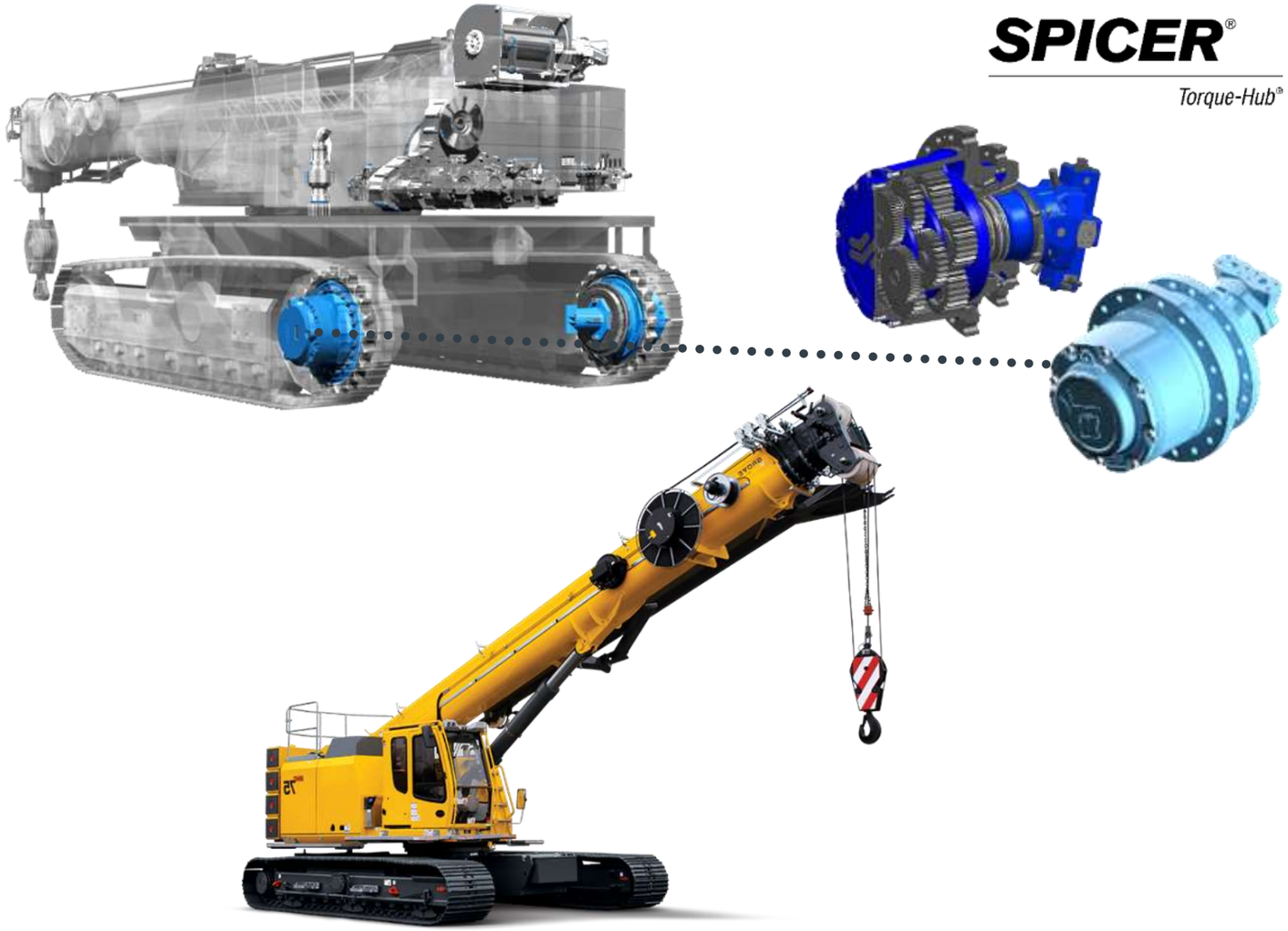
Wheel and Track Drives

Planetary Hub Drive Application



- Expanding **full range of planetary hub drives** for tracked vehicles
- **Leveraging** Brevini, ODS, and Spicer technology and brand reputations
- **Expands the addressable market** to cover a full range of uses from small utility applications to large heavy-duty equipment
- Utilize Asian and European footprint to **expand market reach** and gain share
- **Capitalize on ODS** strength in high-volume small and compact tracked / wheeled applications
- Small and compact applications are **best suited for electrification,** putting Dana in a strong position to capitalize on this trend

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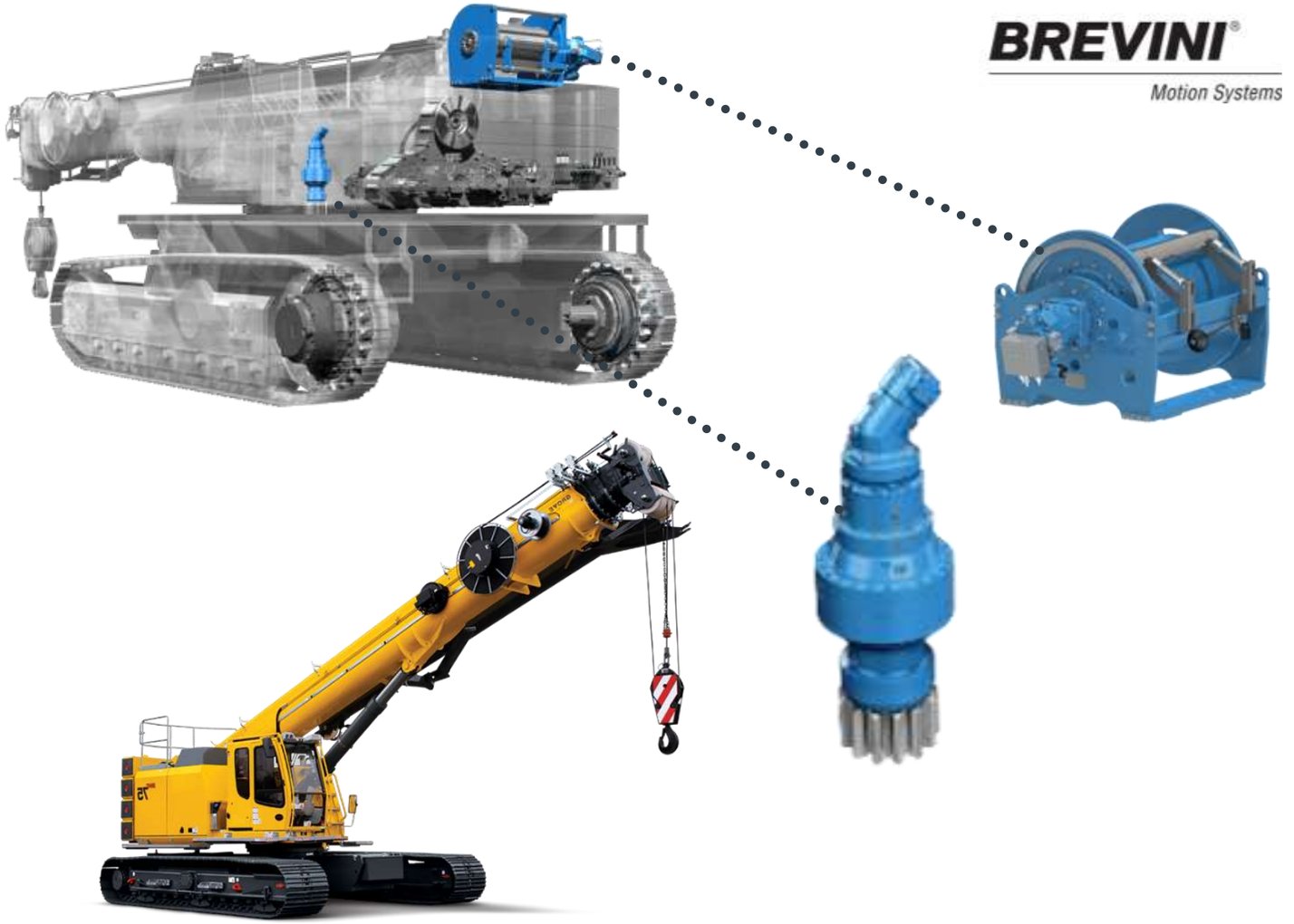
Advanced Motion Systems

Slew Drive and Winch Application



- Motion systems allow Dana to provide new **integrated solutions** to existing driveline customers
- Systems include controls and valves, motors, pumps, slew drives, and winches
- **Hydraulically** and **electrically** powered technology
- Deliver **greater value to customers** by selling motion systems with drive systems, allowing **performance to be optimized** between the two

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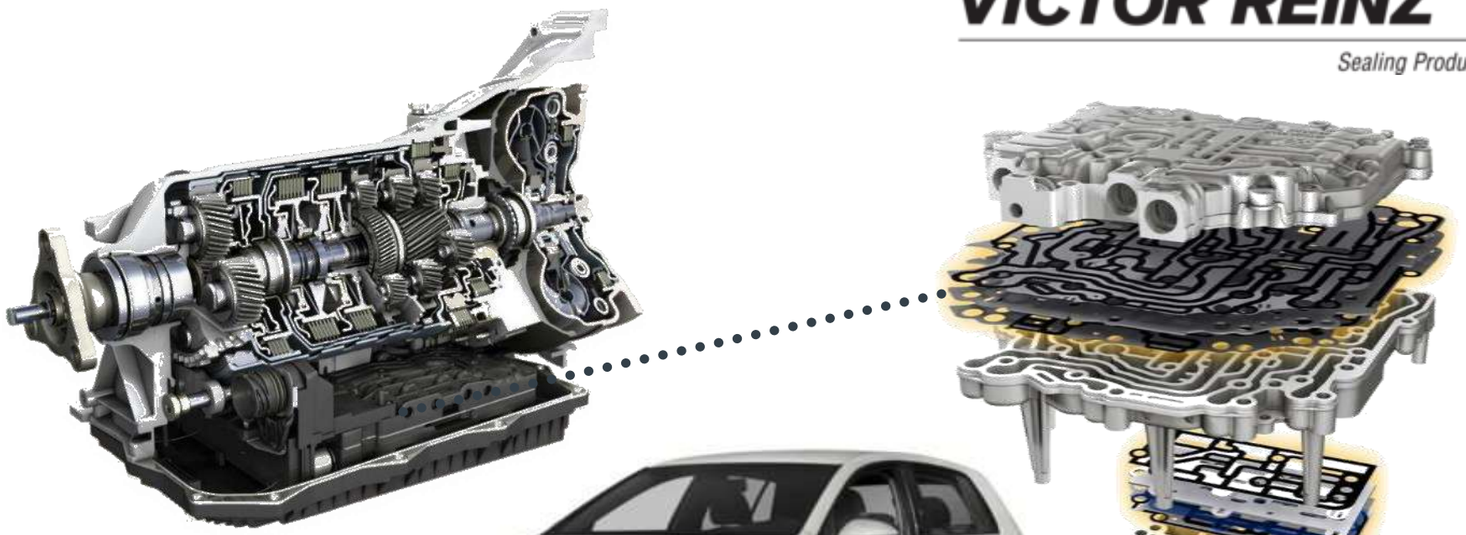
Transmission Separator Plates

High-Efficiency Transmission Application



VICTOR REINZ®
Sealing Products

- Allows high-efficiency CVT and double clutch transmissions to achieve required **higher pressure levels** and **eliminate leaks**
- Applicable for **electric vehicle transmissions** that require better sealing solutions for high operating pressures
- Requires fewer bolts to assemble transmission, leading to **less complexity** and **lighter weight**
- Tighter seal allows use of smaller oil pumps, leading to **lower cost, less weight,** and **smaller packaging**

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European Association of Automotive Suppliers

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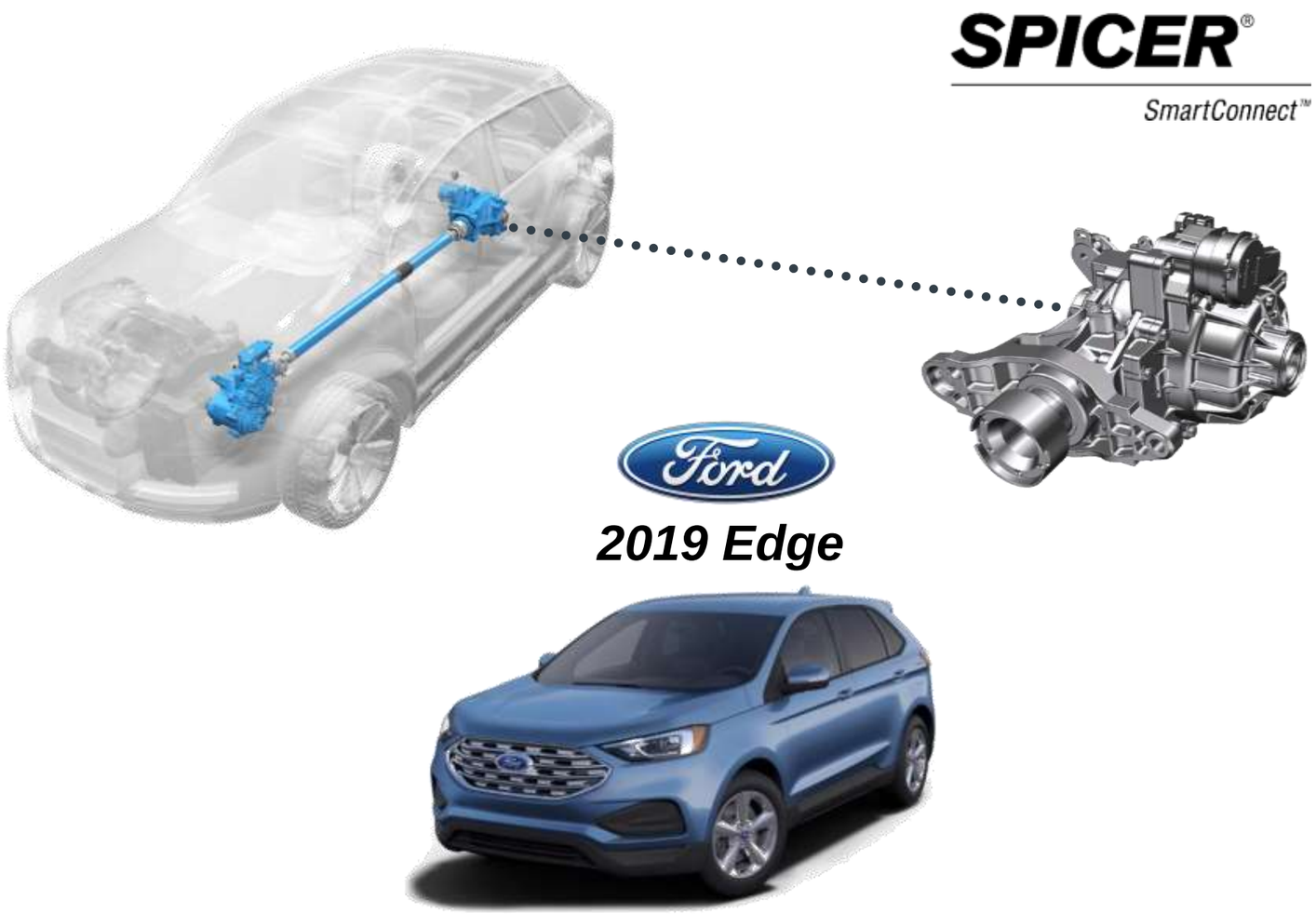
Software-Controlled Driveline

Automatic AWD Disconnecting System Application



- Offers **fuel economy** of FWD with **safety** and **control** of AWD through a disconnecting driveshaft
- Significant **content per vehicle (CPV) increase** for sedan, CUV, and SUV as FWD architecture augmented by driveshaft and rear axle
- **Full systems solution,** including front and rear disconnect and software controls
- **Designed for fuel efficiency** with a low-viscosity lubricant
- **In production** with Ford in North America and soon to be launching in China

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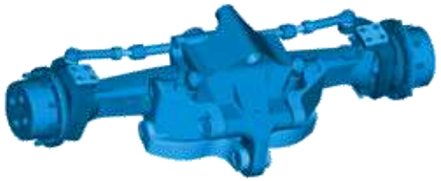
Enhanced Off-Highway Drivelines

Modular Independent Suspension Application

Common Components

Tiered Final Assemblies



SPICER® Drivetrain Systems

Low — Standard — High

Level of Content

- Independent suspension axles with **hydraulic actuation** that deliver tailored levels of technology by region and customer
- Allows regional customers to **improve quality, reliability, and technology** to compete with global competitors
- **Scalable** to meet the needs of a vast array of different applications (25 hp to 500 hp)
- **Modular** to allow for commonality of components across platforms and to leverage scale
- **Transferable technology** across off-highway market segments

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Advanced Transmissions

Off-Highway Vehicle Applications

SPICER® Drivetrain Systems

Hydrodynamic

Hydrostatic

Hydromechanical

- Transmissions **distribute power** for driving functions and motion systems of the vehicle
- Offering multiple technologies to meet different **performance requirements** and **fuel-efficiency standards**
- **Dana Rexroth**, a JV in Europe with Bosch Rexroth, produces hydromechanical variable transmissions that improve fuel efficiency and productivity for off-highway customers
- All off-highway transmissions can be specified with Spicer **electronic control systems** to further enhance performance

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Digital Service Offering

Tire Analytics SaaS Application

Rhombus™ TireAnalytics DANA

Over 10,000 trucks on the road

Select Customers

IDEALEASE
PacLease Truck Rental and Leasing
PROFESSIONAL AUTO TRANSPORT
DEBAUCHE TRUCK & DIESEL
Matheson TRUCKING, INC.
POTTLE'S TRANSPORTATION

- Cloud-based **tire maintenance and management** software that digitizes traditional manual process
- **Real-time alerts** enable proactive fleet management and improved total cost of ownership
- Utilizes **live dashboarding** for fleet management
- Available on **multiple technology platforms**
- **More than 10,000** trucks on the road currently using application
- Descriptive and **predictive analytics** alert to failure **before** it happens

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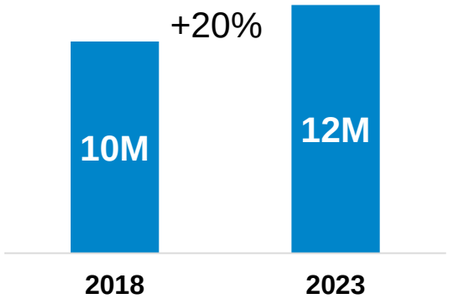
Increase Content Through Innovation

Engine Downsizing: 2018-2023

≤4 Cylinders ↑ 10%

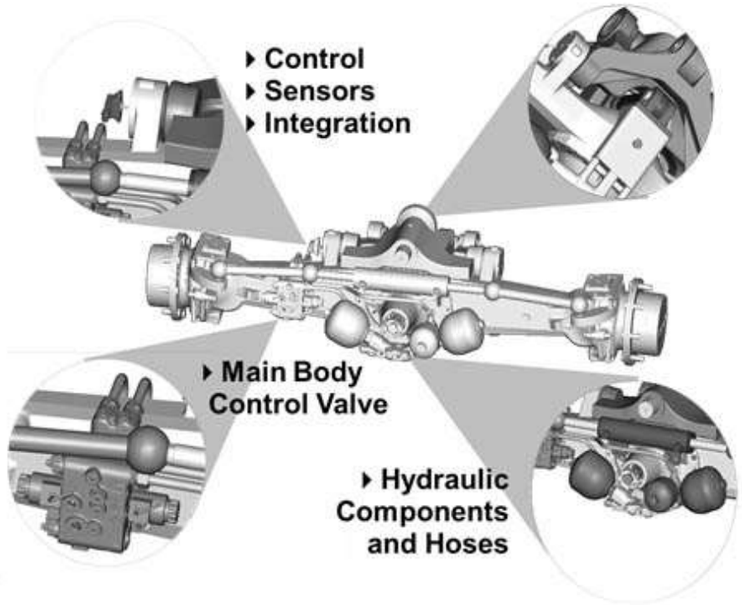
>4 Cylinders ↓ 13%

AWD Adoption



Engine **downsizing**, driveline **enhancement** offer significant opportunity

Component Digitization



Digitally enabling our physical products is driving **higher CPV**

Vehicle Management

Load Monitoring

Digital solutions provide **new growth vector**

Delivering innovative solutions yields market expansion and higher CPV

Source: IHS

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Electrification – The future of vehicle propulsion

Dana Investor Day

New York, NY – March 11, 2019

Brandon Boyle

Partner

Automotive Competence Center

Detroit, MI

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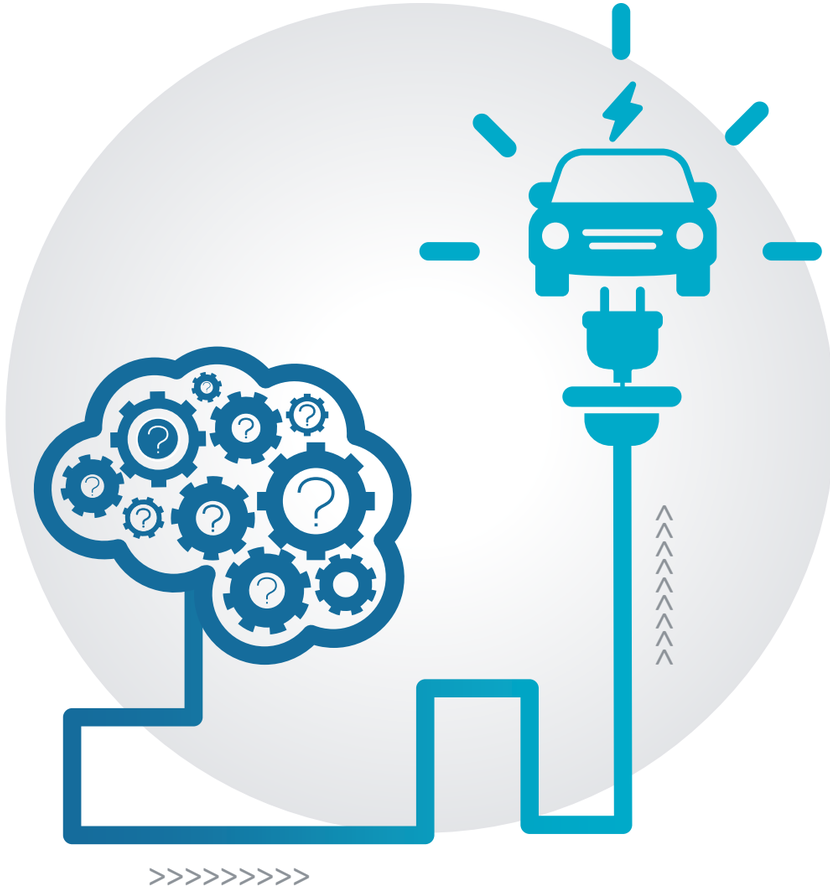
Electrification – The future of vehicle propulsion

Focus of today's discussion

What are the **drivers** of electrification?

How will the drivers **manifest** regionally and by segments?



What are the **key capabilities** and **components** for an e-propulsion system?

How will the **roles** in the value chain shift over time?

The global adoption of electrified propulsion is being driven by a combination of factors

Global drivers of electrification

Regulation

> Emission / fuel consumption targets
> Minimum xEV shares (e.g. CARB ZEV regulation)
> City access limitations (e.g. London, Paris)
> Potential fast policy shift in China

Customer pull / Total Cost of Ownership

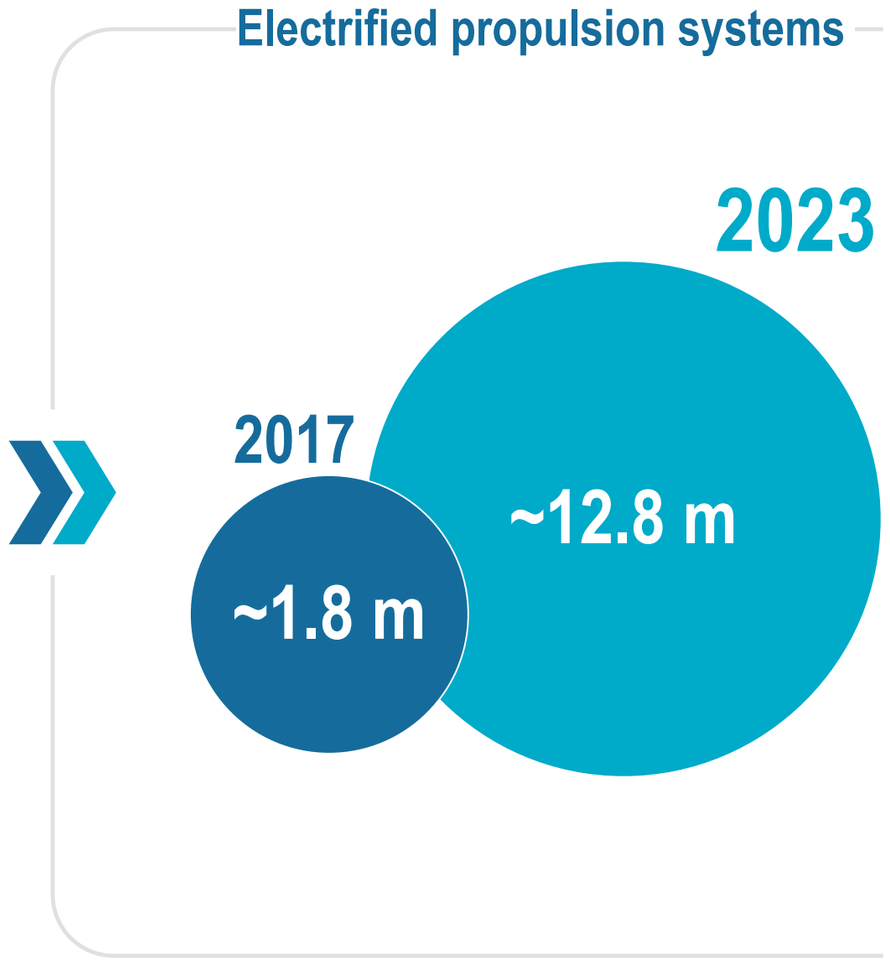
> Subsidies & taxation (fuel and vehicle)
> Vehicle registration advantages for xEVs (e.g. License plate access in Chinese cities)
> Special rights (e.g. usage of car sharing lanes in US)
> TCO advantages for fleets (esp. CV)

Technological advancements

> Ramp-up of battery production induces low battery prices
> Automated driving enabling new business models (Robocab)

Charging Infrastructure

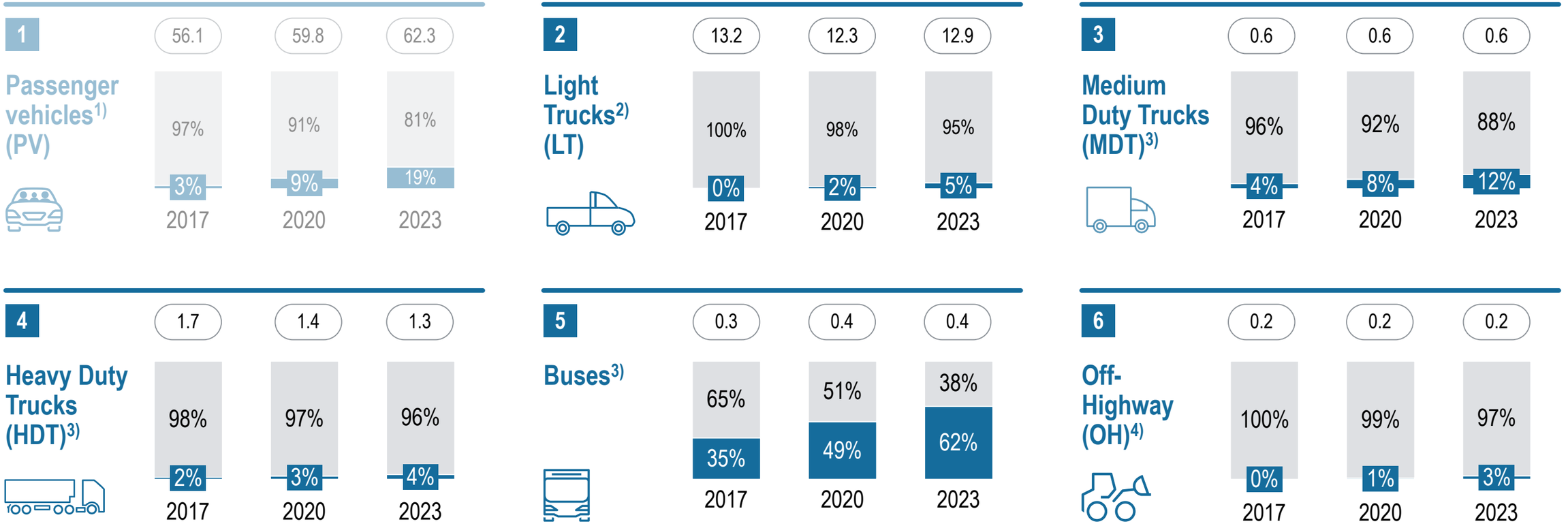
> Charging infrastructure developments
> LV is fastest developing with OEM support
> Promise of faster charging speeds



Source: Roland Berger

The percentage of electrified vehicles is growing in all vehicle segments

Total volumes and electrification by segment [m units, %]



xx Total sales volumes, Units [EU, NA, CN] Electrified vehicles (FH/PHEV/BEV/FCV)

1) Vehicle segments A/B/C/D/E excluding large vans (C/D/E) and large MPVs (D/E); 2) Mini/Compact/Full-Size Full-Frame vehicles and large unibody vehicles – Vans (segments C/D/E) and MPVs (segments C/D); 3) CV volumes included for North America, EU & China; 4) OH figures are global and include construction equipment and mining vehicles with high-voltage propulsion systems

Source: IHS, STM, Roland Berger

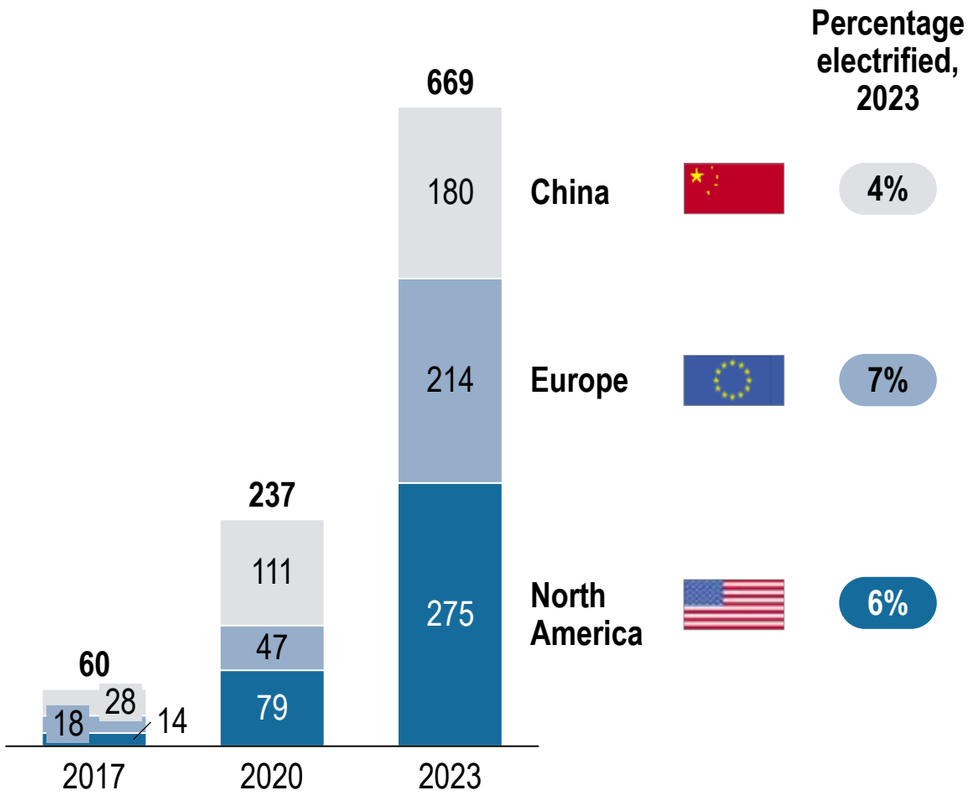
The Light Truck segment is expected to develop slower than the broader LV segment – Regulation and customer pull are driving pace of change

Light trucks

Drivers

	NA	EU	CN
Regulation > CAFE standards & min. xEV quotas (CARB) > City access limitations (e.g. London, Paris, Shanghai) > EU CO_2 emission reduction targets for LCV in place (2020 target 147 g/km of all new LCVs)	◑	●	◕
Customer pull / TCO > NA demand is highly TCO driven > EU is being driven by high fuel costs > CN market reacts mainly to regulation > Environmental consciousness	◕	◑	◔
Technological advancements > JP/KR players leading in electrification, specifically battery system and cell development > NA/EU on similar tech. level with e-motors and high voltage power electronics > CN applies simpler system solutions	◑	◑	◔
Charging Infrastructure > EU building up dense charging network > CN strong governmental support for network dev. > NA high demand to create framework conditions	◔	◔	◔

BEV/Hybrid forecast[1] [000 units]



1) Mini/Compact/Full-Size Full-Frame vehicles and large unibody vehicles – Vans (segments C/D/E) and MPVs (segments C/D);

Source: IHS, Roland Berger

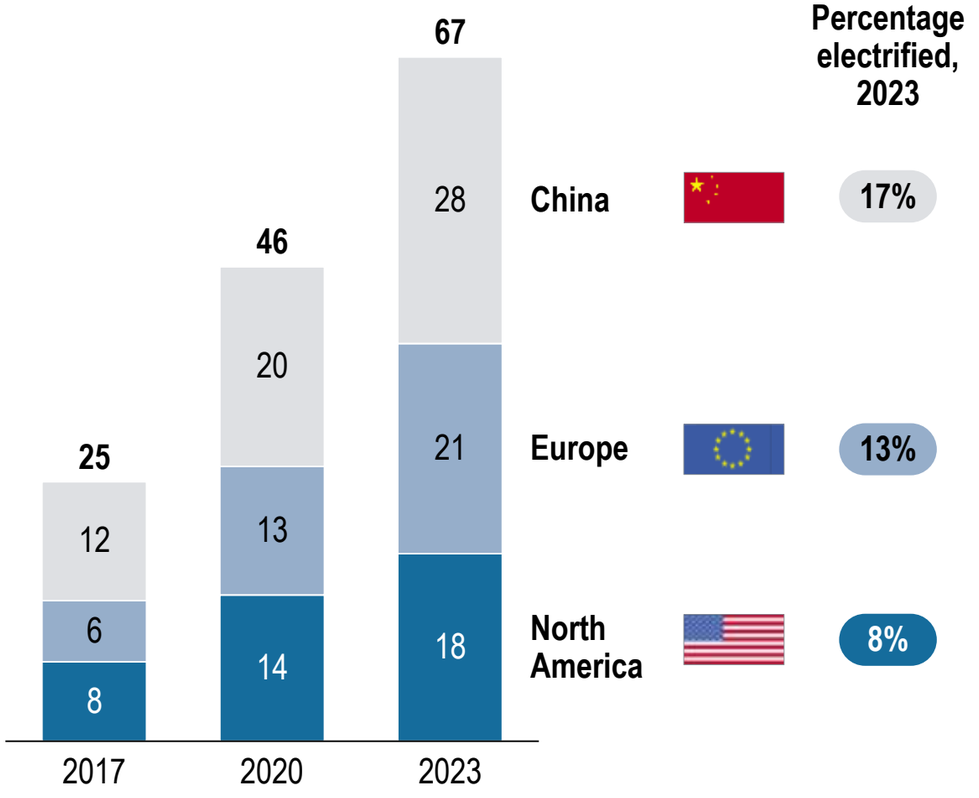
Total Cost of Ownership is the main driver for MDT xEV adoption across regions, supported by incentives – City regulation as additional driver

Medium Duty Trucks

Drivers

		NA	EU	CN
Regulation	> Fuel economy targets in NA and China; EU targets under development > City low/zero-emission driving restrictions expected in EU and China > Some fleets in US and EU have adopted xEV to convey green image	◔	◕	●
Customer pull / TCO	> Incentives stimulate sales in certain states and applications in NA (e.g. vocational and municipal trucks) > Fleet TCO reduction as driver for specific applications in NA and EU	◕	◕	◑
Technological advancements	> CN mainly focused on technology leadership in bus, but expected to aim for drivetrain leadership > NA/EU OEMs and suppliers developing similar concepts (share characteristics with bus concepts)	◑	◑	◕
Charging Infrastructure	> MDT will charge usually at the depot > No need for public charging infrastructure	○	◔	◔

BEV/Hybrid forecast [000 units]



Source: IHS, Roland Berger

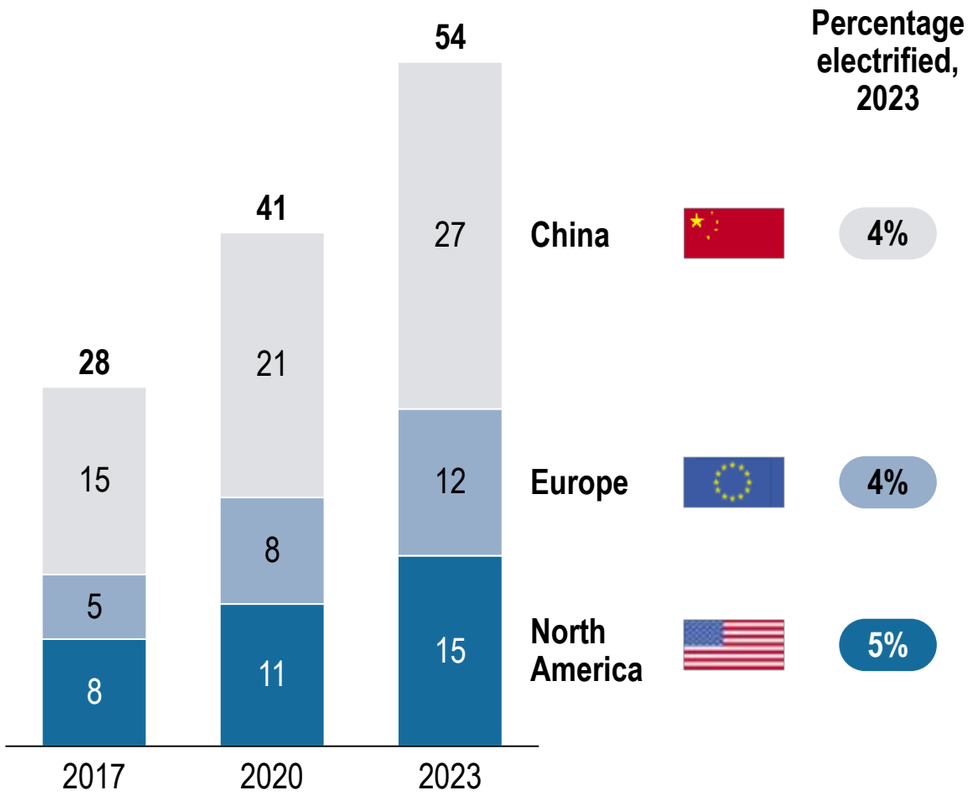
Within the HDT segment, Total Cost of Ownership benefits apply only to selected niche applications in North America and Europe

Heavy Duty Trucks

Drivers

		NA	EU	CN
Regulation	> Fuel economy targets in NA and China can be met without xEVs; EU is discussing framework > CO_2 targets are being set in all regions with nuances in timing and targets by region > Targeted regulation for niche application in US	◔	◔	◔
Customer pull / TCO	> Incentives stimulate sales in certain states in US > Strong xEV incentives in China > Fleet TCO reduction as driver for selected applications in NA and EU (e.g. mild hybrid trucks)	◑	◑	◑
Technological advancements	> CN mainly focused on technology leadership in bus, but expected to aim for drivetrain leadership > NA/EU OEMs and suppliers developing similar concepts (share characteristics with bus concepts)	◑	◑	◑
Charging Infrastructure	> Charging infrastructure is limited and is currently managed by fleets or OEMs	○	○	○

BEV/Hybrid forecast [000 units]



Source: IHS, Roland Berger Analysis

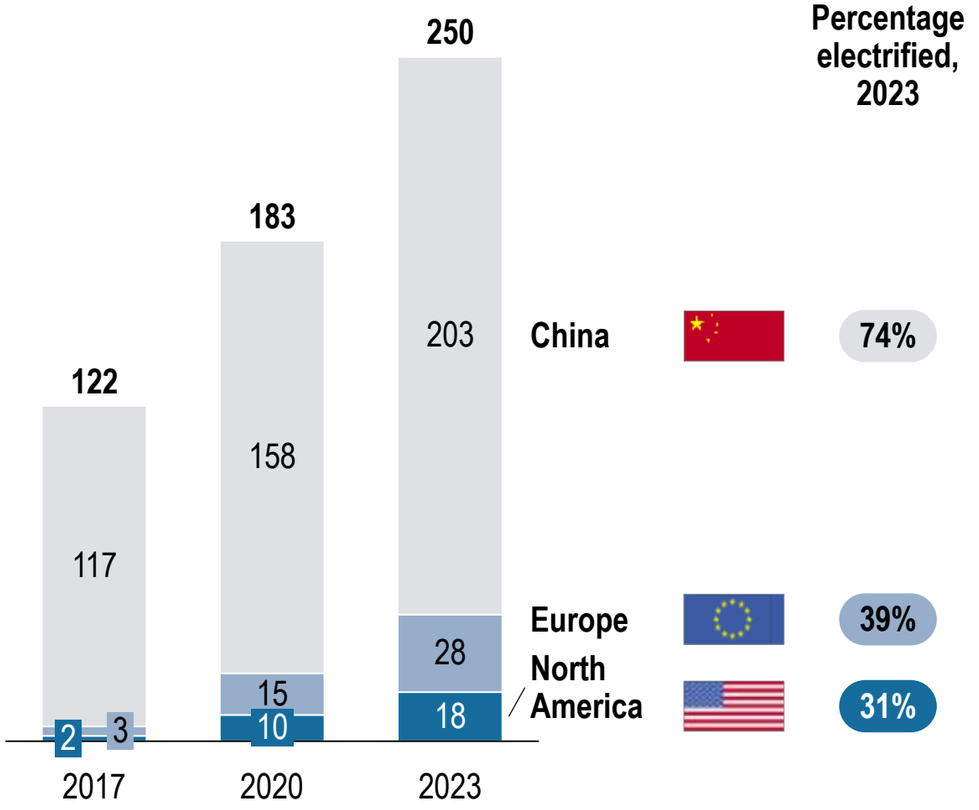
Growth of xEV buses is driven by subsidies in China – Significant upside potential based on evolving city regulations in EU

Buses

Drivers

	NA	EU	CN
Regulation > Fuel economy targets in NA and China can be met without xEVs; No FE targets yet in EU > City low/zero-emission driving restrictions in EU and some US states, and expected in China	◔	◔	●
Customer pull / TCO > Incentives boost BEV sales in China; Incentives stimulate sales in certain states in NA > Fleet TCO reduction as long-term driver for BEV in NA and EU (once battery cost comes down)	◑	◑	●
Technological advancements > CN desires to lead in drivetrain technology to leapfrog Western OEMs – Currently simpler technological solutions > NA/EU OEMs on similar technology levels	◕	◕	◕
Charging Infrastructure > Bus will charge usually at the depot overnight or as "opportunity charging" along the route > Charging infrastructure will be built up by bus operator	○	○	○

BEV/Hybrid forecast [000 units]



Source: IHS, Roland Berger

Adoption of OH xEV is expected in select applications

Off-Highway

Drivers

	NA	EU	CN
Regulation > City regulations on pollution & noise not yet in place but could evolve – Would mainly impact compact CE and selected MH equipment (e.g. AWP)			
Customer pull / TCO > Key driver in absence of regulation – Savings potential strongest for UM (for costly ventilation) > Some interest developing for AWP & CE (compact equip.) – Limited for AG (auxiliaries, self-propelled)			
Technological advancements > Solutions available for UM and AWP > Players still figuring out optimal architectures across segments			
Charging Infrastructure > Limited influence due to fragmented vehicle distribution and lack of ability to leverage on-road infrastructure (charging units need to be localized)			

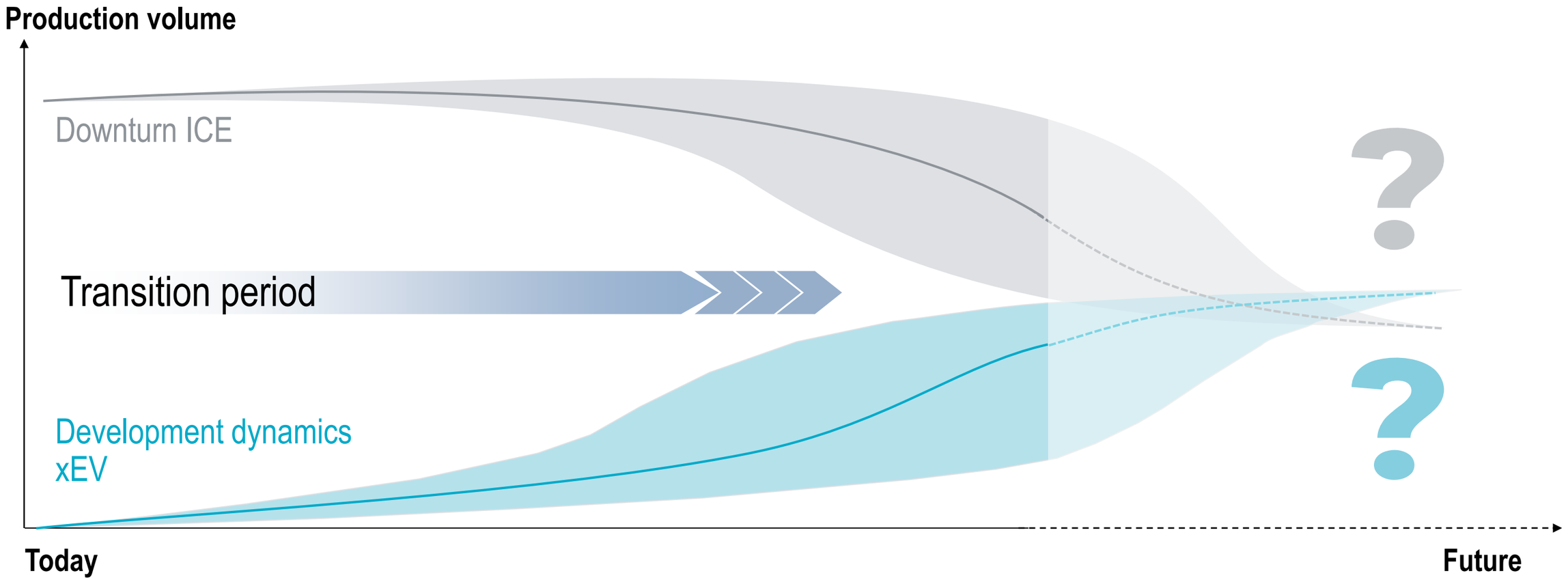
Subsegment trends

		Electrification outlook
Construction Equipment	> Required battery size and cooling need limits application > Hydraulics remain primary power of auxiliary functions > Potential electrification of compact equipment	
Agriculture	> First electrification expected on hydrostatically driven vehicles as well as auxiliaries and power boost systems > Electric powered front axle a potential next step > Full electric vehicles not expected mid-term	
Mining	> Applications such as underground mining expected to see some level of electrification (eliminates need for costly ventilation of mines) > Many companies have full electric offerings for underground equipment (Atlas Copco, GE, etc.)	
Material Handling	> High share of indoor forklifts already electrified – Fuel cells are a niche alternative > Hybrid and full electric boom lifts already offered by customers	

Source: Roland Berger

It will be important for OEMs and suppliers to carefully manage the transition period to xEV

Transition development

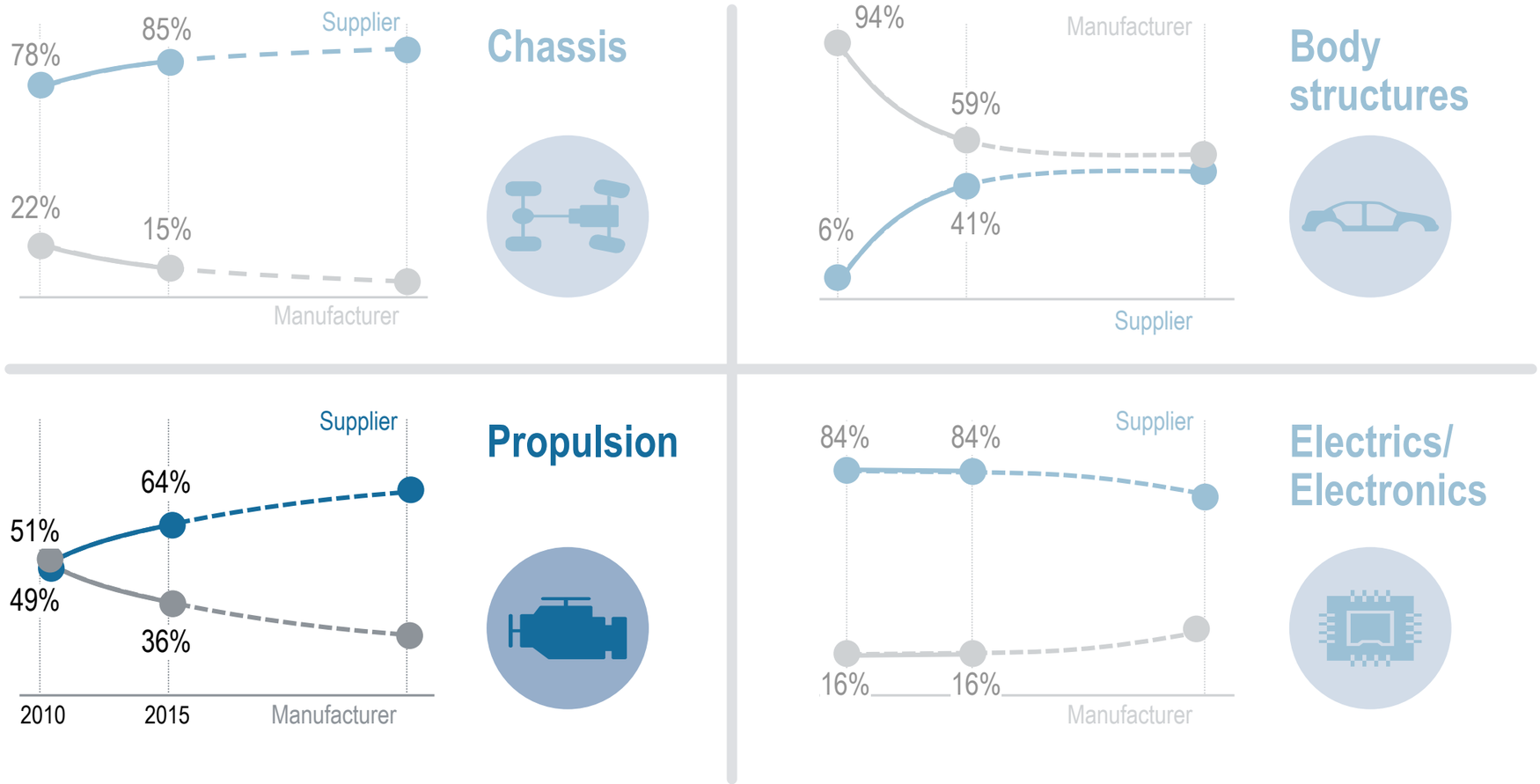


ICE: Internal Combustion Engine EV: Electric vehicle

Source: Roland Berger

OEM and supplier domain focus will shift over time with suppliers gaining significant share of value-add in propulsion systems

Shifts within the value chain [share of value add in %]

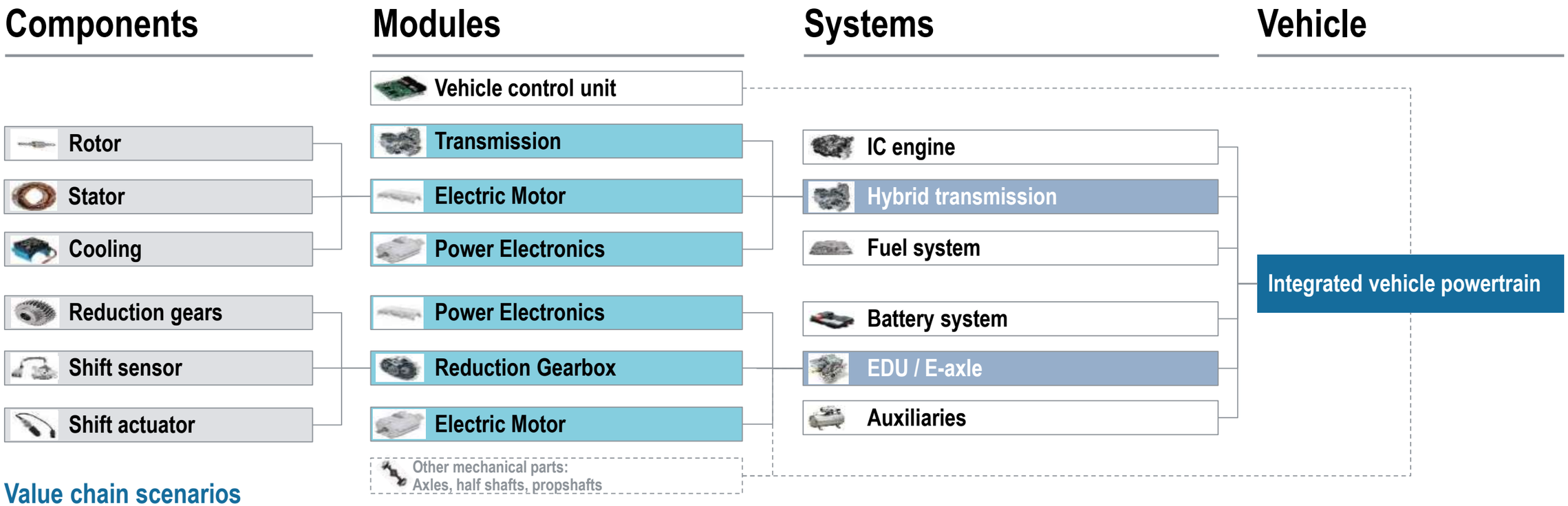


- Most **mechanical products** are already manufactured by suppliers
- **Investment-intensive manufacturing structures** will continue to be shouldered by the OEMs
- The **added value of conventional drive technology** will continue to shift to suppliers
- **E-drives** do not provide enough value added to OEMs to compensate for the loss from ICE
- OEM will increasingly take care of system integration and expand its **electrics / electronics** as a field of competence

Source: Roland Berger

While suppliers will take a more prominent role in the value creation of xEV systems, it will largely depend on OEMs' strategies

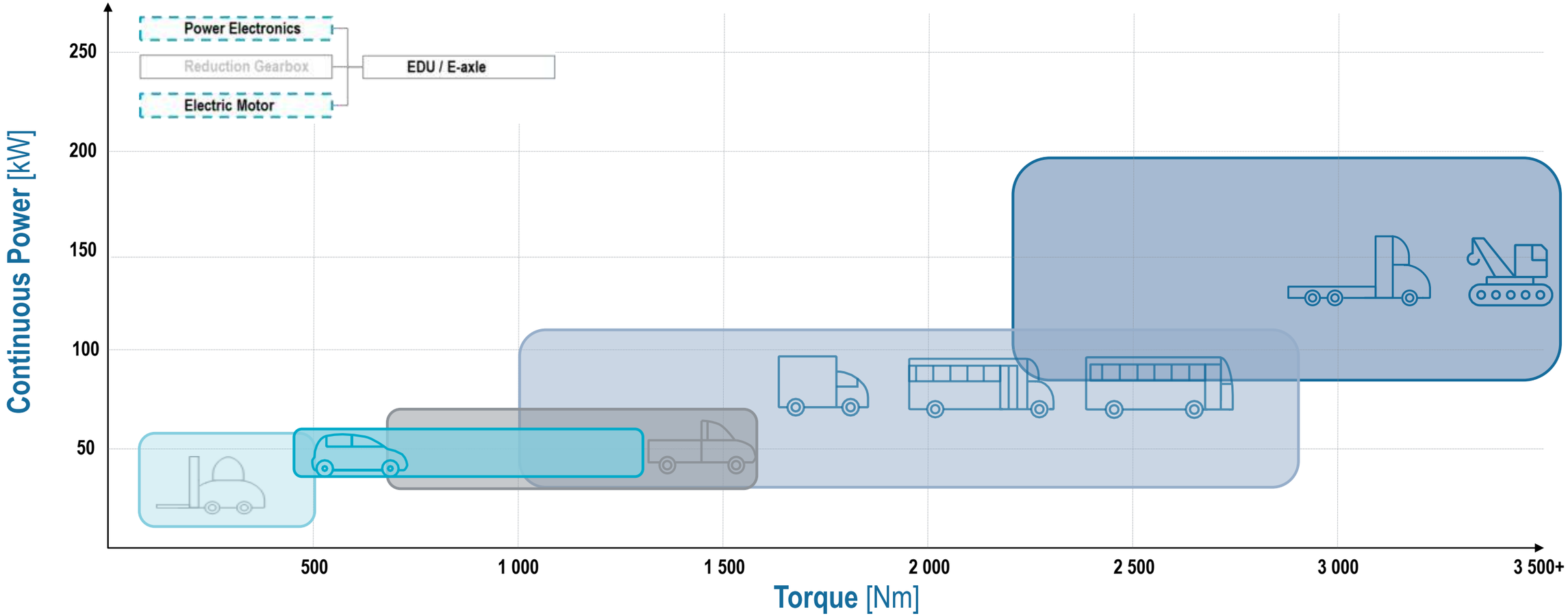
Participation construct in electrified propulsion systems



Source: Roland Berger

A range of motors (low and high voltage) and power electronics will be required to serve the full range of applications and vehicle architectures

E-motor power and torque range by segment – Illustrative



Source: Roland Berger

Implications for suppliers

- The development of electrification is happening across all mobility markets – while passenger car is the largest xEV segment there are applications within commercial vehicle and off-highway with higher levels of adoption
- Regulations and customer pull are driving the development of the xEV market more than technology and infrastructure – clear nuances exist between vehicle segments and regions
- The increase in xEV and the corresponding downturn in ICE systems is driving a change in OEM sourcing behavior – suppliers projected to play a more prominent role in propulsion systems
- In order for a supplier to provide the propulsion system to OEMs, competencies in gearbox, e-motors, and power electronics design and integration will be required
- Suppliers that have not yet built or acquired these competencies will find it difficult to build them organically given the constraints on resources and the pace of change
- Those with system-level integration capabilities will be able to provide more efficient systems and value to OEMs

Source: Roland Berger


Roland
Berger
THINK:ACT

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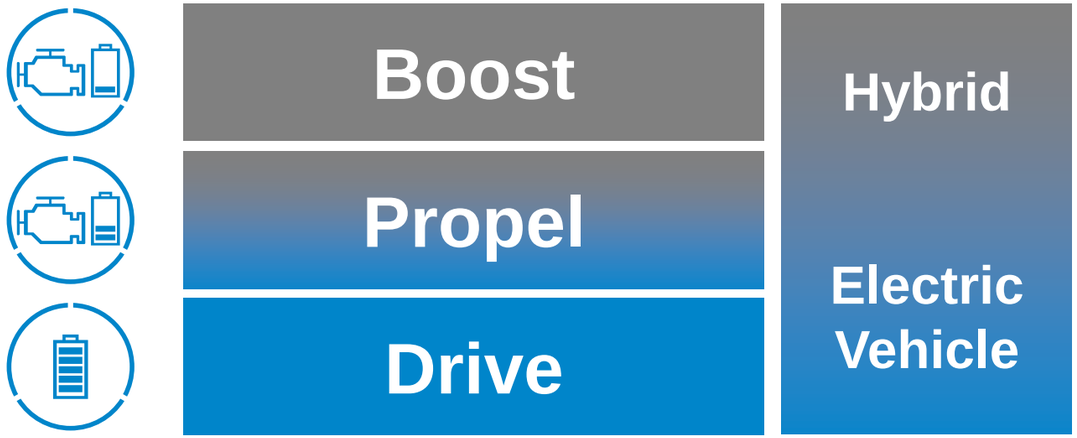
Lead Electric Propulsion

Develop and deliver **fully integrated e-Propulsion systems** to capture opportunity to **double CPV** as core markets shift from internal combustion engines to electric propulsion



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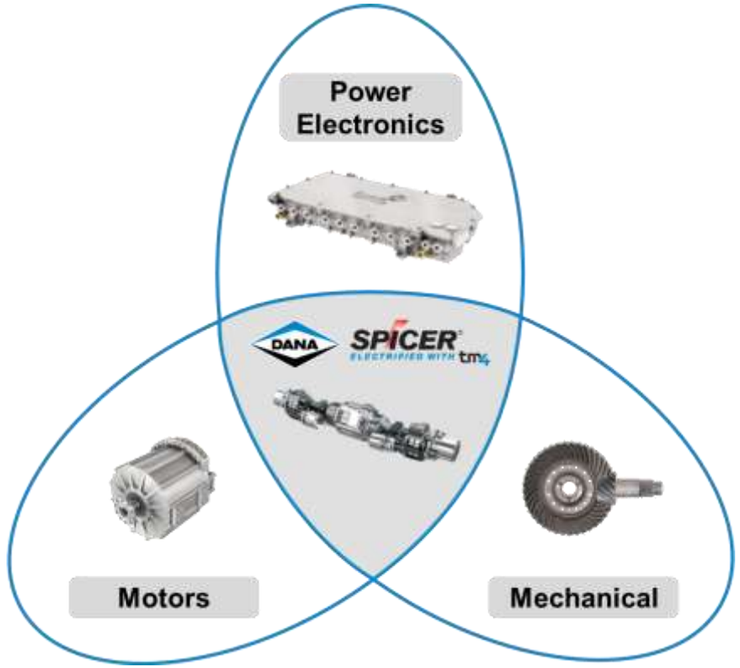
Double Content Through Electrification



Electrification creates **significant opportunity** in driveline

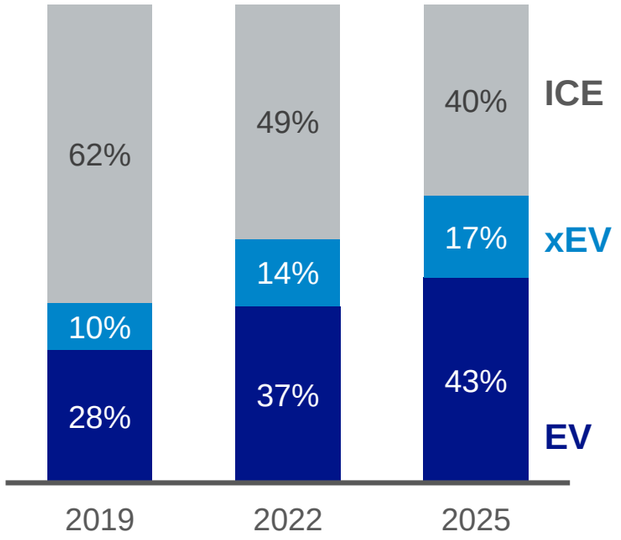
~585
million customer km driven with TM4 motors

~12,000
vehicles on the road today

300+
electrification-focused engineers

Leverage **deep expertise** in electrifying our core markets…

Bus Production by Powertrain



…because EV adoption is happening **faster than anticipated**

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Wide Range of Vehicle Segments

Target Electrification Segments

- **Low-voltage** segments tend to require smaller packaging, lower costs, and greater maneuverability
- **High-voltage** segments tend to require higher torque, greater range, and low-voltage auxiliary systems
- While some of these segments will adopt electrification later than others, Dana is positioning itself to be on the **forefront of providing e-Propulsion solutions**

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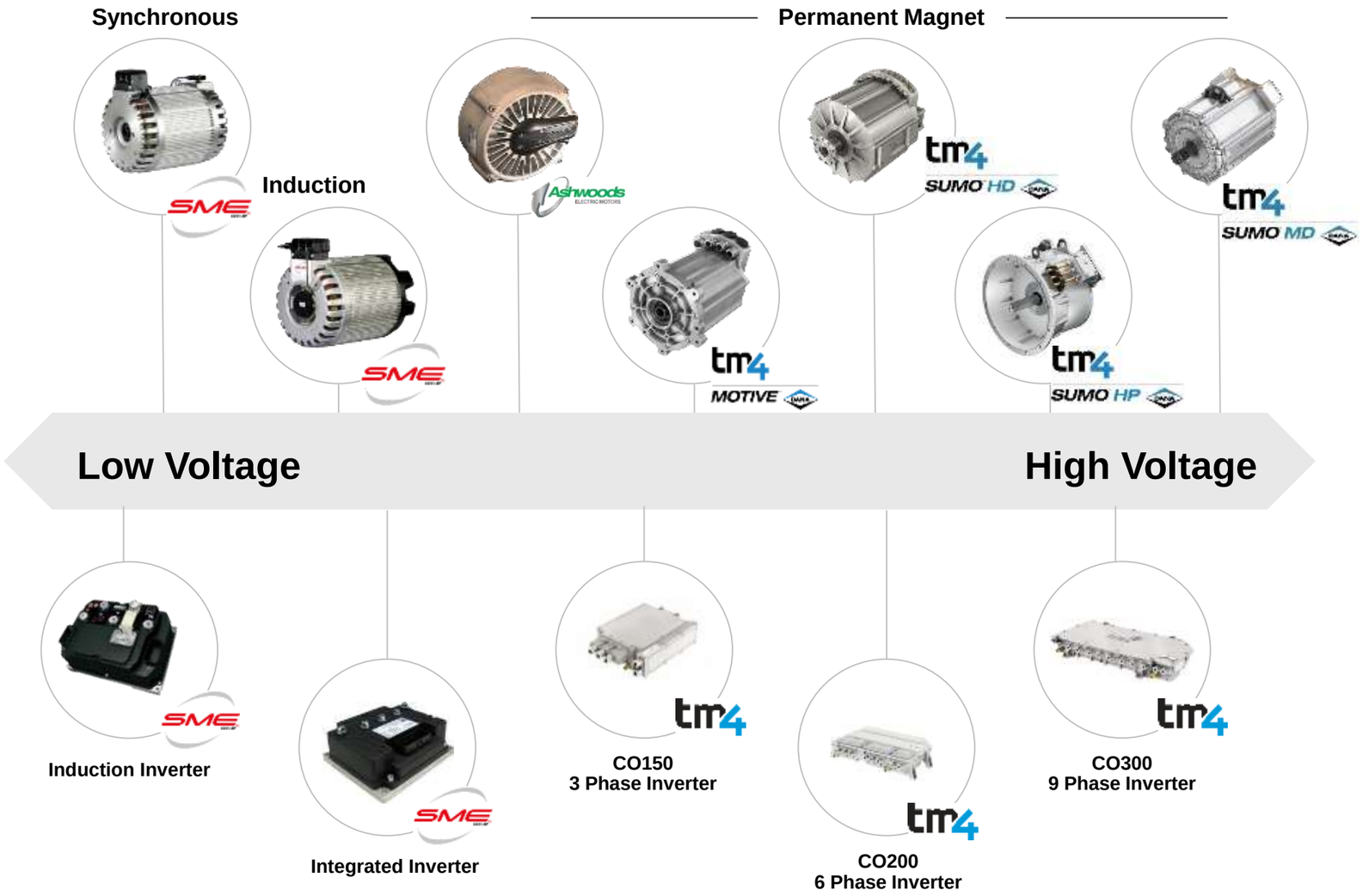
Electrodynamic Technology

Motor & Inverter Portfolio



- Dana offers **motors and power electronics** for both **low-voltage** and **high-voltage** applications
- Lower-voltage power electronics are **integrated into one unit,** while higher-voltage inverters and controllers are separate
- Dana offers a range of electrodynamic products, allowing them to be **tailored to the end-market application** for improved performance

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Electric Motor Topology

Induction

Copper Wire

Vehicle auxiliaries and traction for low-speed electric vehicles

- 2 - 40 kW
- Round-wire copper design
- Extremely reliable, low-cost solution

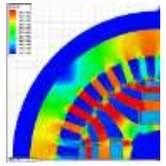
Synchronous Reluctance

Synch. Reluctance

Vehicle auxiliaries

- 15 - 25 kW
- Brushless, magnet-free design
- Improved cost performance and efficiency over induction motors

Synch. Reluctance Internal Permanent Magnet



Traction for low-speed vehicles

- 20 - 76 kW
- Brushless, magnet design
- More cost-effective traction solution than permanent magnet motors

Permanent Magnet

Rare Earth Metals

Traction for passenger cars through off-highway vehicles

- 4 - 250 kW
- Round and rectangular wire designs
- Highest power density
- Available in both external and internal rotor designs

Cost Effectiveness

Power & Efficiency

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Power Electronics Topology

Low Voltage Inverters

TAUTRONIC Inverters

Small OH traction and pump functions

- 1.5 - 70 kW
- Most advanced control algorithm for high efficiency and high performances Synchronous Reluctance and Permanent Magnets motors
- SME power modules for the best power/volume ratio in the market

SCHWARZMULLER Inverters

Automatic Guided Vehicles and CV auxiliary functions

- 1.5 - 70 kW
- State of the art control algorithm for induction motors control
- Specific hardware and software for application in autonomous vehicles and Electro-Hydraulic Power Steering

High Voltage Inverters

Inverters

CO150

CO200

CO300

LV, CV, and larger OH machines

- 150 - 350kW
- TM4 "Reflex" technology optimizes motor control
- Tailored to application based on in-depth market knowledge, enabling optimized performance

Low Voltage — **High Voltage**

PLUS1 is a registered trademark of Danfoss

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Electric Propulsion Product Portfolio

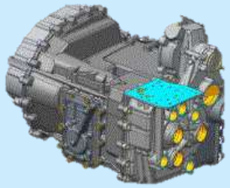
Technology Solutions

Mild hybrid

Power Electronics

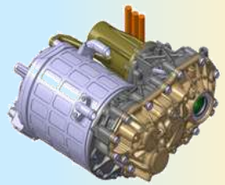
Plug-in Hybrid Electric Vehicle (P/HEV)

Hybrid Transmission



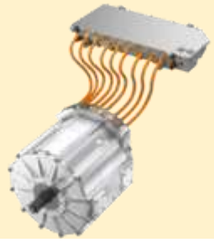
Hybrid Axle

Independent e-Axle



Battery Electric Vehicle (BEV)

Direct Drive

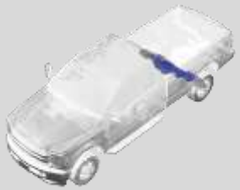


e-Drive Unit

Rigid e-Axle

Wheel Drives

Vehicle Applications

Recreational	Utility	Passenger Car	Material Handling	City Delivery	Light Truck	Medium Duty	Heavy Duty/Bus	Mining Truck
								
Club Car	Taylor Dunn	Bolloré Blue Car	BYD 1.6T & 2.5T	Zenith Electric Van	*Under Development*	Workhorse	Karsan ATAK minibus	Sandvik DD422iE

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Electrification Product Applications

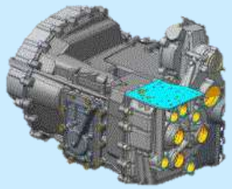
Technology Solutions

Mild hybrid

Power Electronics

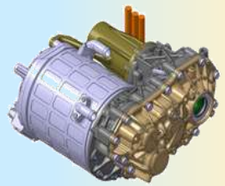
Plug-in Hybrid Electric Vehicle (P/HEV)

Hybrid Transmission



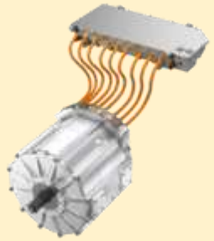
Hybrid Axle

Independent e-Axle



Battery Electric Vehicle (BEV)

Direct Drive



e-Drive Unit

Rigid e-Axle

Wheel Drives

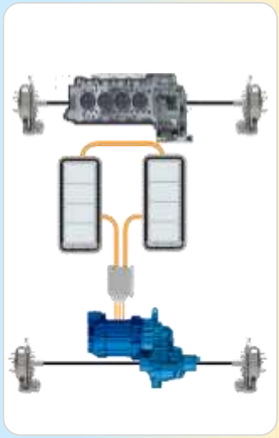
Architecture Types

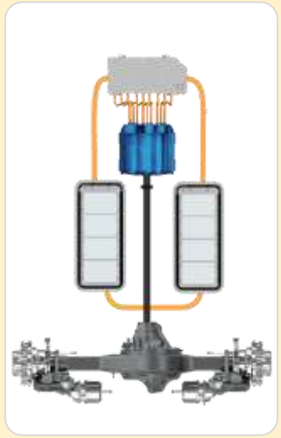
P0 / P1

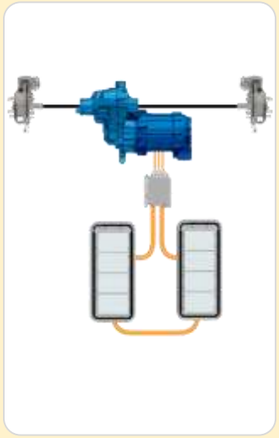
P2 / P3

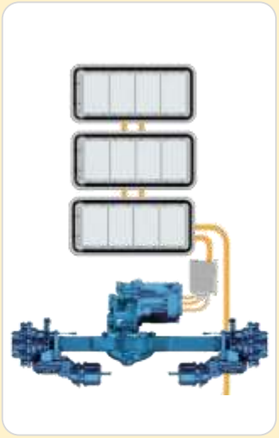
P3.5

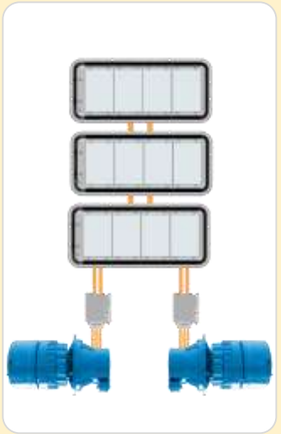
P4











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Power Electronics

Heavy-Vehicle Application

- **Inverters and software** that provide start/stop functionality via an **integrated starter generator** for mild hybrid and hybrid vehicles
- Targeted toward **commercial-vehicle** segment, including buses and trucks
- Product is compatible with current ICE and hybrid architectures, allowing for **easy integration**
- Enables OEMs to **better meet environmental regulations**

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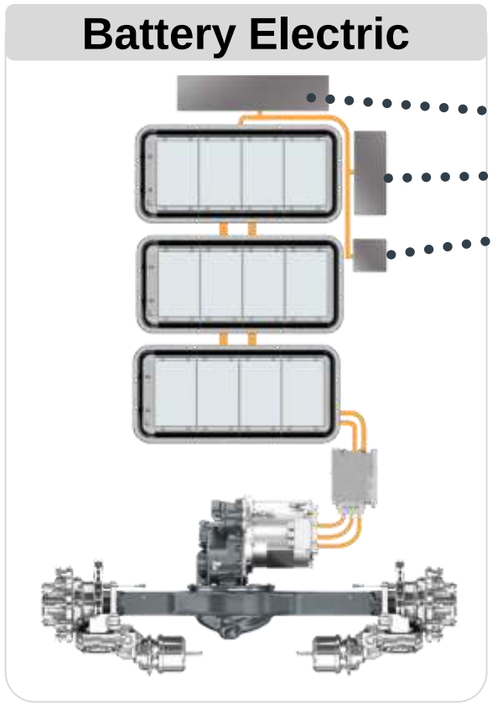
Power Electronics

Transportation Application



- SME acquisition positions Dana to offer **low-voltage auxiliary systems,** expanding content in key end markets
- Includes **motors and inverters** for electronic hydraulic power steering, lift pumps, and e-Compressors for braking and climate systems
- Focused on **commercial-vehicle** and **smaller off-highway applications** (e.g. aerial work platforms, material handling)
- **Opportunity to target emerging new mobility segments**, such as low-speed electric vehicles
- Allows Dana to sell a **full system of drive and auxiliary products**, which can be optimized for performance and efficiency

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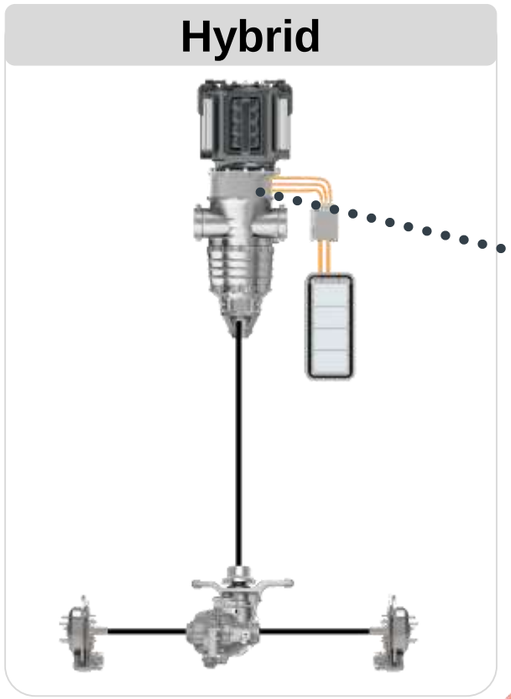
Hybrid Transmission

High-Performance Application



GRAZIANO®
High-Performance Transmissions

- Automated high-efficiency drive unit with **integrated hybrid module** and electric motor in P2 or P2.5 layouts
- Targets front or mid-engine **extended range hybrid passenger cars**
- Developed with a **modular approach** to reduce one-off designs
- Full hybrid functions including:
  - Engine cranking
  - Kinetic engine recovery
  - Electric boost
  - Full electric drive
  - Hybrid drive
  - Charging from stand still

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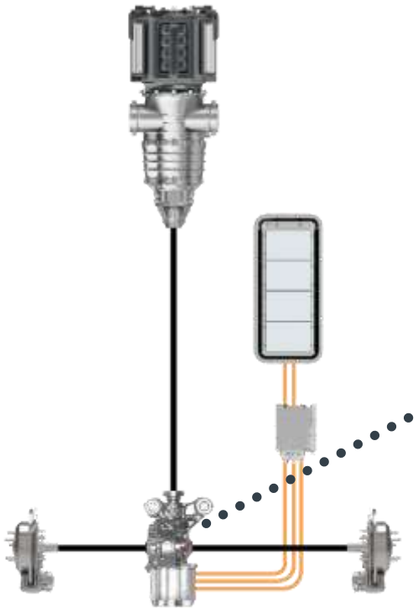
Hybrid Axles

High-Performance Application

Hybrid



GRAZIANO®
High-Performance Transmissions

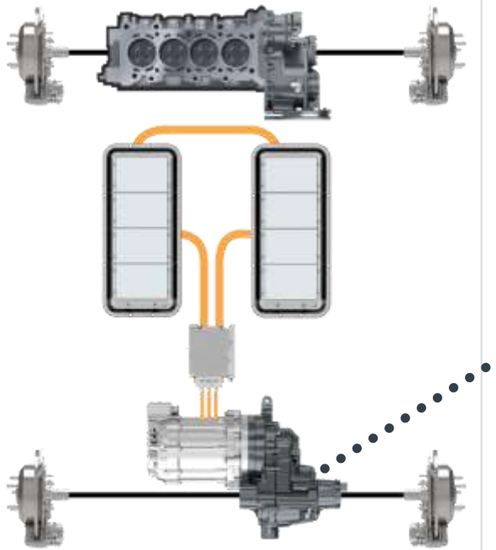
- **Unique solution** for rear-wheel-drive high-performance vehicles
- Efficient torque management to **meet varying driver requirements**
- Provides 150kW of **instant power** and **reduces fuel consumption** up to 20%
- Functionalities include **full electric** mode, **energy recovery** mode, and **boost** mode
- Capitalizes on emerging hybrid segment by offering **acquired electrification solution** for existing Dana customer base

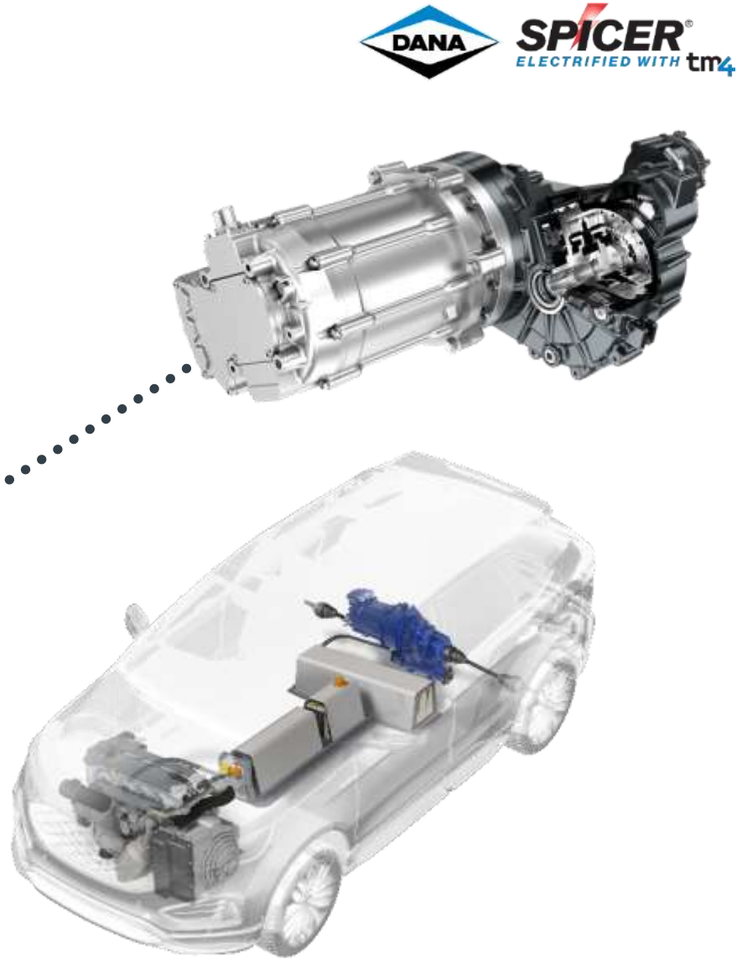
© 2019 Dana

Independent Electric Axle

CUV and SUV e-AWD Application

Hybrid





- Adds **secondary electric axle** to a front-wheel-drive hybrid vehicle, creating AWD capability without adding mechanical connections
- Option for **torque vectoring e-Axle** that scales from traditional axle products
- Target applications include CUV and SUV market to achieve **on-demand all-wheel-drive** functionality with an **electrified solution**
- E-Axles allow for improved vehicle integration, optimized packaging, and **weight reduction**
- Provides OEMs with the **flexibility to integrate** into **hybrid** or **battery electric** architectures

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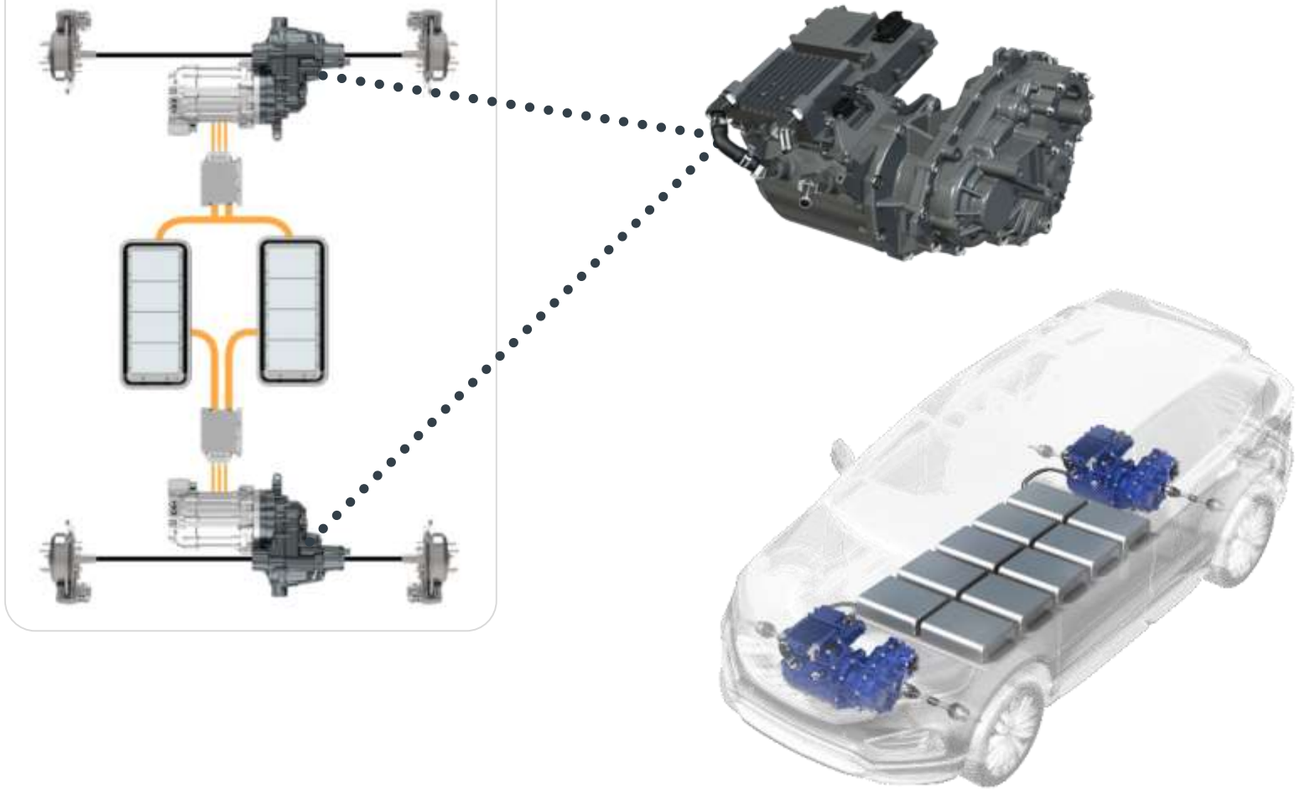
Independent Electric Axles

CUV and SUV e-AWD Application

Battery Electric



- Dual torque vectoring **independent e-Axles** provide full electric propulsion
- Additional content in **AWD configuration**
- Offers Dana opportunity to target core light commercial-vehicle market and further **expansion** into electrified products for passenger car market
- Fewer mechanical components result in **reduced maintenance** costs
- Positions Dana to win content with **OEMs**, who are attracted to high-performance attributes

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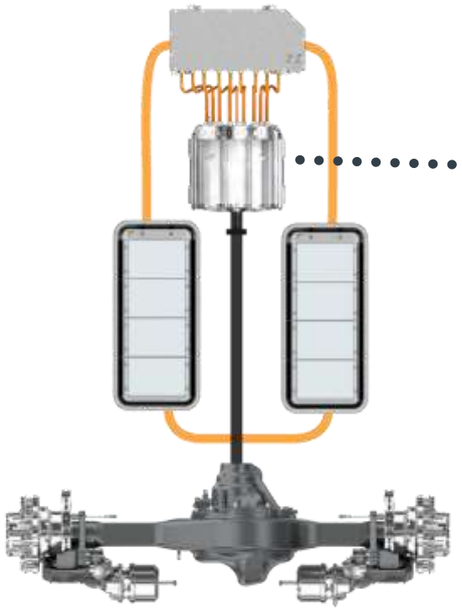
Electric Direct Drive

Urban Transport Application

DANA SPICER ELECTRIFIED WITH tm4

Battery Electric



- **Direct drive motors** where an electric motor directly interfaces with a traditional axle and driveshaft to power the vehicle
- Allows OEMs to **immediately electrify** an existing chassis
- Maximizes Dana content by adding electric components to mechanical system
- Targets commercial-vehicle customers such as **medium-duty trucks and buses**
- **Lowers maintenance cost** by removing internal combustion engine

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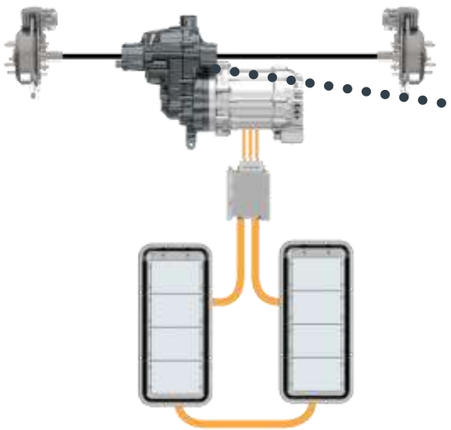
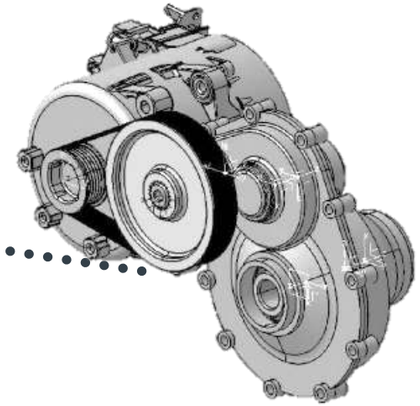
Electric Drive Unit

Low Speed Electric Vehicle Application

Battery Electric





- **Electric-drive systems** for growing low speed electric-vehicle market
- Targets fully battery-electric **small passenger and utility vehicle** market
- Enables **access to high-growth market** of new mobility for city transportation and utility-vehicle market
- Emerging Indian market opportunity to supply **small commercial-vehicle segment** and **low-speed** electric vehicles through existing joint ventures
- Offering variety of solutions from **software-controlled** torque vectoring to locking differentials

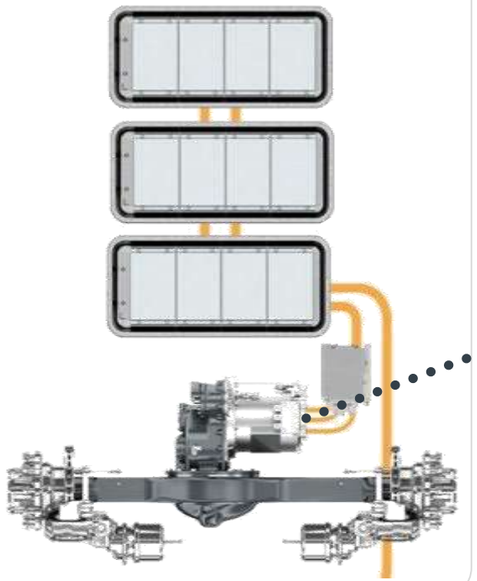
© 2019 Dana

Rigid Electric Axles

Urban Transportation Application

DANA SPICER ELECTRIFIED WITH tm4

Battery Electric



- Electric motor is **fully integrated** into the axle; combines all functions of the engine and transmission into the drive axle
- Applications in all mobility segments; currently targeting **commercial vehicle** bus, medium-duty truck, and **off-highway** end markets
- Compact design **saves weight** for more efficient operation
- Opportunity to take advantage of **smaller packaging** and gain **flexibility in design** of other aspects of the vehicle

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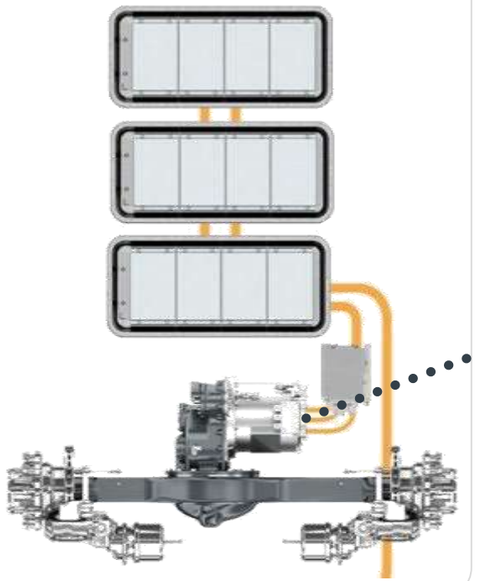
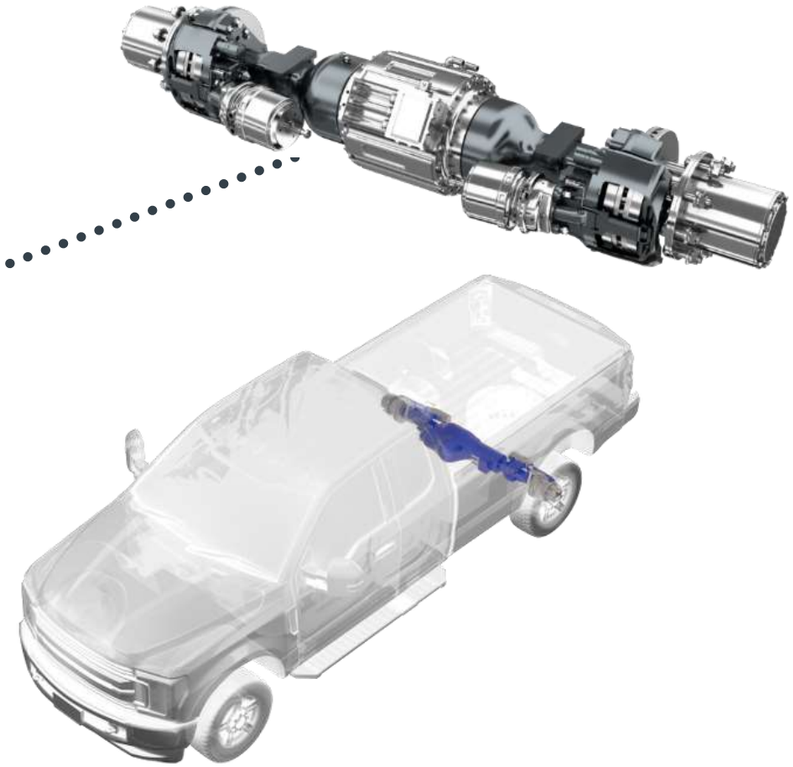
Rigid Electric Axles

Full-Frame Truck Application

Battery Electric





- Electric motor is **fully integrated** into the axle; combines all functions of the engine and transmission into the drive axle
- Applications in the **full-frame truck market**, including pickup trucks and light commercial vehicles
- Compact design **saves weight** for more efficient operation
- Opportunity to take advantage of **smaller packaging** and gain **flexibility in design** of other aspects of the vehicle

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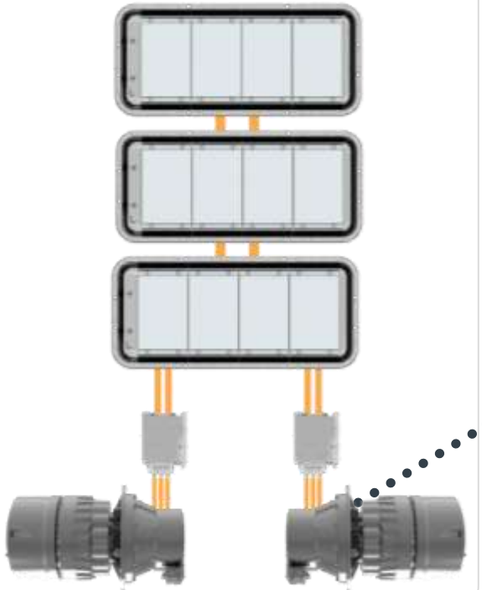
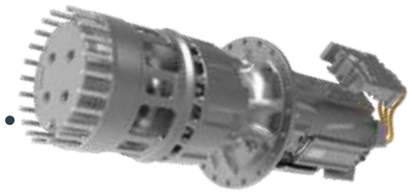
Wheel-End Electric Drives

Material-Handling Application

Battery Electric





- Electric motor connected **directly to wheel** drives
- Integrate **ODS** and **Brevini product portfolio** into **Dana's system approach** to penetrate new markets
  - Allows Dana to capitalize on two **rapidly growing off-highway segments**: construction and material handling
  - Leverage **acquired motor technology** for electric mini and small excavators
  - High-efficiency motors and wheel drives allow for more **efficient packaging** and **larger batteries**
- Can offer both **front drive axles and rear steer axles** electrified with **SME content**

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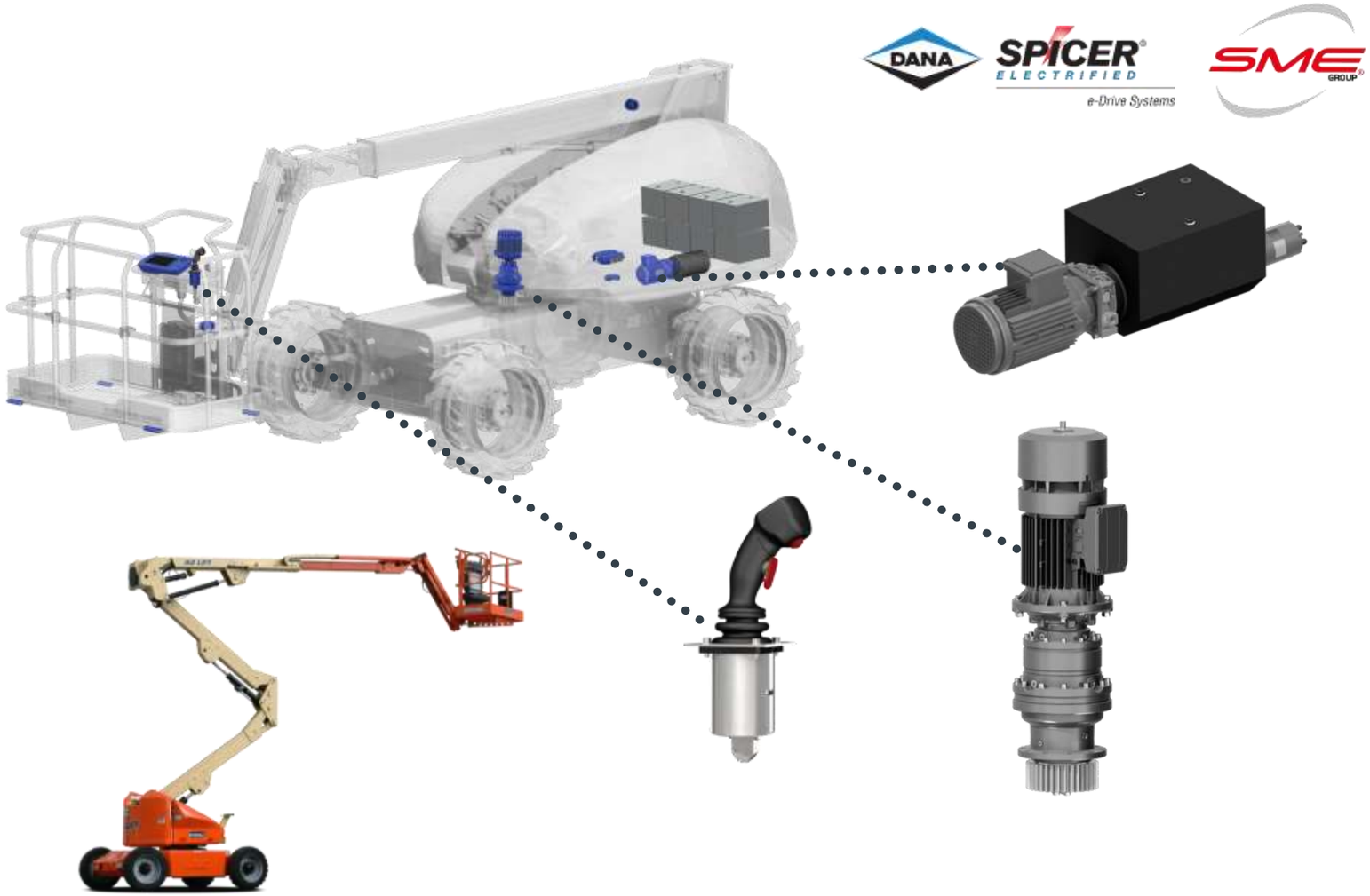
Motion Electric Systems

Slew Drive, Power Pack, and Controls Application



- Deliver **greater value to customers** by selling electrified motion systems with drive systems, as **performance can be optimized** between systems
- Integrate **ODS' product portfolio** into **Dana's system approach** to enter new markets
  - Leverage acquired motor technology for electric mini and small excavators
- Motion systems can also be **combined with Brevini power packs** that convert electric power into hydraulic pressure

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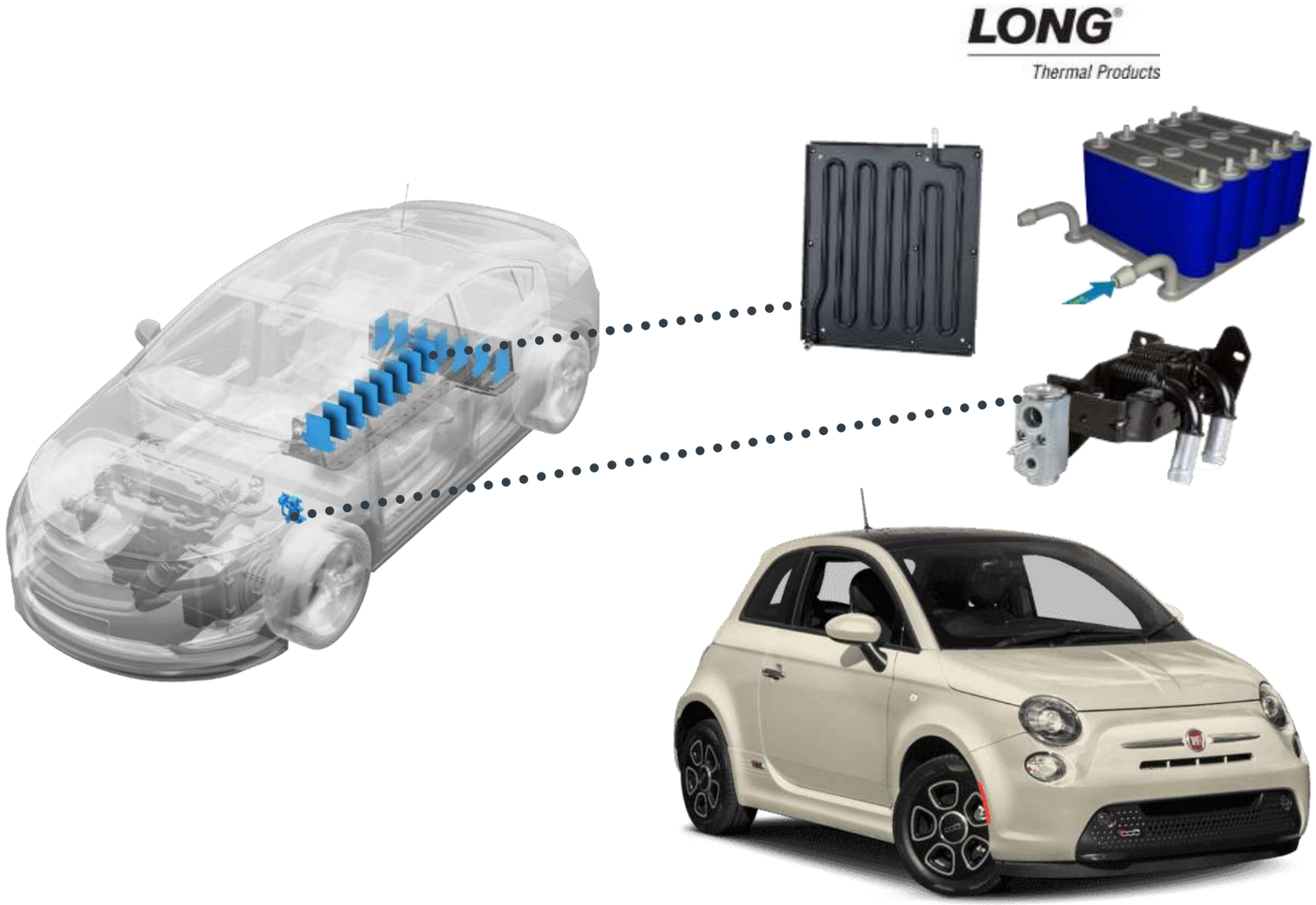
Battery Cooling

Long® ThermaTEK™

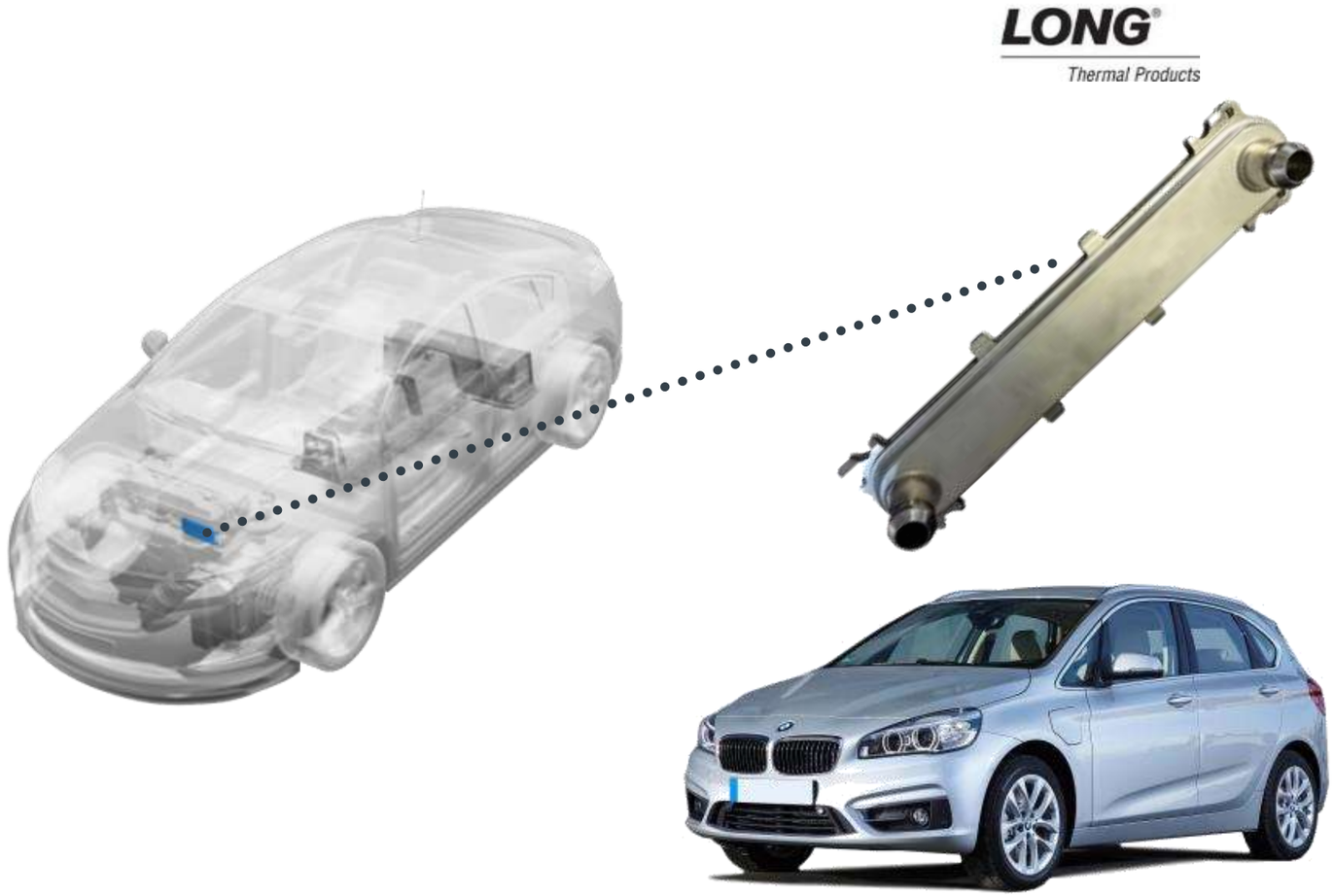


- Thermal management is a **critical function** in all hybrid and electric vehicles
- Battery solution provides **both cooling and heating functionalities**
- Numerous **patented designs** that optimize the temperature distribution across the cold plate
- Utilizes a proprietary and **flux-free aluminum brazing technology**

© 2019 Dana

Electronics Cooling

Long® ThermaTEK™



- Electronics thermal management is **increasingly critical** as quantity and performance requirements of electronics multiply due to **electrification** and **autonomous driving**
- Dana developed a unique solution that provides **two-sided chip cooling** that optimizes heat transfer and durability
- Unique production process allows for **weight and cost reduction**
- Solution is an **industry-first technology** and a **PACE Award finalist**

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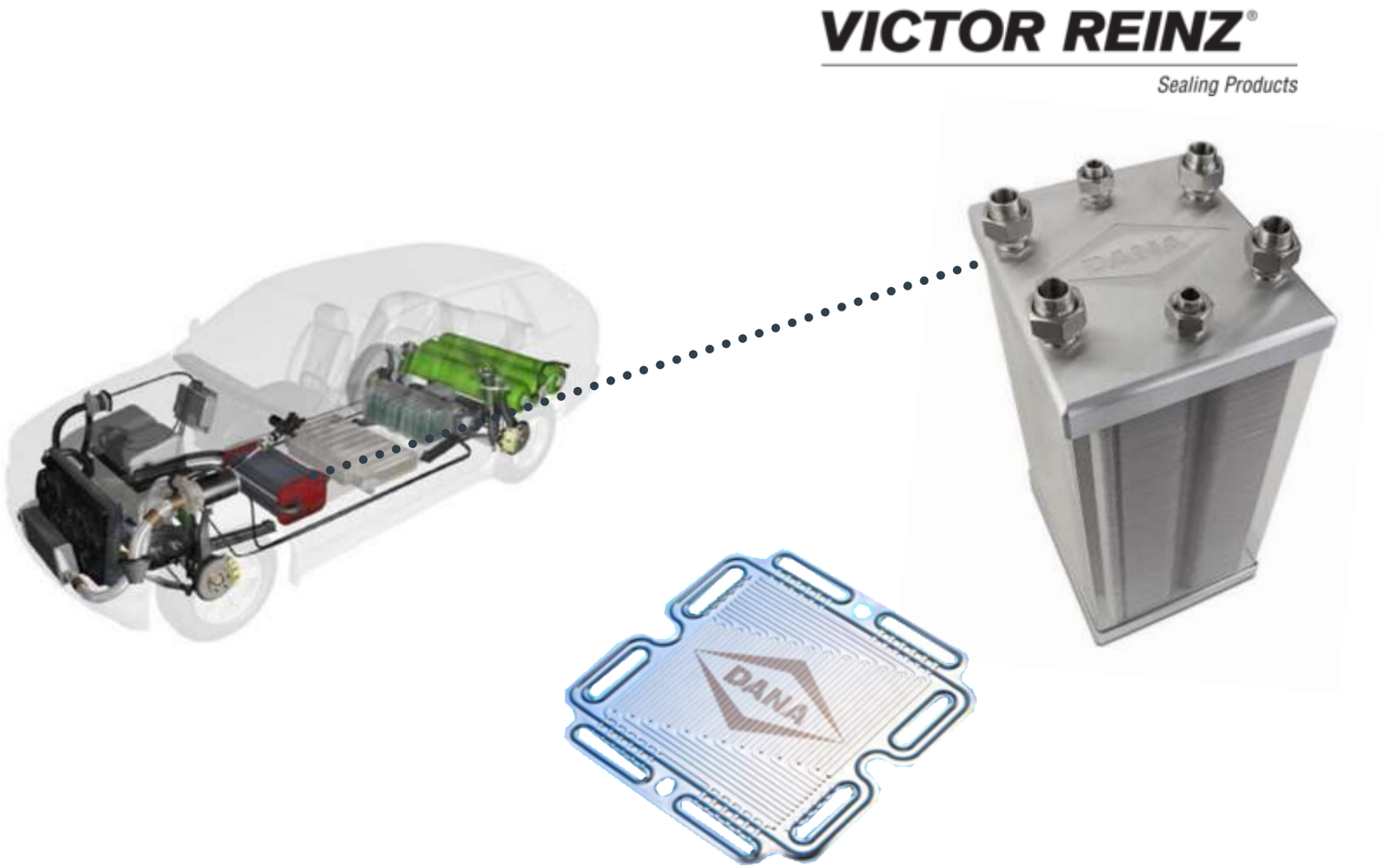
Hydrogen Fuel Cells

Victor Reinz® Hydroseal™



- Fuel cells expected to become more relevant as **adoption increases** over next 15+ years, specifically in **mass transit** segment
- Fuel-cell capabilities provide the **flexibility to address core market** needs regardless of energy source
- **Co-developing** future solutions **with key OEMs**
- Currently a **market leader in bi-polar plates**, having supplied both metallic and composite plates
- Experience in both metallic and composite solutions gives Dana **flexibility to provide both solutions** as OEMs standardize their offering

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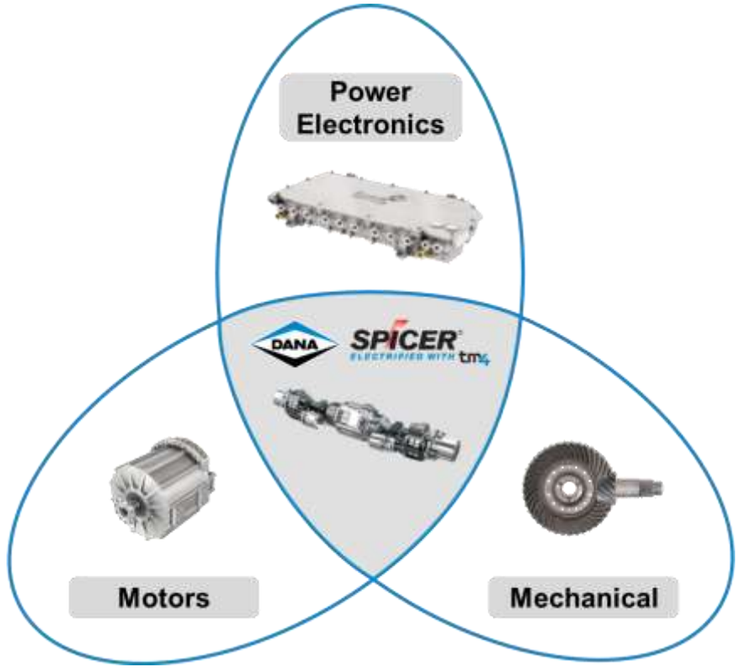
Double Content Through Electrification



Electrification creates **significant opportunity** in driveline

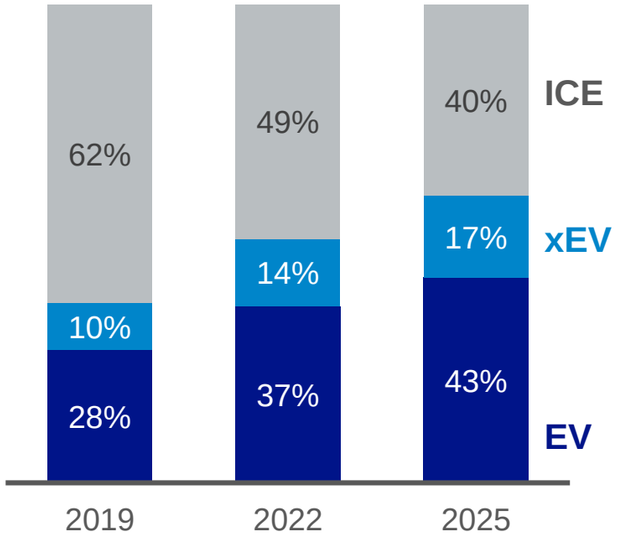
~585
million customer km driven with TM4 motors

~12,000
vehicles on the road today

300+
electrification-focused engineers

Leverage **deep expertise** in electrifying our core markets…

Bus Production by Powertrain



…because EV adoption is happening **faster than anticipated**

Electrification yields more than $100 million of sales today

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Expand Global Markets
3
Deliver Innovative Solutions
4
Drive Customer Centricity
2
Leverage The Core
1
Lead Electric Propulsion
5
People Finding A Better Way®

© 2019 Dana

Financial Summary

People Finding A Better Way®

Enterprise Strategy Financial Impact

1

Embedded Multi-Market Cost Synergies

$175M
2018

$200M+
2023

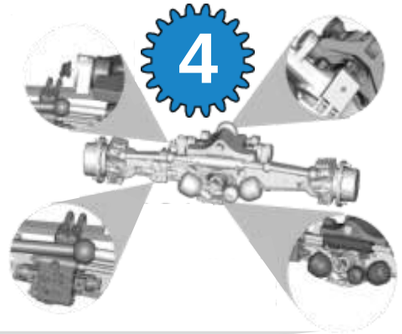
2

Outsourcing

Mobility | Autonomy | Electric | Digital

3

4



$700M backlog 2019-2021

5

DANA | SPICER® ELECTRIFIED WITH tm4

$500M sales in 2023

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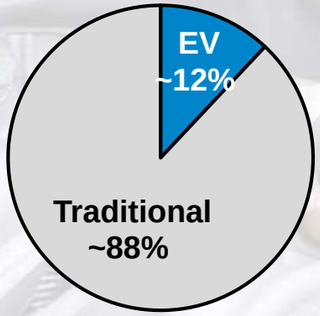
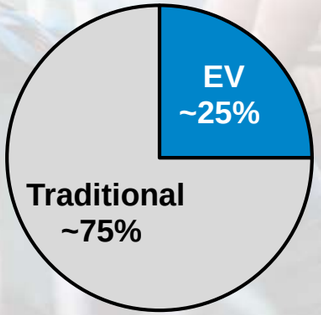
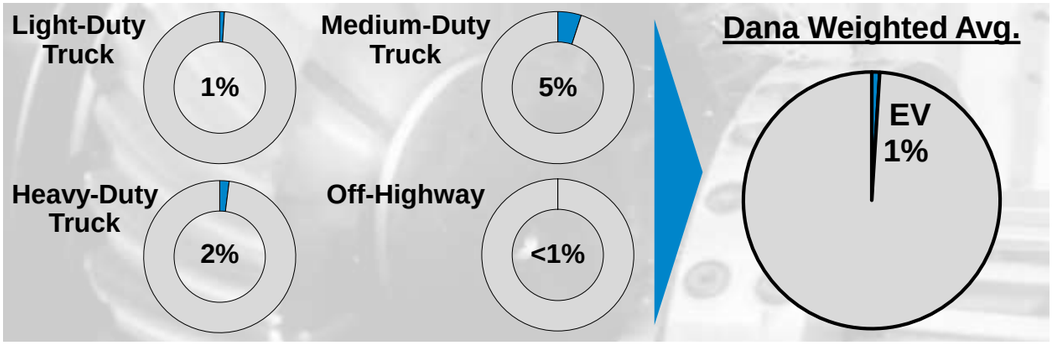
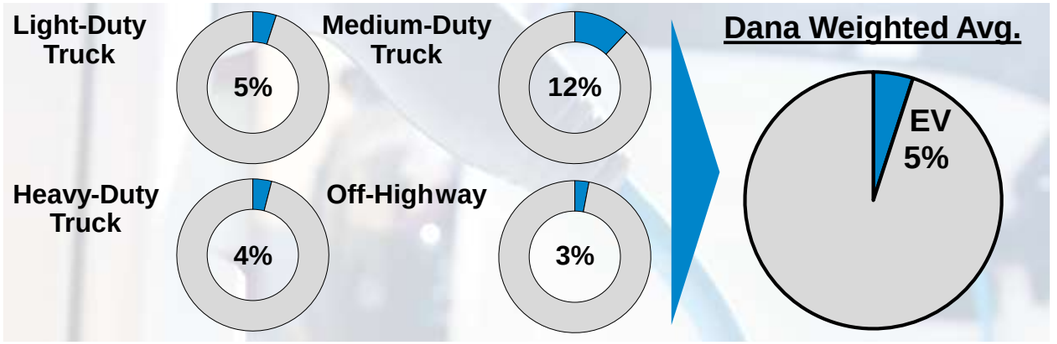
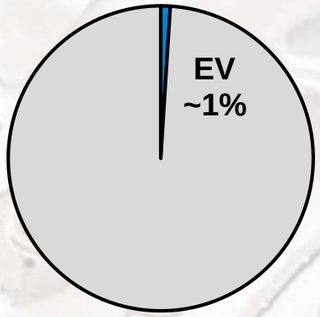
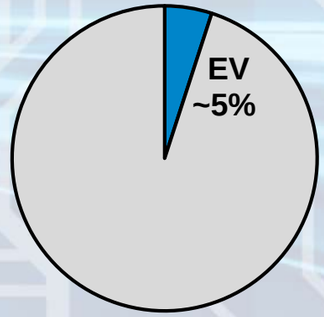
Electrification Leadership Evolution

	2018[1]	2023
Engineering Spend	**Engineering Spend: ~3% of Total Sales** 	**Engineering Spend: ~3% of Total Sales** 
Addressable Electrification Market[2]		
Electrification Sales	**~$100M EV Sales** 	**~$500M EV Sales** 

1. Dana metrics pro forma for acquisitions. 2. Light-duty truck based on mini/compact/full-size full-frame vehicles and unibody vehicles; CV volumes based on North America, EU, and China; OH volumes global and include construction equipment and mining vehicles with high-voltage propulsion systems.

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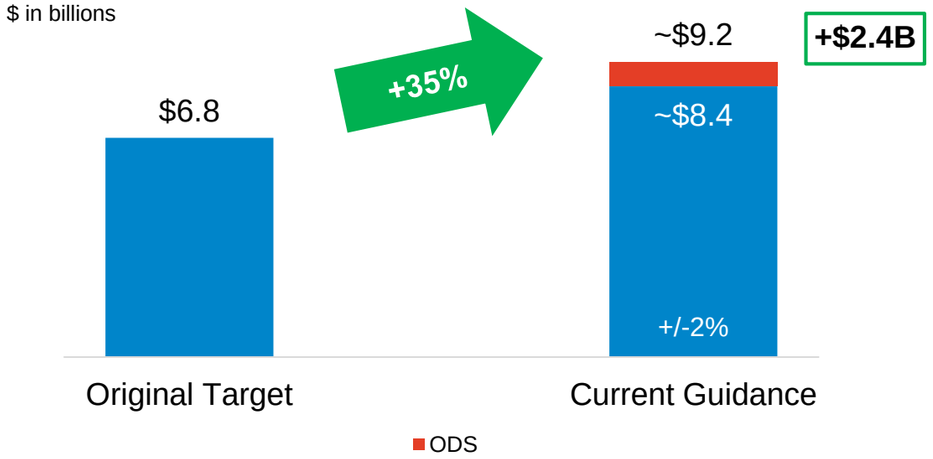
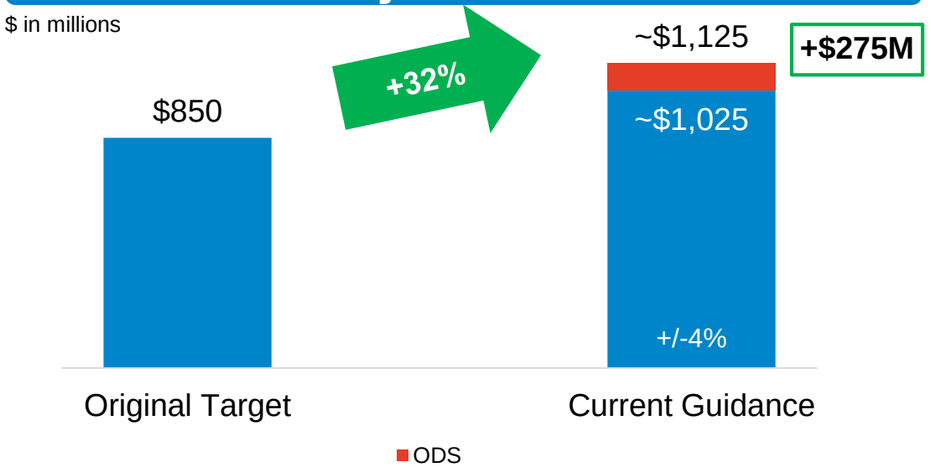
2019 Guidance vs. 2016 Original Targets

- Delivering dramatically improved financial results compared to targets provided at 2016 Investor Day
- Augmented by strategic M&A investments
- Expecting to meet 2019 adjusted free cash flow target from 2016 Investor Day before impact of ODS integration
- Improved EPS outlook largely driven by profitability expansion

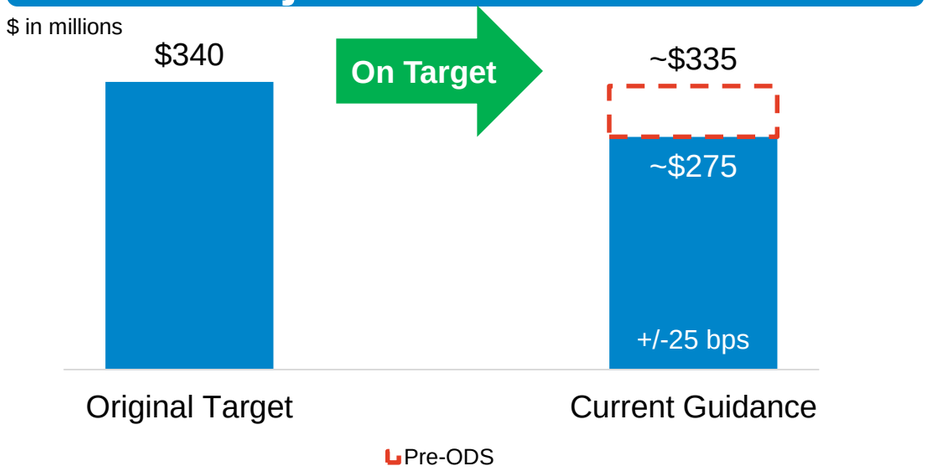
2019 Sales



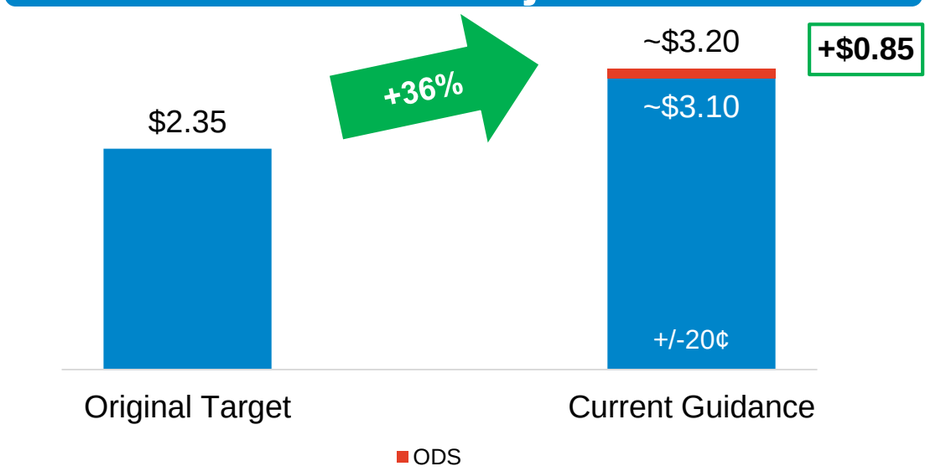
2019 Adjusted EBITDA



2019 Adjusted Free Cash Flow



2019 Diluted Adjusted EPS



See appendix for comments regarding the presentation of non-GAAP measures

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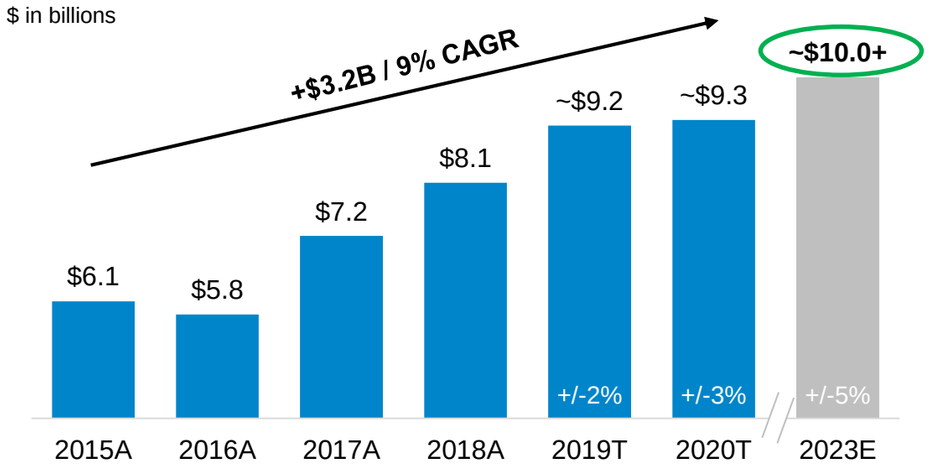
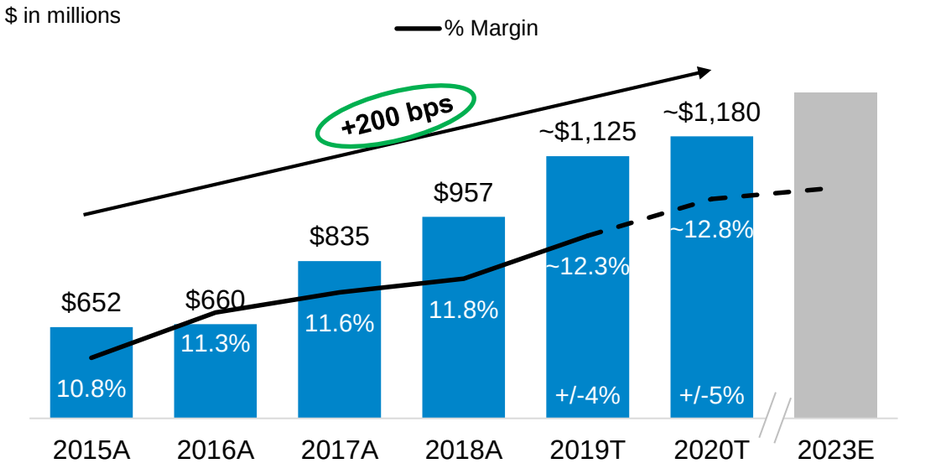
Key Financial Metrics Trends

- 2019 includes 10 months of ODS, with synergies actions completed through 2020
- Forecasted market growth and new business attainment expected to drive sales exceeding $10B by 2023
- 200 bps of EBITDA margin expansion from 2015 to 2020T
- 2019T adj. free cash flow projected at ~4% of sales prior to ODS impact of ($60M)
- Expecting to reach 5% adj. free cash flow goal by 2020 and drive ~$2B of FCF generation through 2023
- EPS growth continues to outpace profit growth due to prudent balance sheet management

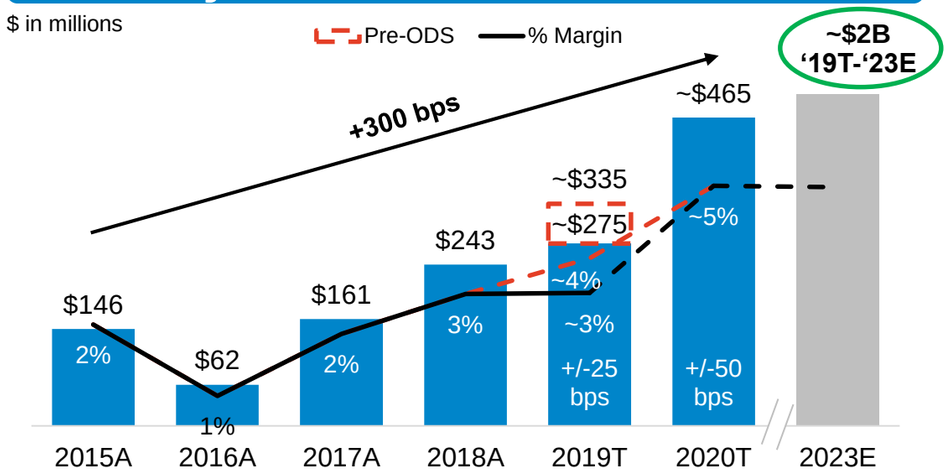
Sales



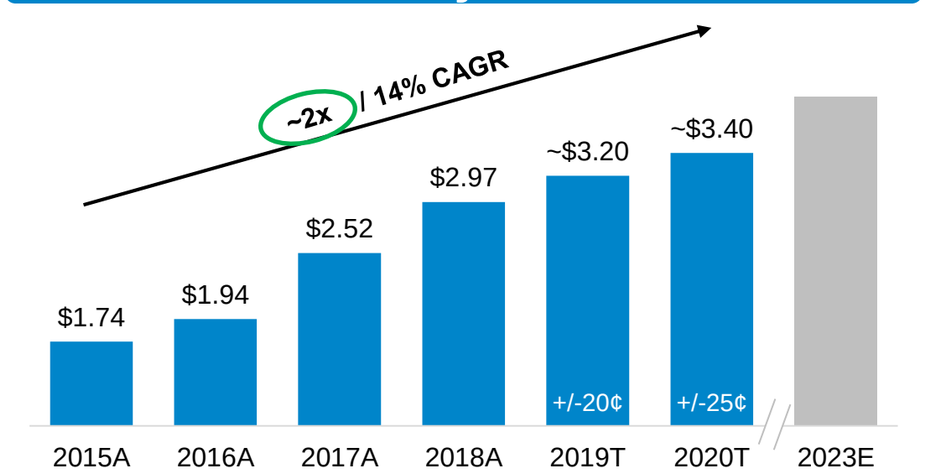
Adjusted EBITDA



Adjusted Free Cash Flow[1]



Diluted Adjusted EPS



Note:. A=Actual; T=Target; E=Estimate
1. 2019T adjusted FCF excludes pension termination impact

See appendix for comments regarding the presentation of non-GAAP measures

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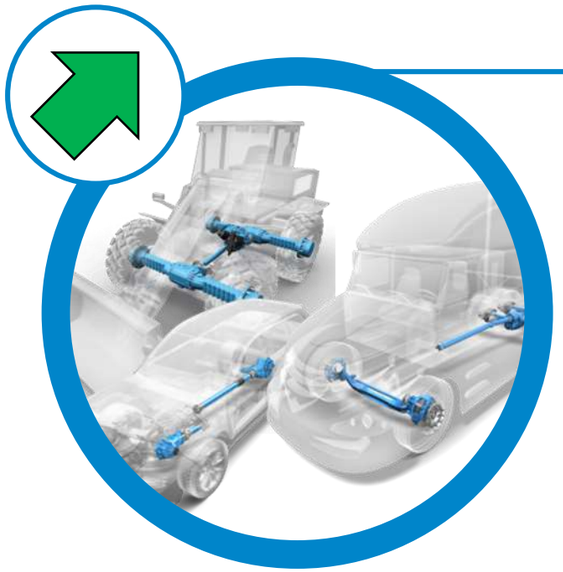
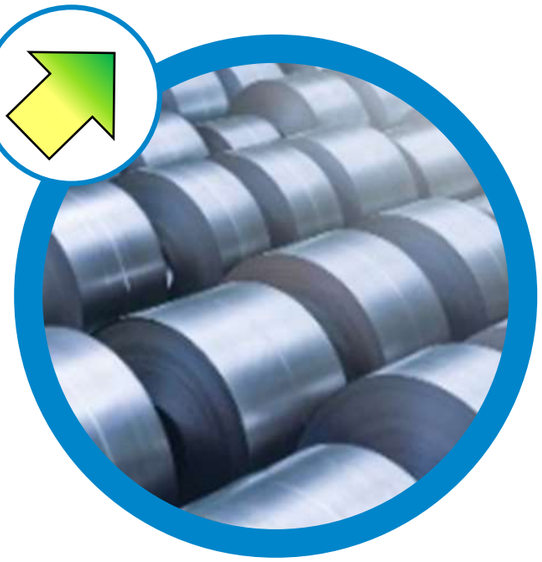
2020 Growth Drivers



Backlog Conversion

Market Demand

Cost Synergies



Commodity Costs

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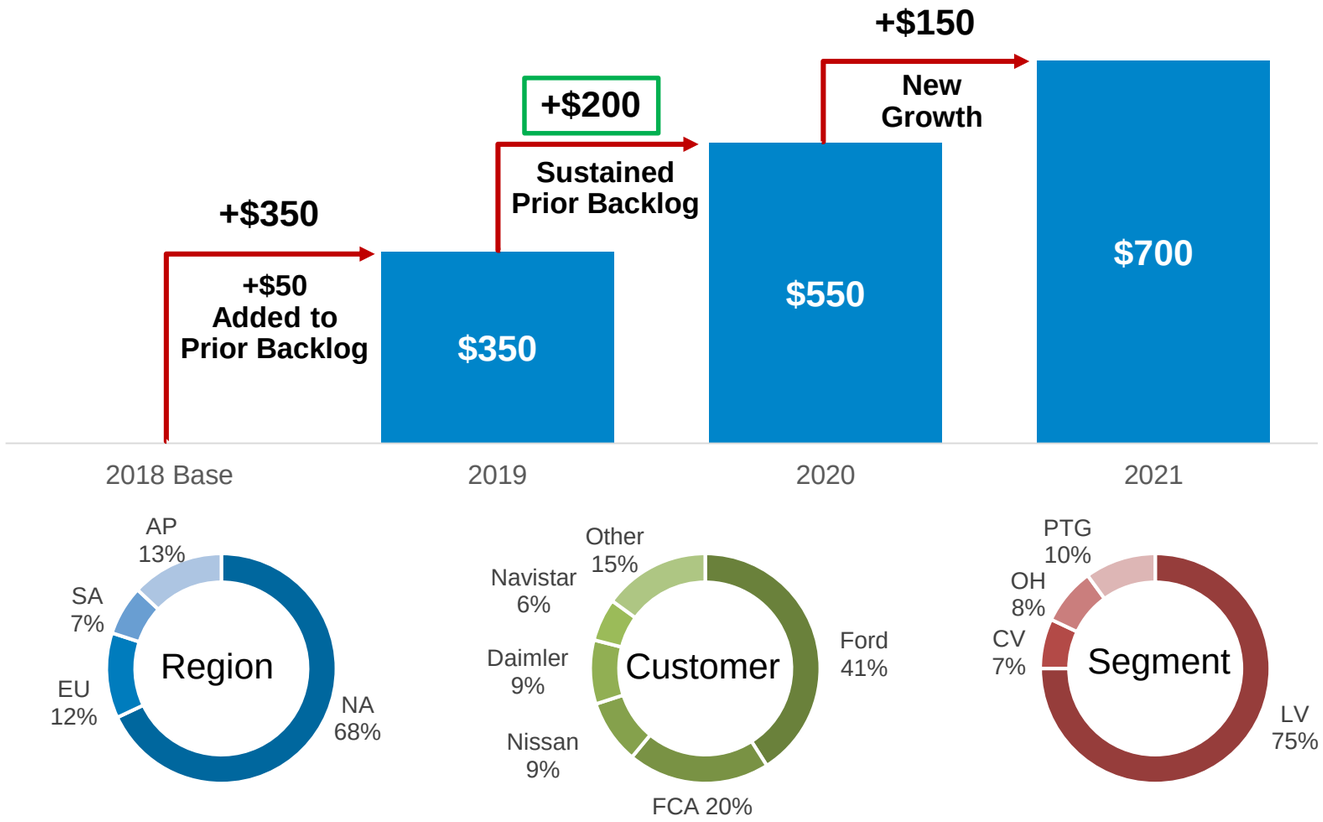
2019-2021 Sales Backlog: $700 Million

- Backlog includes booked incremental new business net of any lost replacement business
- Backlog is incremental to 2018 sales, holding both foreign currency exchange rates and vehicle production volumes constant
- Delivering positive backlog in all business units across all major customers and regions

$ in millions



Key Customers

Backlog positions us to outperform market through 2021

2020 Mobility Market Demand Outlook

Light Vehicle

Full Frame Truck

Commercial Vehicle

Medium Duty

Heavy Duty

Off-Highway

Agriculture

Construction

Mining

North America

Europe

Asia Pacific

South America

Overall Dana Impact

($200M)

YoY Δ Legend

>+3%

<+3%

Flat

>(3%)

<(3%)

Primary Third-Party Sources

IHS

ACT Research

LMC Automotive

Power Systems Research — Powerful Possibilities™

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Commodity Costs Outlook

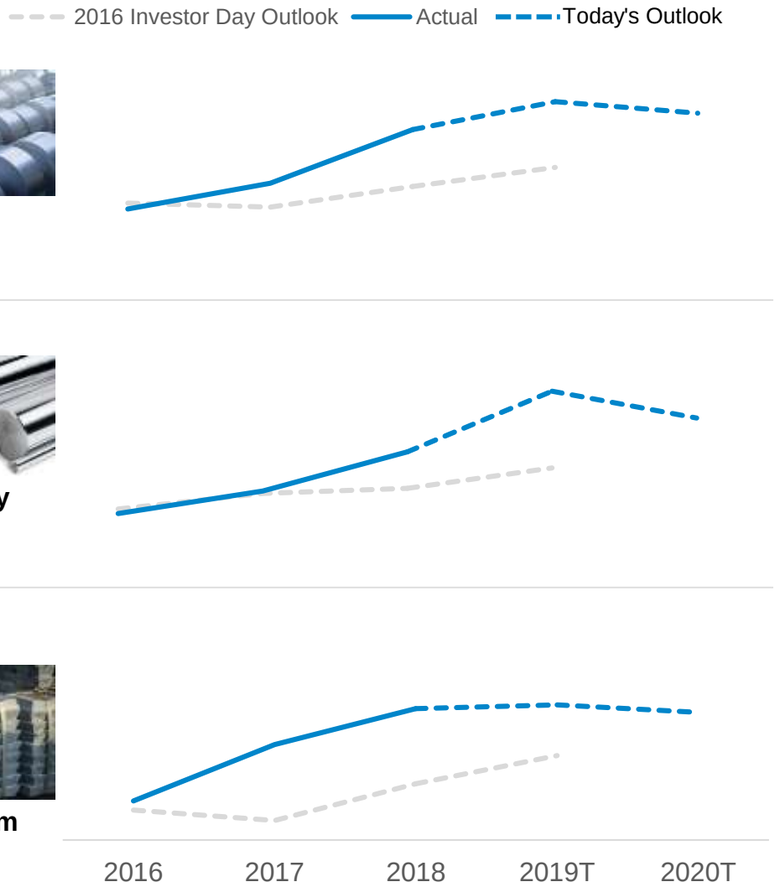
- Prices in all key commodities have increased faster than projected at previous Investor Day
- Driving $300M+ cost headwinds expected through 2019, with nearly $100M impacting profitability
- Forecasting modest cost reductions in 2020 – price give-backs provide ~25 bps of Adjusted EBITDA margin improvement

Market Prices

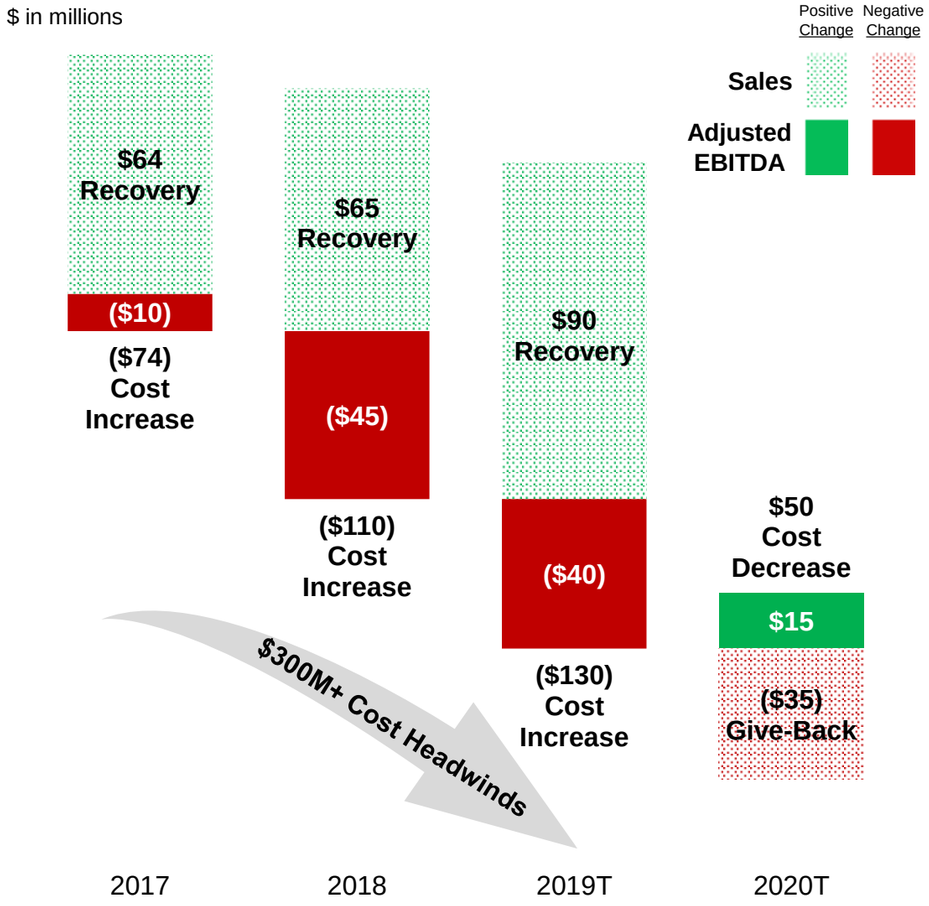
Steel

Specialty Steel

Aluminum



Commodity Cost Changes



Delivered 100 bps profit margin expansion in spite of commodity costs

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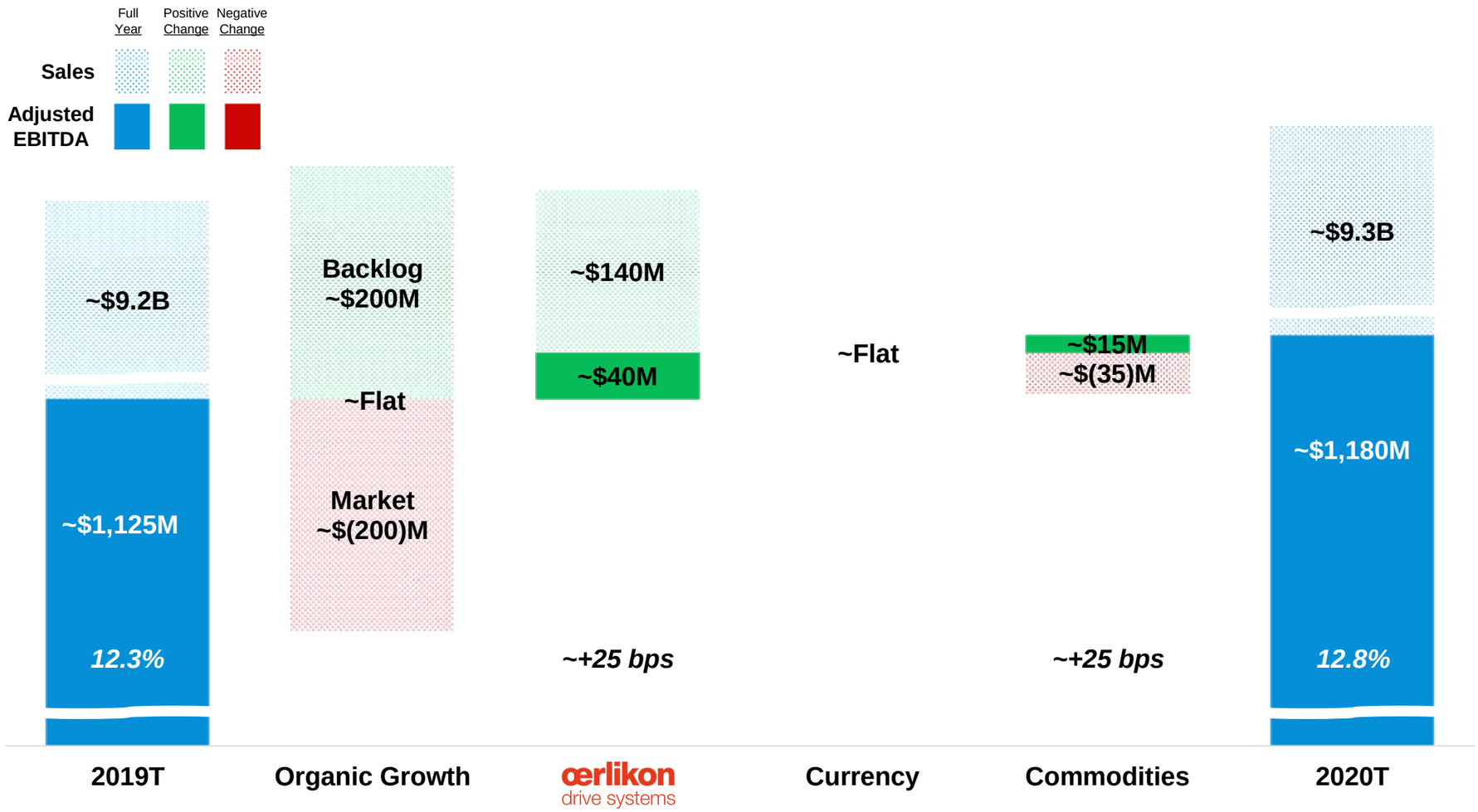
2020 Sales and Profit Changes

- Organic sales likely to remain flat as softening of market demand will be offset by conversion of sales backlog
- ODS is expected to accrete ~$140M of sales and ~$40M of profit, mainly due to a full year of results plus cost synergies, and will deliver half of the margin expansion required to achieve the long-term profit margin target
- Commodity costs need to only decline by $50M in order to provide the other half of the margin expansion



ODS cost synergies and commodity cost reduction = +50 bps

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2020 Adjusted FCF Growth Drivers

- Expecting 200 bps of adjusted FCF margin expansion at midpoint of range, from profit growth, reduction in one-time costs, and working capital investment versus 2019T
- 2020T includes full year of ODS versus 10 months in 2019, as well as realization of the majority of synergies actions
- ODS capex expected to normalize in 2020

Changes Versus 2019T

$ in millions

	2019T	2020T	2020T B / (W) than 2019T
Adjusted EBITDA	~$1,125	~$1,180	~$55
One-Time Costs	~(95)	~(40)	~55
Interest, net	~(105)	~(110)	~(5)
Taxes	~(185)	~(185)	~0
Working Capital / Other	~(50)	~0	~50
Capital Spending	~(415)	~(380)	~35
Adjusted Free Cash Flow	~$275	~$465	~$190
% Margin	*~3.0%*	***~5.0%***	*+200 bps*

Adj. FCF margin up significantly with normalized ODS & working capital

See appendix for comments regarding the presentation of non-GAAP measures

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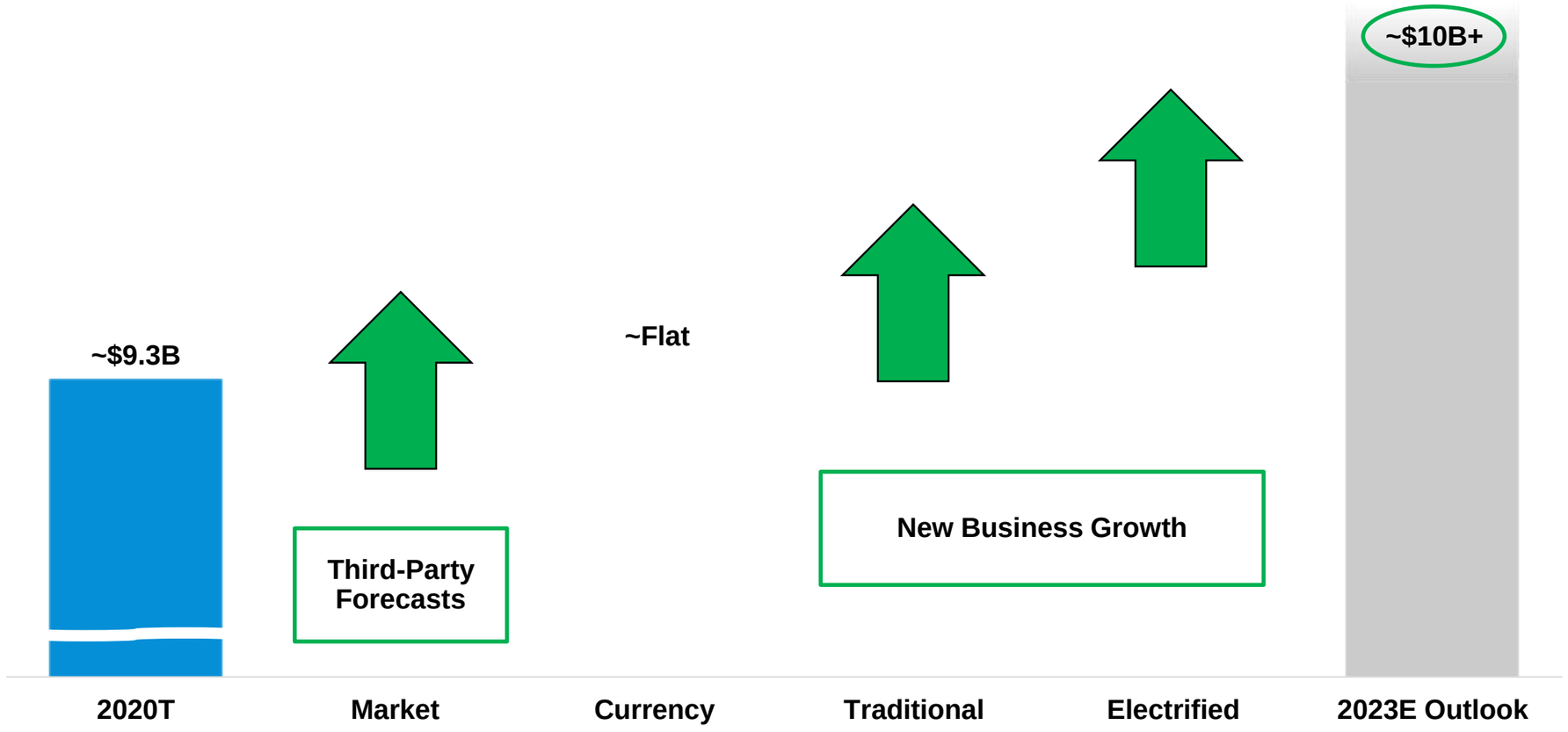
2023 Sales Potential

- Third-party sources forecasting overall growth in addressable markets
- Current secured backlog balance scheduled online in 2021 – assumes future 2022-2023 backlog will be in line with 2021
- Anticipating electrification sales growth to ~$500M by 2023 through legacy Dana, as well as acquired solutions: ODS, TM4, SME



Market and new business growth to propel sales to ~$10B+

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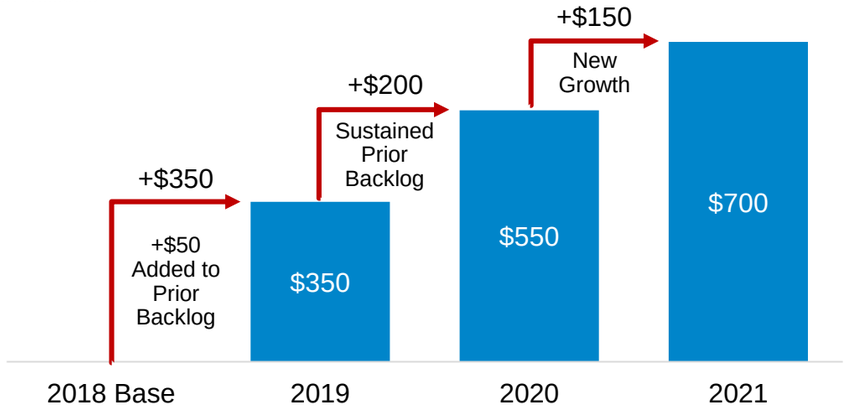
Managing Through the Cycle

- Proven and consistent track record of generating new backlog growth
- Strong backlog already established three years forward
- Diversification across end markets and regions lessens impact of softness in any one sector
- Embedded cost synergies and flexibility to abate capital spending provide additional cash flow management
- Long-term adj. free cash flow goal still largely achievable even if a downcycle is endured

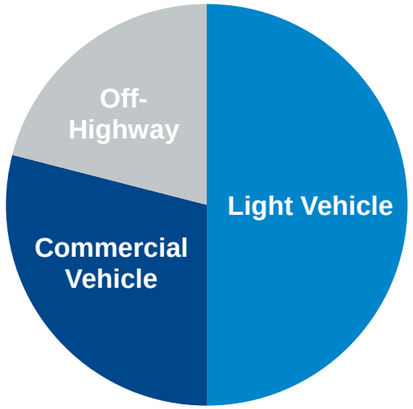
Cycle Mitigating Factors

Robust Backlog

$ in millions



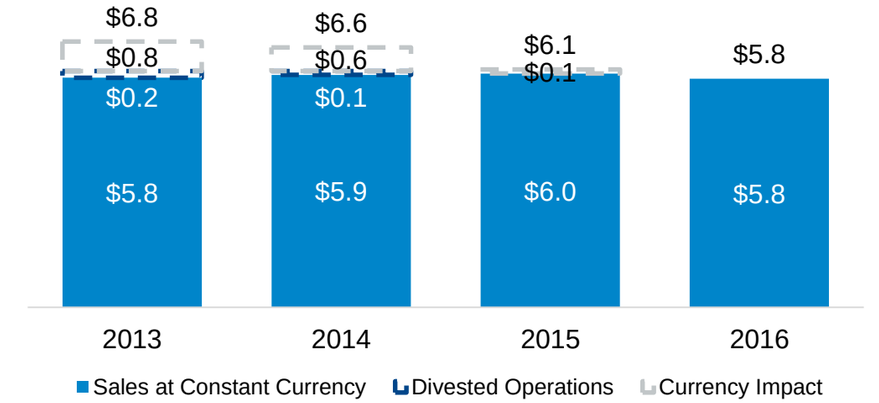
Well-Diversified Business Mix



Recent Case – 2013-2016

Sales

$ in billions



- Class 8 markets declined ~10% in 2015 and ~30% in 2016
- OH markets declined mid-single-digits through the cycle
- Significant growth in LV markets
- LV backlog growth offset majority of market impacts
- Power Technologies market volumes and backlog both achieved strong growth
- **Maintained overall organic sales** through cycle on constant currency basis

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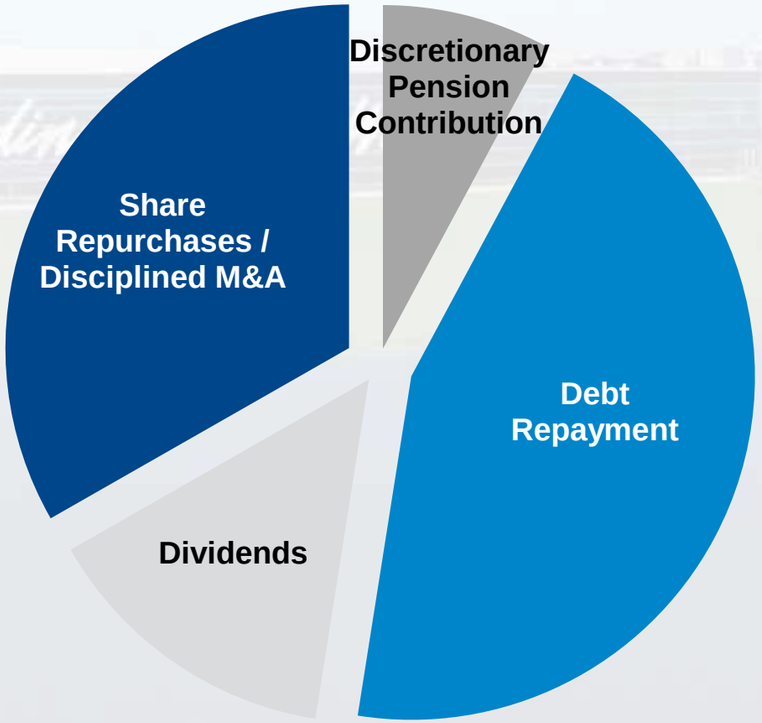
Capital Allocation

- Anticipating cumulative adj. FCF of ~$2B for 2019T-23E
- Includes capex at normalized levels of ~4% of sales, as largest programs have refreshed
- Pragmatically reducing debt and pension liabilities
- Shareholder return will be combination of dividend payments, and share repurchases or more attractive M&A opportunities
- Well-positioned to deliver long-term growth from recent EV acquisitions
- Attractive adj. FCF profile and consistent de-levering will generate investment grade credit metrics

5-Year Illustrative Capital Allocation

Cumulative Adj. FCF ~$2B



Further strengthening balance sheet and enhancing shareholder return

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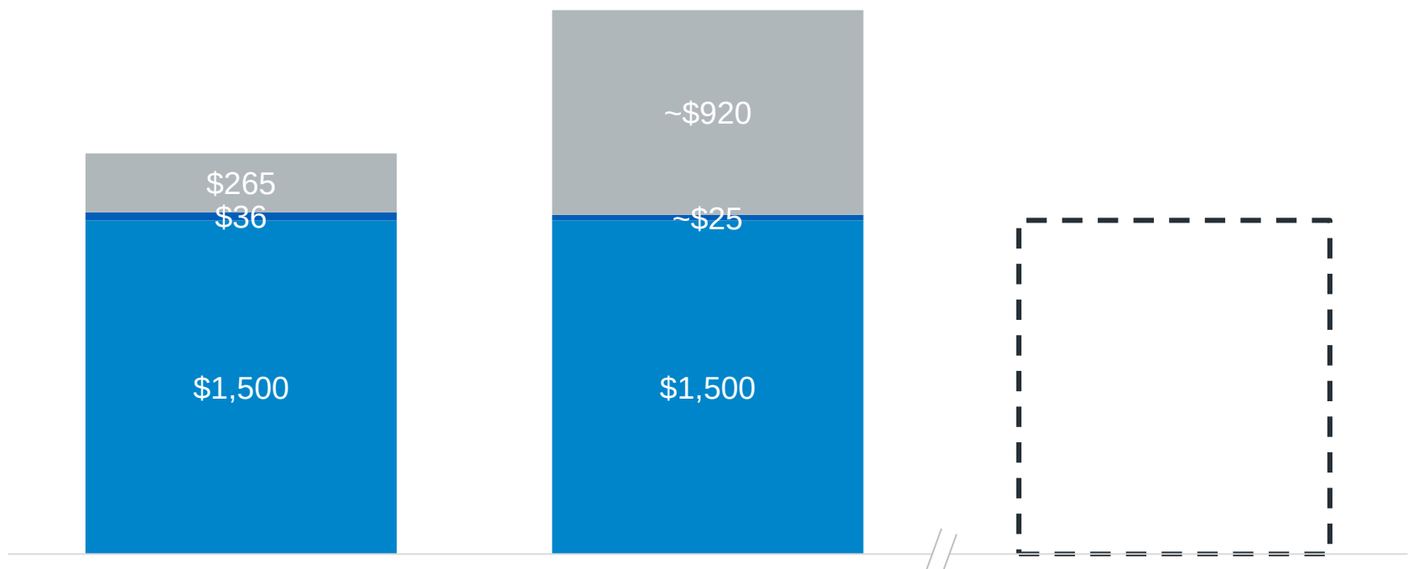
Capital Structure

- 2019T debt includes acquisition financing for ODS
- Planning to designate majority of 2019 free cash flow for discretionary pension termination
- Forecasting substantial paydown of term debt related to ODS in 2020
- Expect robust long-term free cash flow profile to allow for further paydown of debt

Debt Capital

$ in millions



	2018A	2019T	Long-Term
Liquidity ($B)	$1.1	~$1.3	$1.3+
Net Leverage	1.3x	~1.7x	~1x

Senior Notes Other Debt Term Loans

Projecting de-levering to achieve investment grade credit metrics

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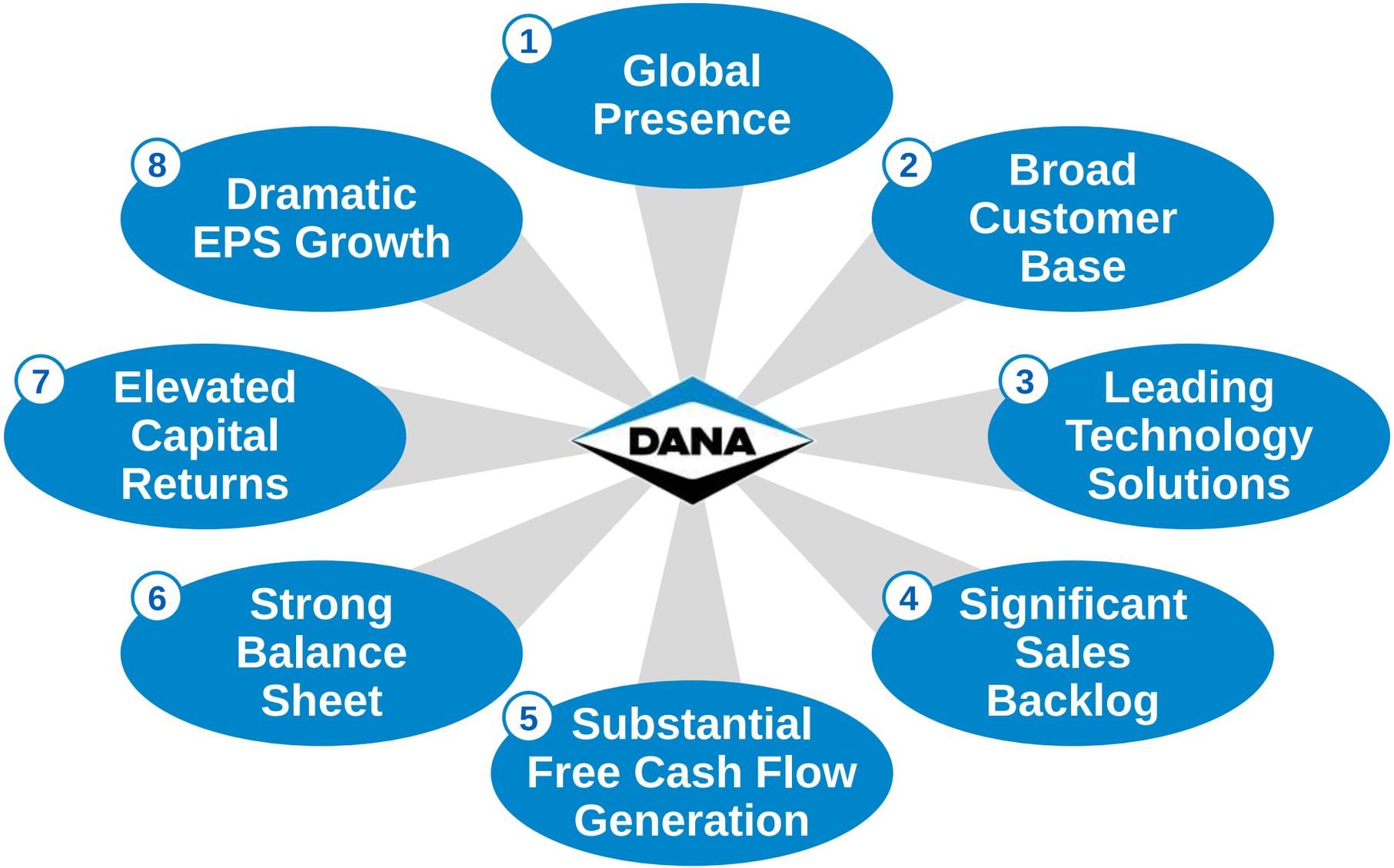
Investment Highlights



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Non-GAAP Financial Information

The preceding slides refer to adjusted EBITDA, a non-GAAP financial measure which we have defined as net income before interest, taxes, depreciation, amortization, equity grant expense, restructuring expense and, non-service cost components of pension and other postretirement benefits (OPEB) cost and other adjustments not related to our core operations (gain/loss on debt extinguishment, pension settlements, divestitures, impairment, etc.). adjusted EBITDA is a measure of our ability to maintain and continue to invest in our operations and provide shareholder returns. We use adjusted EBITDA in assessing the effectiveness of our business strategies, evaluating and pricing potential acquisitions and as a factor in making incentive compensation decisions. In addition to its use by management, we also believe adjusted EBITDA is a measure widely used by securities analysts, investors and others to evaluate financial performance of our company relative to other Tier 1 automotive suppliers. adjusted EBITDA should not be considered a substitute for income before income taxes, net income or other results reported in accordance with GAAP. Adjusted EBITDA may not be comparable to similarly titled measures reported by other companies.

Diluted adjusted EPS is a non-GAAP financial measure which we have defined as adjusted net income divided by adjusted diluted shares. We define adjusted net income as net income attributable to the parent company, excluding any nonrecurring income tax items, restructuring charges, amortization expense and other adjustments not related to our core operations (as used in adjusted EBITDA), net of any associated income tax effects. We define adjusted diluted shares as diluted shares as determined in accordance with GAAP based on adjusted net income. This measure is considered useful for purposes of providing investors, analysts and other interested parties with an indicator of ongoing financial performance that provides enhanced comparability to EPS reported by other companies. Diluted adjusted EPS is neither intended to represent nor be an alternative measure to diluted EPS reported under GAAP.

Adjusted free cash flow is a non-GAAP financial measure which we have defined as net cash provided by (used in) operating activities excluding voluntary pension contributions, less purchases of property, plant and equipment. We believe this measure is useful to investors in evaluating the operational cash flow of the company inclusive of the spending required to maintain the operations. Adjusted free cash flow is neither intended to represent nor be an alternative to the measure of net cash provided by (used in) operating activities reported under GAAP. Adjusted Free cash flow may not be comparable to similarly titled measures reported by other companies.

Please reference the “Non-GAAP Financial Information” accompanying our quarterly earnings conference call presentations on our website at www.dana.com/investors for reconciliations of adjusted EBITDA, diluted adjusted EPS and free cash flow to the most directly comparable financial measures calculated and presented in accordance with GAAP. We have not provided a reconciliation of our adjusted EBITDA and diluted adjusted EPS outlook to the most comparable GAAP measures of net income and diluted EPS. Providing net income and diluted EPS guidance is potentially misleading and not practical given the difficulty of projecting event driven transactional and other non-core operating items that are included in net income and diluted EPS, including restructuring actions, asset impairments and income tax valuation adjustments. The reconciliations of these non-GAAP measures with the most comparable GAAP measures for the historical periods presented on our website are indicative of the reconciliations that will be prepared upon completion of the periods covered by the non-GAAP guidance.

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