2017 Investor Day

New York City | December 12, 2017

Sensata Technologies



DRIVING GROWTH IN THE HEAVY VEHICLE & OFF ROAD, INDUSTRIAL AND AEROSPACE MARKETS

Jeffrey Cote
EVP Sensing Solutions and Chief Operating Officer

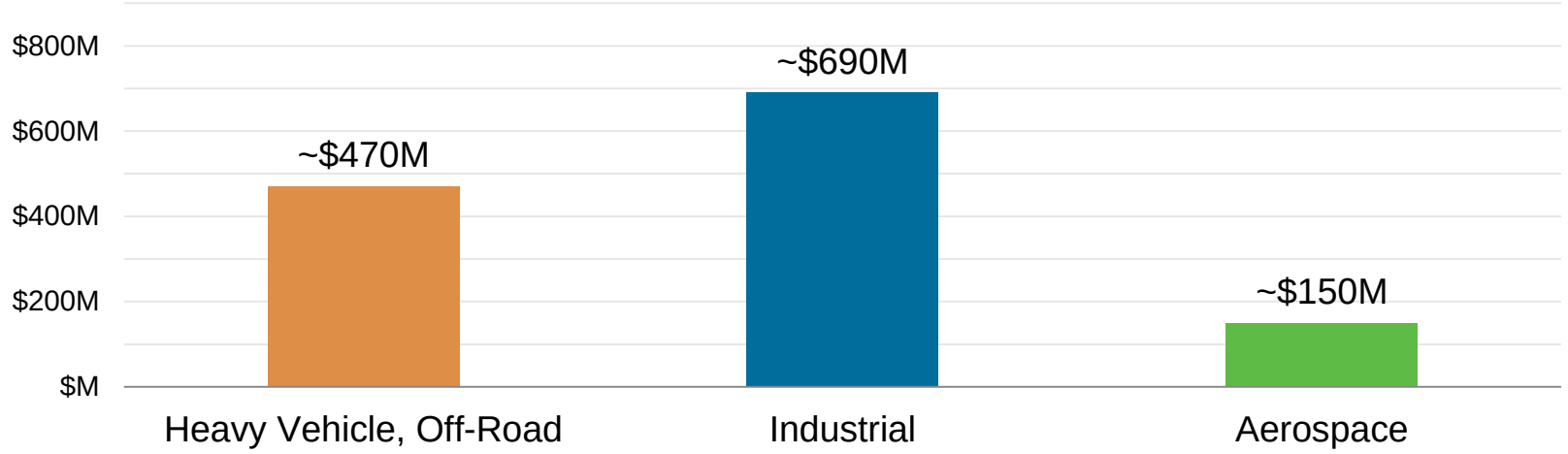
Business overview

- ✓ We have increased our exposure to attractive industrial and heavy vehicle, off-road markets to strengthen Sensata's overall business model
- ✓ We focus on mission-critical, hard-to-do applications where we can gain leadership positions
- ✓ We are leveraging our scale with existing and acquired capabilities to expand our business and drive higher organic growth



We serve a large and growing market with a diversified portfolio

2017E Revenue ($M)

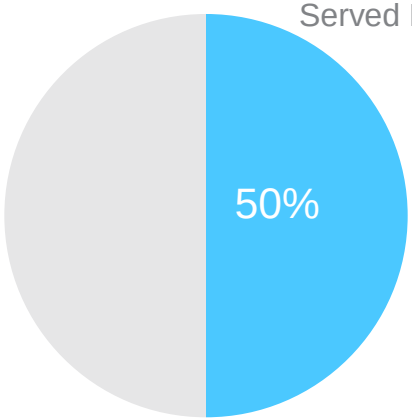


Key Market Segments	• On-Road • Construction • Agriculture	• Building solutions • Appliance & Industrial Lighting • Transportation • Diversified Industrial	• Commercial • Military • Aftermarket
Organic Growth Rate (2017 YTD)	11%	5%	
2018E-2020E Organic Growth CAGR	High-single digit to low-double digit	Low-to-mid single digit	

We have a significant opportunity to expand in these markets

HEAVY VEHICLE, OFF-ROAD

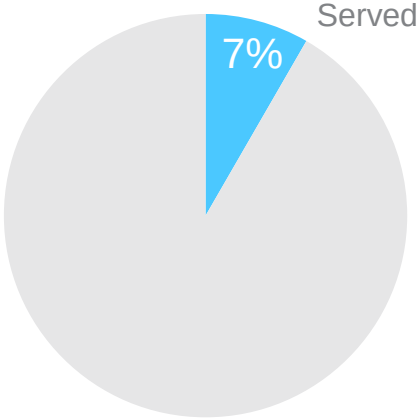
~$2B
Served Market



~$4 Billion
Total Available Market*

INDUSTRIAL

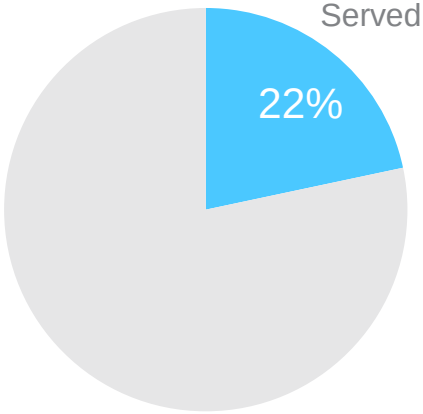
~$5B
Served Market



~$70 Billion
Total Available Market*

AEROSPACE

~$1.3B
Served Market



~$6 Billion
Total Available Market*

*SOURCE: Sensata

We are leveraging our products and capabilities across multiple business units to serve our diverse customer base

SENSING PARAMETER	HEAVY VEHICLE, OFF-ROAD	INDUSTRIAL	AEROSPACE
Pressure	✓	✓	✓
Temperature	✓	✓	✓
Position	✓	✓	✓
Wireless	✓		
Electrical Protection	✓	✓	✓
Top 10 Customers as % of Revenue TOP 10 OTHER			

- Significant range of selling prices across a portfolio of components and subsystems, ranging up to $10,000+ per unit
- Sensing parameters are built on dozens of technologies and hundreds of applications

We have a broad solution set in applications for…
Construction and Agricultural Equipment

Engine
- Air Intake and Filter
- Boost, Compressor and Turbine
- Low Pressure Fuel Filter & Pump
- High Pressure Fuel Rail
- Cam and Crank
- Crankcase Ventilation
- Oil & Coolant Systems
- Combustion Control
- EGR Control
- Alternate Fuels

Exhaust
- Combustion & Emission
- Exhaust Manifold
- Diesel Oxidation Catalyst
- Diesel Particulate Filter
- Selective Catalytic Reduction

Chassis & Safety
- Tire Monitoring Systems
- Brake & Suspension Systems
- Electronic Stability Control
- Wheel Speed / ABS Speed

Cabin Comfort
- Air Conditioning
- Cabin Air Filter

Transmission
- Pressure
- Speed
- Shift Position
- Retarder
- Electronic Transmission Control
- Pneumatic Transmission Support Systems

Auxiliary Systems
- Pneumatic Systems
- Hydraulic Systems
- Filter Monitoring
- Rotary Position
- Position and Speed Control

Machine Control
- Steer-by-Wire
- Primary Implement Controls (Electro-Hydraulic Joystick)
- Secondary Controls (HMI, Lighting, Optional Functions)
- Electronic Throttle Controls



50+

DEVICES PER MACHINE

We have a broad solution set in applications for…
Heavy and Medium-Duty Trucks

Engine
- Air Intake and Filter
- Boost, Compressor and Turbine
- Low Pressure Fuel Filter & Pump
- High Pressure Fuel Rail
- Cam and Crank
- Crankcase Ventilation
- Oil & Coolant Systems
- Combustion Control
- EGR Control
- Alternate Fuels

Exhaust
- Combustion & Emission
- Exhaust Manifold
- Diesel Oxidation Catalyst
- Diesel Particulate Filter
- Selective Catalytic Reduction

Chassis & Safety
- ADAS
- Tire Monitoring Systems
- Brake & Suspension Systems
- Electronic Stability Control
- Wheel Speed / ABS Speed

Cabin Comfort
- Air Conditioning
- Cabin Air Filter

Transmission
- Pressure
- Speed
- Shift Position
- Retarder
- Electronic Transmission Control
- Pneumatic Transmission Support Systems

Auxiliary Systems
- Pneumatic Systems
- Hydraulic Systems
- Filter Monitoring



We have a broad solution set in applications for…
Material Handling

Machine Control
- Primary Controls (Joysticks, Grips, Displays)
- Buzzer & Fan Control
- Steering Position
- Pedal Position

Hydraulic Systems
- Brake & Suspension Systems
- Hydraulic Systems
- Transmission Systems

Internal Combustion & Electric Engines
- LPG/CNG Fuel Systems
- Oil Systems
- Filter Systems
- Combustion Control
- EGR Control
- Alternate Fuels

Stability Control
- Tilt Control
- Load/Weight Controls
- Tire Monitoring Systems
- Tire Angle Position
- Steer Axle Position
- Reach and Tilt Position
- Mast Angle Position
- Mast Height
- Vehicle Speed Sensor



Our overall growth will come from five key drivers

Next 3 Years

Long-Term



CLEAN & EFFICIENT

Secular need for cleaner, more efficient products



CHINA

Sustained modernization of infrastructure



ELECTRIFICATION

Tightening efficiency mandates make electrified products necessary to meet standards



AUTONOMY

Enabling autonomy and operational efficiencies



SMART & CONNECTED

Connected equipment with actionable insights

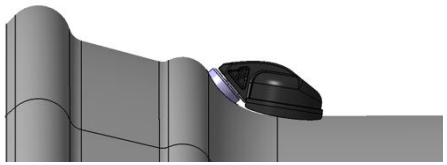


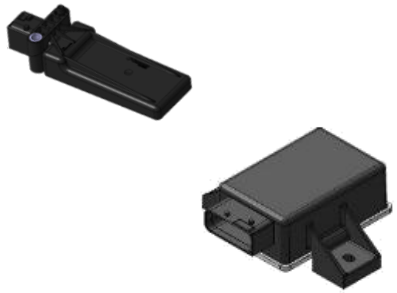
CLEAN & EFFICIENT

Tire pressure monitoring systems for on-road market is a $80M+ SAM opportunity

DRIVER

- Commercial fleets are prioritizing TPMS to drive fuel efficiency and safety as well as to get ahead of potential legislation
- We are leveraging scale and building blocks from the Schrader acquisition





Differentiated features include:

- Auto-location configuration
- Tire lock detection
- Tire fill assist
- Tire burst warning

*SOURCE: Sensata analysis

OPPORTUNITY

- Industry leaders & premium brands are choosing our solution to drive higher fuel efficiency and safety



Image source: Mercedes-Benz

European regulations are accelerating use of sensors in order to improve efficiency & meet climate targets - $40M+ SAM opportunity

Boiler & Pump sensor adoption*	25%	28%	32%	36%	41%	50%
	2017	2018	2019	2020	2021	2022

DRIVER

EU 20-20-20

European Commission Directive goal of **achieving targets** for greenhouse gas, renewable energy, and energy efficiency.

Electromechanical pressure switches are being **replaced by sensors** for higher efficiency.

Electromechanical Pressure Switches → **Pressure Sensors**

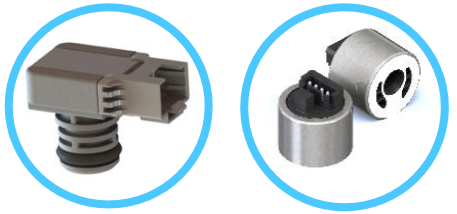
*SOURCE: Sensata analysis

OPPORTUNITY

Key customers:

GRUNDFOS emas

Sensata's **differentiated solution**:



Differentiated features include:
- Small form factor
- Configurability
- Accuracy

We have developed a strong position in the Material Handling market & are driving higher accuracy & efficiency – $225M+ SAM opportunity

	EXISTING	ACQUISITIONS in 2014 and 2015		NEW MARKET OPPORTUNITY
	Sensata Technologies	DeltaTech CONTROLS	CST	
Capability	• Pressure • Temperature • Speed	• Joysticks • Grips • Controls	• Rotary Position • Linear Position	
Applications	22	12	20	**54** applications
Key Customers	3	11	5	**19** key customers





Aerial Work Platforms



Lift Trucks

TOYOTA · Haulotte GROUP · JLG · HYSTER-YALE MATERIALS HANDLING · Manitowoc · CROWN · JLG Dingli

*SOURCE: Sensata analysis; Material Handling includes aerial work platforms and lift trucks

We have transformed our business to become a more strategic supplier to the Aerospace market

ACQUISITION CONTENT

Circuit Breakers



Position Sensing



MARKET POSITION

■ SENSATA ■ #2 COMPANY ■ ALL OTHERS



46% share and known for Operating Excellence

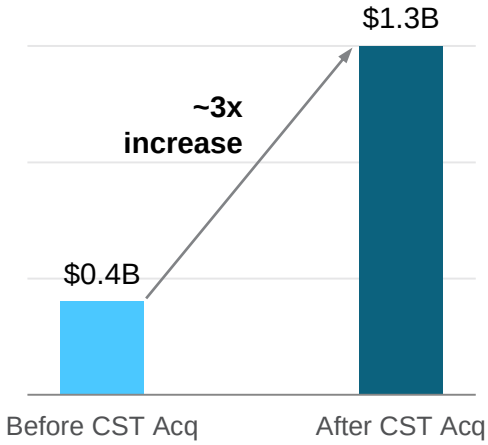


41% share and known for Engineering Expertise



RESULTING OPPORTUNITY

Market SAM* ($B)



- A trusted supplier with global customers and a broad portfolio of solutions and capabilities
- Capability to serve large customers' sensing needs

*SOURCE: Sensata analysis

Leveraging Sensata's global scale and capabilities opens new market potential for Aerospace

	PRESSURE SENSING	TEMPERATURE SENSING
Enabling Capabilities	• Automotive, HVOR and Industrial Pressure Sensing	• Automotive, HVOR and Industrial Temperature Sensing
Market SAM	~$500M	~$250M
Adapted for Aerospace	• Cabin and flight controls • Higher temperature engine applications	• Cabin and flight controls • High temperature braking and engine applications
Stage / Pipeline	• Heavily engaged with Tier 1 customers = healthy pipeline • Early development of higher temp capability	





CHINA

SAM opportunity of $140M+ in China as commercial truck OEMs prepare for the next phase of emissions regulations



DRIVER

National 6 Reg.

National 6 requires the addition of exhaust and after-treatment technology for diesel engine, heavy-duty trucks.

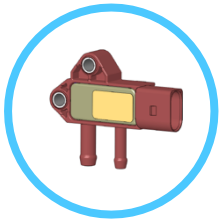
- **Exhaust gas recirculation** (EGR)
- **Diesel particulate filter** (DPF)
- **Diesel oxidation catalyst** (DOC)

OPPORTUNITY

Products serving opportunity:



High temperature sensor (HTS)



Differential pressure sensor (DPS)

*SOURCE: Sensata

Need for higher efficiency and cleaner environment in China is driving transition from heating with coal to electricity – $10M+ SAM

High Efficient Heat Pump Shipments Estimate	2017	2018	2019	2020	2021	2022
	8,000	12,000	180,000	240,000	320,000	400,000

DRIVER

Coal to Electricity

China's goal is to reduce the particulate matter levels by 15 percent in the Beijing-Tianjin-Hebei region by 2022.

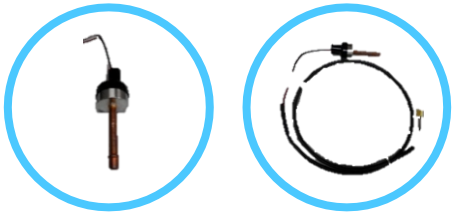
Heat pumps are replacing coal heating due to higher efficiency, low environmental impact, and low initial investment.

OPPORTUNITY

Key customers:

Midea GREE

Sensata's **differentiated pressure sensor solutions** proven in the US & Europe:



*SOURCE: Sensata analysis



ELECTRIFICATION

Our electrical protection business is capitalizing on a wave of new product opportunities

Protection capabilities span multiple areas influenced by electrification:

OUTDOOR POWER PROTECTION



Gas Powered Equipment → **Electric/Battery Tools**

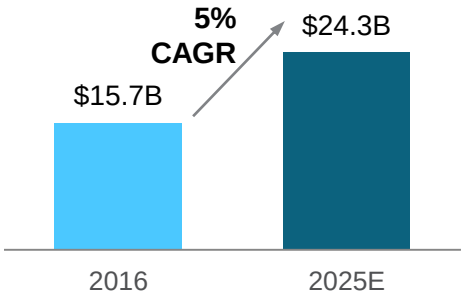
- Global market forecasted to **grow ~4% annually***

RECENT RECALL	HAZARD RISK
28,000 **Cordless Electric Lawn Mowers**	**Fire Hazard** The mower's circuit board can short circuit and catch fire.
864,000 **Electric Blowers**	**Fire & Burn Hazards** The blower vacuum can overheat, spark and catch fire.

E-BIKES



- Global sales* expected to be the **highest selling EV** in the world (in units)



- Electrical protection present within the motors, batteries and charging systems



*Source: Global Industry Analysts, Inc.; Navigant Research



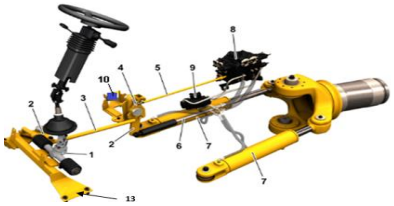
AUTONOMY

Steer-by-Wire represents a $100M+ market opportunity as Construction & Agriculture equipment advances toward worksite automation

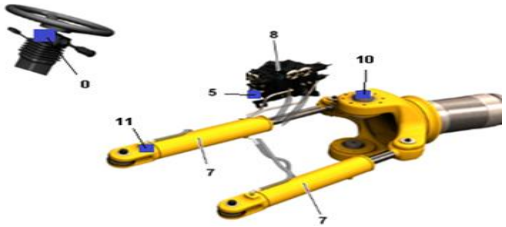
DRIVER

The journey towards autonomy requires converting from mechanical hydraulic to electro-hydraulic steering.

Conventional Steering System



Steer-by-Wire System





*SOURCE: Volvo construction equipment website

OPPORTUNITY



- Sensata has advanced haptics / force feedback capabilities to create a “premium feel” for the remote operator
- Prototypes are available and being tested with OEM customers on a simulator



SMART & CONNECTED

We are developing smart, connected sensors to enable actionable insights for commercial vehicle operators

DRIVER



OPPORTUNITY



- Enables access to new data sources that are costly and difficult to reach with traditional wire harnesses
- Provides secure and wireless sensing platform
- Builds on recent TPMS success

Sensata is developing technology to enable next generation innovation

AEROSPACE

Rugged, Extreme Environment Engine Sensing

The next generation of turbofan engines for large commercial jets will be cleaner, more electrical, and operate at higher temperatures than anything flying today



HVOR

Presence Detection for Handgrips

The next generation operator controls in construction and agriculture equipment will include new features for operator touch sensing:

- improved safety and productivity by detecting intent for use
- improved touch on machine displays across conditions and surfaces



Key messages

- ✓ We are capitalizing on expanded market opportunities, leveraging core capabilities and those gained from acquisitions, and targeting key disruptive applications
- ✓ We are deploying resources against the industry megatrends of autonomy, electrification and smart, connected sensors
- ✓ We are continuing to track regulation across business units and are mobilizing resources as market opportunities become available





APPENDIX

We have a broad solution set in applications for…
Buildings and Households

Building Equipment
- HVAC
- Heat Pumps
- Water Pumps
- Security/Access Control
- Lighting Systems
- Radiant Underfloor Heating
- Recessed Lighting
- Spa System
- Treadmill
- Vacuum, Iron, Small Appliances
- Garage Door Opener
- Sump Pump
- Elevators, Escalators & Lifts

Appliances
- Kitchen Appliances (Refrigerator, Microwave, Stove)
- Washer / Dryer
- Air Conditioning
- Fans
- Garbage Disposal
- Dehumidifier / Humidifier

Outdoor
- Lighting
- Compressor
- Generator
- Pool System
- Workshop Power Tools / Batteries



We have a broad solution set in applications for…
Aerospace and Defense

Flight Controls
- Yaw Damper
- Rudder
- Elevators
- Leading Edge
- Spoiler
- Flaperon
- Aileron
- Air Data Sensors

Engine Systems
- Thrust Reverser
- Stator Vane
- Fuel Controls
- Engine Controls
- Engine Start Valves
- CS/VS Generators
- Fuel Inerting System
- Aux. Power Unit Controls
- Aux. Power Unit Start Valve

Other Hydraulic Systems
- Hydraulic Accumulators
- Cargo Systems
- Emergency Power Turbine

Waste and Water Systems
- Drain Masts
- Lavatory Sensor

Electrical Protection
- Circuit Protection
- Power Distribution Unit
- Secondary Power Dist. Unit
- Galley Equipment

Environmental Controls
- Cabin Controls
- Bleed Air
- Duct Pressure
- Air Cycle Machine
- Pre-Coolers
- Anti-Ice Control
- Ice Detection

Cockpit Controls
- Autopilot
- Smoke Detection
- Fire Suppression
- Window Heat Control
- Wiper Blade Position

Landing Gear, Wheels and Brakes
- Brake by Wire
- Landing Gear Feedback
- Pressure/Temp
- Landing Gear
- Doors & Hatches
- Nose-Wheel Steering

