

MSA Investor Day

November 11, 2019



Safety Message



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Introduction of Today's Presenters



Nish Vartanian,
President and CEO



Ken Krause, SVP, CFO
and Treasurer



Steve Blanco, VP
and President, MSA
Americas



Bob Leenen, VP and
President, MSA
International



Greg Martin, VP
Product Strategy
and Development



Aaron Tufts,
Business Leader
FGFD



Gustavo Lopez,
General Manager
Portable Gas
Detection, Safety
io, Sierra Monitor
Integration Leader



Jason Traynor,
General Manager,
Global Respiratory
Protection and
Fire Helmets



Jennifer McGurrin,
General Manager,
Global Fall and
Industrial Head
Protection



Chris Hepler,
Executive Director
Corporate
Development



Elyse Lorenzato,
Director
Investor Relations

Experienced leadership team with deep industry knowledge

Today's Agenda

Welcome and Introduction	Elyse Lorenzato, Director Investor Relations
MSA Overview	Nish Vartanian, President and CEO
Strategy and Growth Programs	Ken Krause, SVP, CFO and Treasurer
Segment Review	
MSA Americas	Steve Blanco, VP and President, MSA Americas
MSA International	Bob Leenen, VP and President, MSA International
Break & Product Innovation Showcase	
Growth Platforms	
Product Innovation: Platforms for Organic Growth	Greg Martin, VP Product Strategy and Development
Customer Driven Innovation: Case Study	Aaron Tufts, Business Leader, Fixed Gas & Flame Detection (FGFD)
PPE Solutions	Jennifer McGurrin, General Manager, Global Fall and Industrial Head Protection
Connectivity Platforms	Gustavo Lopez, General Manager, Portable Gas Detection, Safety io, SMC Integration Leader Jason Traynor, General Manager, Respiratory Protection and Fire Helmets
Strategic Acquisitions	Ken Krause, SVP, CFO and Treasurer Chris Hepler, Executive Director Corporate Development
Financial Review	Ken Krause, SVP, CFO and Treasurer
Concluding Remarks	Nish Vartanian, President and CEO

Q&A Session

Q&A Session



Download MSA's
Investor Day App
for speaker bios,
presentation
materials, and
more!

"MSA Safety Events"
Available for Apple and
Android devices through
iTunes and Google Play

Welcome to MSA Investor Day

Safe Harbor



Except for historical information, certain matters discussed in this document may be **forward-looking statements** within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements include, without limitation, all projections and anticipated levels of future performance. These forward looking statements involve risks, uncertainties and other factors that may cause our actual results to differ materially from those discussed herein. Actual results can be affected by any number of factors, many of which are outside of management's control. The factors that could cause such differences include but are not limited to economic conditions, spending patterns of government agencies, competitive pressures, product liability claims, the success of new product introductions, currency exchange rate fluctuations, the impact of acquisitions and related integration activities and the risks of doing business in foreign countries. These risks, uncertainties and other factors are detailed in our filings with the United States Securities and Exchange Commission ("SEC") including our most recent Form 10-K. MSA undertakes no duty to publicly update any forward looking statements contained herein, except as required by law.

This document includes certain **non-GAAP financial measures**. The presentation of these financial measures does not comply with U.S. generally accepted accounting principles ("GAAP"). For an explanation of these measures, together with a reconciliation to the most directly comparable GAAP financial measure, see the appendix.

MSA Overview

Nish Vartanian
President and CEO

Section Highlights

Mission and Values

Business Overview

Our ESG Strategy

Disciplined Financial Execution



At MSA Safety, We Know What's At Stake



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Our Mission

That men and women may work in safety and that they, their families, and their communities may live in health throughout the world.

Advancing worker safety and delivering productivity solutions to our global customer base

At MSA Safety, We Know What's At Stake

Our Vision



Pittsburgh Post Gazette Award



6x Winner of
Top
Workplace in
Western
Pennsylvania

Pittsburgh Post Gazette Award



Winner of “Values” award:
MSA is the #1 workplace in the
region whose employees feel
most firmly that the company
operates by strong values

NED New Equipment Digest.

Welcome to the Future of Gas Detection.



2018 NED Innovation Award



2018 Board Diversity
Ambassador Award

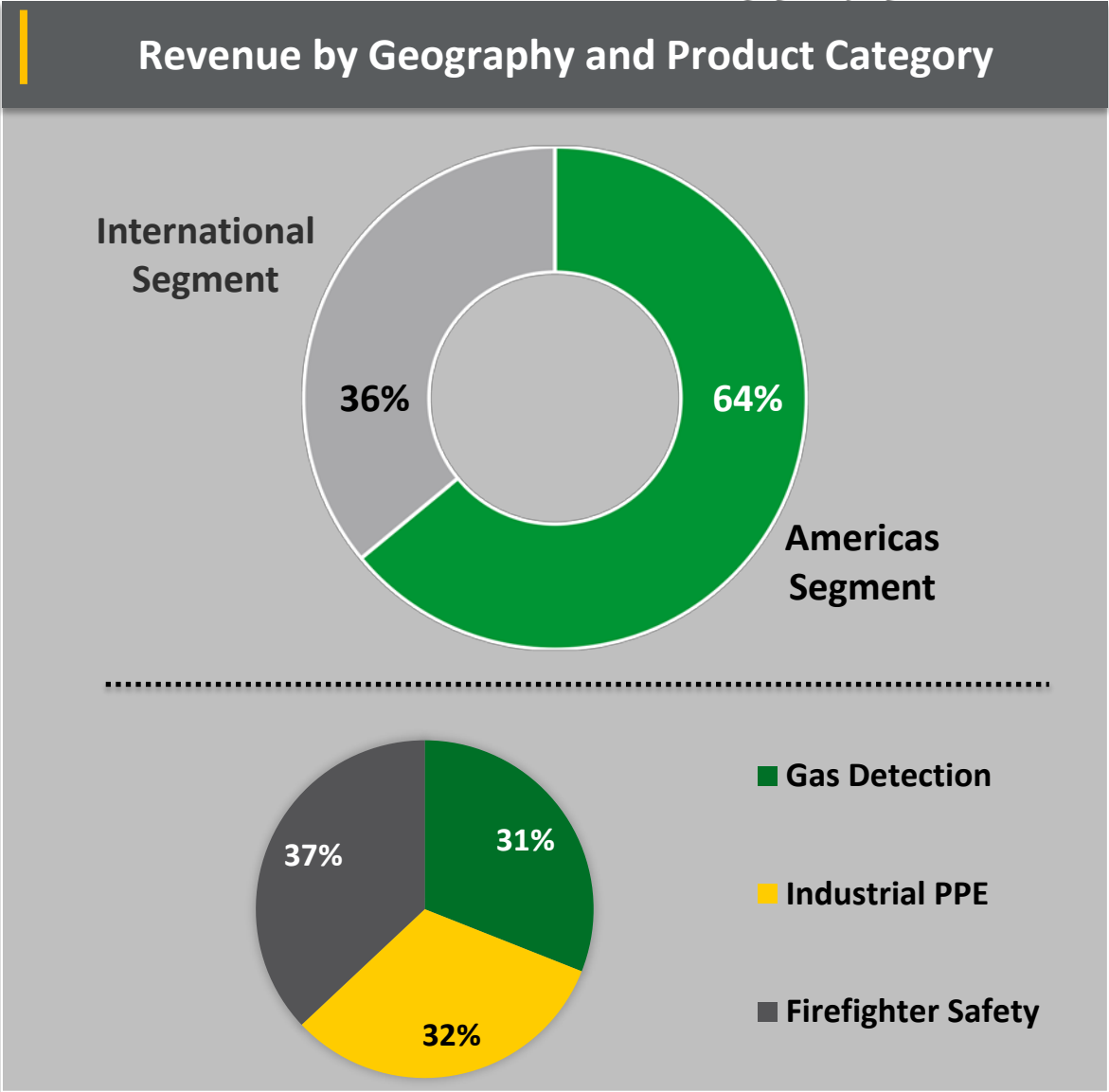
Our core values and culture of safety shape our high-performance culture

MSA Safety Overview (NYSE: MSA)



Revenue	\$1.4B	Employees	5,000
Sales Vitality	>35%	Market Cap	~\$4.9B

Superior Shareholder Returns
1/1/2017 – 11/6/2019



MSA Safety is a leading global safety equipment provider with a proven track record of value creation

Leading Positions in Attractive Markets

Market
position

Firefighter
Safety

1



Self-Contained
Breathing Apparatus
(SCBA)

1



Firefighter Helmets and
Protective Apparel

Gas
Detection

1



Fixed Gas and
Flame Detection Systems
(FGFD)

2



Portable Gas
Detection

Personal
Protective
Equipment

1



Industrial
Head Protection

3



Fall Protection

Product Characteristics



- Mission critical applications, not discretionary
- Highly engineered – high barriers to entry
- Compete on technology features, comfort, delivery, brand equity and total cost of ownership

MSA Business Model



- Market leadership – premium price and brand positioning enabled by engineering excellence
- Asset-light and strong cash flow
- Defensible technology with significant IP

Our Markets



- Highly diversified end market exposure
- Secular safety trends support growth in excess of GDP
- Niche markets – room to grow within current markets and expand addressable market through innovation and strategic acquisitions

Leading market positions across a diversified product portfolio centered around one mission: Safety

Leading Positions in Attractive Markets

~4%

Average R&D % of Sales
Q3 2019 YTD

~35%

Sales Vitality Index
Q3 2019 YTD

~46%

Gross Profit
Q3 2019 YTD



Continuous Pipeline of Industry Leading Innovations



**MSA Connected Firefighter:
Powered by LUNAR**
Fighting a fire will never be the same



MSA M1 SCBA
Modular platform targeting the International market



ALTAIR io360
The future of area monitoring and effortlessly connected worksites



Ultima X/S 5000 Gas Monitors
FGFD platform that leverages XCell sensors to drive lower cost of ownership for customers



V-Series Fall Protection
New harnesses and mechanicals



V-Gard H1 Safety Helmet
Next generation of head protection

Consistently at the forefront of safety innovation – R&D investments support mid-single digit revenue growth profile and enhance strong competitive position in niche safety industries

MSA Plays in Attractive and Diverse End Markets



Firefighter Safety
*SCBA, Fire Helmets and
Protective Apparel,
Search and Rescue
Devices*



Gas Detection
*FGFD and Portable
Industrial IoT Solutions*



Industrial Core PPE
Head and Fall Protection

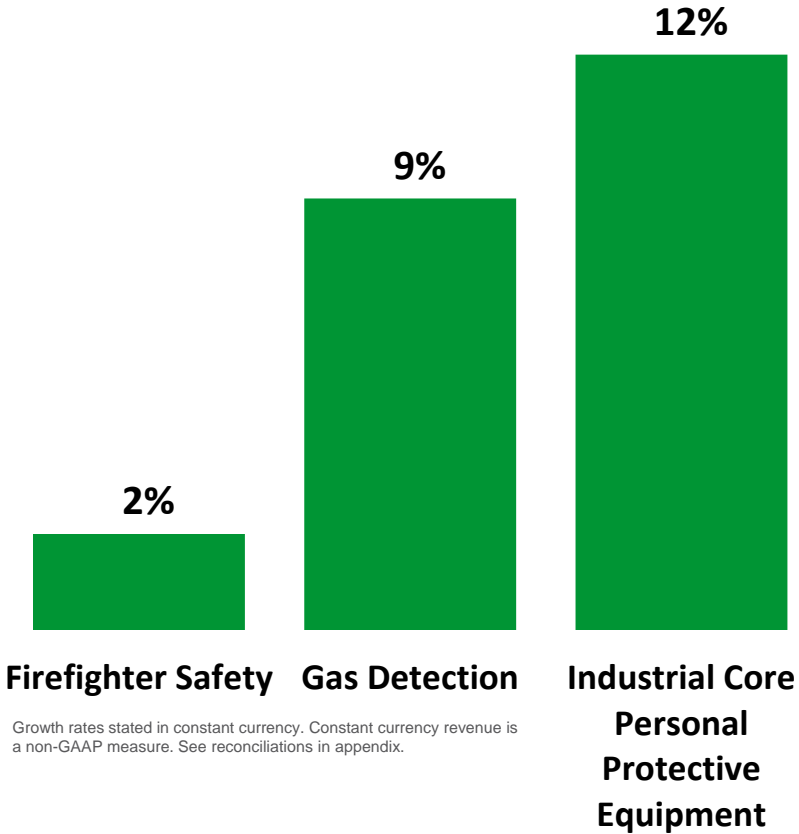


LT = Long Term
LSD = Low-Single Digit
MSD = Mid-Single Digit

MSA Growth Drivers

- Superior innovation and NPD support share capture and strong gross margins
- Strategic acquisitions
- Secular safety trends
- Market growth: Employment levels, GDP growth, capital investments

MSA Revenue Growth by Product
Q3 2019 YTD



*Source: Frost & Sullivan Research and Internal Estimates

Secular Drivers in Safety: Exposure to Key Global Trends

Global development and increased **enforcement of safety standards**

Safety has an Attractive ROI for Customers

\$1 invested in injury prevention returns between \$2-6 ¹

High Cost of Non-Compliance

OSHA fine in 2019 for repeat violations increased 5% from 2018 ²

Firefighter health and wellness

Industry is moving toward a second set of turnout gear and physiological monitoring ³

Falls from Height are the Leading OSHA Violation...And Costly

9% of all disability claims are related to falls from height, costing employers more than \$5B per year ²

Emerging Markets

Outsized population and workforce growth; Western-based multinational companies implement consistent, advanced safety requirements across global facilities

Industrial IoT & Connected Worker

Industrial sector is expected to represent ~24% of the total IoT market or >\$100B by 2020 ⁴

Global ESG Movement

ESG investing and public demand for social responsibility is driving a heightened focus on worker safety and well-being



1. Safety and Health Magazine

2. EHS Today

3. Fire Apparatus Magazine

4. Forbes/GrowthEnabler & MarketsandMarkets analysis

Secular trends position MSA to grow faster than GDP through various economic cycles

Talent and Culture are our Greatest Assets: We execute against a distinctive ESG Strategy



Our People

Foster a safe, diverse and inclusive workplace that encourages personal and professional growth, global collaboration, innovation, and better business outcomes.



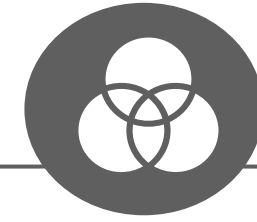
Our Communities

Engage with our surrounding communities through charitable giving and volunteer work to enhance safety and improve lives around the world.



Our Environment

Conduct our business in a manner that is environmentally sustainable and ensures protection of our natural resources.



Our Integrity

Maintain an unwavering commitment to our foundational core value of Integrity.



Social responsibility is deeply embedded in our culture and values – we are dedicated to creating a safer world

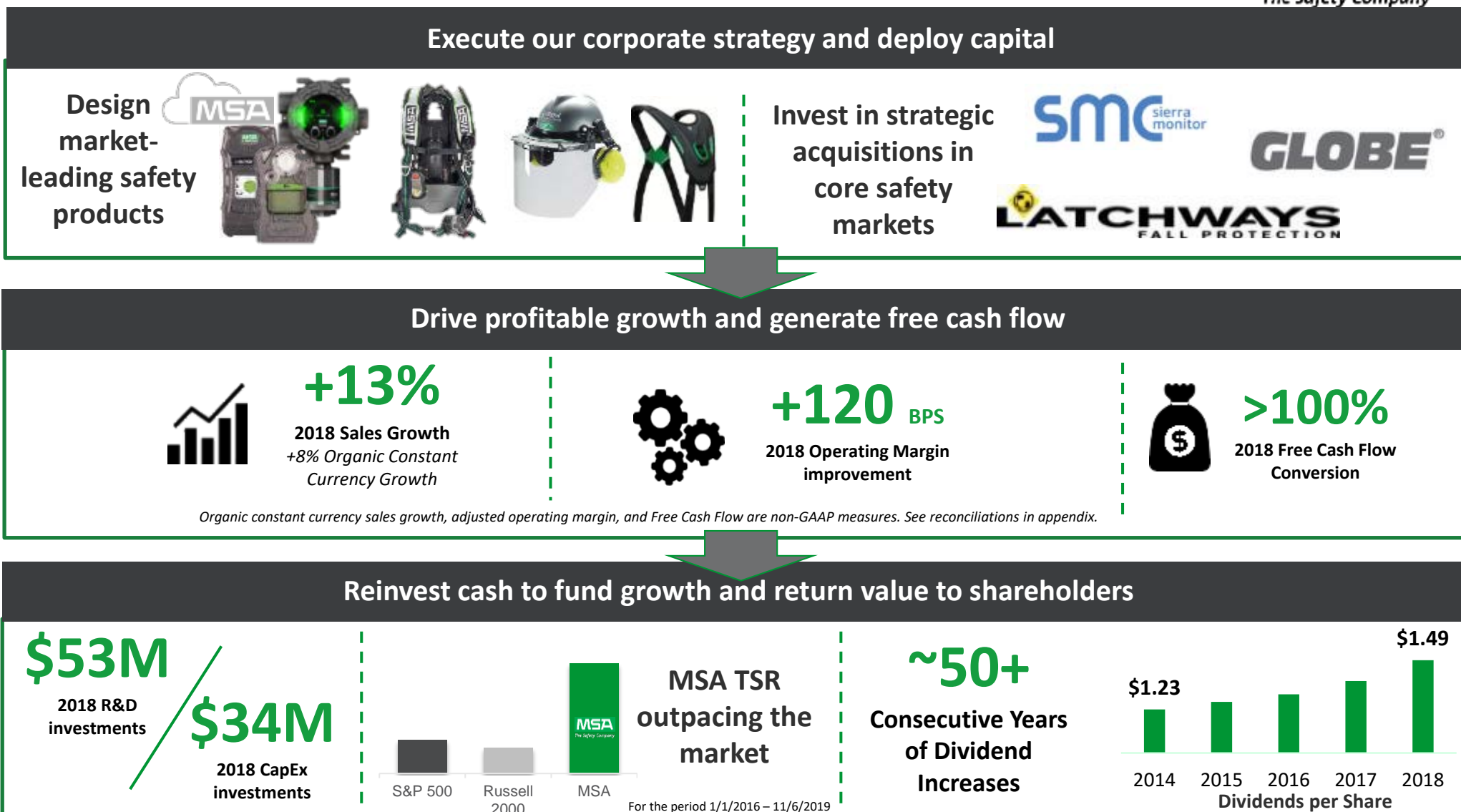
What has changed at MSA



Well Positioned to Continue to Drive Superior Performance		
Culture	Talent	Markets
<p>Increased levels of engagement and energy</p> <p>Continuous improvement</p> <p>Diversity and inclusion focus</p> <p>Innovation is rewarded</p> <p>Our people connect to our mission – drives passion and accountability</p>	<p>Tuition reimbursement and internal leadership development programs have elevated the caliber of our workforce</p> <p>Diversity of Director and Executive level leaders continues to improve</p> <p>Doubled our staff of software engineers and transformed our back-office functions; we have the right people in the right roles</p>	<p>Shifted away from event driven and low margin markets like military, mining, and non-differentiated PPE into more attractive markets including Fire Service, Utilities, OGP, and Construction</p> <p>Improved or maintained our market position in every core product line – we have earned the right to win in attractive markets</p>

Today, we will give more insight into the programs, products and people that will drive MSA’s growth and continued evolution

Disciplined Execution Against Financial Goals



R&D investments, accretive acquisitions, cost reductions, and balanced capital allocation strategy driving above-market shareholder returns

Key Messages

Leading positions in attractive markets – highly diversified products, mission critical applications, significant IP

Secular trends support safety market growing at a faster pace than economy, and MSA expects to outpace the safety market

Our talent pipeline is diverse, engaged and one of MSA's most valuable assets



Strategy and Growth Programs

Ken Krause
SVP, CFO and Treasurer

Section Highlights

Strategy and results

Long term financial expectations

The path forward: summary of growth programs



MSA Strategy: Our Blueprint for Value Creation



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Advance the Core of MSA: *More than 85% of total sales are core products*

- ✓ R&D investments and strategic acquisitions drive market share gains in our core products, and expansion of MSA's addressable market within core verticals



Achieve Operational Excellence: *Leverage revenue growth and drive higher EBIT*

- ✓ Pipeline of productivity and restructuring initiatives, strategic pricing of new products



Talent and Culture: *Strong pipeline of diverse talent and high-performance culture fuel our results*

- ✓ *Inclusive culture with high-performing teams across the world – continuous focus on leadership development*



Effective Capital Deployment: *Use cash to grow the business and return value to shareholders*

- ✓ Invest in strategic acquisitions and new product development, fund an increasing dividend, and repurchase shares to offset dilution

Strategic focus areas have been effective in strengthening MSA's competitive positions and financial profile

Delivering on Commitments

2018 MSA Investor Day Targets

Mid-Single Digit Revenue Growth

Cost Structure and Margin Improvement

Earnings Growth of 1.5 - 3x Revenue Growth

100% Free Cash Flow Conversion

Balanced Capital Deployment

2018

2019

8%

2018 Organic Revenue Growth

5%

Q3 YTD Revenue Growth



120 BPS

2018 Adjusted Operating Margin Expansion

110 BPS

Q3 YTD Adjusted Operating Margin Expansion



1.8x

2018 Adjusted Earnings Growth/Revenue Growth

3.0x

Q3 YTD Adjusted Earnings Growth/Revenue Growth



>100%

2018 FCF Conversion

~100%

2019 Q3 LTM FCF Conversion



Sierra Monitor Acquisition | R&D at 4% of Sales | LTM CapEx at 2.8% of Sales
11% Increase in Dividend | Leverage at 1.3x

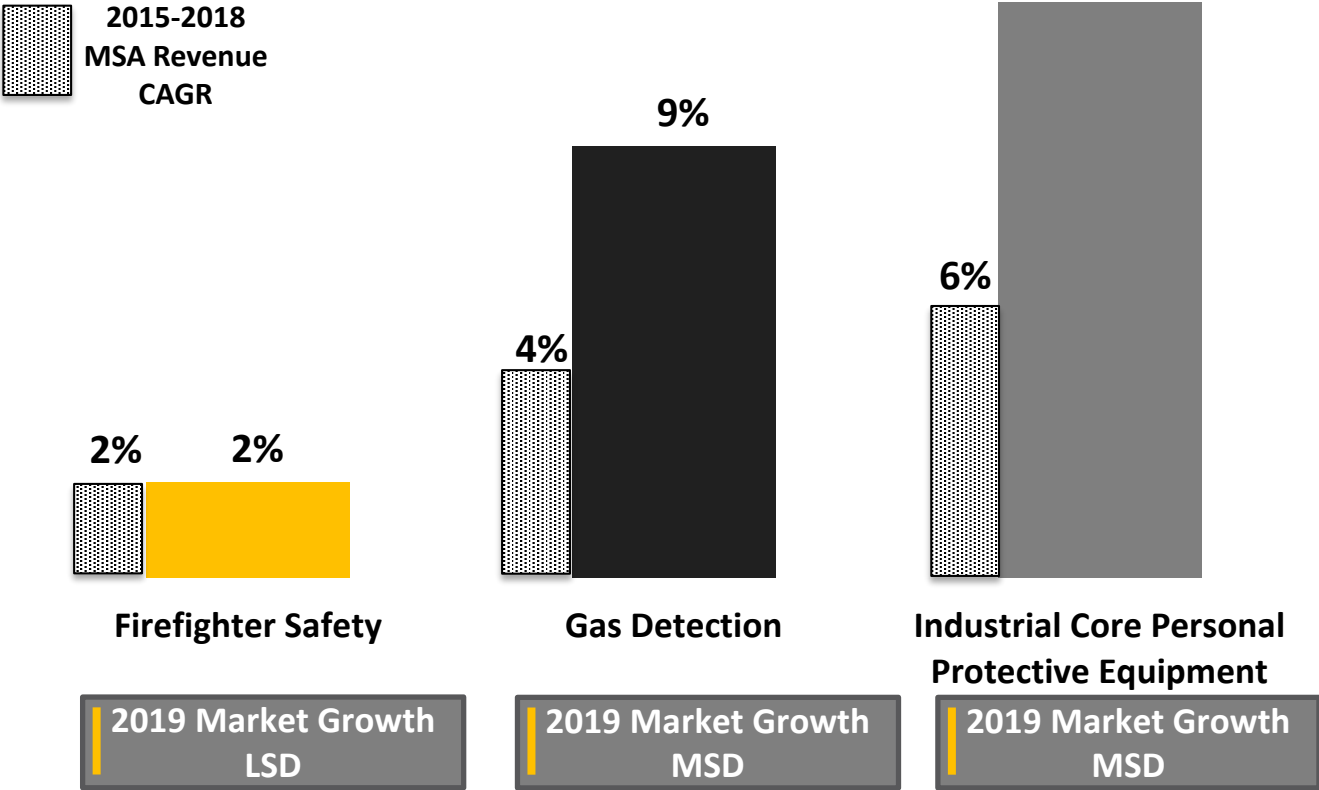
Constant currency revenue growth, adjusted operating margin and free cash flow are non-GAAP measures. See reconciliations in appendix.

MSA has a strong track record of delivering on financial performance commitments

New Products Driving Market Share Gains

MSA Revenue Growth 2019 Q3 YTD

Growth is stated on an organic constant currency basis to highlight trends in MSA's organic business.
Constant currency organic revenue growth is a non-GAAP measure. See reconciliations in appendix.



Firefighter Safety 2019 market growth rate Impacted by NFPA SCBA approval delay. MSA's fire service growth rate impacted by large order comparison in International segment in Q3 2019.

New Products Driving Results in 2019

Industrial Core PPE



V-Series Harnesses and Lanyards

Gas Detection



X and S5000
ALTAIR 4XR
FL500 Flame Detector

Fire Service



M1 SCBA
G1 SCBA 2018 Edition
Globe Guard System
Globe Pant System
Cairns XF1 Fire Helmet

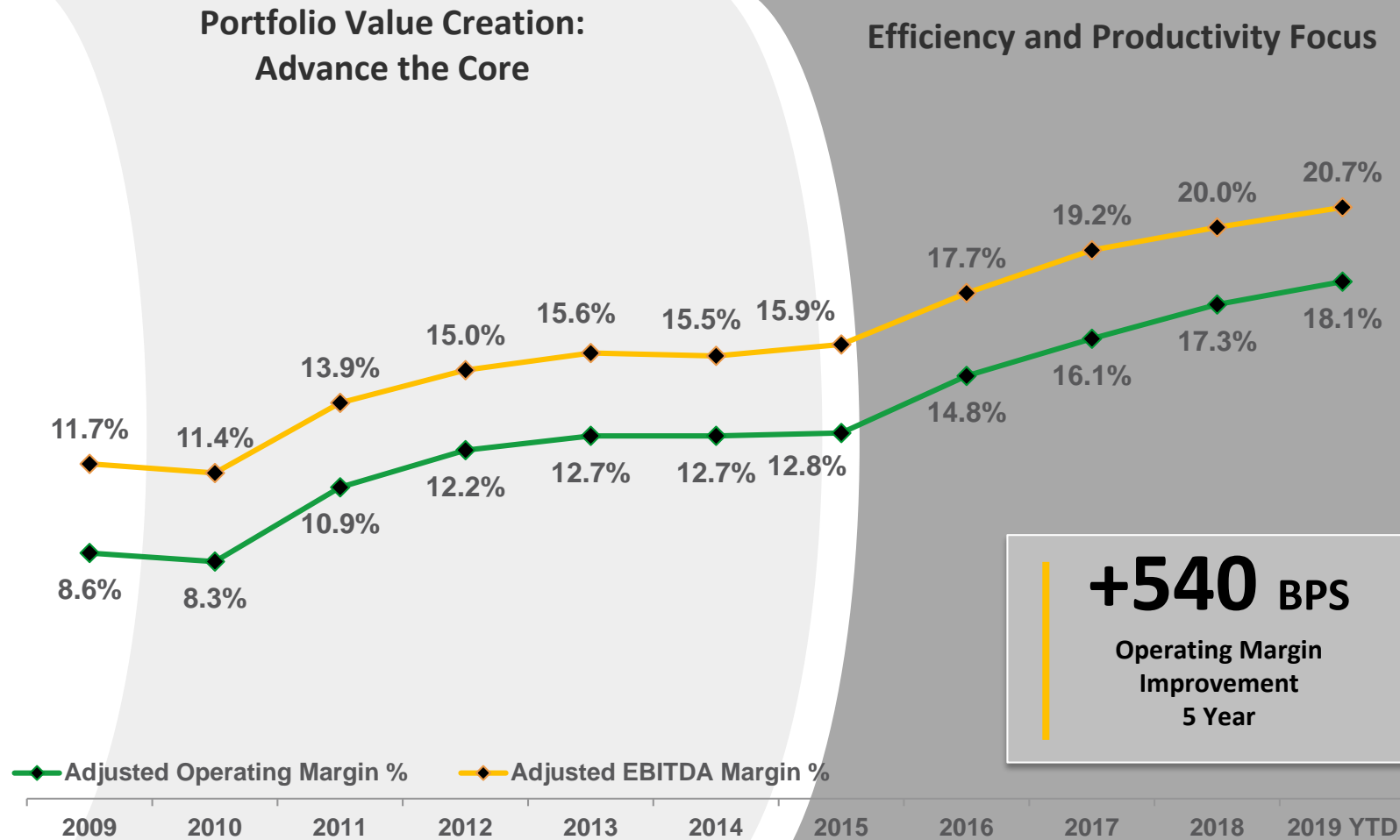
Pipeline of Launches Planned Across the Portfolio



Our revenue growth outpaces the market through disciplined execution and superior innovation; NPD pipeline is larger and more diversified than ever

Continuous Focus on Margin Expansion

Significant Progress



Three Key Focus Areas Have Driven Historical Financial Transformation:

- Superior Innovation
- Operational Improvements and Productivity Focus
- Strategic and Disciplined Acquisitions

Adjusted operating margin and Adjusted EBITDA margin are non-GAAP measures. See reconciliations in appendix.

Historical financial transformation has strengthened our ability to invest in our business moving forward

Strong Incremental Margin Provides Runway for Sustained Profitability Improvements



Track Record of:

✓

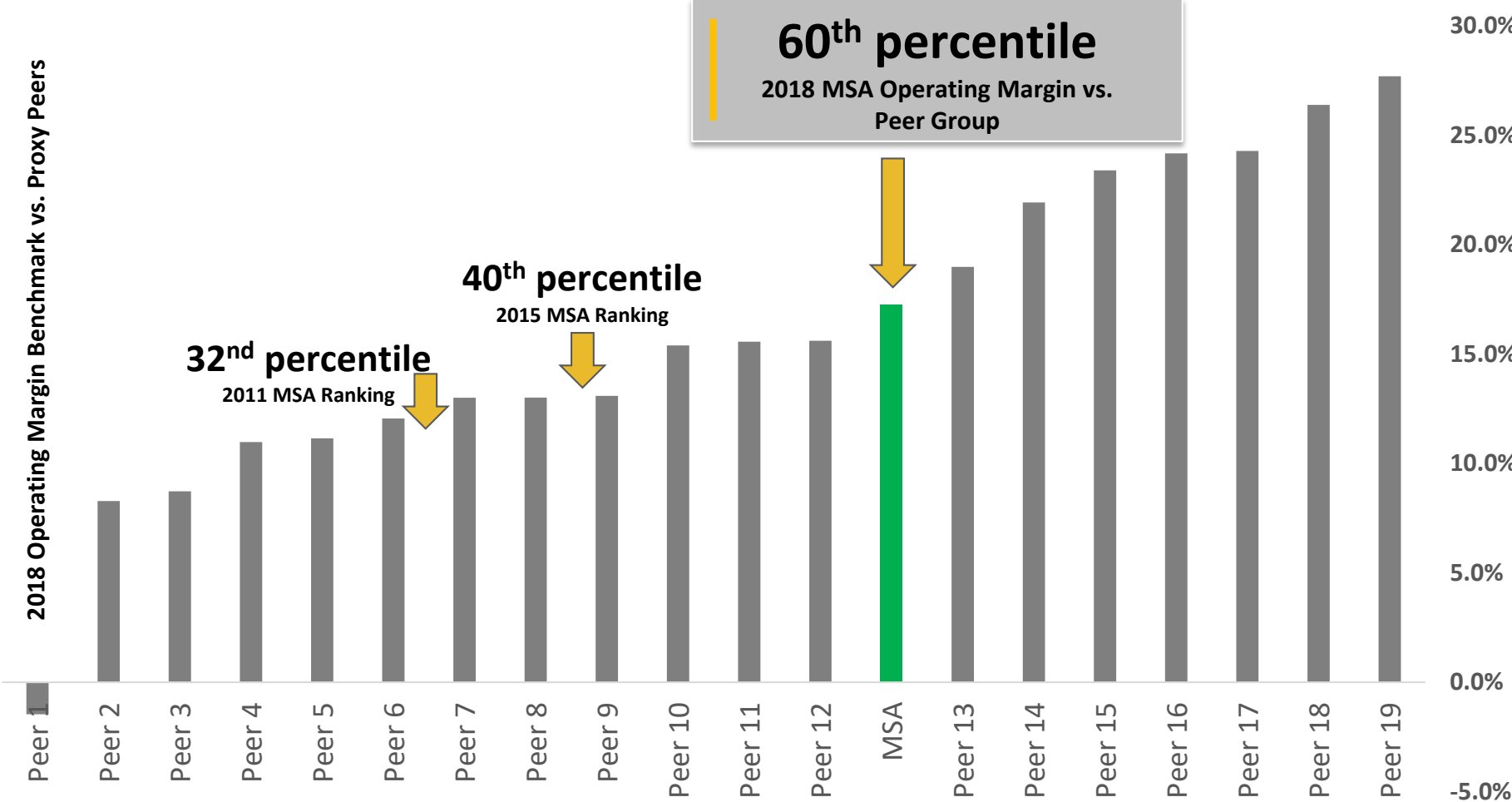
Mid-single digit revenue growth and market share capture

✓

Consistently improving margins through commercial excellence and cost discipline

✓

Providing superior shareholder returns



Well positioned to continue driving toward top-quartile operating margin performance

Long Term Financial Expectations



MSD Revenue Growth Organic Constant Currency

- LSD-MSD market growth over the long term
- +1-2% MSA price realization
- +1-2% MSA market share gain

Grow Earnings at 1.5-3x Revenue Growth

- New products and commercial excellence programs
- Continuous improvements in productivity
- Leverage strong incrementals in Americas Segment
- International Segment margin opportunity

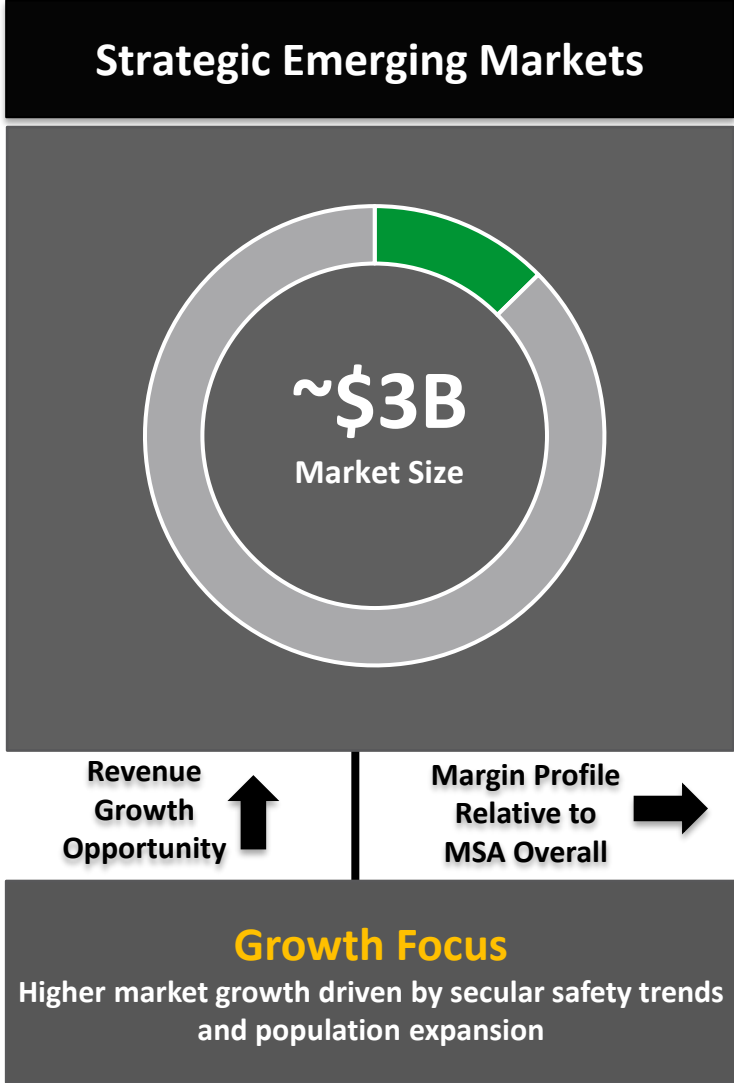
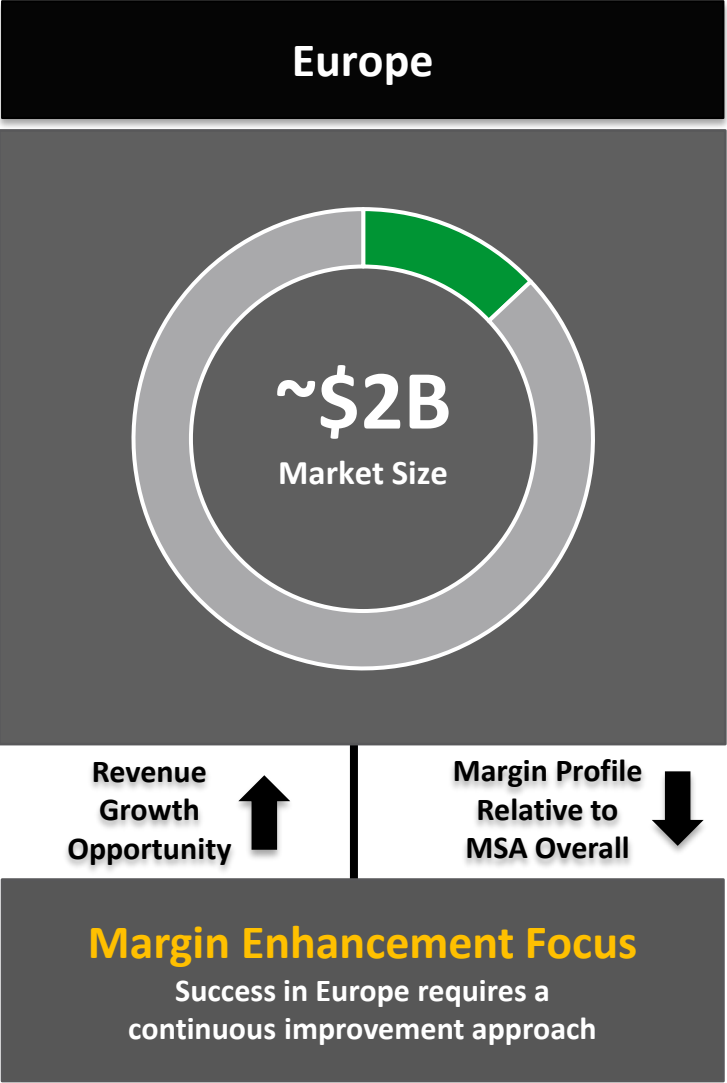
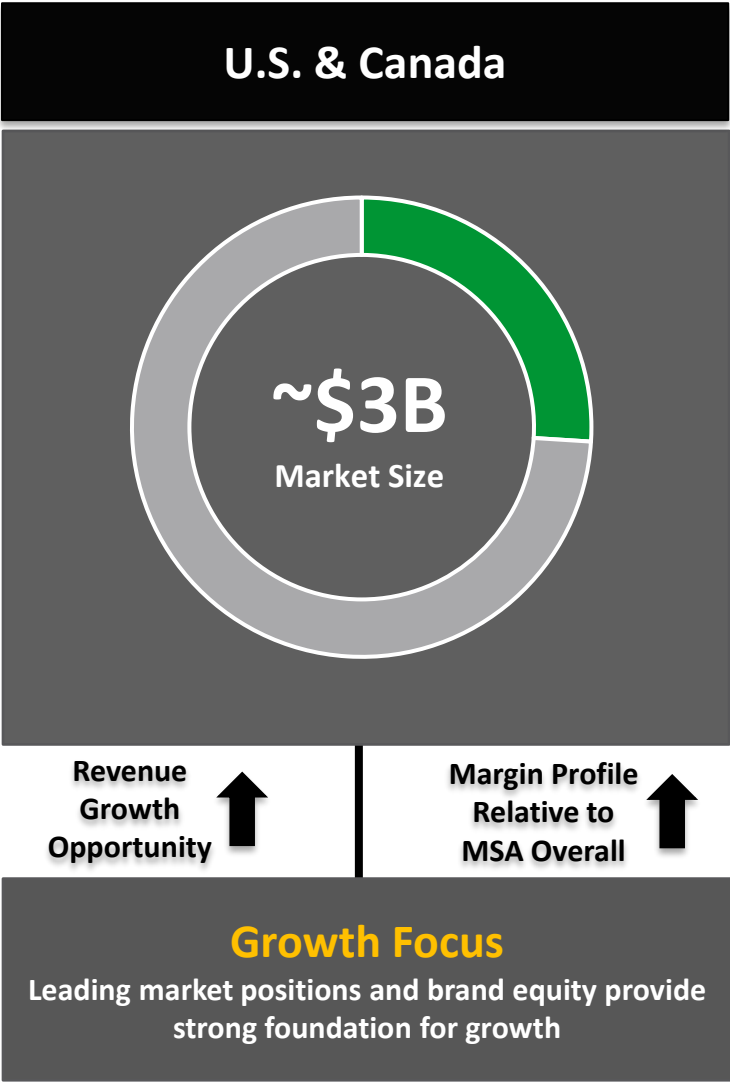
Cash Flow and Capital Deployment

- Ongoing focus on working capital management
- 100% free cash flow conversion
- Capex at 2.5-3.5% of sales
- Invest in growth: R&D, strategic acquisitions
- Fund an increasing dividend
- Maintain investment grade balance sheet



Long term focus on driving growth, profitability and cash flow

Opportunity by Region



Significant runway for growth in our addressable markets; tailor investments to leverage strengths and market potential

The Path Forward: Investor Day 2019 Takeaways



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Continue to Drive our Formula for Success

- Superior innovation, productivity focus and accretive acquisitions have driven strong results for MSA; more runway ahead

MSA Americas

- Significant headroom and ability to execute in the U.S. and Canada across our core markets: protect the firefighter, gain share in fall protection, advance gas detection and scale our solutions offering
- Accelerate growth in Latin America through focused initiatives in Mexico and Brazil

MSA International

- On track with European profitability expansion goals
- Execute growth programs in strategic emerging markets and select European regions; Continue targeted initiatives in Europe to improve pricing and reduce complexity

Growth Platforms

- Industry leading innovations and new product pipeline support organic revenue growth targets
- Disciplined approach to strategic acquisitions; strong balance sheet enables execution

Financial Review

- Long term expectations: mid-single digit organic revenue growth, earnings growth at 1.5-3x the pace of revenue, and balanced capital allocation to drive profitable growth and return value to shareholders

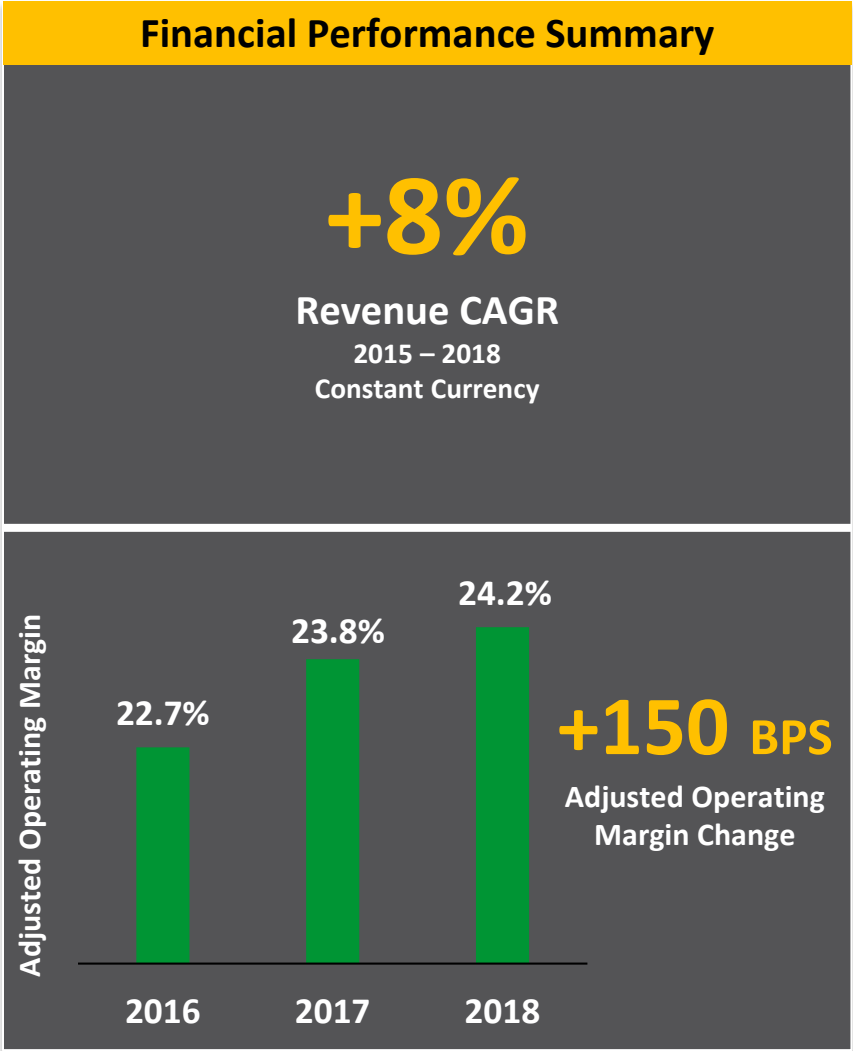
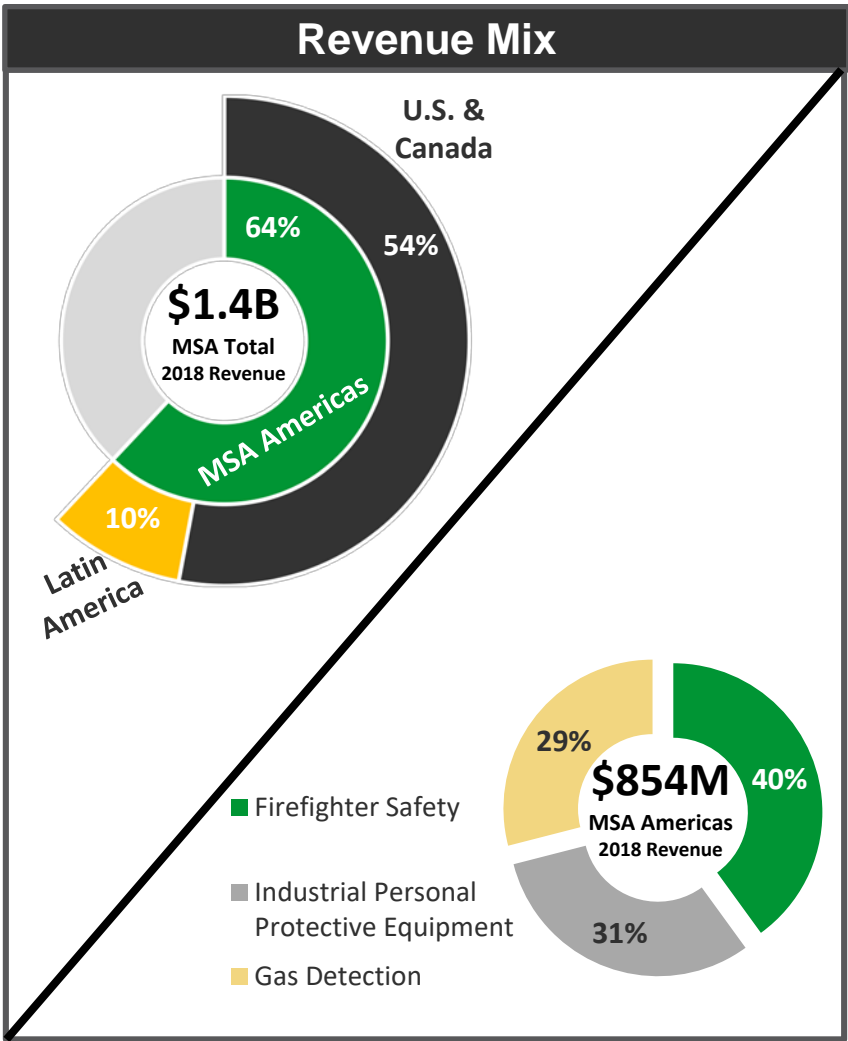
MSA Americas

Steve Blanco

President, MSA Americas

MSA Americas

Segment Snapshot



- ### Highlights
- Leading Market Positions
 - Disciplined execution with MSA Operating System
 - Brand equity and mature channels



Constant currency revenue and adjusted operating margin are non-GAAP measures. See reconciliations in appendix.

Leading market positions and healthy incremental margin profile position MSA Americas for continued profitable growth

MSA Americas: Key Programs



Protect the Firefighter

MSA's Portfolio Includes the Leading Platforms Across Each Category of Firefighter Safety PPE



Cairns Firefighter Helmets



MSA G1 SCBA with iTIC



Globe Turnout Gear

~50%
G1 SCBA
Competitive
Conversion Rate

1 Year
Cost of capital
hurdle time
period for Globe
acquisition

>60%
Fire Service
Sales Vitality
Index

Drivers of MSA's Fire Service Market Share Gains

- **Product Innovation:** revolutionary MSA G1 SCBA platform captured the #1 market share in the U.S. & Canada
- **Head-to-toe solutions:** MSA offers a full suite of firefighter safety PPE products
- **Brand equity:** brand loyalty matters
- **Customer access:** Globe acquisition provided channel synergies to help grow our business

Americas Firefighter Safety

+3%

2019 Q3 YTD Growth

As the market leader in firefighter safety, MSA is uniquely positioned to expand our position and launch disruptive technology

Protect the Firefighter

The path forward

First Mover in Fire Service IoT

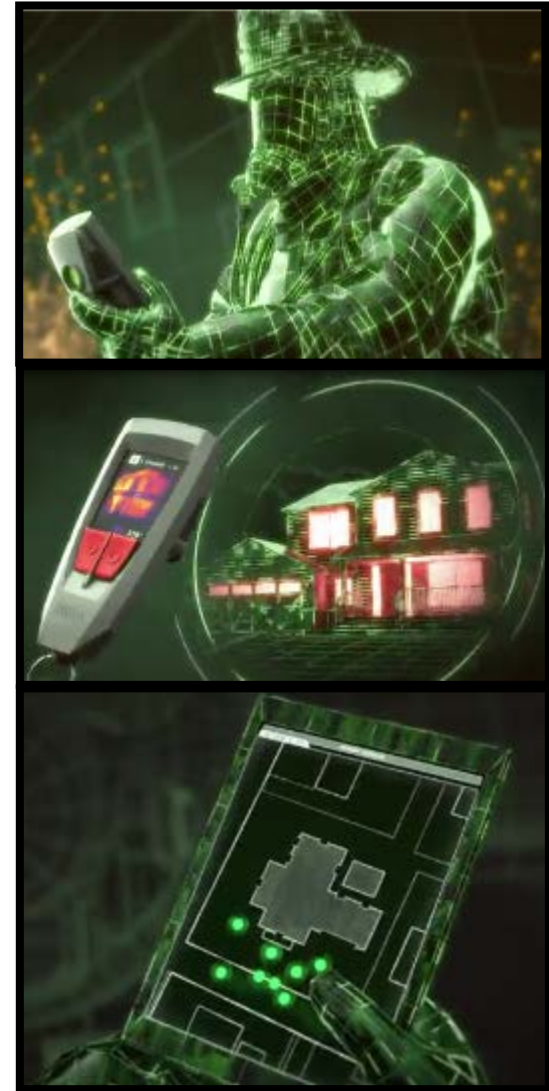
Launch MSA Connected Firefighter, Driven by LUNAR (2020)
Utilize G1 SCBA platform's leading position to launch disruptive technology that expands our addressable market and provides new levels of situational awareness for firefighters

Turnout Gear Growth

Respond to changing industry health and wellness trends to provide two sets of turnout gear to firefighters; leverage cross-sell opportunities across MSA and Globe's channel base

Gain Wallet Share Through Continuous Innovation

Continuous innovation and a diverse portfolio creates a multi-faceted buying cycle and enhanced brand preference for MSA



Significant opportunity to create value in fire service through innovation and cross-selling

Establishing a Leadership Position in Fall Protection



Significant headroom for share gain and value creation

#3 Position in a Large and Fragmented Market

~\$1B
Addressable Market Americas

+MSD%
Market Growth Rate

Fall Protection Growth Investments

2015/2016

Set foundation

Latchways acquisition, channel synergies, deploy MSA Operating System

2017/2018

Capacity and Sales Investments

Invest in manufacturing capacity, training and distribution centers; double sales representation

2018/2019

NPD and Product Launches

V-Series harnesses and lanyards launch

Strong Returns and Market Share Gains

+16%

2015-2018 Americas Fall Protection Revenue CAGR

Year	Revenue (Relative)
2015	Low
2016	Medium
2017	High
2018	Very High

Well positioned to continue gaining share in fall protection, the largest and fastest growing area of the safety market

Advance Gas Detection and Scale Our Solutions Offerings



Expand Addressable Market Through NPD

- Launch ALTAIR io360 area monitor
- Continue to expand wallet share with Safety io deployment

Share Capture and Replace Installed Base With X & S5000

- Complete sensor platform offering to enable full replacement capability
- Take share with differentiated sensor technology – TruCal and Diffusion Supervision



Recurring revenue base
30-50% of FGFD Sales

Expand Market Coverage Beyond OGP

- Focused growth programs in wastewater, HVAC and other industrial applications

Industrial IoT Focus

- Leverage Sierra Monitor Industrial IoT gateways in the quickly growing industrial IoT and connected buildings market



Differentiated technology provides strong opportunity for share capture and building recurring revenue streams in the gas detection market

Accelerating Growth and Building Scale in Latin America



Leverage Foundation in Brazil and Mexico to Drive Growth in Latin America	
Brand Equity	Leading market positions in nearly all core markets across Brazil and Mexico
Go-to-market and customer intimacy	Mature channels of distribution and broad geographic coverage
Critical Mass of Top Talent	Experienced management teams; Restructured Latin American organization to enable faster decision making
Ability to Scale Profitably	Shared service center implementation beginning in 2020
Local Manufacturing Assets	Highly efficient factories in Brazil and Mexico

Key Initiatives



OGP Investments



Fall Protection Growth



Fire Service Expansion

Brazil and Mexico are strategic emerging markets where we will focus investment to drive accretive growth for MSA

Key Messages



Strong historical revenue growth and margin expansion track record in the Americas segment

U.S. and Canada growth programs focused on leveraging brand equity and innovation to further strengthen positions in core markets

Accelerate Latin American growth through focused initiatives in Mexico and Brazil

MSA International

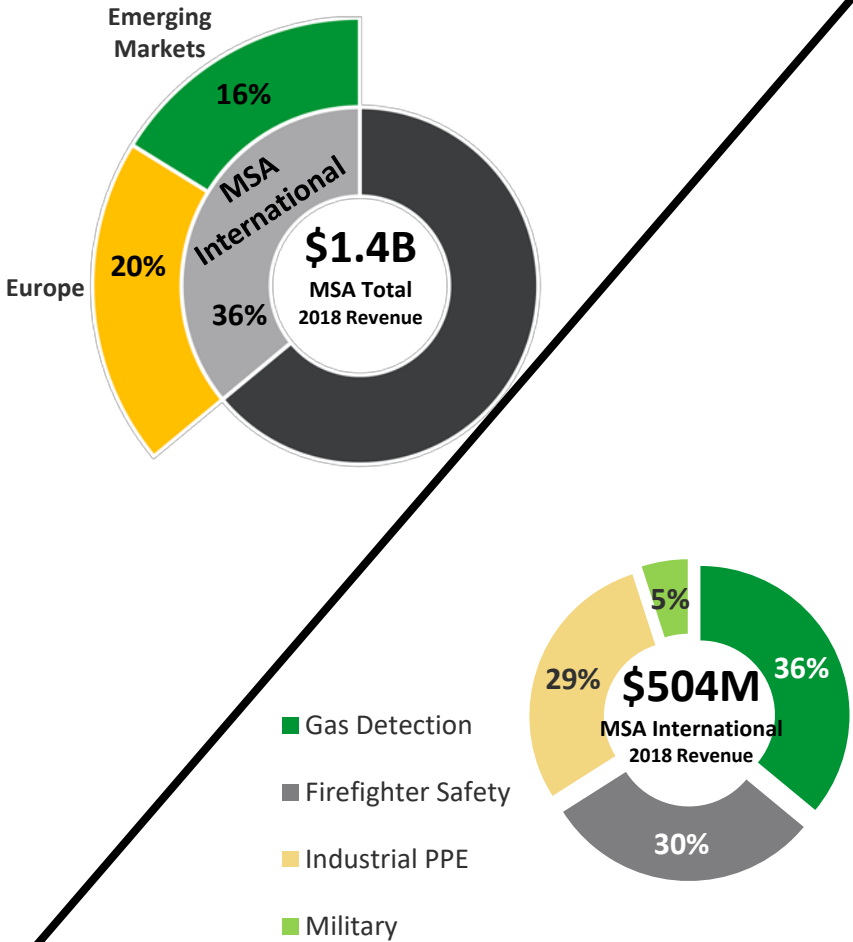
Bob Leenen

President, MSA International

MSA International

Segment Snapshot

Revenue Mix



Segment Financial Performance Summary

Results Reported at 2018 Investor Day

+3%
Revenue CAGR
2014 – 2017
Constant currency

Recent Improved Performance

+8%
Revenue Growth
2017-2018
Constant currency

(10) BPS
Adjusted Operating Margin
Change
2014 - 2017

+90 BPS
Adjusted Operating Margin
Change
2017-2018

Constant currency revenue and adjusted operating margin are non-GAAP measures. See reconciliations in appendix.

International segment performance has improved and we are well positioned to continue progressing toward our targets

Progress Update and Key Programs

International Programs Discussed at 2018 Investor Day	Progress Update
• Drive revenue growth in emerging markets	
• Key leadership changes in Europe	
• Realignment of customer facing organization in Europe	
• Channels optimization and cost structure rationalization in Europe	

Key Programs for the Future
Growth in strategic emerging markets
Growth in select European markets
Cost structure rationalization in Europe
Price realization improvements in Europe

 Program Complete

 Strong progress made and program is ongoing

Substantial progress made, with further potential to grow revenue in emerging markets and improve profitability in Europe

Growth in Emerging Markets

MSA Total Emerging Markets

+5%

3 Year Revenue CAGR
Constant Currency



Build on position of strength in China with MSA brand equity:

- Drive growth in first responder segment, aligned with market transition from military to professional firefighters
- Drive gas detection growth through end-user focus
- Expand industrial PPE business by continuing to leverage channel partner relationships and coverage

Build on leading position in Middle East OGP market:

- Launching local Saudi assembly capability to meet customer needs
- New product growth in FGFD through differentiated sensor technology
- Build industrial PPE business by further leveraging master channel partner relationships



Emerging Market Growth Enablers

Experienced local teams

Continued investment in commercial talent, including global account management

Focus on premium segment

Consistent distribution strategy

Local manufacturing/assembly capabilities

Target International Emerging Market Geographies

China

Middle East

Constant currency revenue is a non-GAAP measure. See reconciliations in appendix.

International emerging markets offer attractive growth opportunities for MSA

Growth in Select European Regions

>80%

of European market opportunity
is concentrated in these regions

Target Geographies

Germany

France

U.K.

Nordic Region



European Growth Enablers

New Product Launches in
Fire Safety, Industrial PPE
and Gas Detection

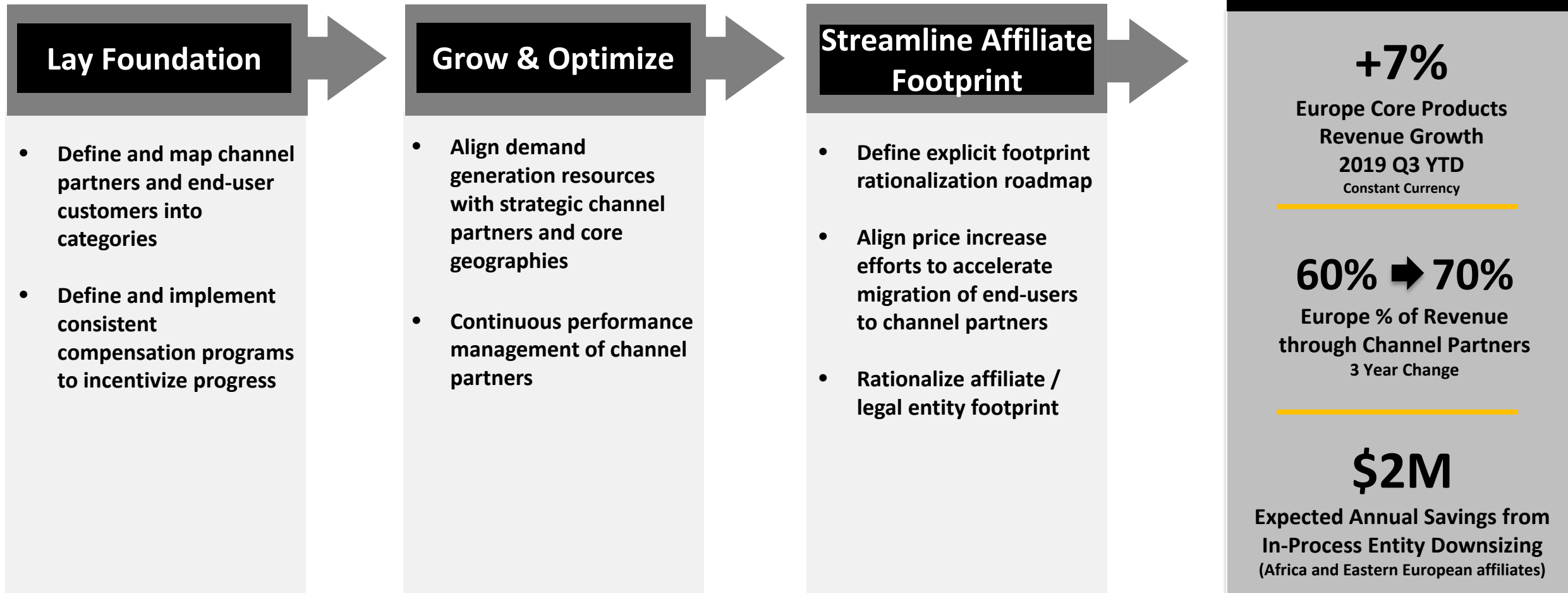
Global Account
Management

Channels Optimization

Digital Marketing
Investments

Focus revenue growth efforts on target geographies, while leveraging channel partners to enable a more cost-effective model in other regions

Channels Optimization Reduces Complexity and Supports Profitable Growth in Europe

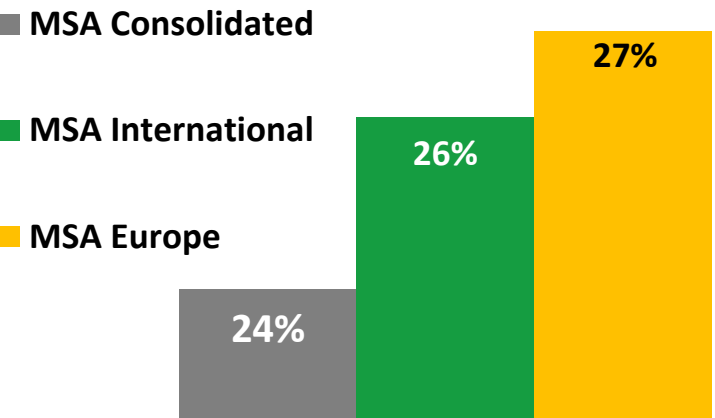


Constant currency revenue is a non-GAAP measure. See reconciliations in appendix.

Continuing to make progress executing our channels optimization strategy to drive revenue growth and streamline our cost structure

Cost Structure Rationalization in Europe

2018 SG&A % of Revenue



SG&A savings coming through from programs actioned throughout 2018 and 2019



Strategies to Drive Ongoing Cost Structure Rationalization in Europe

Channels optimization enabling continued rationalization of affiliates and legal entities– **executing on roadmap** through 2022

Business simplification, enabling continued **streamlining of management structure**

Utilizing SAP to implement **pan-European shared service center** in Eastern Europe through natural attrition- expect to shift ~1/3 of SG&A FTEs

Driving holistic productivity culture through **indirect spend reduction** initiative

Targeted **operations footprint** streamlining opportunities

Cost structure rationalization will remain a top priority, with a healthy pipeline of opportunities for 2020 and beyond

Price Realization Improvements in Europe



Focus Areas

Improved pricing controls to reduce leakage

Cultural change toward value selling

Improved product positioning through marketing initiatives

Channels optimization

Price realization improvements are an important lever for operating margin expansion, particularly in Europe

Key Messages

Revenue growth is on track: talented team, focused on the right priorities, executing well

Good progress on channels optimization and streamlining the cost structure in Europe; healthy pipeline of future opportunities identified

Additional opportunities to improve price realization, particularly in Europe

Continued commitment to multi-year journey to improve International performance

Emerging market revenue growth and European profitability improvements will drive margins higher in International



MSA Investor Day

November 11, 2019



MSA Investor Day

Break and Product Innovation Showcase



Product Innovation: Platforms for Organic Growth

Greg Martin

VP Product Strategy & Development

MSA's Customer-First Approach to Innovation: Keys to Success

Simplify Safety

Intuitive user
experience that
minimizes training
effort



Improve Situational Awareness

Data enhanced
hardware for
smarter / quicker
decision making



Great Design

Products that look
great and feel even
better



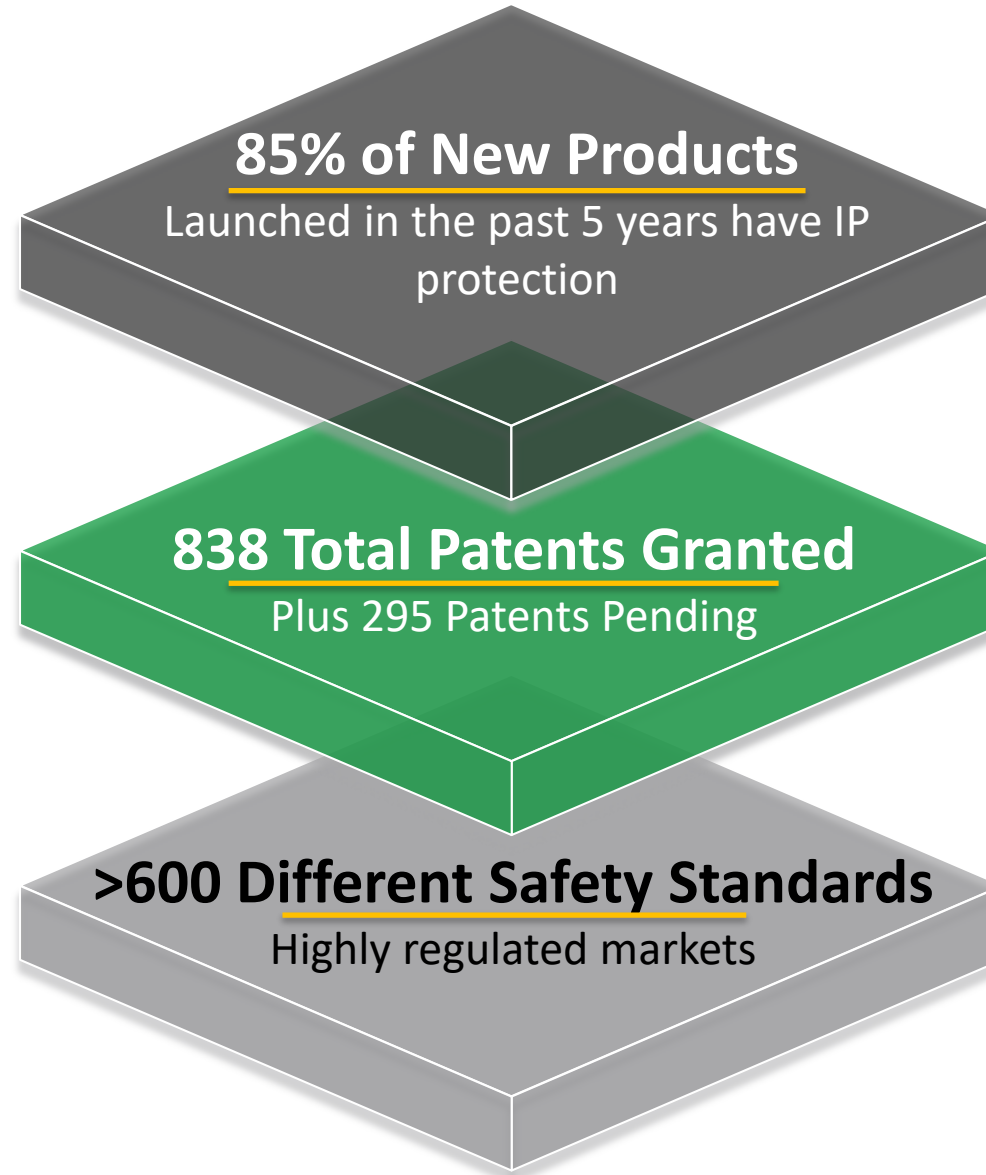
Drive Safer Behavior

Platforms that help
drive safety as a
behavior, not just a
program



Creating intuitive, differentiated and patented ways to make behavior-based safety easier than ever for our customers

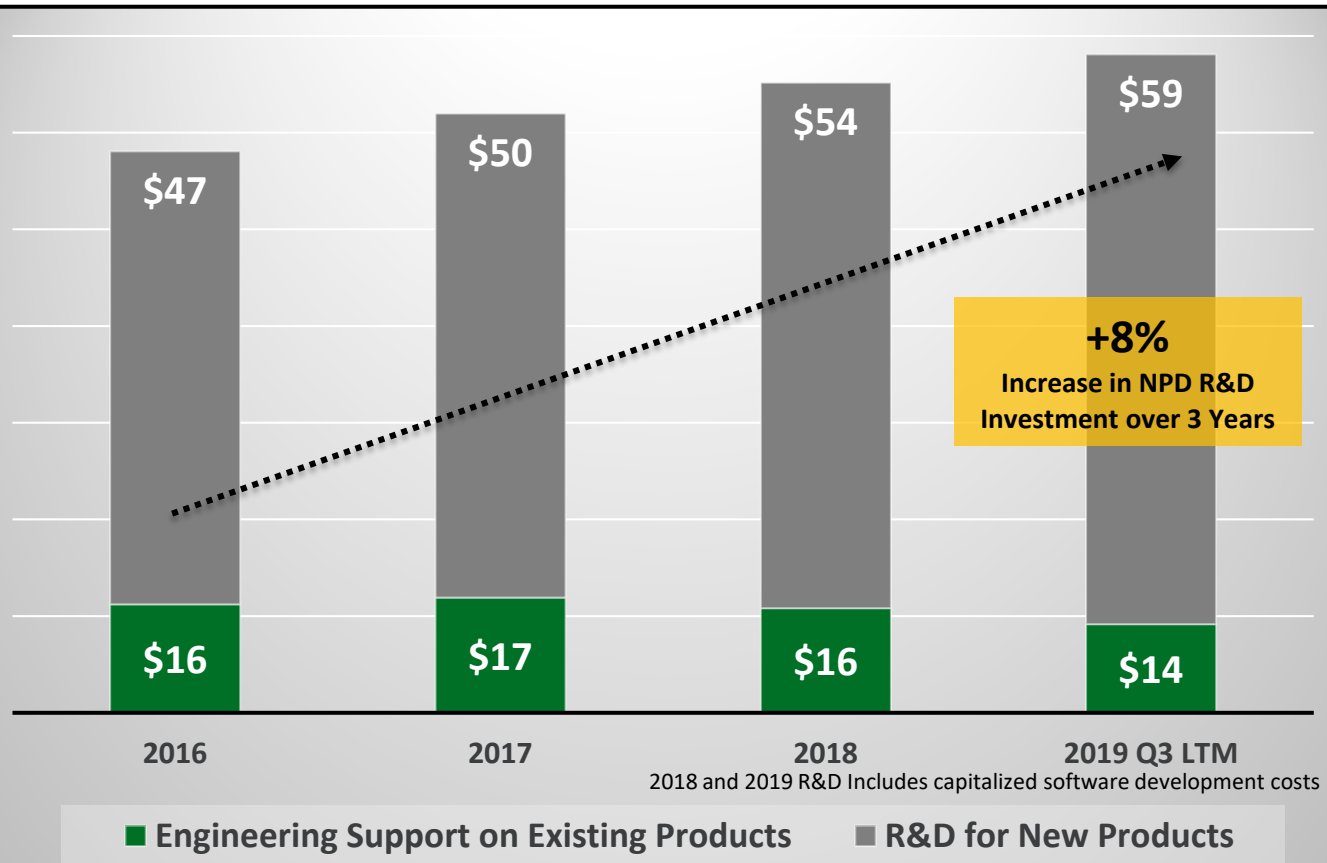
Defensible Market Positions



Intellectual property and significant barriers to entry create sustainable competitive advantage

MSA's Engineering Evolution

Creating Efficiencies to Accelerate R&D Investment in Breakthrough Innovations



Supported by an Evolving Workforce & High Performance Culture

- Doubled the number of Software Engineers that we employ globally over the past 3 years
- Attracting and retaining creative high performers who connect to our mission

Focus on Human Centered Design and User Experience

- The difference between an average product and a leading product
- Can provide incremental value and reduce complexity without adding cost

New product development pipeline supports our long term revenue growth outlook

The Pace of Innovation is Accelerating

V-Series Harnesses

Launched '18-'19



V-Gard H1 Safety Helmet

Launched '19



safety^{io} grid

SAFETY io Software Solutions

Launched '18 – '19



ALTAIR io360

Launching soon

Launching products that enable market share gains in our current markets, and expand our addressable markets

The Future is Bright



Connectivity
and design
modularity

Personalization
capabilities



Highly
differentiated
and advanced
features

Introducing disruptive
technologies that sync
with MSA's market
leading platforms



Technology is creating new upgrade opportunities and increasing overall market size

Case Study: Customer Driven Innovation

Aaron Tufts
Business Leader FGFD

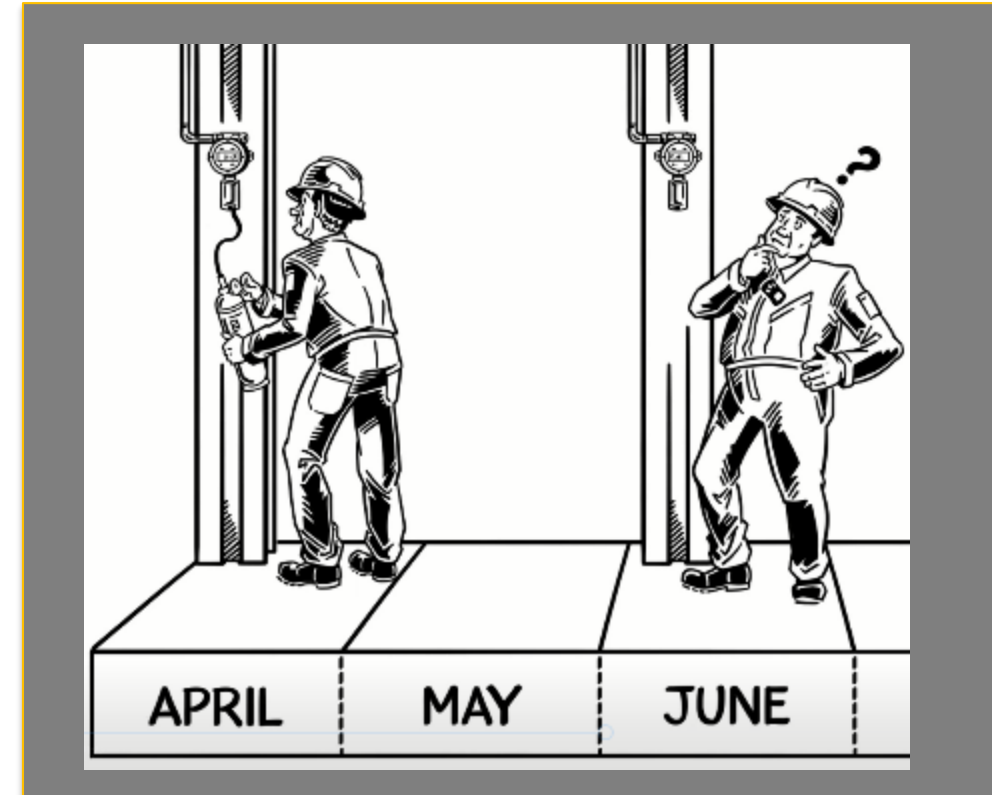
Necessity of Innovation in FGFD



Hazardous at
levels as low as
100 ppm



Traditional sensors are
unable to communicate
failure or end of life
between calibration
periods



Detection risks between calibration periods created the need for advancement

Understanding our Customers' Needs

“

Please make it easy to replace your old device. If I have to pay a contractor to bend new conduit it will exceed the cost of your new device.

”

“

If you could come up with a way so that I don't have to get out of my truck when it's -40 degrees outside to check the detector, I would buy it tomorrow.

”

“

It would be so nice if I didn't have to get one foot away from the detector to be able to tell that everything is fine.

”



Creating solutions to customers' pain points is the hallmark of our innovation approach

X&S 5000 with TruCal Changed Everything

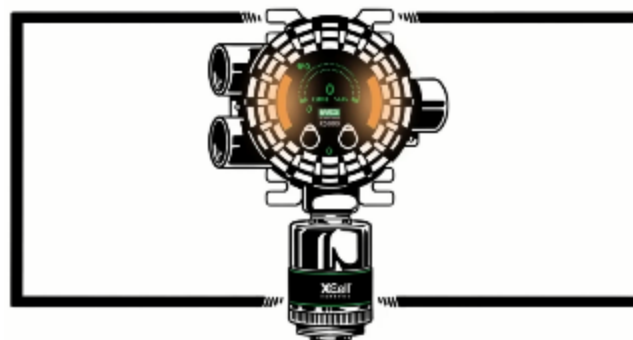
Self-adjusting
sensor;
Calibration
Alerts

CALIBRATION REQUIRED

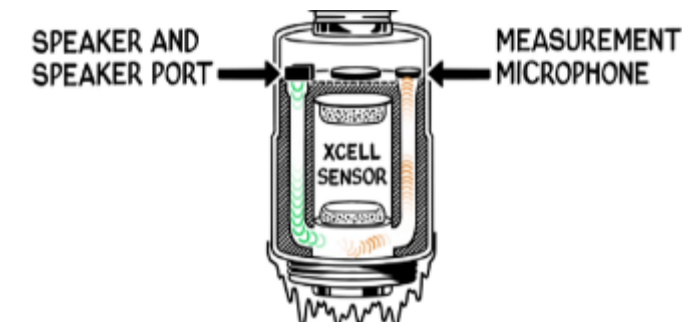


End of Life
Alerts

END OF LIFE



Senses when
the inlet is
physically
blocked
(Diffusion Supervision)

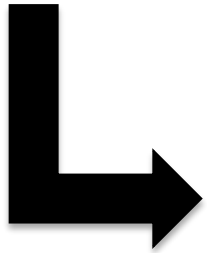


Highly differentiated sensor technology increases efficiency for our customers and reduces total cost of ownership

End user efficiency and cost of ownership example

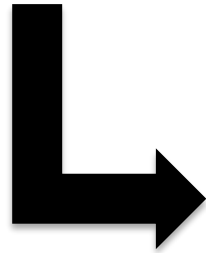
Number of
Devices

30,000



Calibration frequency

Reduced from monthly
to annual



Operational
Savings

>\$5 million annually
(calibration gas and worker
productivity time)



ULTIMA® X5000
Gas Monitor



Customer driven insights enable sustainable competitive advantage

Industrial PPE Solutions

Jennifer McGurri

General Manager, Global Fall & Industrial Head Protection

Opportunity to Increase Compliance



Work Place Injuries

4.5 million

Workplace injuries per year ¹



Lost Productivity

100 million +

Production days lost per
year due to injuries ²



Higher Costs

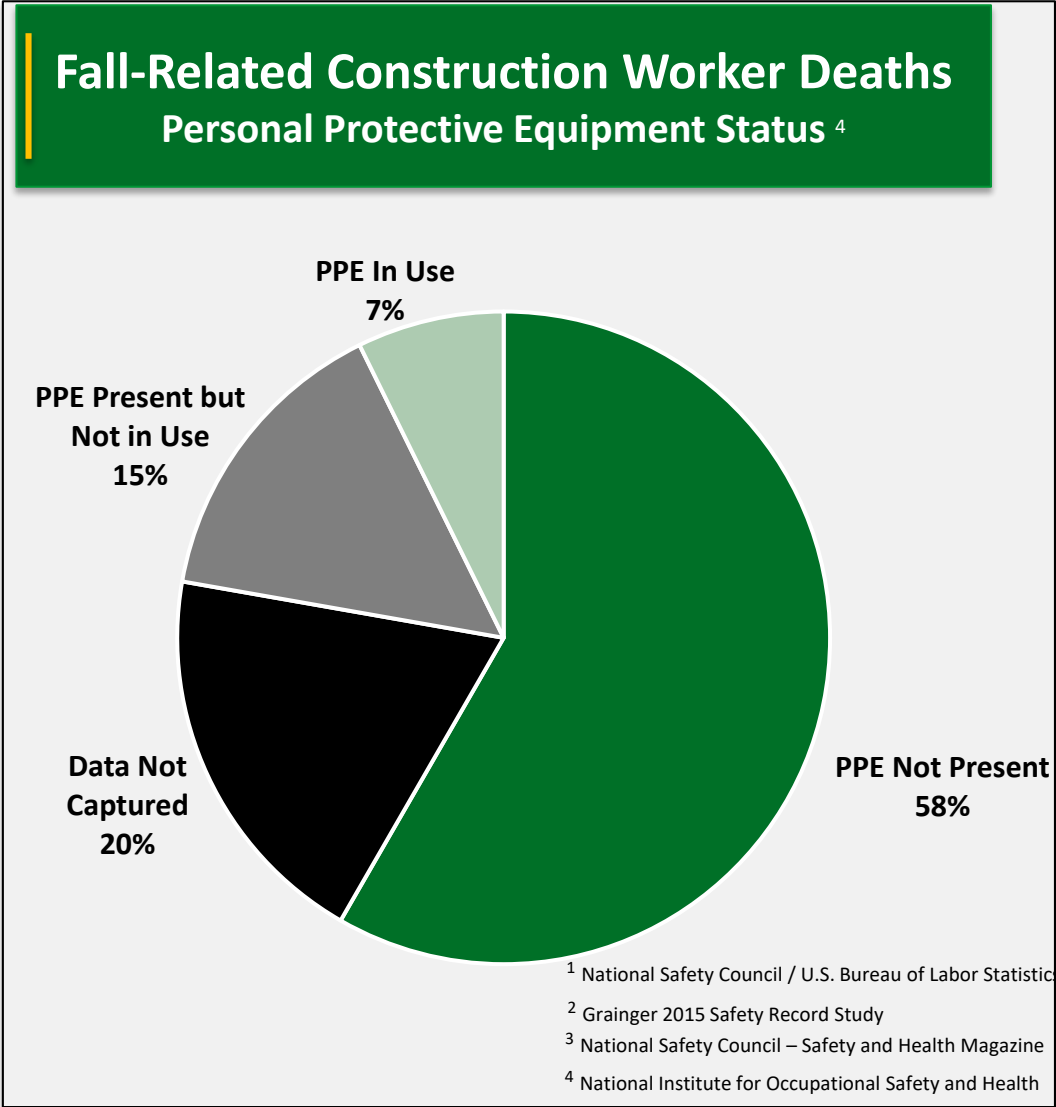
\$143 billion

Expenses related to
workplace injuries ²

#1

**OSHA Violation is
Fall Protection ³**

For the 9th consecutive year



New Products Drive Compliance While Creating Sustainable Competitive Advantage



Address unmet needs

COMFORT

“If it doesn’t bother me,
I am more likely to wear it”

STYLE

“If I look good,
I am more likely to wear it”

EASE OF USE

“I want simplified selection,
instructions, usage, training”



Drive price realization and positive mix with premium
product offerings and value-added enhancements

MSA’s product strategy supports premium market positioning for industrial helmets and fall protection

Case Studies In Product Differentiation

V-FLEX Harness

Patent-pending RaceFlex buckle makes the harness **easier to use** while improving range of motion and **comfort**

Athletic cut improves **style** and flexibility



V-Gard H1

Patent-pending push button accessory attachment enhances **ease of use**

Matte finish, low profile fit, and V-series branding enhances **style**

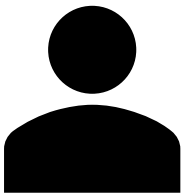
Fas-Trac 3 Pivot suspension increases **comfort**



New products address unmet needs in proprietary ways

Robust Pipeline of Future Innovation

Comfort



Heat Stress



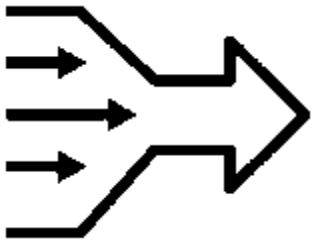
Weight / Mobility

Style

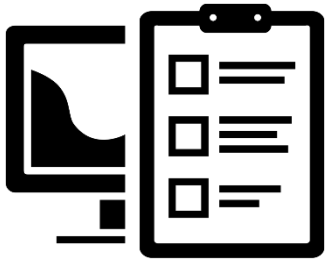


Attractive look and feel

Ease of Use



Simplified product selection



Tracking and monitoring with software solutions

Maintain leading market position in head protection and capture share in fall protection



Leveraging Connectivity Platforms Across Our End Markets

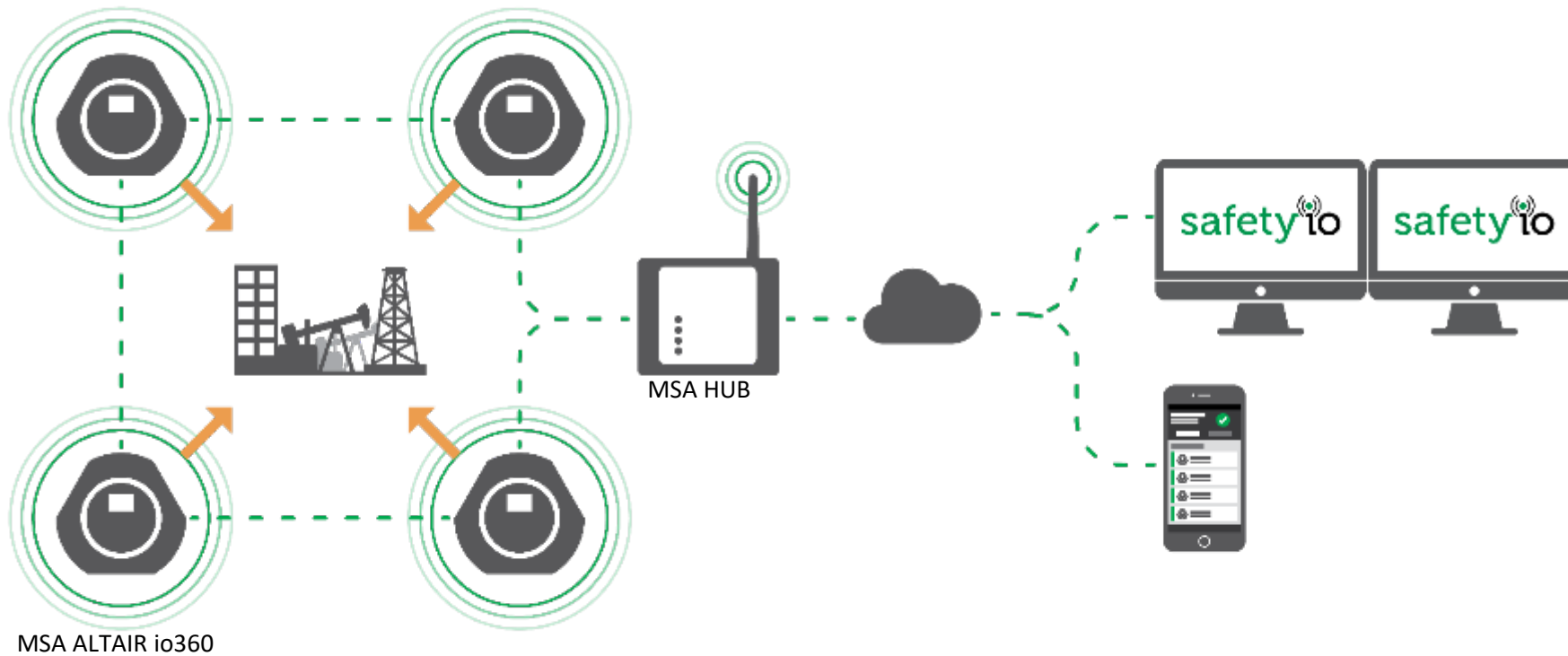
Gustavo Lopez

**General Manager, Portable Gas Detection,
Safety io, Sierra Monitor Integration Leader**

Jason Traynor

**General Manager, Global Respiratory Protection and
Fire Helmets**

MSA Industrial Connectivity



Product:

Seamless asset management

People:

Track workers, training, live monitoring

Process:

Situational awareness & reporting automation

MSA's connectivity platforms help our customers manage product, people and process in hazardous environments

Introducing the ALTAIR io360 Gas Detector



Effortlessly connected worksites



Breakthrough sensor technology



Long battery life

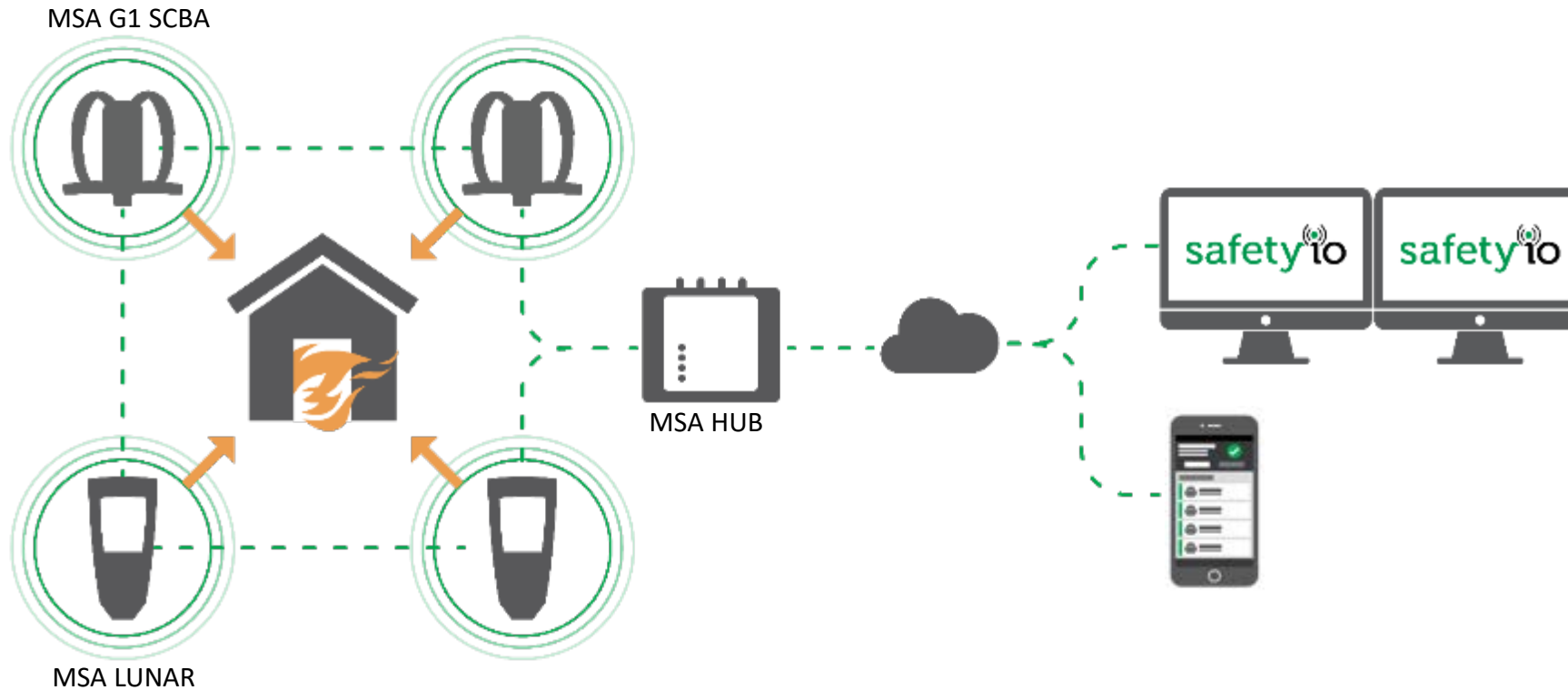


Expansion of addressable market
for MSA



Redefining the category of transportable gas detectors

MSA Connected Firefighter Ecosystem



Product:
Seamless asset
management

People:
Track firefighters, training,
live monitoring

Process:
Situational awareness &
reporting automation

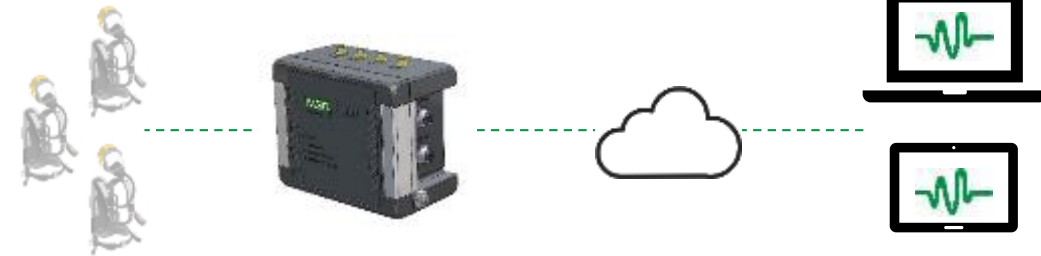
MSA is the first mover in Fire Service IoT – enabled by market leadership position with our G1 SCBA

MSA Connected Firefighter Ecosystem



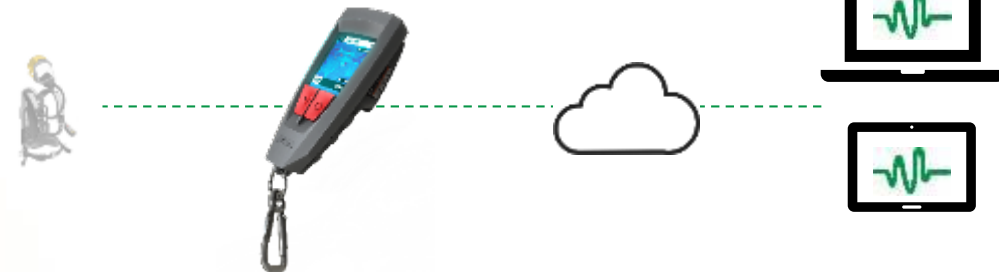
MSA HUB

Data aggregation and connectivity hub that enables on-scene monitoring and cloud functionality for MSA SCBAs with telemetry



LUNAR

Wireless control module with integrated thermal imaging, firefighter ranging, and out-of-the-box connectivity



A Closer Look at LUNAR



Wireless Device

Independent of SCBA use

G1 SCBA Integration

Expand Capability of G1 Platform

Firefighter Ranging

Find Downed First Responders Faster

Thermal Imaging

Enhance Visibility On-Scene

Cloud-Ready

Out-of-the-Box Connectivity



LUNAR is a wireless, handheld device that delivers connectivity like never before; Launching in mid-2020



Creating Value through Strategic Acquisitions

Ken Krause

SVP, CFO and Treasurer

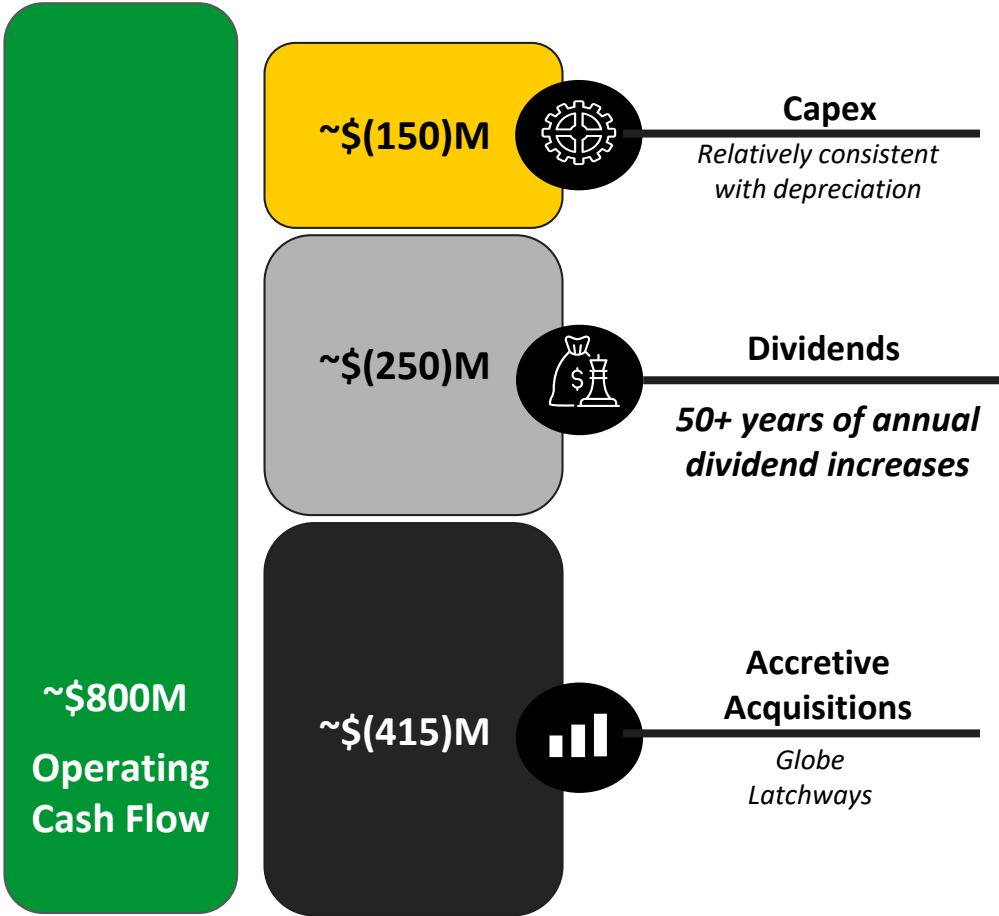
Chris Hepler

Executive Director, Corporate Development

Capital Allocation: Balanced Strategy

Capital Deployment

For the 5 years ended 12/31/18



Future Capital Deployment Priorities

Invest in Growth – Highest Priority

R&D and strategic acquisitions



Fund Increasing Dividend

Continue 50+ year legacy of increases



Repurchase Shares to Offset Dilution



The Formula

Grow earnings at a multiple of revenue → strong cash flow conversion → invest in growth and increase the dividend to return value to shareholders

Growth investments will continue to be the priority for capital deployment, while maintaining our 50+ year history of increasing dividend payments

Proven Track Record of Strategic Acquisitions



73

Purchase Price: \$278M

Year 1 GAAP EPS: \$0.44

Adjusted EPS*: \$0.53



Purchase Price: \$191M

Year 1 GAAP EPS: \$0.13

Adjusted EPS*: \$0.23



Purchase Price: \$215M

Year 1 GAAP EPS: \$0.30

Adjusted EPS*: \$0.39



Purchase Price: \$33M

Year 1 EPS Target:
\$0.03-\$0.07



*Adjusted EPS excludes transaction costs and purchase accounting amortization

Over the past decade, we have deployed more than \$700M for strategic acquisitions that strengthened our position in core markets

Strategic Acquisitions: Key Criteria

Strategic Rationale



Values

Alignment to advance our mission, culture, and business



Products

Broaden portfolio in a core market, accelerate new product development efforts, or capture share in an existing product line



Channels

Leverage existing channels to drive synergies or provide access to new channels



Talent

Expand our strong pipeline of diverse talent

Financial Criteria

EPS Accretion in Year 1

ROIC > WACC in
3 – 5 Years

Revenue growth and
margin profile
accretive to MSA; high
FCF conversion

Investing in strategic acquisitions is a capital deployment priority to complement organic growth programs

Strategic Acquisitions: Our Approach



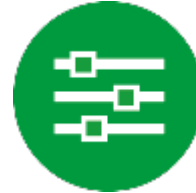
Discipline

Structured and measured approach throughout the deal cycle



Balanced

Explore deals in current product areas as well as extensions that leverage our core competencies, customer base or channel



Deep Pipeline

Full pipeline of quality opportunities – use top-down and bottom-up sourcing process to identify assets

Pipeline Snapshot



■ Fire Service

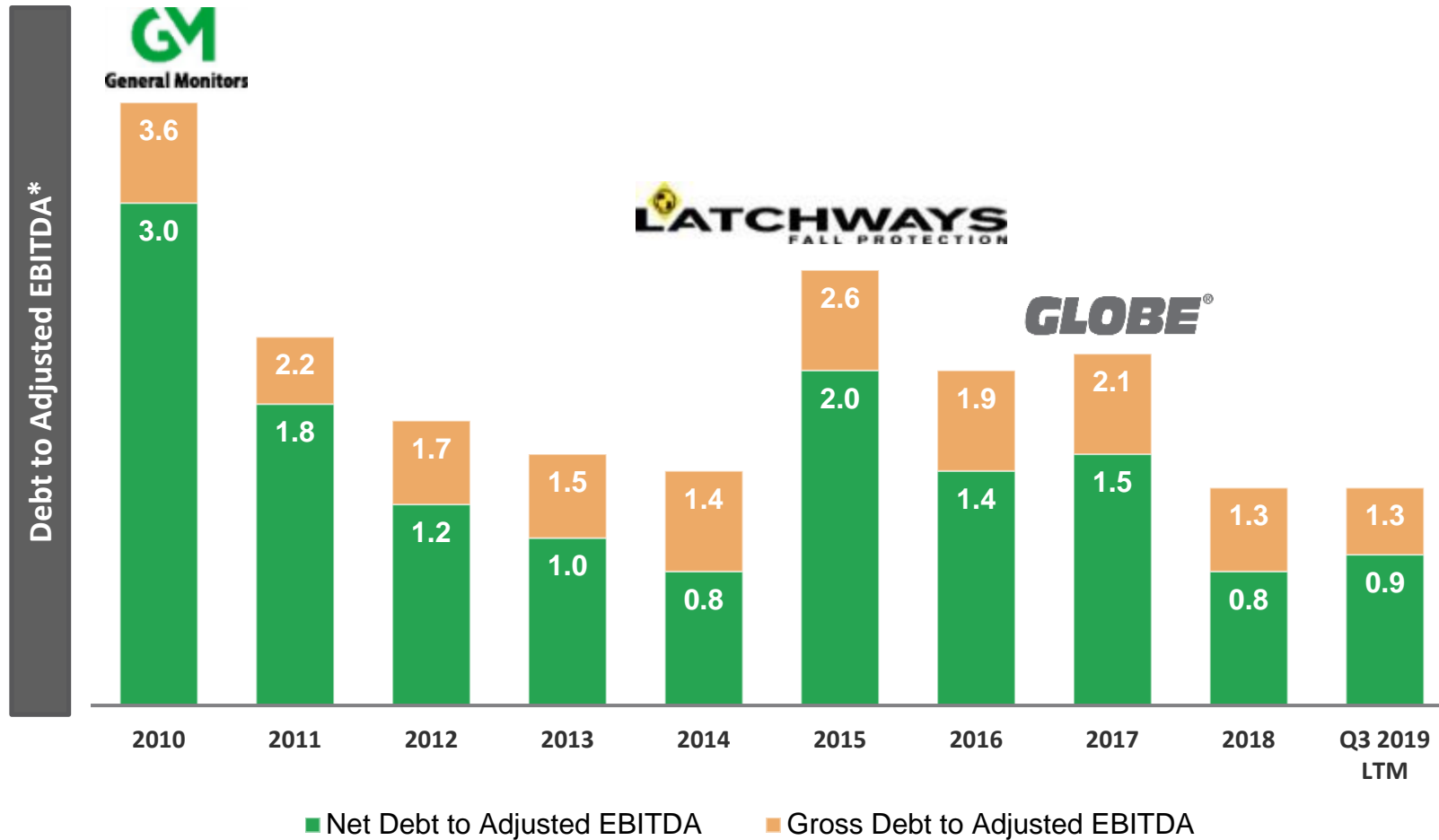
■ Gas Detection

■ Personal Protective Equipment

- Ample opportunities across our core markets
- Additional 100+ potential opportunities on the watch list

Highly disciplined approach throughout all aspects of the deal lifecycle

Leverage and Capacity



*Debt to adjusted EBITDA is a non-GAAP measure. See reconciliations in appendix.

>100%

Three Year Average Free Cash Flow Conversion

~\$1B

Current Unused Debt Capacity
As of 9/30/19

Significant M&A Optionality

While continuing to fund dividend and invest in R&D programs

History of leveraging up for accretive acquisitions while maintaining investment grade balance sheet; balance sheet is well positioned for capital deployment and returning value to shareholders

Key Messages

Disciplined approach throughout the deal cycle

Balance sheet is strong; we have capacity to invest in our business

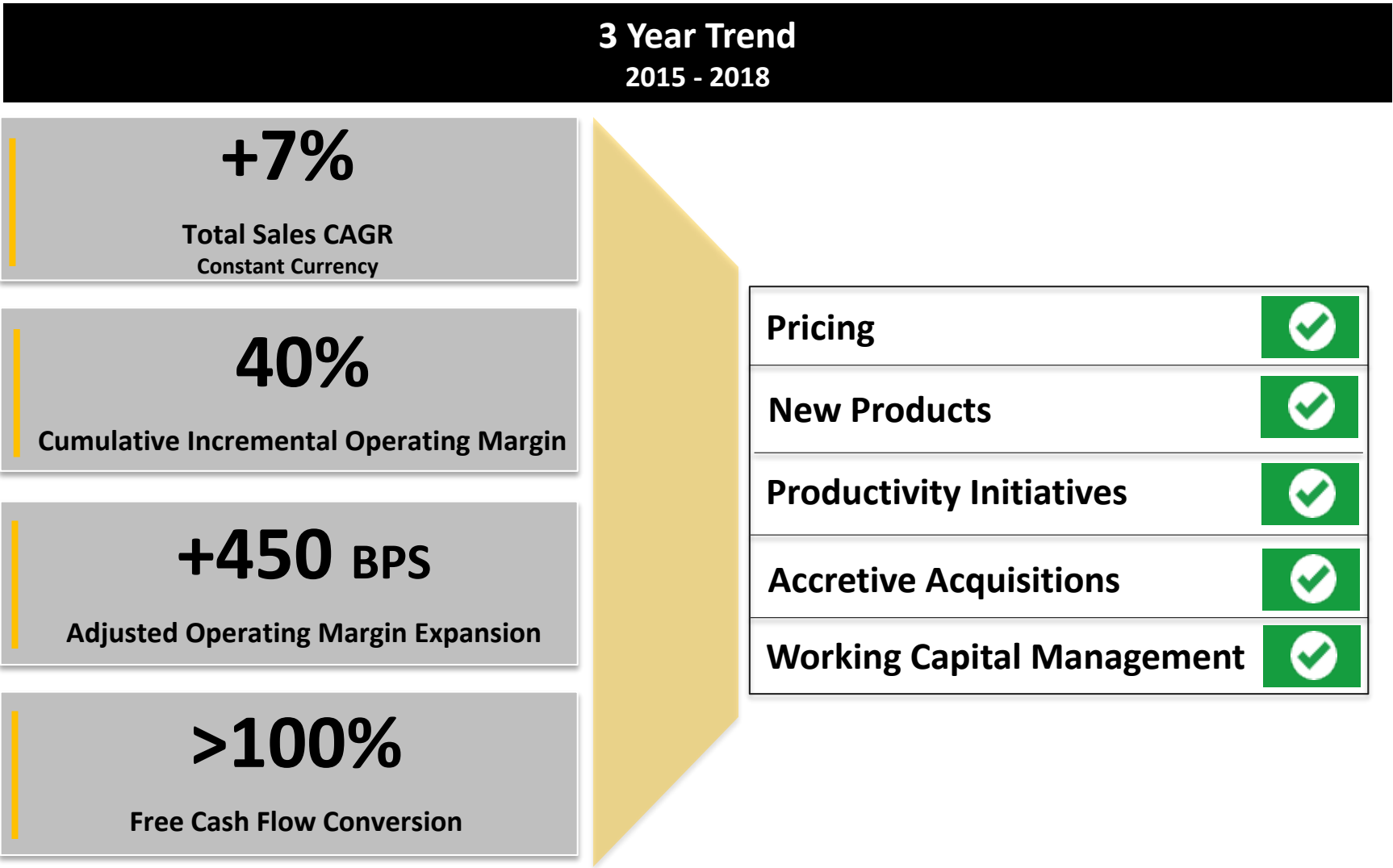
Focused on assets in our core product lines as well as extensions within our core markets



Financial Review

Ken Krause
SVP, CFO and Treasurer

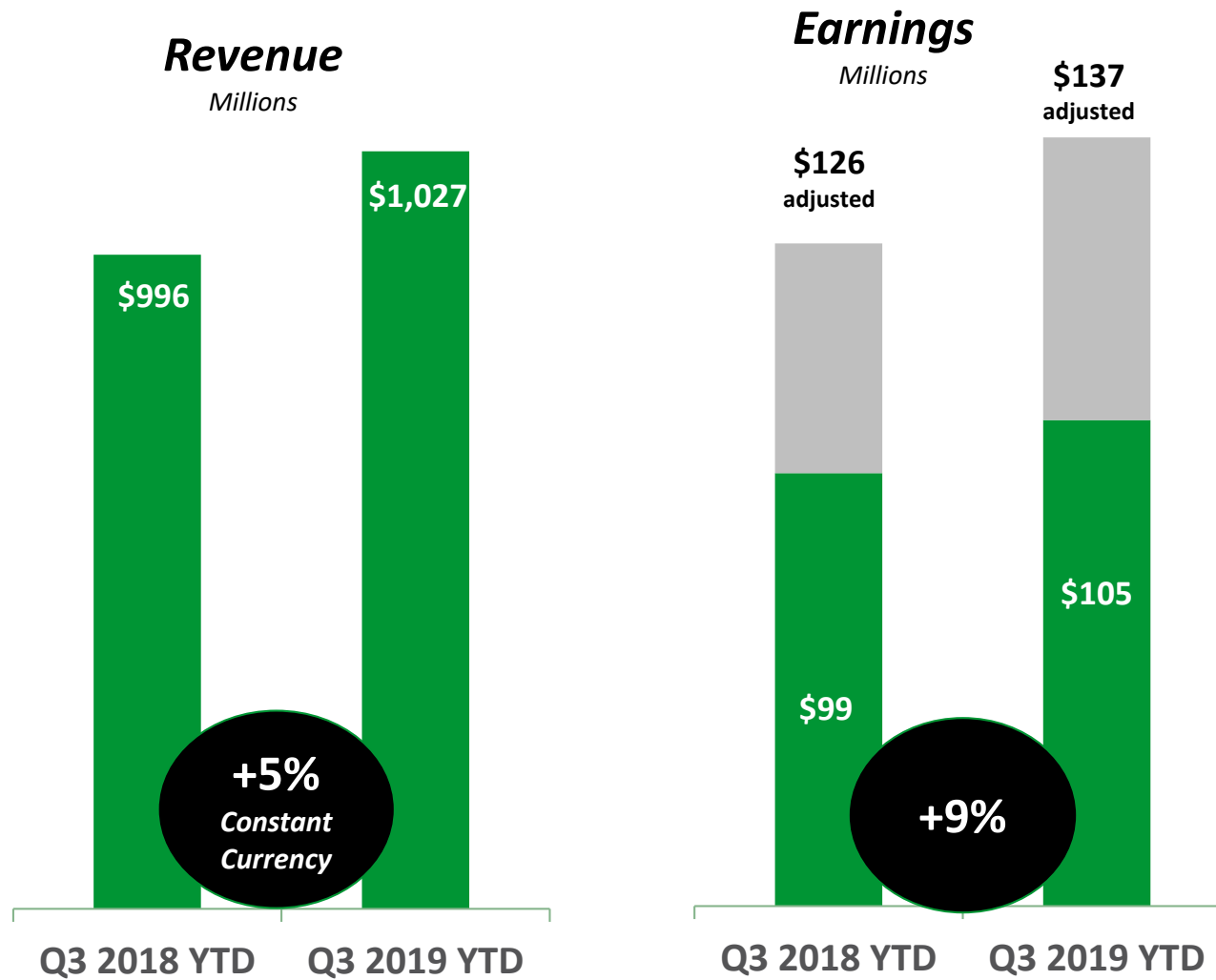
Historical Revenue, Margin and Cash Flow Performance



Constant currency revenue , adjusted operating margin and free cash flow conversion are non-GAAP measures. See reconciliations in appendix.

MSD revenue growth, product margin expansion and productivity programs have driven a step-change in profitability and cash flow

2019 Year to Date Performance Summary



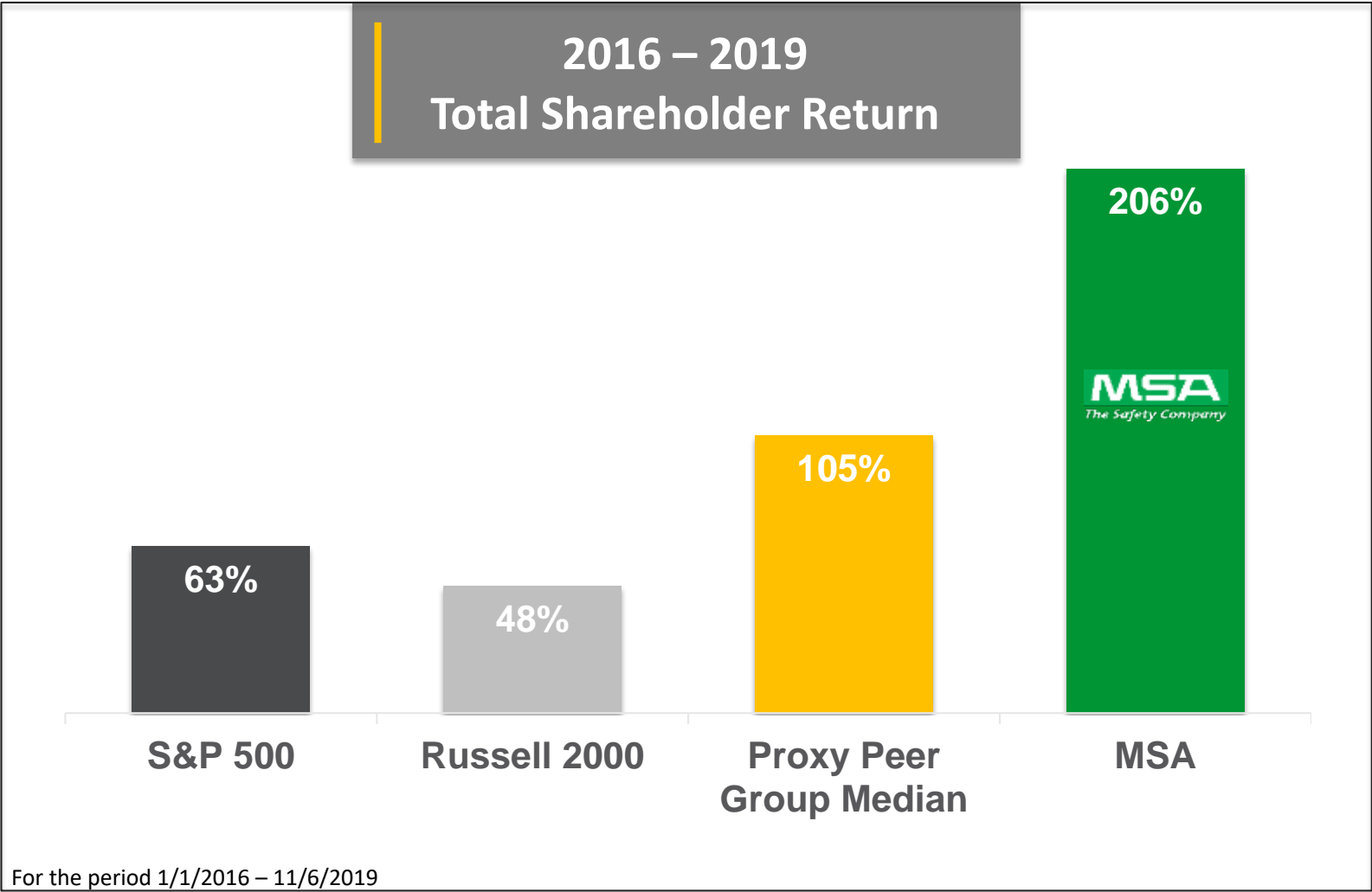
Key Trends

- Revenue growth of 5% year to date – expect MSD constant currency revenue growth for full year 2019
- Book to bill exceeding 1.00 in the third quarter despite strong invoicing pace
- Product margin improvements and SG&A leverage driving 110 basis points of operating margin expansion
- Free cash flow conversion improved to 95% of net income in the third quarter after a slower first half of the year

Constant currency revenue, adjusted earnings and free cash flow are non-GAAP measures. See reconciliations in appendix.

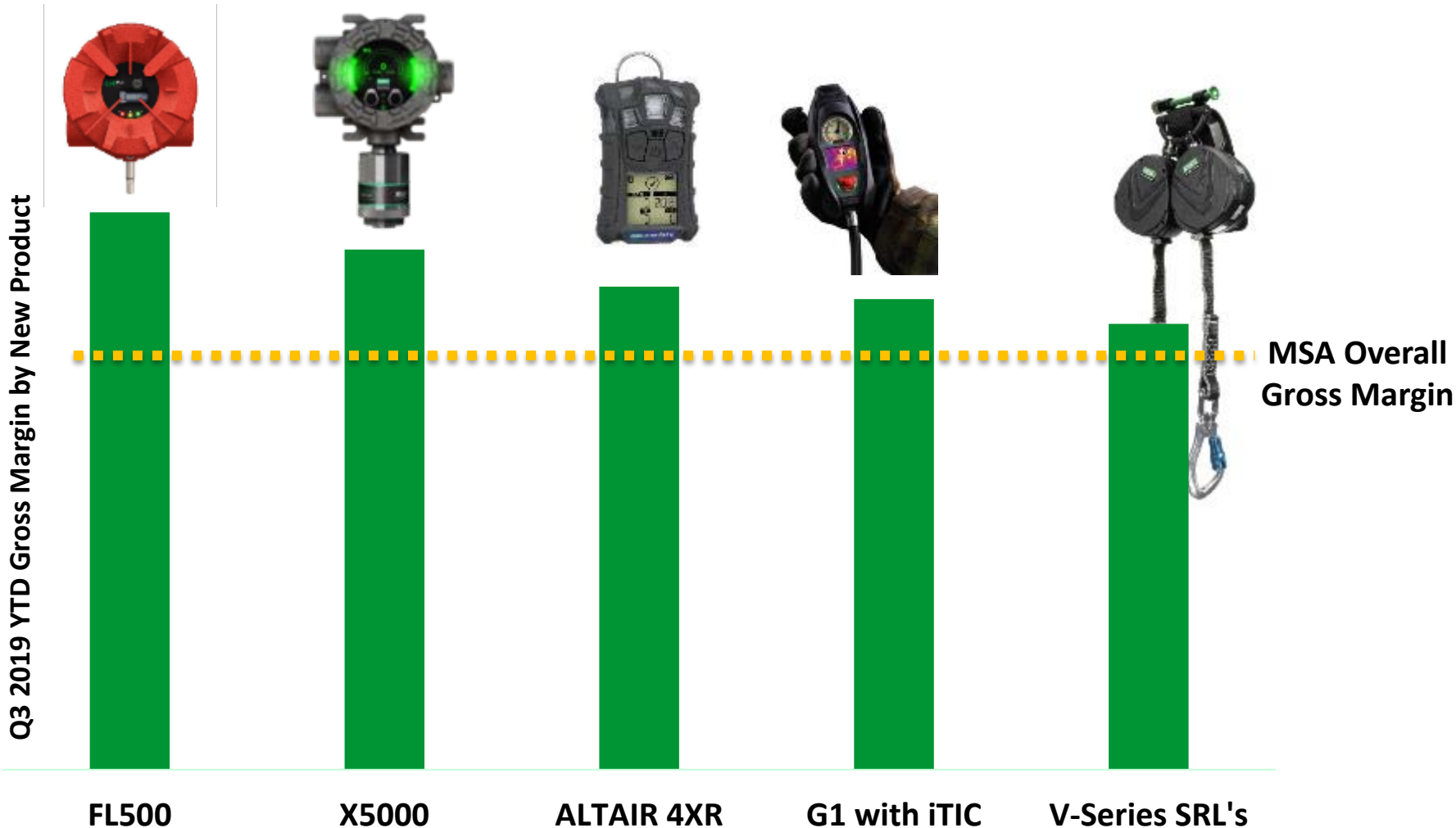
Focus on innovation and productivity drives strong revenue growth and operating leverage

Strong Operating Leverage Drives Superior Returns



Consistent mid-single digit revenue growth and strong incremental margin profile drives superior shareholder value creation

New Products Driving Margin Expansion



Value Engineering

G1 SCBA was dilutive to MSA margins during the year of launch



Reduced product costs by 15% through engineering efficiencies



Launched differentiated accessories for the platform (iTIC)

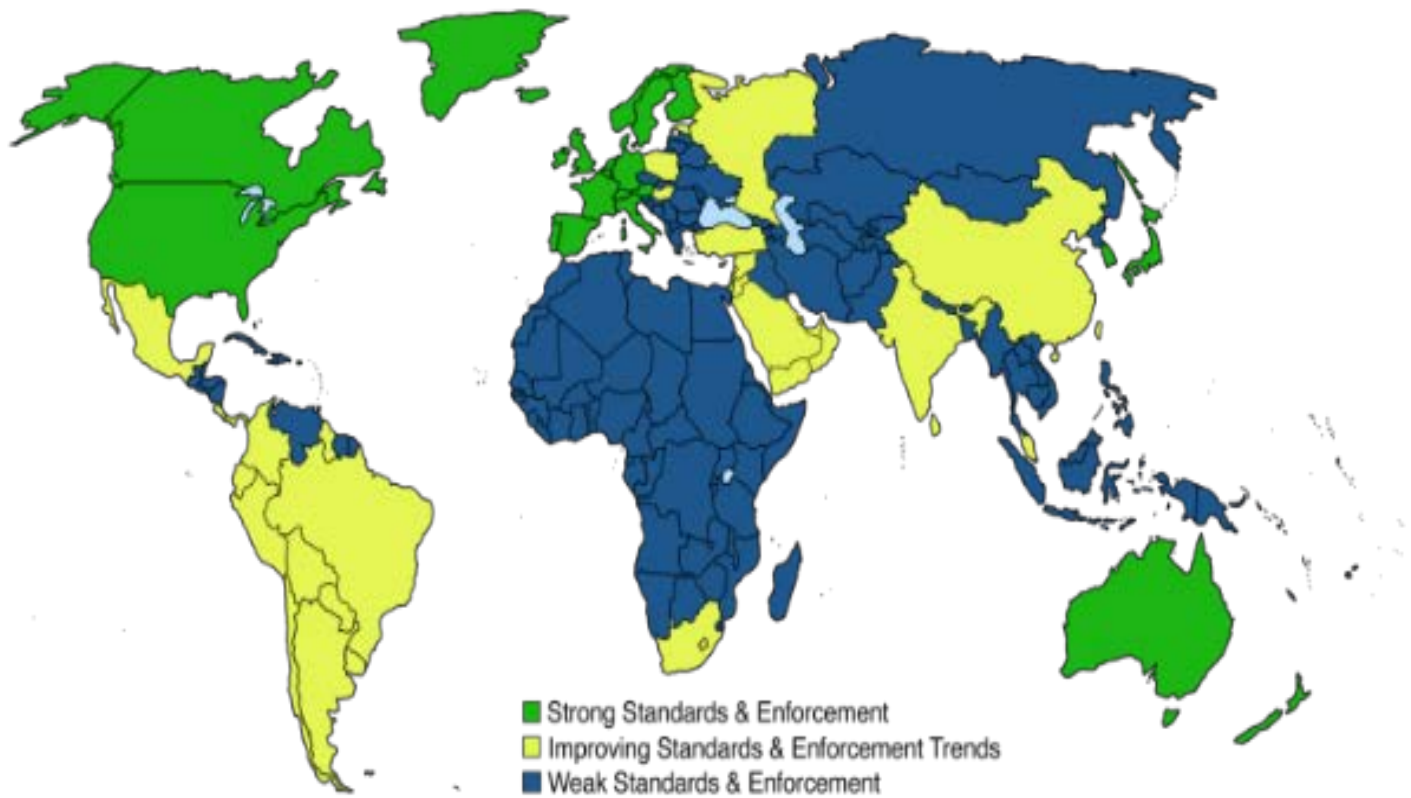


G1 SCBA is now accretive to margins

Gross profit has increased by +70 basis points in 2019 YTD as new products support pricing programs and provide enhanced value for our customers

Safety Market and MSA Portfolio Dynamics

Safety Standards Landscape by Geography



Secular and Brand Specific Considerations

Safety is a defensive market...

Global development and increased enforcement of safety standards drives tailwinds; Purchases not discretionary

Unique secular trends in niche areas of safety: firefighter health and wellness, fall protection compliance, industrial IoT

Global ESG Movement – Heightened Focus on Worker Safety

....and MSA is the safety market leader

Strength of the MSA brand drives repeat business across our portfolio

New products taking market share and our launch pipeline is larger than ever

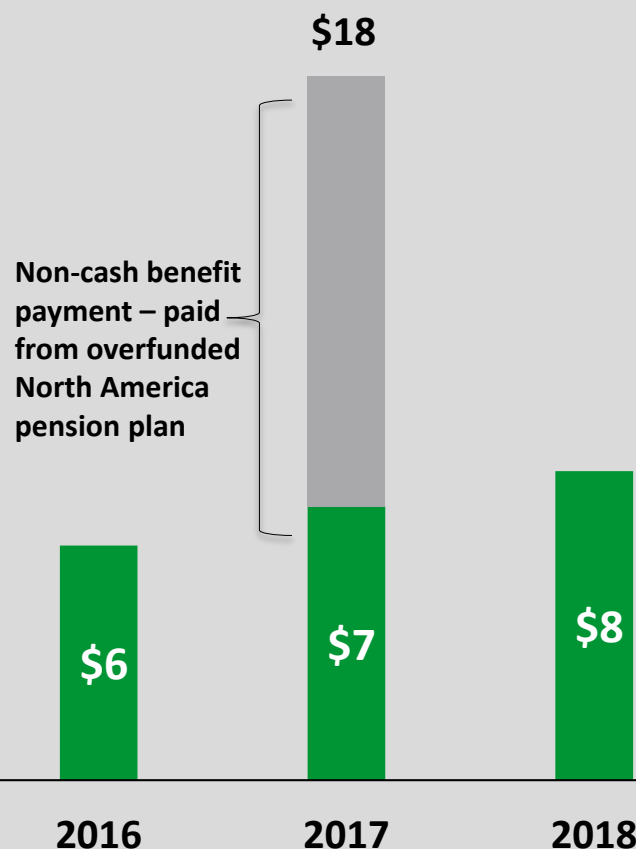
Our portfolio has extensive market, product, and geographic diversification that support our results in any environment

Highly diversified portfolio with 60% of our business in long cycle and fire service; MSA is well positioned as the leader in a defensive market

Returns on Restructuring Programs

Restructuring Investments

Segment Cost Reduction Programs
2016 – 2018 (Millions)



Sources of Cost Savings

- Headcount optimization
- Rationalized geographic footprint
- Implemented cost conscious culture

>\$30M

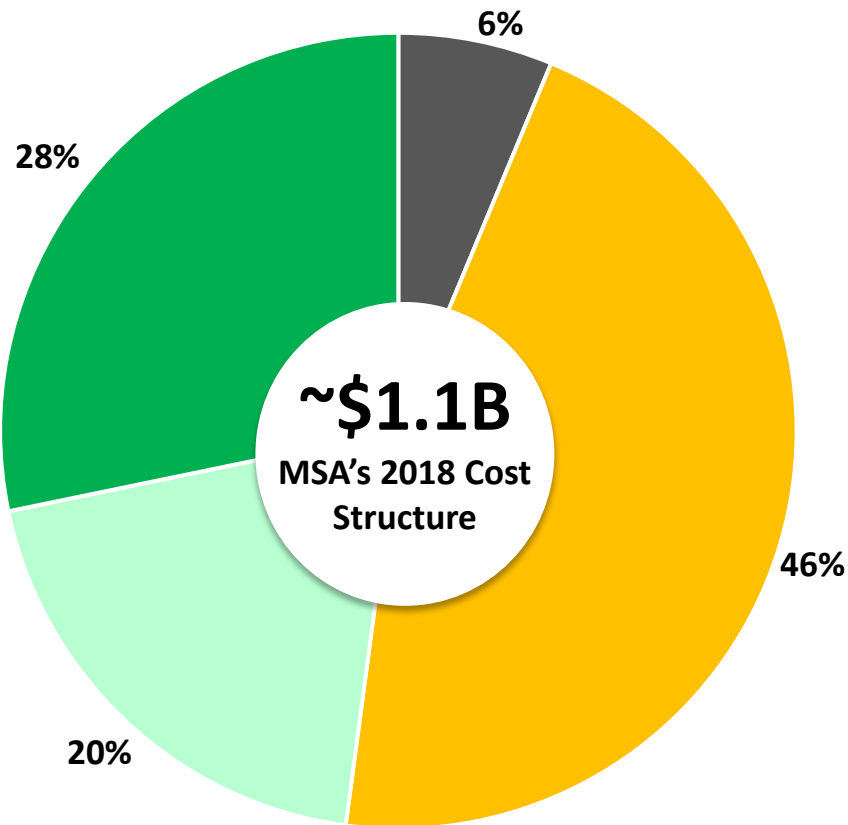
Reduction in Cost Structure

+400 BPS

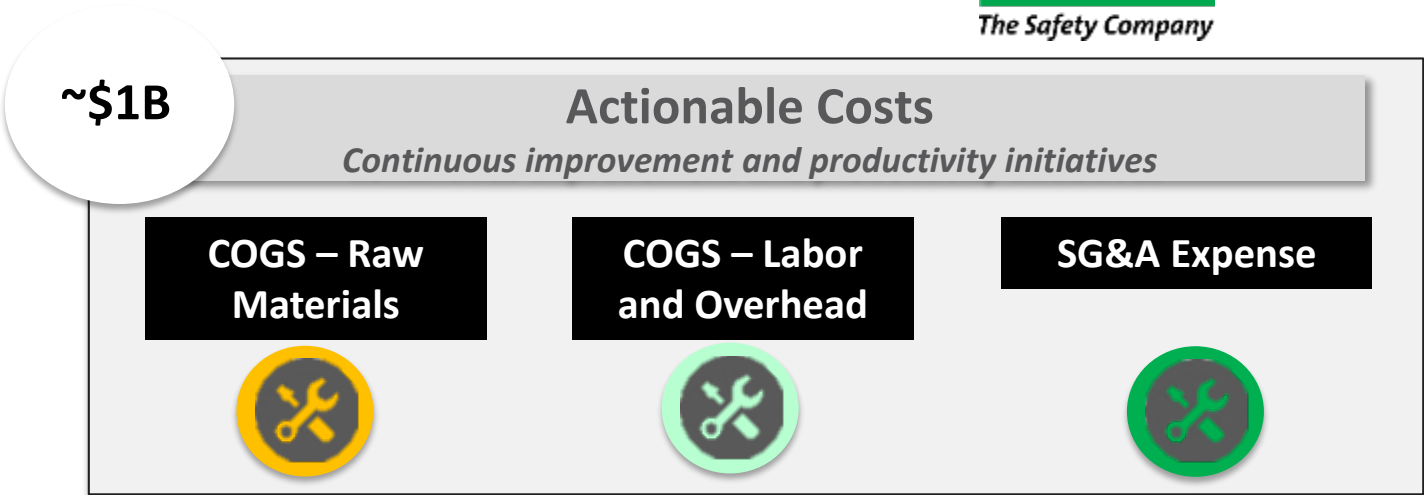
Operating Leverage from SG&A Expense
2015 - 2019

Proven track record of reducing cost structure; more runway ahead

Current Cost Structure Overview



- R&D & Engineering Investments
- COGS - Raw Materials
- COGS - Labor and Overhead
- SG&A Expense

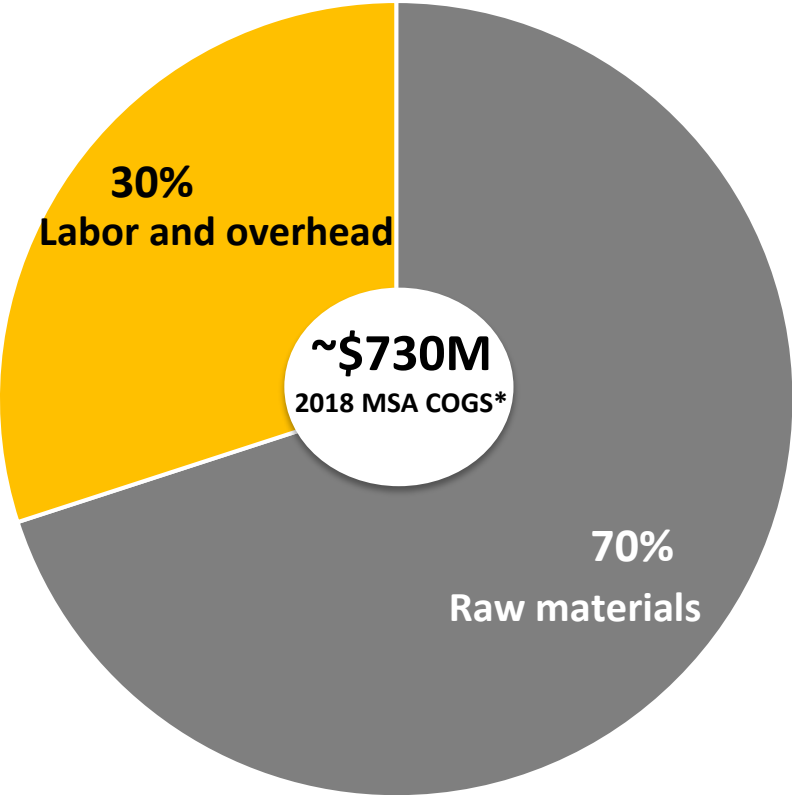


COGS excludes sustaining engineering costs for existing products of approx. \$15M



Productivity focus is ongoing; pipeline of cost reduction and productivity programs defined for 2020 and beyond

Actionable Costs: Costs of Sales

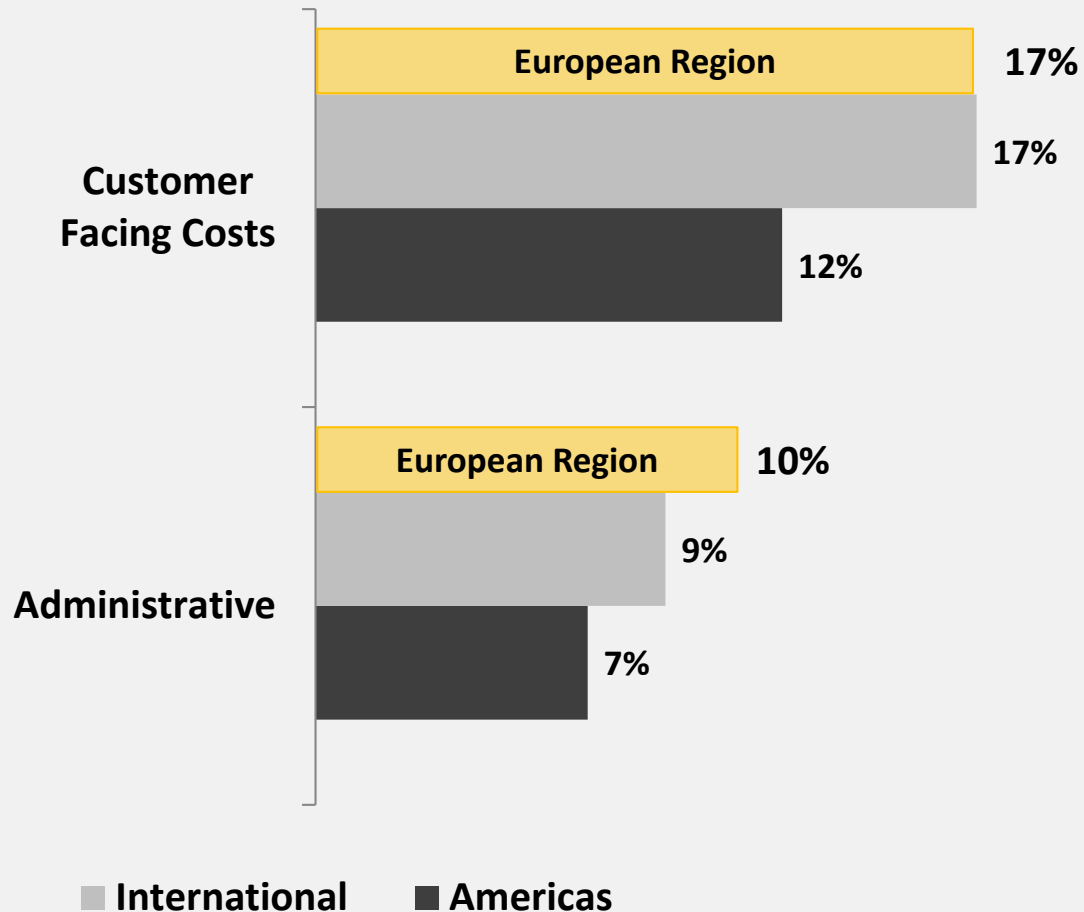


COGS excludes sustaining engineering costs for existing products of approx. \$15M

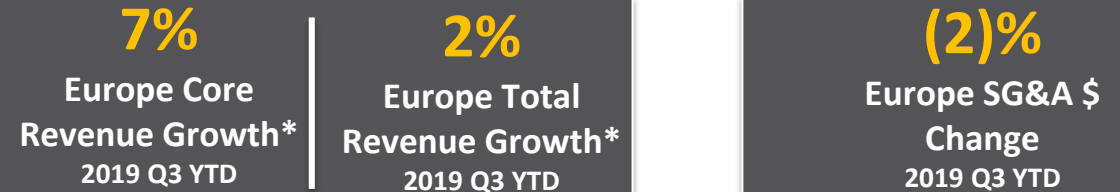
Cost Savings – Focus Areas	
Sourcing	<ul style="list-style-type: none">Strategic sourcing and other productivity programs
Value Engineering (VAVE)	<ul style="list-style-type: none">Reduce product costs through engineering efficiencies – dedicating new resources to this area given the robust cadence of product launchesPipeline of VAVE projects building for 2020 and 2021
Overhead	<ul style="list-style-type: none">Manufacturing footprint rationalization opportunities

Actionable Costs: SG&A Expense

2018 SG&A % of Revenue by Segment



European Cost Savings – 2019 Progress



*Stated in constant currency. Constant currency revenue growth is a non-GAAP measure. See reconciliations in appendix.

European Cost Savings Roadmap

- Executing on affiliate and legal entity rationalization roadmap through 2022
- Utilizing SAP to implement European shared service center – shift ~1/3 of SG&A FTEs
- New indirect spend resources expected to provide strong returns
- Business simplification and streamlining of management structure

Expect improvements to International segment cost structure in 2020 and beyond through European initiatives; substantial progress from programs completed over past several quarters

Diverse Value Creation Opportunities Across our Portfolio



Growth

- Large and diverse new product pipeline of differentiated technology
- Channels optimization
- Protect the firefighter
- Gain share in fall protection
- Advance gas detection and scale our solutions offering
- Invest in strategic emerging market growth in Brazil, Mexico, China, Middle East

Margin Improvement

- Strategic sourcing programs
- Value engineering on existing products
- Strategic pricing on new products
- Shared service center implementation in Europe and Latin America
- International margin opportunity
- Manufacturing footprint rationalization

Capital Deployment

- Full pipeline of strategic acquisitions across our core products, and extensions within our core markets
- Strong balance sheet at 1.3x leverage positions us well to invest in our business and return value to shareholders through an increasing dividend

Our success is not reliant on any single product line, market or productivity program

Long Term Financial Expectations



MSD Revenue Growth Organic Constant Currency

- LSD-MSD market growth over the long term
- +1-2% MSA price realization
- +1-2% MSA market share gain

Grow Earnings at 1.5-3x Revenue Growth

- New products and commercial excellence programs
- Continuous improvements in productivity
- Leverage strong incrementals in Americas Segment
- International Segment margin opportunity




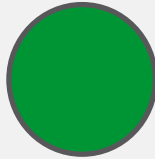

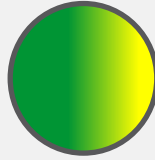
Cash Flow and Capital Deployment

- Ongoing focus on working capital management
- 100% free cash flow conversion
- Capex at 2.5-3.5% of sales
- Invest in growth: R&D, strategic acquisitions
- Fund an increasing dividend
- Maintain investment grade balance sheet



Long term focus on driving growth, profitability and cash flow

2020 Outlook

	2019 Q3 YTD*	2020 Outlook As of 11/11/19
Firefighter Safety 	2%	 SCBA demand ongoing; Steady growth in turnout gear
Gas Detection 	9%	 Continued adoption of new products in FGFD; Launch ALTAIR io360
Industrial Core PPE 	12%	 Continue to outpace market growth in fall protection; Head protection expected to remain choppy
Total MSA	5%	Expect solid first half performance; second half includes election uncertainty

Stated in constant currency. Constant currency revenue is a non-GAAP measure. See reconciliations in appendix.

Expect MSD revenue growth for the first half of 2020 based on current backlog and order pace

MSA Investor Day

November 11, 2019



Summary

Nish Vartanian
President and CEO

The Path Forward: Investor Day 2019 Takeaways



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Continue to Drive our Formula for Success

- Superior innovation, productivity focus and accretive acquisitions have driven strong results for MSA; more runway ahead

MSA Americas

- Significant headroom and ability to execute in the U.S. and Canada across our core markets: protect the firefighter, gain share in fall protection, advance gas detection and scale our solutions offering
- Accelerate growth in Latin America through focused initiatives in Mexico and Brazil

MSA International

- On track with European profitability expansion goals
- Execute growth programs in strategic emerging markets and select European regions; Continue targeted initiatives in Europe to improve pricing and reduce complexity

Growth Platforms

- Industry leading innovations and new product pipeline support organic revenue growth targets
- Disciplined approach to strategic acquisitions; strong balance sheet enables execution

Financial Review

- Long term expectations: mid-single digit organic revenue growth, earnings growth at 1.5-3x the pace of revenue, and balanced capital allocation to drive profitable growth and return value to shareholders

MSA Investor Day

November 11, 2019



Appendix

Reconciliation of Non-GAAP Measures

Reconciliation of Non-GAAP Financial Measures

Constant Currency Revenue Growth: Q3 2019 YTD

Nine Months Ended September 30, 2019						
	Firefighter Safety	Gas Detection	Industrial Core PPE	Core Sales	Non-Core Sales	Net Sales
GAAP reported sales change	—%	7%	9%	4%	(6)%	3%
Plus: Currency translation effects	2%	2%	3%	3%	3 %	2%
Constant currency sales change	2%	9%	12%	7%	(3)%	5%

Management believes that constant currency revenue growth is a useful metric for investors, as foreign currency translation can have a material impact on revenue growth trends. Constant currency revenue growth highlights ongoing business performance excluding the impact of fluctuating foreign currencies, which is outside of management's control. There can be no assurances that MSA's definition of constant currency revenue growth is consistent with that of other companies. As such, management believes that it is appropriate to consider revenue growth determined on a GAAP basis in addition to this non-GAAP financial measure.

Reconciliation of Non-GAAP Financial Measures

Constant Currency Revenue Growth: 2018

Twelve Months Ended December 31, 2018

	Breathing Apparatus	Firefighter Helmets and Protective Apparel ^(a)	Industrial Head Protection	Portable Gas Detection	Fixed Gas and Flame Detection	Fall Protection	Core Sales	Non-Core Sales	Net Sales
GAAP reported sales change	11%	64 %	10%	10%	6 %	11 %	15%	5%	13%
Plus: Currency translation effects	—%	— %	2%	—%	(1)%	(1)%	—%	—%	—%
Constant currency sales change	11%	64 %	12%	10%	5 %	10 %	15%	5%	13%
Less: Acquisitions	—%	69 %	—%	—%	— %	— %	7%	—%	5%
Organic constant currency change	11%	(5)%	12%	10%	5 %	10 %	8%	5%	8%

(a) Firefighter helmets and protective apparel includes the impact of the Globe acquisition, completed on July 31, 2017.

Management believes that constant currency revenue growth is a useful metric for investors, as foreign currency translation can have a material impact on revenue growth trends. Constant currency revenue growth highlights ongoing business performance excluding the impact of fluctuating foreign currencies, which is outside of management's control. Organic constant currency revenue growth is defined as constant currency revenue growth excluding acquisitions. Management believes that organic constant currency revenue growth is a useful measure for investors to provide an understanding of MSA's standalone results. There can be no assurances that MSA's definition of constant currency revenue growth or organic constant currency revenue growth is consistent with that of other companies. As such, management believes that it is appropriate to consider revenue growth determined on a GAAP basis in addition to these non-GAAP financial measures.

Reconciliation of Non-GAAP Financial Measures

Constant Currency Revenue Growth: 2018 (International Segment)

Twelve Months Ended December 31, 2018									
	Breathing Apparatus	Firefighter Helmets and Protective Apparel ^(a)	Industrial Head Protection	Portable Gas Detection	Fixed Gas and Flame Detection	Fall Protection	Core Sales	Non-Core Sales	Net Sales
GAAP reported sales change	18 %	(2)%	15%	8 %	2 %	8 %	8 %	16 %	10 %
Plus: Currency translation effects	(2)%	(4)%	—%	(2)%	(2)%	(1)%	(2)%	(2)%	(2)%
Constant currency sales change	16 %	(6)%	15%	6 %	— %	7 %	6 %	14 %	8 %
Less: Acquisitions	— %	1 %	—%	— %	— %	— %	— %	— %	1 %
Organic constant currency change	16 %	(7)%	15%	6 %	— %	7 %	6 %	14 %	7 %

(a) Firefighter helmets and protective apparel includes the impact of the Globe acquisition, completed on July 31, 2017.

Management believes that constant currency revenue growth is a useful metric for investors, as foreign currency translation can have a material impact on revenue growth trends. Constant currency revenue growth highlights ongoing business performance excluding the impact of fluctuating foreign currencies, which is outside of management's control. Organic constant currency revenue growth is defined as constant currency revenue growth excluding acquisitions. Management believes that organic constant currency revenue growth is a useful measure for investors to provide an understanding of MSA's standalone results. There can be no assurances that MSA's definition of constant currency revenue growth or organic constant currency revenue growth is consistent with that of other companies. As such, management believes that it is appropriate to consider revenue growth determined on a GAAP basis in addition to these non-GAAP financial measures.

Reconciliation of Non-GAAP Financial Measures



Constant Currency Revenue Growth: Q3 2019 YTD (Europe Region)

Nine Months Ended September 30, 2019						
	Firefighter Safety	Gas Detection	Industrial Core PPE	Core Sales	Non-Core Sales	Net Sales
GAAP reported sales change	(1)%	—%	4%	—%	(18)%	(4)%
Plus: Currency translation effects	6 %	6%	7%	7%	6 %	6 %
Constant currency sales change	5 %	6%	11%	7%	(12)%	2 %

Management believes that constant currency revenue growth is a useful metric for investors, as foreign currency translation can have a material impact on revenue growth trends. Constant currency revenue growth highlights ongoing business performance excluding the impact of fluctuating foreign currencies, which is outside of management's control. There can be no assurances that MSA's definition of constant currency revenue growth is consistent with that of other companies. As such, management believes that it is appropriate to consider revenue growth determined on a GAAP basis in addition to this non-GAAP financial measure.

Reconciliation of Non-GAAP Financial Measures

Constant currency revenue CAGR: 2015 – 2018

	Firefighter Safety	Gas Detection	Industrial Core PPE	Core Sales	Non-Core Sales	Net Sales
GAAP reported sales change	11 %	4 %	13 %	9 %	(5)%	6 %
Plus: Currency translation effects	— %	— %	1 %	— %	— %	1 %
Constant currency sales change	11 %	4 %	14 %	9 %	(5)%	7 %
Less: Acquisitions	9 %	— %	8 %	6 %	— %	5 %
Organic constant currency change	2 %	4 %	6 %	3 %	(5)%	2 %

Management believes that constant currency revenue growth is a useful metric for investors, as foreign currency translation can have a material impact on revenue growth trends. Constant currency revenue growth highlights ongoing business performance excluding the impact of fluctuating foreign currencies, which is outside of management's control. Organic constant currency revenue growth is defined as constant currency revenue growth excluding acquisitions. Management believes that organic constant currency revenue growth is a useful measure for investors to provide an understanding of MSA's standalone results. There can be no assurances that MSA's definition of constant currency revenue growth or organic constant currency revenue growth is consistent with that of other companies. As such, management believes that it is appropriate to consider revenue growth determined on a GAAP basis in addition to these non-GAAP financial measures.

Reconciliation of Non-GAAP Financial Measures



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Constant currency revenue CAGR: 2015 – 2018 (Americas Segment)

	Core Sales	Non-Core Sales	Net Sales
GAAP reported sales change	9%	(6)%	7%
Plus: Currency translation effects	—%	1 %	1%
Constant currency sales change	9%	(5)%	8%
Less: Acquisitions	6%	— %	6%
Organic constant currency change	3%	(5)%	2%

Management believes that constant currency revenue growth is a useful metric for investors, as foreign currency translation can have a material impact on revenue growth trends. Constant currency revenue growth highlights ongoing business performance excluding the impact of fluctuating foreign currencies, which is outside of management's control. Organic constant currency revenue growth is defined as constant currency revenue growth excluding acquisitions. Management believes that organic constant currency revenue growth is a useful measure for investors to provide an understanding of MSA's standalone results. There can be no assurances that MSA's definition of constant currency revenue growth or organic constant currency revenue growth is consistent with that of other companies. As such, management believes that it is appropriate to consider revenue growth determined on a GAAP basis in addition to these non-GAAP financial measures.

Reconciliation of Non-GAAP Financial Measures



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Constant currency revenue CAGR: 2015 – 2018 (Emerging Markets)

	Core Sales	Non-Core Sales	Net Sales
GAAP reported sales change	4%	(1)%	3%
Plus: Currency translation effects	<u>1%</u>	<u>2 %</u>	<u>2%</u>
Constant currency sales change	<u>5%</u>	<u>1 %</u>	<u>5%</u>
Less: Acquisitions	<u>2%</u>	<u>— %</u>	<u>2%</u>
Organic constant currency change	<u><u>3%</u></u>	<u><u>1 %</u></u>	<u><u>3%</u></u>

Management believes that constant currency revenue growth is a useful metric for investors, as foreign currency translation can have a material impact on revenue growth trends. Constant currency revenue growth highlights ongoing business performance excluding the impact of fluctuating foreign currencies, which is outside of management's control. Organic constant currency revenue growth is defined as constant currency revenue growth excluding acquisitions. Management believes that organic constant currency revenue growth is a useful measure for investors to provide an understanding of MSA's standalone results. There can be no assurances that MSA's definition of constant currency revenue growth or organic constant currency revenue growth is consistent with that of other companies. As such, management believes that it is appropriate to consider revenue growth determined on a GAAP basis in addition to these non-GAAP financial measures.

Reconciliation of Non-GAAP Financial Measures



Adjusted Operating Income and Adjusted Operating Margin: Q3 2019 YTD vs. Q3 2018 YTD

	Americas	International	Corporate	Consolidated
Nine Months Ended September 30, 2019				
Sales to external customers	\$ 679,699	\$ 347,027	\$ —	\$ 1,026,726
Operating income				146,252
Operating margin %				14.2%
Restructuring charges				11,203
Currency exchange losses, net				17,338
Product liability expense				8,155
Strategic transaction costs				2,937
Adjusted operating income (loss)	171,463	39,888	(25,466)	185,885
Adjusted operating margin %	25.2%	11.5%		18.1%
Depreciation and amortization				28,339
Adjusted EBITDA	190,084	49,313	(25,173)	214,224
Adjusted EBITDA %	28.0%	14.2%		20.9%
Nine Months Ended September 30, 2018				
Sales to external customers	\$ 633,812	\$ 362,508	\$ —	\$ 996,320
Operating income				131,235
Operating margin %				13.2%
Restructuring charges				10,223
Currency exchange losses, net				2,571
Product liability expense				25,469
Strategic transaction costs				208
Adjusted operating income (loss)	151,456	41,960	(23,710)	169,706
Adjusted operating margin %	23.9%	11.6%		17.0%
Depreciation and amortization				28,585
Adjusted EBITDA	169,691	52,001	(23,401)	198,291
Adjusted EBITDA %	26.8%	14.3%		19.9%

Adjusted operating income (loss) and adjusted operating margin are the measures used by the chief operating decision maker to evaluate segment performance and allocate resources. As such, management believes that adjusted operating income (loss) and adjusted operating margin are useful metrics for investors. Adjusted operating income (loss) is defined as operating income excluding restructuring charges, currency exchange gains/losses, other operating expense and strategic transaction costs. Adjusted operating margin is defined as adjusted operating income (loss) divided by sales to external customers. Adjusted operating income (loss) and adjusted operating margin are not recognized terms under GAAP and therefore do not purport to be alternatives to operating income or operating margin as a measure of operating performance. The Company's definition of adjusted operating income (loss) and adjusted operating margin may not be comparable to similarly titled measures of other companies. As such, management believes that it is appropriate to consider operating income determined on a GAAP basis in addition to these non-GAAP measures.

Reconciliation of Non-GAAP Financial Measures



Adjusted Operating Income and Adjusted Operating Margin: 2016 - 2018

	Americas	International	Corporate	Consolidated
Twelve Months Ended December 31, 2018				
Sales to external customers	\$ 854,287	\$ 503,817	—	\$ 1,358,104
Operating income				173,479
Operating margin %				12.8%
Restructuring and other charges				13,247
Currency exchange losses, net				2,330
Product liability expense				45,327
Strategic transaction costs				421
Adjusted operating income (loss)	206,839	59,866	(31,901)	\$ 234,804
Adjusted operating margin %	24.2%	11.9%		17.3%
Twelve Months Ended December 31, 2017				
Sales to external customers	\$ 736,847	\$ 459,962	—	\$ 1,196,809
Operating income				39,577
Operating margin %				3.3 %
Restructuring charges				17,632
Currency exchange losses, net				5,127
Product liability expense				126,432
Strategic transaction costs				4,225
Adjusted operating income (loss)	175,589	50,391	(32,987)	\$ 192,993
Adjusted operating margin %	23.8%	11.0%		16.1 %
Twelve Months Ended December 31, 2016				
Sales to external customers	\$ 678,433	\$ 471,097	\$ —	\$ 1,149,530
Operating income				160,702
Operating margin %				14.0%
Restructuring charges				5,694
Currency exchange losses, net				766
Product liability expense				—
Strategic transaction costs				2,531
Adjusted operating income (loss)	154,298	51,490	(36,095)	169,693
Adjusted operating margin %	22.7%	10.9%		14.8%
Depreciation and amortization				35,273
Adjusted EBITDA	175,344	65,311	(35,689)	204,966
Adjusted EBITDA %	25.8%	13.9%		17.8%

The Americas and International segments were established on January 1, 2016. The Americas segment is comprised of our operations in the U.S., Canada and Latin America. The International segment is comprised of our operations in all other parts of the world including Europe, Africa, the Middle East, India, China, South East Asia and Australia. Certain global expenses are allocated to each segment in a manner consistent with where the benefits from the expenses are derived.

Adjusted operating income (loss) and adjusted operating margin are the measures used by the chief operating decision maker to evaluate segment performance and allocate resources. As such, management believes that adjusted operating income (loss) and adjusted operating margin are useful metrics for investors. Adjusted operating income (loss) is defined as operating income excluding restructuring, currency exchange gains (losses) and other operating expense. Adjusted operating margin is defined as adjusted operating income (loss) divided by segment sales to external customers. Adjusted operating income (loss) and adjusted operating margin are not recognized terms under GAAP and therefore do not purport to be alternatives to operating income or operating margin as a measure of operating performance. The Company's definition of adjusted operating income (loss) and adjusted operating margin may not be comparable to similarly titled measures of other companies. As such, management believes that it is appropriate to consider operating income determined on a GAAP basis in addition to these non-GAAP measures.

Reconciliation of Non-GAAP Financial Measures



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Adjusted Operating Income and Adjusted Operating Margin

	2010	2011	2012	2013	2014	2015	2016	2017	2018	Q3 2019 LTM
Sales to external customers	\$ 922,552	\$ 1,112,814	\$ 1,110,043	\$ 1,112,058	\$ 1,133,885	\$ 1,130,783	\$ 1,149,530	\$ 1,196,809	\$ 1,358,104	\$ 1,388,510
Operating income	56,302	109,733	129,811	130,985	134,281	122,741	160,702	39,577	173,479	188,496
Operating margin %	6.1%	9.9%	11.7%	11.8%	11.8%	10.9%	14.0%	3.3%	12.8%	13.6%
Restructuring charges	14,121	8,559	2,787	5,344	8,515	12,258	5,694	17,632	13,247	14,227
Currency exchange (gains) losses, net	(377)	3,051	3,192	5,452	1,509	2,204	766	5,127	2,330	17,097
Product liability expense	—	—	—	—	—	—	—	126,432	45,327	28,013
Strategic transaction costs	6,500	—	—	—	—	7,462	2,531	4,225	421	3,150
Adjusted operating income	76,546	121,343	135,790	141,781	144,305	144,665	169,693	192,993	234,804	250,983
Adjusted operating margin %	8.3%	10.9%	12.2%	12.7%	12.7%	12.8%	14.8%	16.1%	17.3%	18.1%

Adjusted operating income (loss) and adjusted operating margin are the measures used by the chief operating decision maker to evaluate segment performance and allocate resources. As such, management believes that adjusted operating income (loss) and adjusted operating margin are useful metrics for investors. Adjusted operating income (loss) is defined as operating income excluding restructuring, currency exchange gains (losses) and other operating expense. Adjusted operating margin is defined as adjusted operating income (loss) divided by segment sales to external customers. Adjusted operating income (loss) and adjusted operating margin are not recognized terms under GAAP and therefore do not purport to be alternatives to operating income or operating margin as a measure of operating performance. The Company's definition of adjusted operating income (loss) and adjusted operating margin may not be comparable to similarly titled measures of other companies. As such, management believes that it is appropriate to consider operating income determined on a GAAP basis in addition to these non-GAAP measures.

Reconciliation of Non-GAAP Financial Measures



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Adjusted EBITDA/ Adjusted EBITDA margin

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Q3 2019 LTM
Income from continuing operations attributable to MSA Safety, Inc.	\$ 42,072	\$ 35,886	\$ 67,518	\$ 87,557	\$ 85,858	\$ 87,447	\$ 69,590	\$ 92,691	\$ 26,027	\$ 124,150	\$ 130,160
Provision for income taxes	21,232	17,335	33,806	41,401	35,145	41,044	44,407	57,804	2,819	37,220	51,527
Interest expense	7,079	8,694	14,116	11,344	10,677	9,851	10,854	16,411	15,360	18,881	15,516
Depreciation and amortization	27,362	29,192	32,866	31,702	30,764	29,921	31,684	35,273	37,877	37,852	37,606
Restructuring and other charges	11,378	14,121	8,559	2,787	5,344	8,515	12,258	5,694	17,632	13,247	14,227
Strategic transaction costs	—	6,500	—	—	—	—	7,462	2,531	4,225	421	3,150
Loss on extinguishment of debt	—	—	—	—	—	—	—	—	—	1,494	—
Other (income) expense, net	(6,333)	(5,948)	(5,458)	(10,876)	175	(2,765)	861	(7,620)	(5,558)	(9,231)	(9,788)
Currency exchange (gains) losses, net	(1,078)	(377)	3,051	3,192	5,452	1,509	2,204	766	5,127	2,330	17,097
Product liability expense	—	—	—	—	—	—	—	—	126,432	45,327	28,013
Adjusted EBITDA	<u>101,712</u>	<u>105,403</u>	<u>154,458</u>	<u>167,107</u>	<u>173,415</u>	<u>175,522</u>	<u>179,320</u>	<u>203,550</u>	<u>229,941</u>	<u>271,691</u>	<u>287,508</u>
Net Sales	865,718	922,552	1,112,814	1,110,443	1,112,058	1,133,885	1,130,783	1,149,530	1,196,809	1,358,104	1,388,510
Adjusted EBITDA margin	11.7%	11.4%	13.9%	15.0%	15.6%	15.5%	15.9%	17.7%	19.2%	20.0%	20.7%

Adjusted EBITDA is a non-GAAP financial measure. MSA defines this measure as net income attributable to the Company, excluding interest, taxes, depreciation and amortization, restructuring charges, other operating expense, currency exchange gains/losses, strategic transaction costs and other income. Management believes this information is useful for investors to analyze profitability trends of the Company. Adjusted EBITDA, as defined herein, may not be comparable to similarly titled measures reported by other companies. Furthermore, this performance measure does not take into account certain significant items that directly affect net income. Adjusted EBITDA should be considered in addition to GAAP measures such as net income.

Reconciliation of Non-GAAP Financial Measures



Adjusted Earnings: 2018 vs. 2017

	Three Months Ended December 31,			Twelve Months Ended December 31,		
	2018	2017	% Change	2018	2017	% Change
Net income (loss) attributable to MSA Safety Incorporated	24,883	(32,984)	(175)%	124,150	26,027	377%
Tax charges associated with U.S. Tax Reform	4,475	19,817		2,518	19,817	
Tax (benefit) associated with ASU 2016-09: <i>Improvements to employee share-based payment accounting</i>	(225)	(1,413)		(2,531)	(8,323)	
Tax charges (benefits) associated with restructuring activities	1,794	(30)		1,794	(2,504)	
Subtotal	30,927	(14,610)	(312)%	125,931	35,017	260%
Other operating expense	19,858	93,476		45,327	126,432	
Restructuring charges	3,024	712		13,247	17,632	
Strategic Transaction Costs	213	860		421	4,225	
Asset related losses and other, net	68	492		1,978	678	
Currency exchange (gains) losses, net	(241)	1,133		2,330	5,127	
Income tax expense on adjustments	(4,155)	(31,443)		(13,800)	(47,810)	
Adjusted earnings	\$ 49,694	\$ 50,620	(2)%	\$ 175,434	\$ 141,301	24%
Adjusted earnings per diluted share	\$ 1.27	\$ 1.31	(3)%	\$ 4.50	\$ 3.65	23%

Management believes that adjusted earnings and adjusted earnings per diluted share are useful measures for investors, as management uses these measures to internally assess the company's performance and ongoing operating trends. There can be no assurances that additional special items will not occur in future periods, nor that MSA's definition of adjusted earnings is consistent with that of other companies. As such, management believes that it is appropriate to consider both net income determined on a GAAP basis as well as adjusted earnings.

Reconciliation of Non-GAAP Financial Measures



Adjusted Earnings: Q3 2019 vs Q3 2018

	Three Months Ended September 30,			Nine Months Ended September 30,		
	2019	2018	% Change	2019	2018	% Change
Net income attributable to MSA Safety Incorporated	\$ 42,239	\$ 33,717	25%	105,278	99,267	6%
Tax (benefit) associated with U.S. Tax Reform	—	(1,956)		—	(1,956)	
Non-deductible non-cash charge related to the recognition of currency translation adjustments ^(a)	—	—		15,359	—	
Tax benefit associated with ASU 2016-09: Improvements to employee share-based payment accounting	(187)	(430)		(2,180)	(2,306)	
Subtotal	42,052	31,331	34%	118,457	95,005	25%
Product liability expense	1,730	14,627		8,155	25,469	
Restructuring charges	1,850	2,615		11,203	10,223	
Strategic transaction costs	952	56		2,937	208	
Currency exchange (gains) losses, net	(913)	(252)		1,979	2,571	
Loss on extinguishment of debt	—	1,494		—	1,494	
Asset related losses (gains), net	38	(733)		271	415	
Income tax expense on adjustments	(878)	(4,024)		(5,912)	(9,645)	
Adjusted earnings	\$ 44,831	\$ 45,114	(1)%	\$137,090	\$125,740	9%
Adjusted earnings per diluted share	\$ 1.15	\$ 1.16	(1)%	\$ 3.50	\$ 3.23	8%

^(a) Included in Currency exchange (gains) losses, net on the Statement of Income.

Management believes that adjusted earnings and adjusted earnings per diluted share are useful measures for investors, as management uses these measures to internally assess the company's performance and ongoing operating trends. There can be no assurances that additional special items will not occur in future periods, nor that MSA's definition of adjusted earnings is consistent with that of other companies. As such, management believes that it is appropriate to consider both net income determined on a GAAP basis as well as adjusted earnings.

Reconciliation of Non-GAAP Financial Measures



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Earnings per diluted share excluding transaction costs and purchase accounting amortization

Twelve Months Ended December 31, 2011			Twelve Months Ended December 31, 2016			Twelve Months Ended June 30, 2018		
	Reconciliation of Earnings	Reconciliation of Earnings Per Diluted Share		Reconciliation of Earnings	Reconciliation of Earnings Per Diluted Share		Reconciliation of Earnings	Reconciliation of Earnings Per Diluted Share
General Monitors GAAP earnings	\$ 16,100	\$ 0.44	Latchways GAAP earnings	\$ 4,405	\$ 0.13	Globe GAAP earnings	\$ 11,556	\$ 0.30
Transaction costs	—	—	Transaction costs	548	0.01	Transactions costs	1,331	0.03
Purchase accounting amortization	5,500	0.15	Purchase accounting amortization	4,942	0.12	Purchase accounting amortization	4,102	0.10
Income tax expense on adjustments	(1,925)	(0.06)	Income tax expense on adjustments	(1,071)	(0.03)	Income tax expense on adjustments	(1,650)	(0.04)
General Monitors earnings excluding transaction costs and purchase accounting amortization	<u>\$ 19,675</u>	<u>\$ 0.53</u>	Latchways earnings excluding transaction costs and purchase accounting amortization	<u>\$ 8,824</u>	<u>\$ 0.23</u>	Globe earnings excluding transaction costs and purchase accounting amortization	<u>\$ 15,339</u>	<u>\$ 0.39</u>

Management believes that earnings per diluted share excluding transaction costs and purchase accounting amortization is a useful measure for investors, as management uses this measure to assess the profitability of MSA's recent acquisitions. There can be no assurance that MSA's metrics are consistent with that of other companies. As such, management believes that it is appropriate to consider both net income determined on GAAP basis as well as earnings per diluted share excluding transaction costs and purchase accounting amortization.

Reconciliation of Non-GAAP Financial Measures



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Debt to adjusted EBITDA / Net debt to adjusted EBITDA

	2010	2011	2012	2013	2014	2015	2016	2017	2018	Q3 2019 LTM
Adjusted EBITDA	\$ 105,403	\$ 154,458	\$ 167,107	\$ 173,415	\$ 175,522	\$ 179,320	\$ 203,550	\$ 229,941	\$ 271,691	\$ 287,508
Total end-of-period debt	377,257	342,309	279,156	267,334	251,667	466,626	390,502	474,512	361,374	372,073
Debt to adjusted EBITDA	3.6	2.2	1.7	1.5	1.4	2.6	1.9	2.1	1.3	1.3
Total cash and cash equivalents	59,760	59,938	82,718	96,265	105,998	105,925	113,759	134,244	140,095	108,481
Net debt	\$ 317,497	\$ 282,371	\$ 196,438	\$ 171,069	\$ 145,669	\$ 360,701	\$ 276,743	\$ 340,268	\$ 221,279	\$ 263,592
Net debt to adjusted EBITDA	3.0	1.8	1.2	1.0	0.8	2.0	1.4	1.5	0.8	0.9

Debt to adjusted EBITDA ratio is a non-GAAP measure defined as total long term debt and debt maturing within one year divided by adjusted EBITDA, as reconciled above. Net debt to adjusted EBITDA is a non-GAAP measure defined as total long term debt and debt maturing within one year, minus cash and cash equivalents divided by adjusted EBITDA, as reconciled above. These ratios are frequently used by investors and credit agencies and management believes this measures provides relevant and useful information.

Reconciliation of Non-GAAP Financial Measures

Free Cash Flow

	2015	2016	2017	2018	Q3 2019 LTM
Cash flow from operating activities	\$55,254	\$134,894	\$230,336	\$263,887	\$165,968
Capital expenditures	(36,241)	(25,523)	(23,725)	(33,960)	(38,863)
Free cash flow	<u>\$19,013</u>	<u>\$109,371</u>	<u>\$206,611</u>	<u>\$229,927</u>	<u>\$127,105</u>
Net income attributable to MSA Safety Incorporated	\$70,807	\$91,936	\$26,027	\$124,150	\$130,161
Free cash flow conversion	27%	119%	794%	185%	98%

Management believes that free cash flow is a meaningful measure for investors. Management reviews cash from operations after deducting capital expenditures because these expenditures are necessary to promote growth of MSA's business and are likely to produce cash from operations in future periods. It is important to note that free cash flow does not reflect the residual cash balance of the company for discretionary spending since other items, including debt and dividend payments, are deducted from free cash flow before arriving at the company's ending cash balance. Management defines free cash flow conversion as free cash flow divided by net income attributable to MSA. There can be no assurances that MSA's definition of free cash flow is consistent with that of other companies. As such, management believes that it is appropriate to consider cash from operating activities determined on a GAAP basis as well as free cash flow.

Reconciliation of Non-GAAP Financial Measures



Free Cash Flow: Q3 2019 YTD

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Cash flow from operating activities	\$50,705	\$120,815	\$88,250	\$186,197
Capital expenditures	(9,998)	(9,808)	(23,523)	(18,620)
Free cash flow	<u>\$40,707</u>	<u>\$111,007</u>	<u>\$64,727</u>	<u>\$167,577</u>
Net income attributable to MSA Safety Incorporated	\$42,239	\$33,717	\$105,278	\$99,267
Free cash flow conversion	96%	329%	61%	169%

Management believes that free cash flow is a meaningful measure for investors. Management reviews cash from operations after deducting capital expenditures because these expenditures are necessary to promote growth of MSA's business and are likely to produce cash from operations in future periods. It is important to note that free cash flow does not reflect the residual cash balance of the company for discretionary spending since other items, including debt and dividend payments, are deducted from free cash flow before arriving at the company's ending cash balance. Management defines free cash flow conversion as free cash flow divided by net income attributable to MSA. There can be no assurances that MSA's definition of free cash flow is consistent with that of other companies. As such, management believes that it is appropriate to consider cash from operating activities determined on a GAAP basis as well as free cash flow.