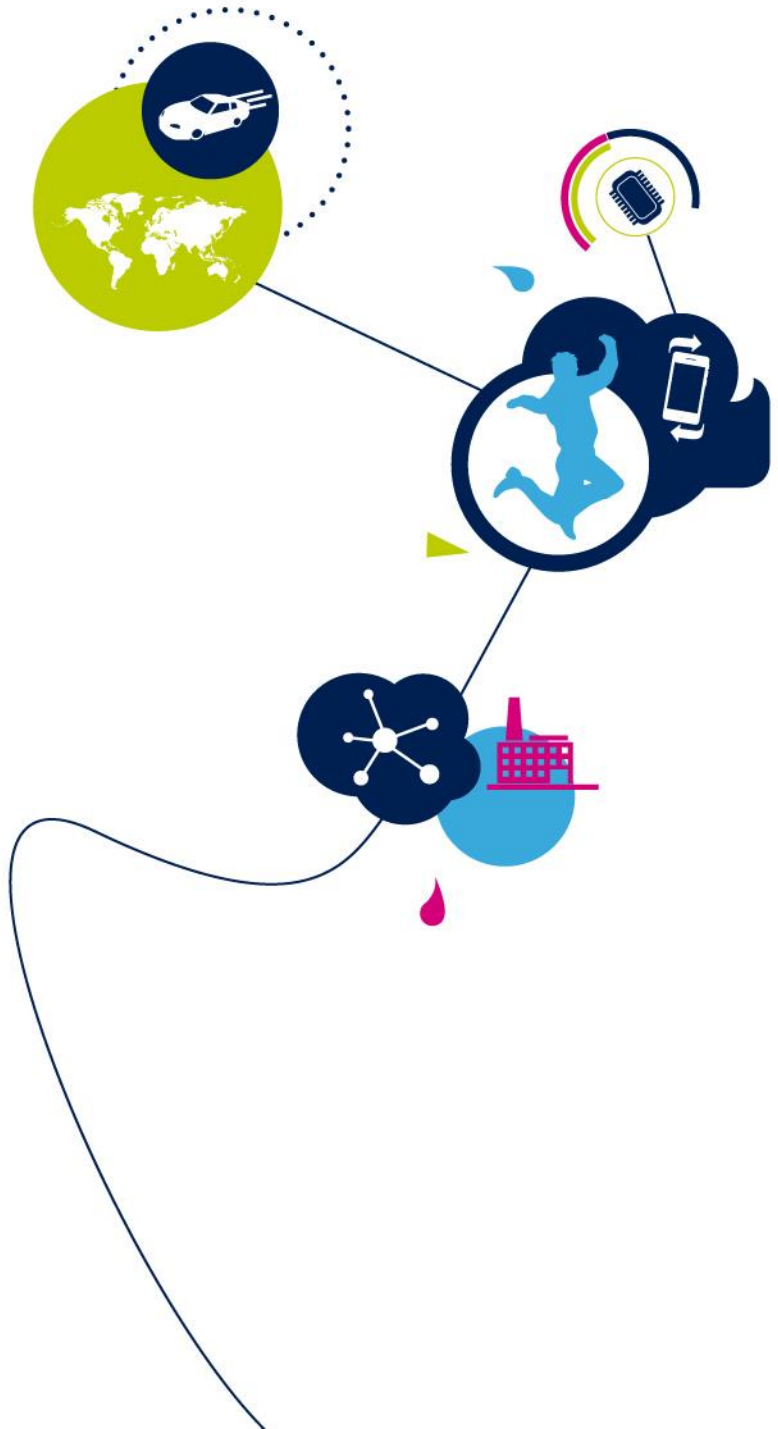
STMicroelectronics

Capital Markets Day 2019



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Welcome

Celine Berthier

Group Vice President, Head of Investor Relations

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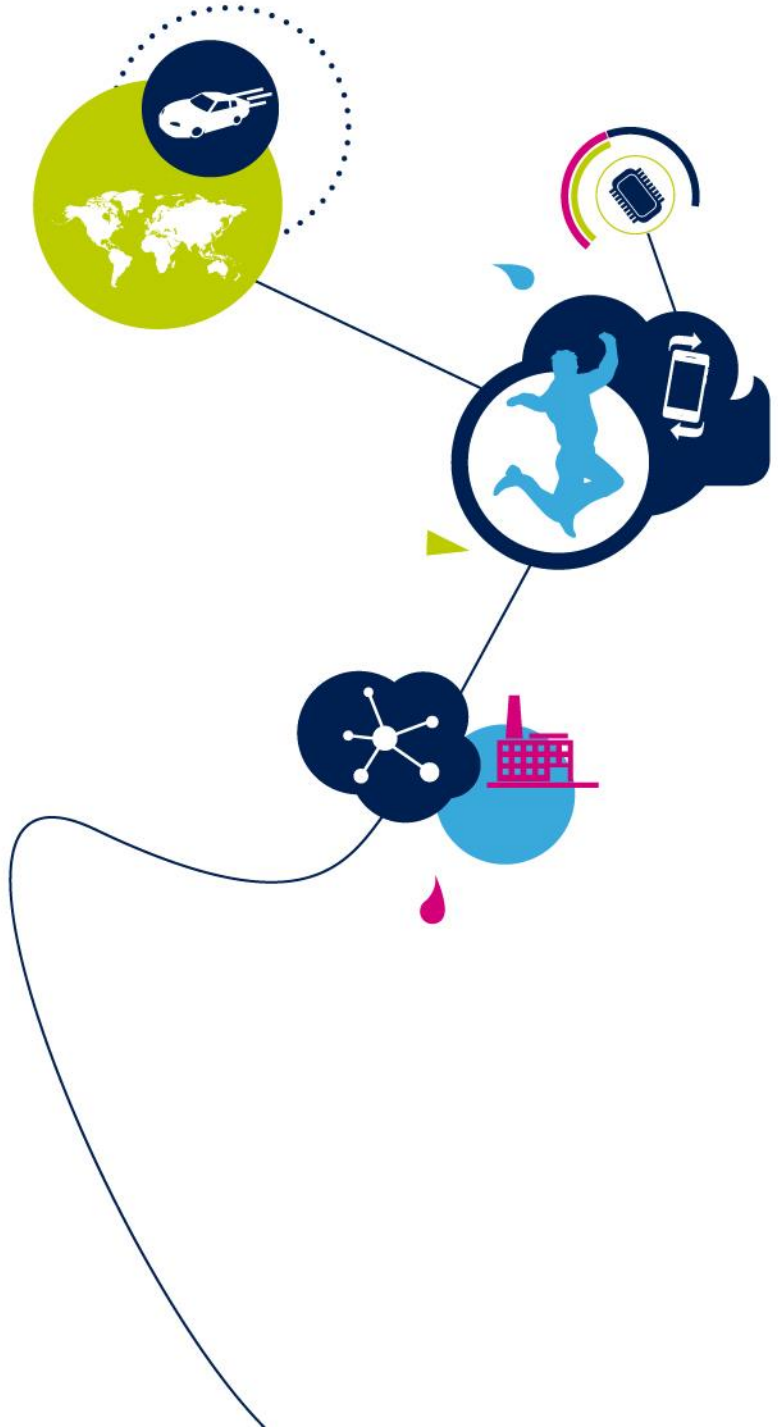

9:00 a.m.	**Welcome** **Celine Berthier**, Group Vice President, Head of Investor Relations
	Introduction **Jean-Marc Chery**, President & CEO
	Market and End Market Strategy **Marco Cassis**, President, Sales, Marketing, Communications and Strategy Development
	Automotive and Discrete Group **Marco Monti,** President, Automotive and Discrete Group
	Analog, MEMS and Sensors Group **Benedetto Vigna,** President, Analog, MEMS and Sensors Group
	Microcontrollers and Digital ICs Group **Claude Dardanne,** President, Microcontrollers and Digital ICs Group
11:00 a.m.	**BREAK – DEMOS**
11:30 a.m.	**Manufacturing Strategy** **Orio Bellezza,** President, Technology, Manufacturing and Quality
	Financial Results & Priorities **Lorenzo Grandi**, President, Finance, Infrastructure and Services, Chief Financial Officer
12:15 p.m.	**Q&A PANEL**
1:15 p.m.	**LUNCH – DEMOS**
2:30 p.m.	**END**

Forward Looking Statements

Some of the statements contained in this release that are not historical facts are statements of future expectations and other forward-looking statements (within the meaning of Section 27A of the Securities Act of 1933 or Section 21E of the Securities Exchange Act of 1934, each as amended) that are based on management's current views and assumptions, and are conditioned upon and also involve known and unknown risks and uncertainties that could cause actual results, performance, or events to differ materially from those anticipated by such statements, due to, among other factors:

- *Changes in global trade policies, including the adoption and expansion of tariffs and trade barriers, that could affect the macro-economic environment and adversely impact the demand for our products;*
- *Uncertain macro-economic and industry trends, which may impact end-market demand for our products;*
- *Customer demand that differs from projections;*
- *The ability to design, manufacture and sell innovative products in a rapidly changing technological environment;*
- *Changes in economic, social, labor, political, or infrastructure conditions in the locations where we, our customers, or our suppliers operate, including as a result of macro-economic or regional events, military conflicts, social unrest, labor actions, or terrorist activities;*
- *Unanticipated events or circumstances, which may impact our ability to execute our plans and/or meet the objectives of our R&D and manufacturing programs, which benefit from public funding;*
- *The Brexit vote and the perceptions as to the impact of the withdrawal of the U.K. may adversely affect business activity, political stability and economic conditions in the U.K., the Eurozone, the EU and elsewhere. While we do not have material operations in the U.K. and have not experienced any material impact from Brexit on our underlying business to date, we cannot predict its future implications;*
- *Financial difficulties with any of our major distributors or significant curtailment of purchases by key customers;*
- *The loading, product mix, and manufacturing performance of our production facilities and/or our required volume to fulfill capacity reserved with suppliers or third party manufacturing providers;*
- *Availability and costs of equipment, raw materials, utilities, third-party manufacturing services and technology, or other supplies required by our operations;*
- *The functionalities and performance of our IT systems, which are subject to cybersecurity threats and which support our critical operational activities including manufacturing, finance and sales, and any breaches of our IT systems or those of our customers or suppliers;*
- *Theft, loss, or misuse of personal data about our employees, customers, or other third parties, and breaches of global and local privacy legislation, including the EU's General Data Protection Regulation ("GDPR");*
- *The impact of intellectual property ("IP") claims by our competitors or other third parties, and our ability to obtain required licenses on reasonable terms and conditions;*
- *Changes in our overall tax position as a result of changes in tax rules, new or revised legislation, the outcome of tax audits or changes in international tax treaties which may impact our results of operations as well as our ability to accurately estimate tax credits, benefits, deductions and provisions and to realize deferred tax assets;*
- *Variations in the foreign exchange markets and, more particularly, the U.S. dollar exchange rate as compared to the Euro and the other major currencies we use for our operations;*
- *The outcome of ongoing litigation as well as the impact of any new litigation to which we may become a defendant;*
- *Product liability or warranty claims, claims based on epidemic or delivery failure, or other claims relating to our products, or recalls by our customers for products containing our parts;*
- *Natural events such as severe weather, earthquakes, tsunamis, volcano eruptions or other acts of nature, health risks and epidemics in locations where we, our customers or our suppliers operate;*
- *Industry changes resulting from vertical and horizontal consolidation among our suppliers, competitors, and customers; and*
- *The ability to successfully ramp up new programs that could be impacted by factors beyond our control, including the availability of critical third party components and performance of subcontractors in line with our expectations.*

Such forward-looking statements are subject to various risks and uncertainties, which may cause actual results and performance of our business to differ materially and adversely from the forward-looking statements. Certain forward-looking statements can be identified by the use of forward looking terminology, such as "believes," "expects," "may," "are expected to," "should," "would be," "seeks" or "anticipates" or similar expressions or the negative thereof or other variations thereof or comparable terminology, or by discussions of strategy, plans or intentions.

Some of these risk factors are set forth and are discussed in more detail in "Item 3. Key Information — Risk Factors" included in our Annual Report on Form 20-F for the year ended December 31, 2018, as filed with the SEC on February 28, 2019. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those described in this release as anticipated, believed, or expected. We do not intend, and do not assume any obligation, to update any industry information or forward-looking statements set forth in this release to reflect subsequent events or circumstances.

Introduction

Jean-Marc Chery

President and CEO

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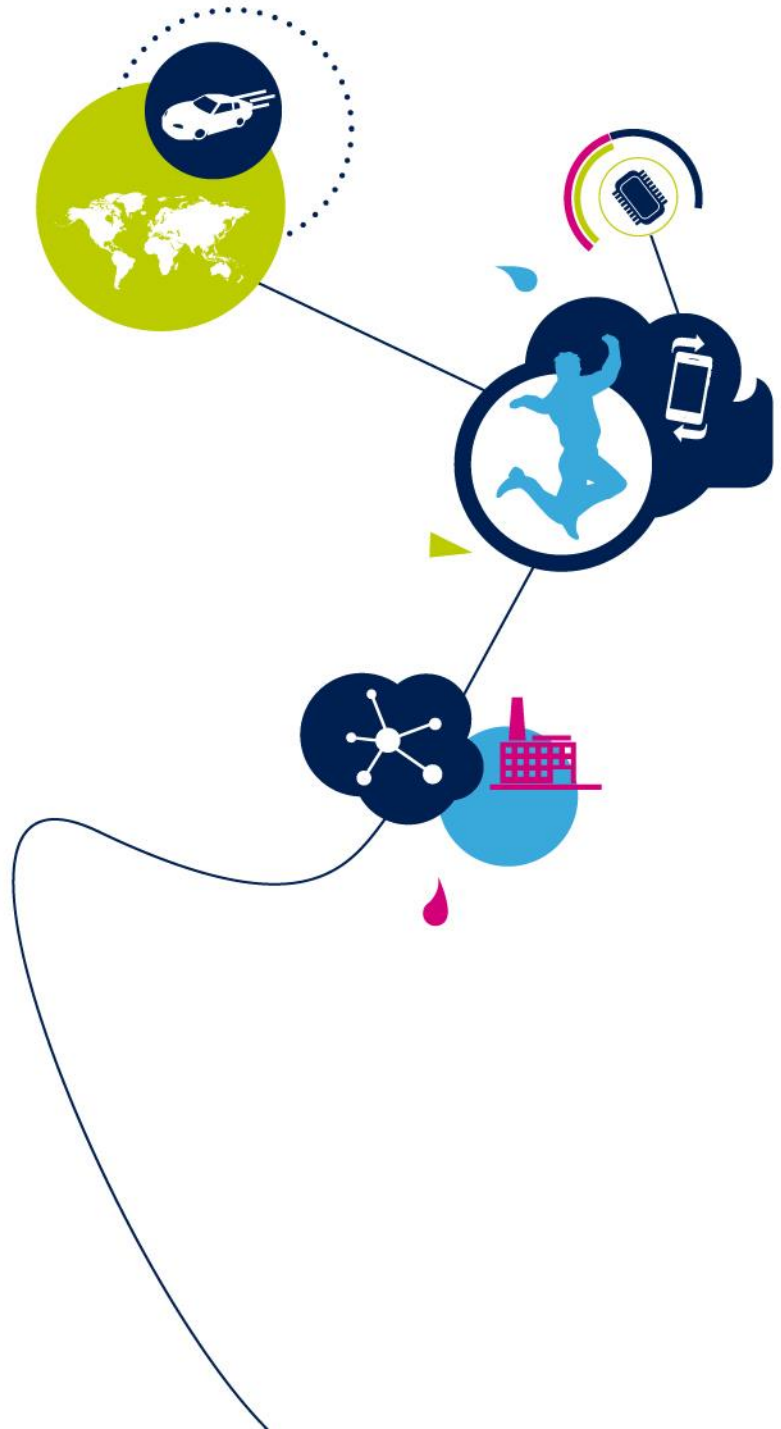

ST Value Proposition

For our **shareholders**

Return value in line with our sustainable, profitable growth objective

Sustainable and profitable growth

For our **customers**

Provide differentiating enablers

Independent, reliable & secure supply chain

For other **stakeholders**

Committed to sustainability

Our values: Integrity – People – Excellence

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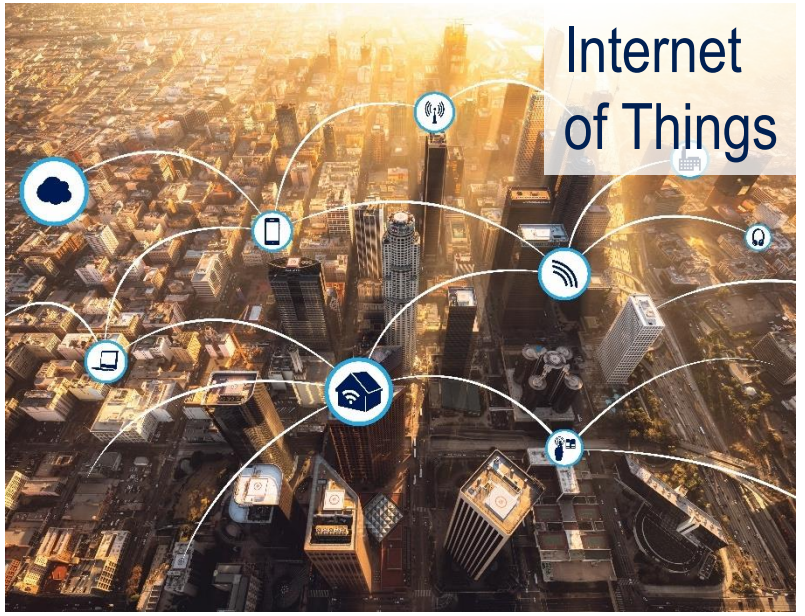
Enabling Strategic Electronic Demand Trends

ST provides innovative solutions help our customers make driving **safer, greener and more connected** for everyone

ST technology and solutions enable customers to increase **energy efficiency** everywhere and support the use of renewable energy sources



ST provides **sensors**, **embedded processing solutions**, **connectivity**, **security and power management**, as well **tools and ecosystems** to make development fast and easy for our customers

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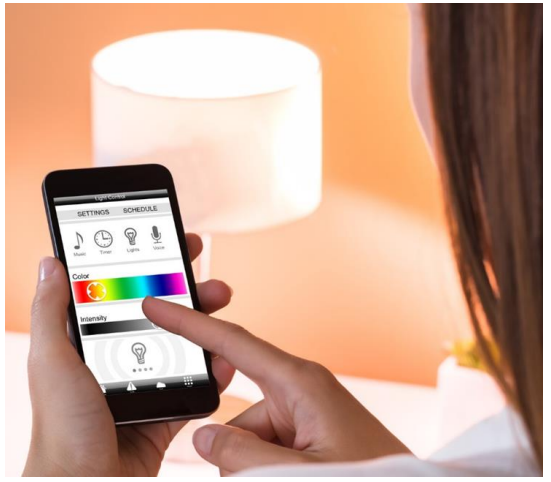
End Markets

End Markets Strategy

Automotive	Industrial	Personal Electronics	Communications Equipment, Computers & Peripherals



Broad offering & market reach

Selected opportunities leveraging ST strengths

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ST Product Portfolio Enabling Strategic Trends

Product Portfolio

Dedicated Automotive ICs	Discrete & Power Transistors	Analog, Industrial & Power Conversion ICs	GP MCU/MPU Secure MCUs EEPROM	MEMS & Specialized Imaging Sensors	ASICs based on ST proprietary technologies
SPC5	STPOWER, SiC, SiC	STSPIN, STDRIVE	STM32, STM32 Cube, STM32 MP1, STM8, EEPROM, Secure MCU	Flight Sense	BiCMOS, FD-SOI, RF-SOI

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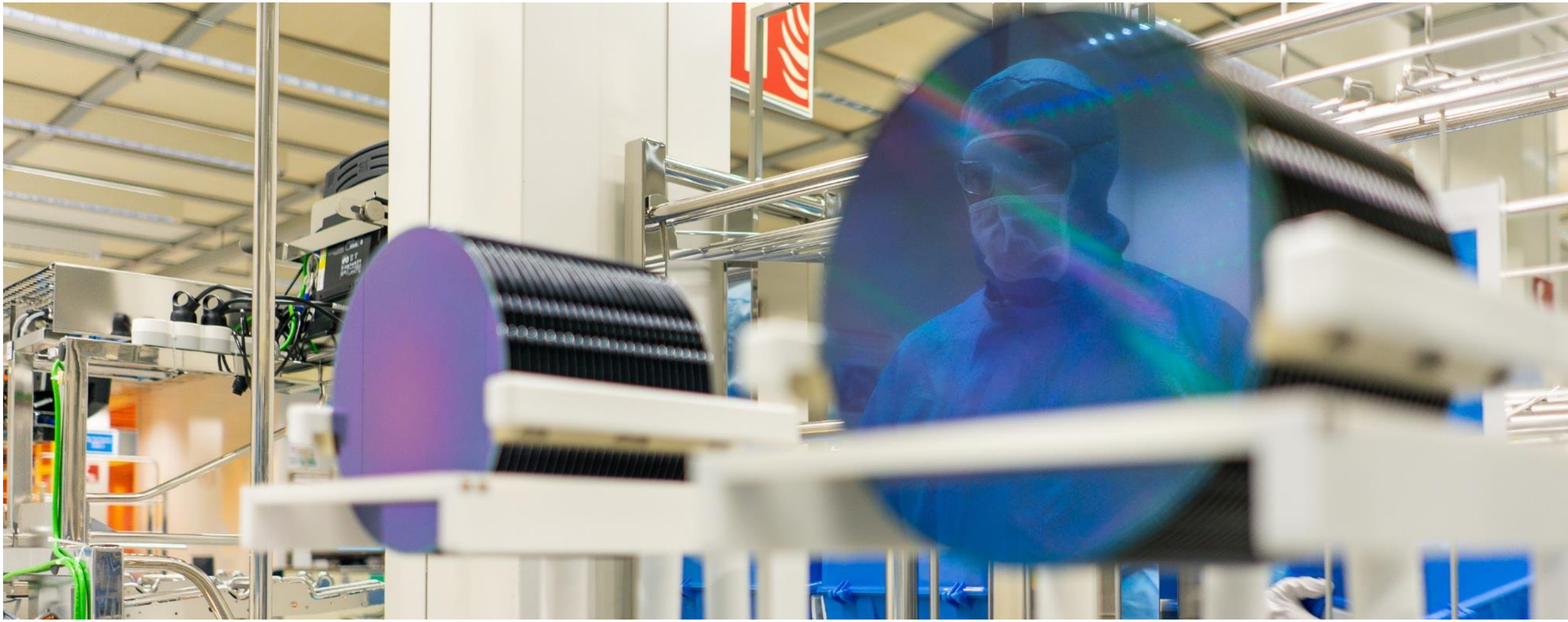
Manufacturing as a Key Business Enabler



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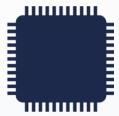
Strategic Objectives

Strategic Objectives

Leadership in car electrification

Leadership in car digitalization

Leadership in industrial embedded processing



Accelerate growth in analog & sensors for industrial

Expansion in industrial power & energy management

Acceleration of growth with industrial OEMs

Leadership in selected high-volume smartphone applications: sensors, secure solutions, power management, analog and Front End Module

Transform approach to communication infrastructure: from digital wireline to cellular and satellite

Capture opportunities in 5G with RF mixed signal

Markets and End Market Strategy

Marco Cassis

President
Sales, Marketing, Communications and Strategy Development

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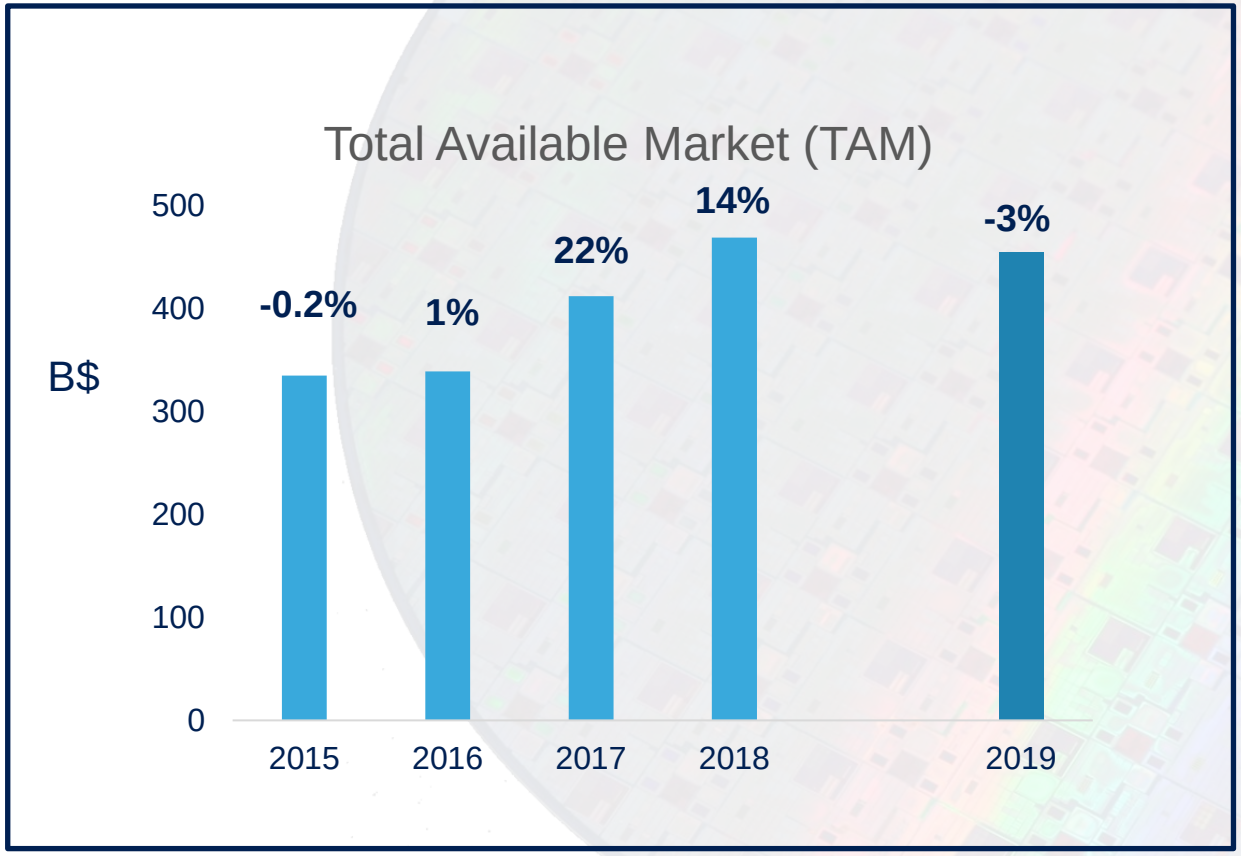
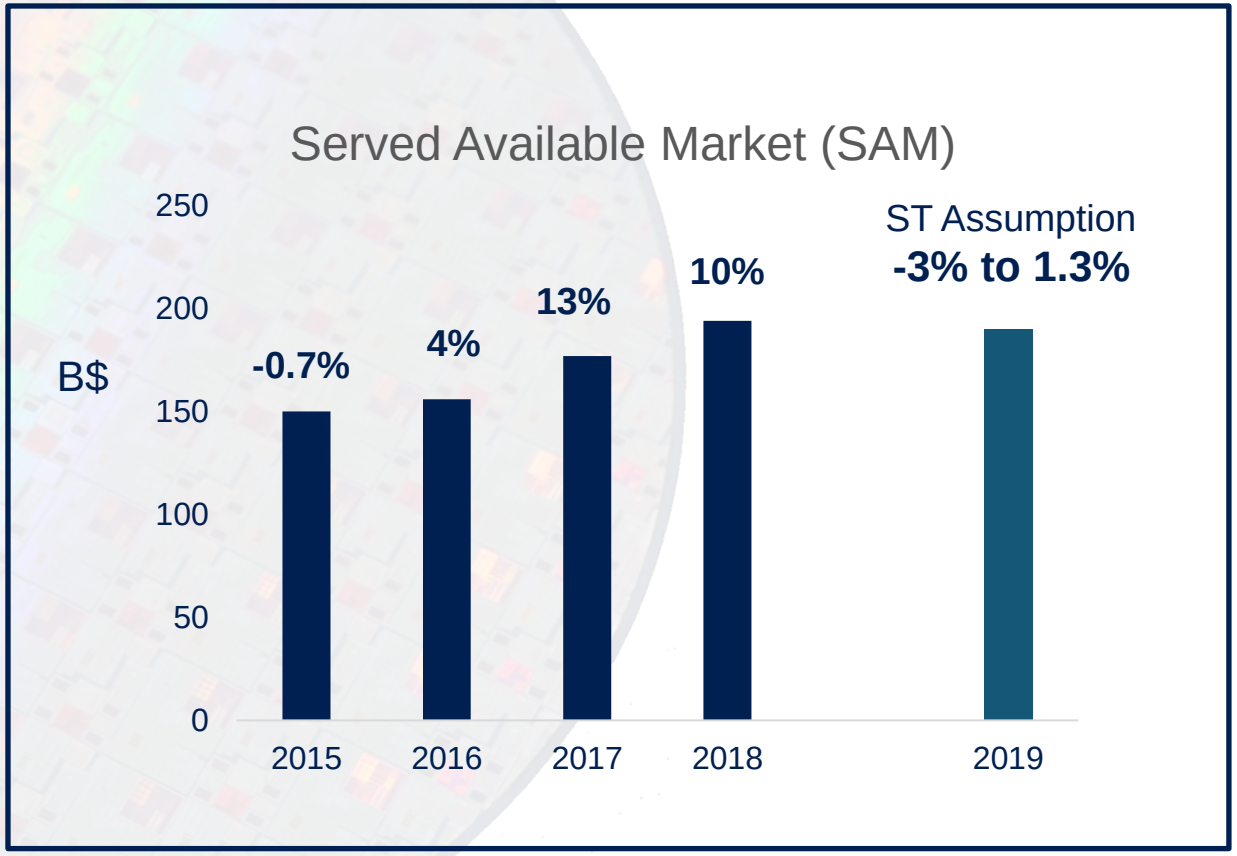
2019: Entering the Soft Part
of the Semiconductor Market Cycle





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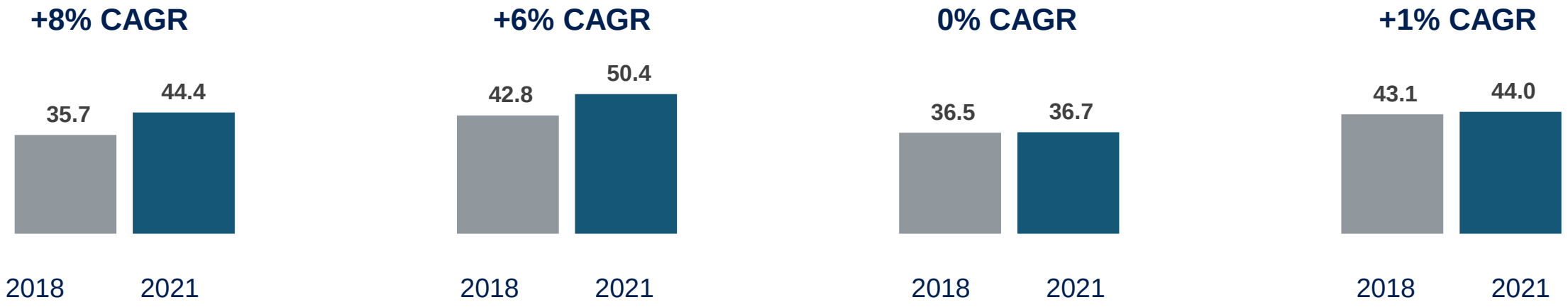
Source: WSTS

ST SAM Growth Driven by
Automotive and Industrial End Markets

Automotive	Industrial	Personal Electronics	Communications Equipment, Computers & Peripherals

SAM $B



~30% of ST Sales*	~30% of ST Sales	~25% of ST Sales	~15% of ST Sales

*Based on ST 2018 Full Year Sales

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Source: IHS Markit, Strategy Analytics

ST Has Strong Positions

Across all End-Markets and in Our Selective Focus

All End Markets

General Purpose & Secure MCU	#1
Power Discretes & Modules	#3
MCU	#4
Analog	#4
MEMS Sensors	#4

Selective Focus

Consumer & Mobile MEMS	#1
Consumer & Mobile Light Sensors	#1
Analog Mass storage	#3

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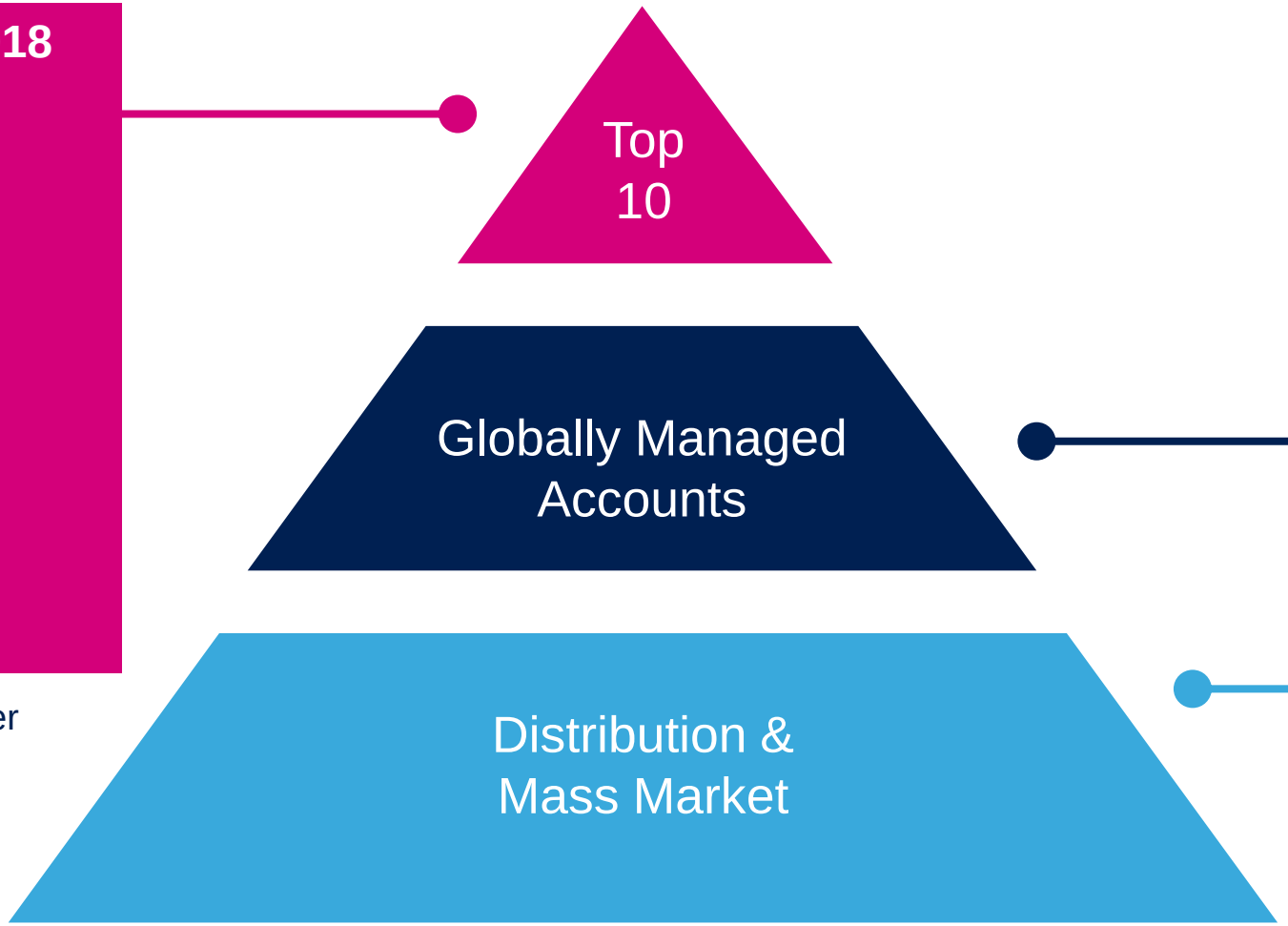
Source: IHS Markit

Serving More Than 100,000 Customers

Top 10 Customers* 2018

Apple
Bosch
Cisco
Conti
HP
Huawei
Mobileye
Samsung
Seagate
Western Digital

*In alphabetical order



Unified worldwide account management tailored to each account to provide global coverage and service

Standard process, reporting & follow-up in Sales & Marketing worldwide
Differentiated approach by type of customer

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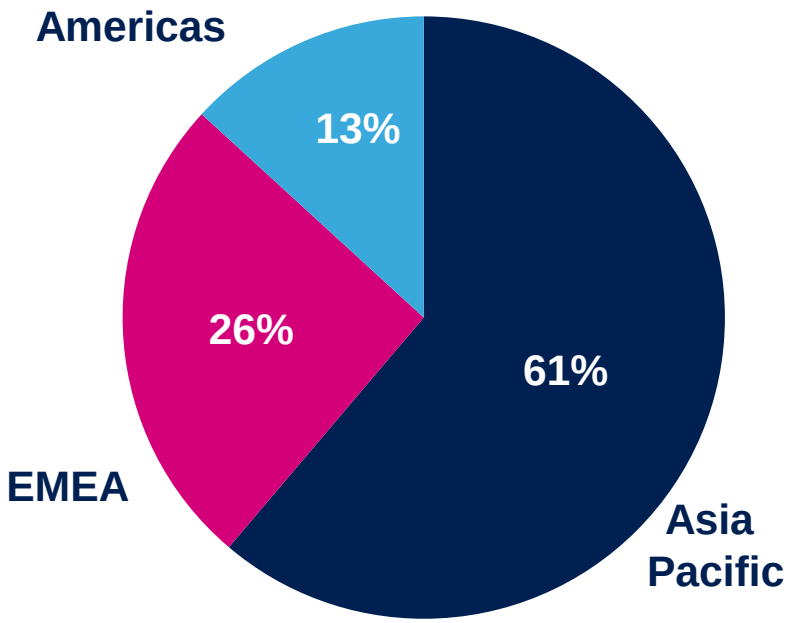
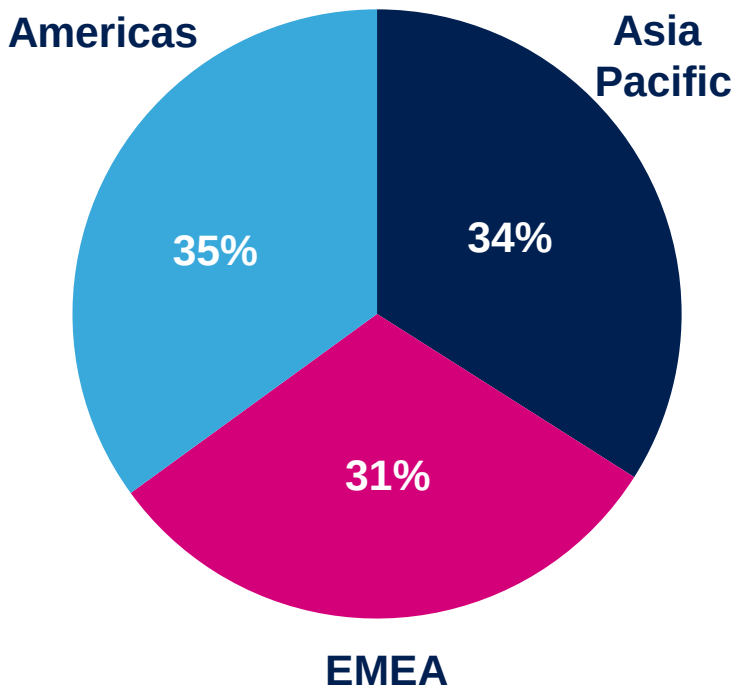
Balanced Sales Across Regions & Channels

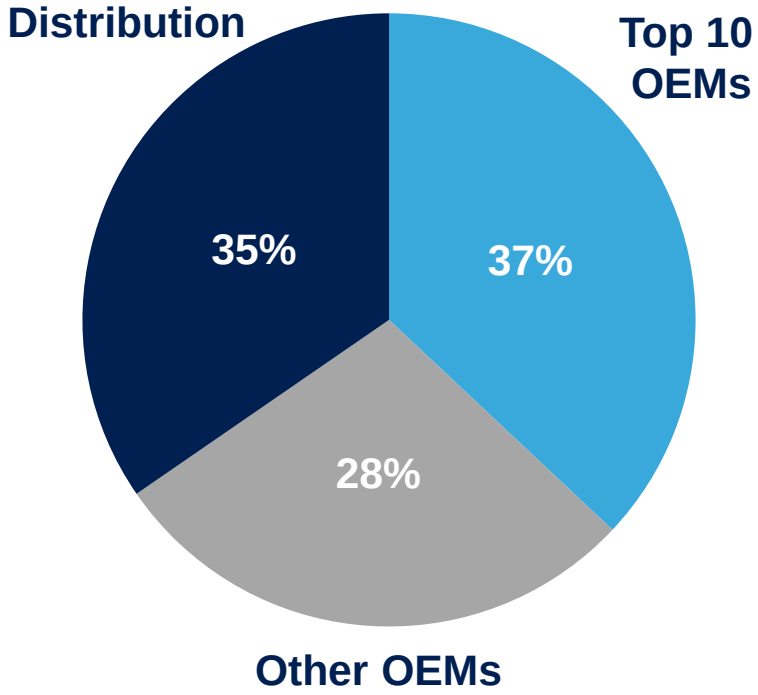
% by shipment location



% by region of origin



% by customer type



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Based on 2018 full Year Sales

Automotive

Application Approach

Leverage broad and deep knowledge of automotive systems to develop solutions optimized for targeted vehicle subsystems

- Chassis & Safety
- ADAS
- Powertrain for ICE
- Electro-mobility
- Body & Convenience
- In-vehicle Infotainment
- Telematics & Networking
- Mobility Services

Market Approach

Partnerships with Car Manufacturers, Tier 1's and technology leaders

Audi, Toyota, Continental, Bosch, Mobileye, Autotalks

Partnerships with Distribution Including full kit solutions

Partnerships for long-term success in China

Great Wall Focus Dedication Specialization, 长安汽车 CHANGAN

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ST Strategy in Automotive

Leverage Content and Volume Growth & Disruption

Strategic Objectives

- Leadership in car electrification
- Leadership in car digitalization

Trends & Market

- Semiconductor market growth thanks to volume and content increase
- Traditional car content increase aligned with market volume
- Car electrification and digitalization driving much faster content growth
- Wide-band Gap material introduction causing a disruption
- Digital architecture of vehicle evolving from distributed Electronic Control Unit (ECU) to powerful domain controllers

ST Strategy

- Investment in technology, product and manufacturing capabilities to support leadership objectives
- Leverage Silicon Carbide disruption to lead the car electrification transformation
- Leverage car architecture change through advanced Automotive domain controllers (MCU)
- Partnership with ADAS and V2X Leaders
- Continue leadership in traditional areas thanks to product and technology roadmap

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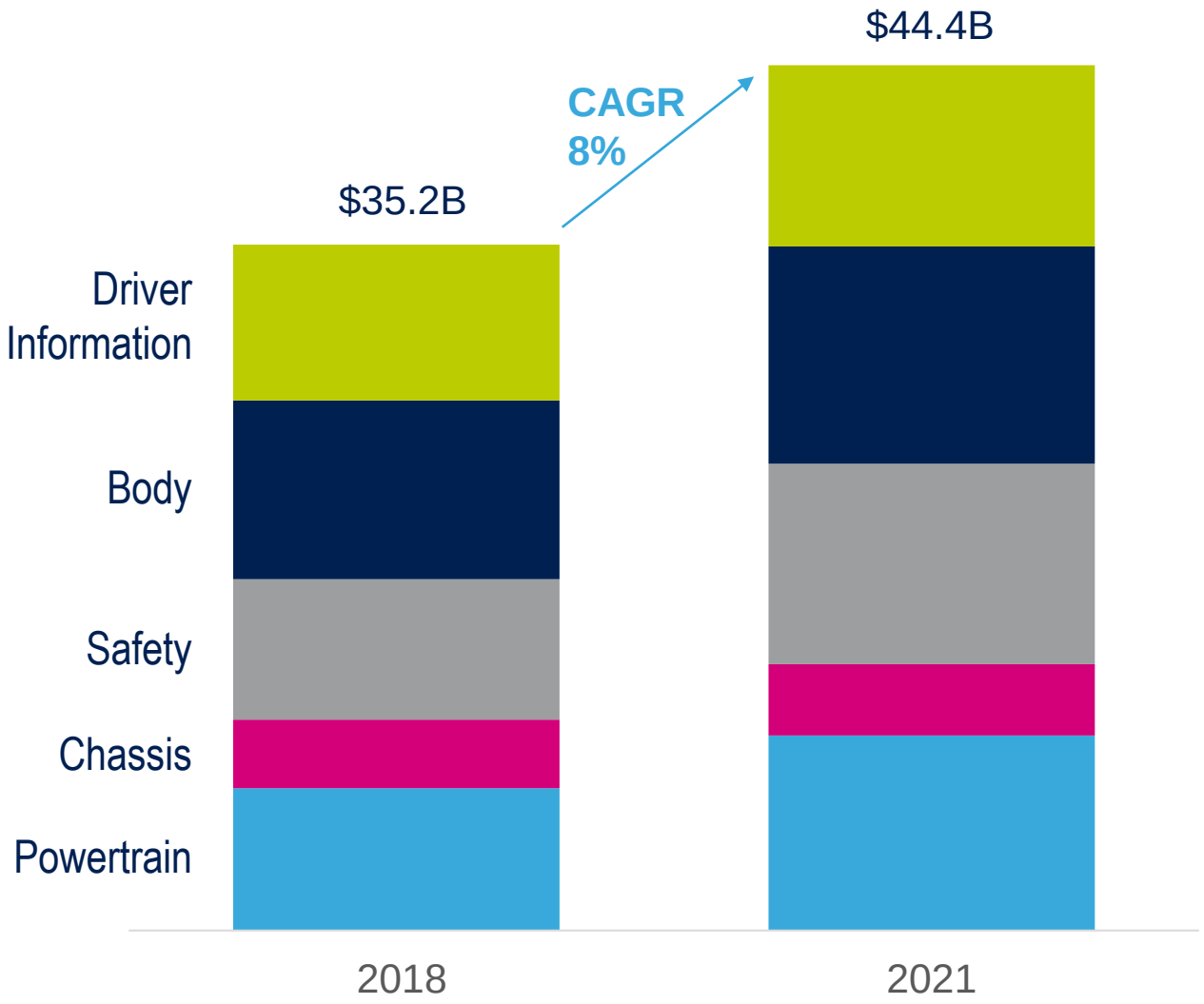
Automotive Semiconductor Market

Strong Existing Positions – Building in New Areas



Rank	Logic
1	STMicroelectronics

Rank	Power
1	Infineon
2	STMicroelectronics

Rank	Analog
1	Texas Instruments
3	STMicroelectronics

Rank	Processors
1	NXP
7	STMicroelectronics

Rank	Sensors
1	Bosch
10	STMicroelectronics

Source: Strategy Analytics

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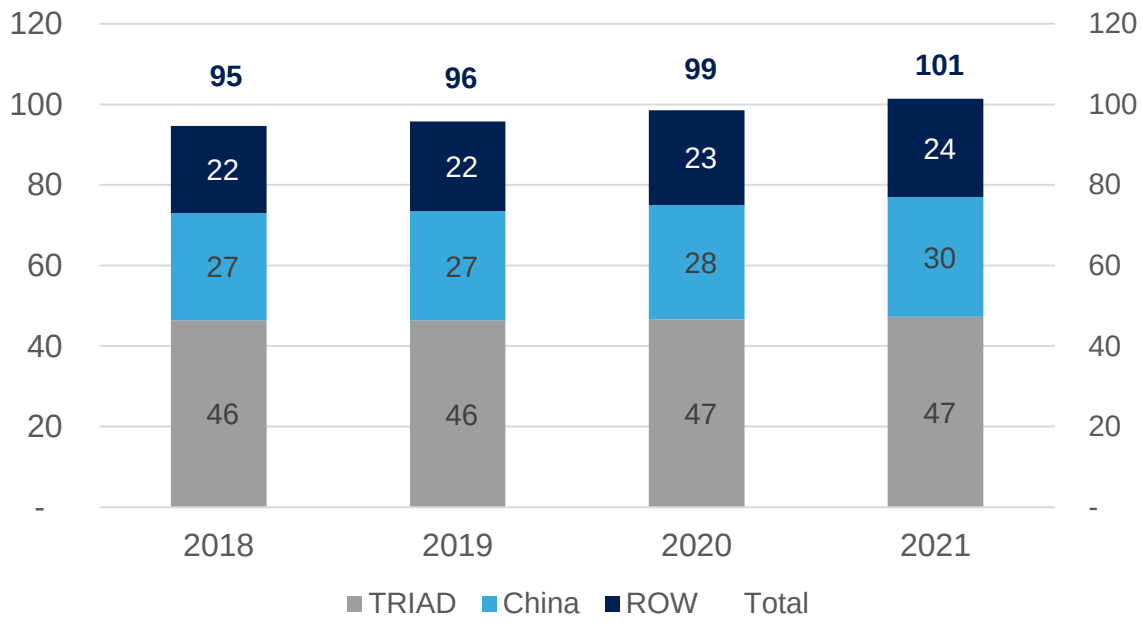
Automotive Market

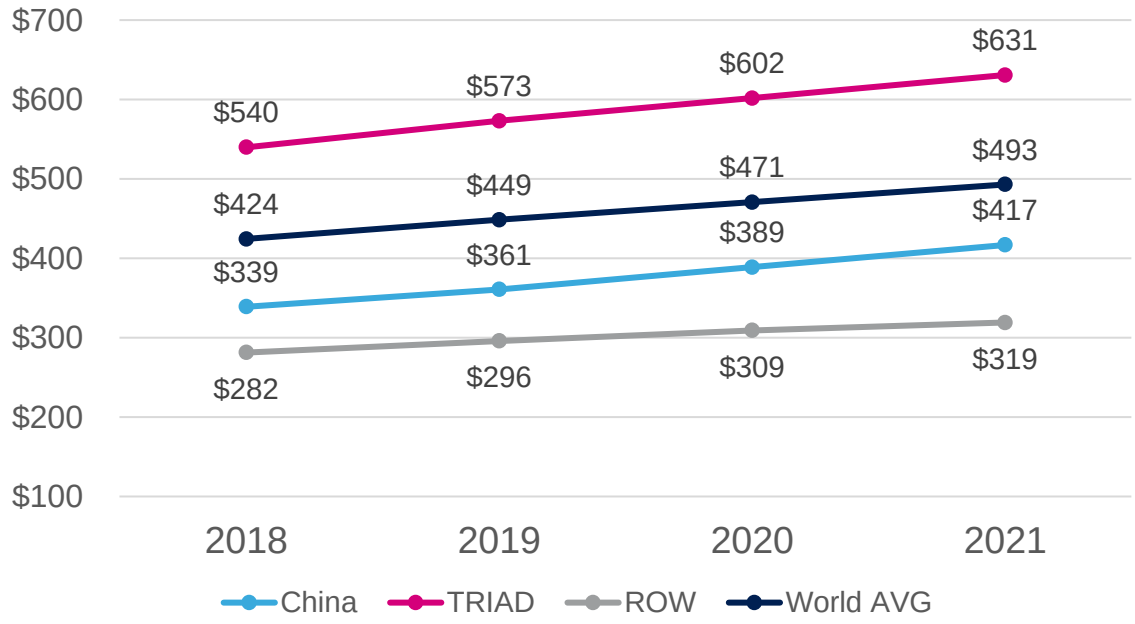
Content and Volume Growth

Vehicle Production (Million Units)



CAGR 2018-2021: **+2.3%**

Semiconductor Content ($)



CAGR 2018-2021: **+5.1%**

TRIAD : Europe-US-Japan,

Source: Strategy Analytics

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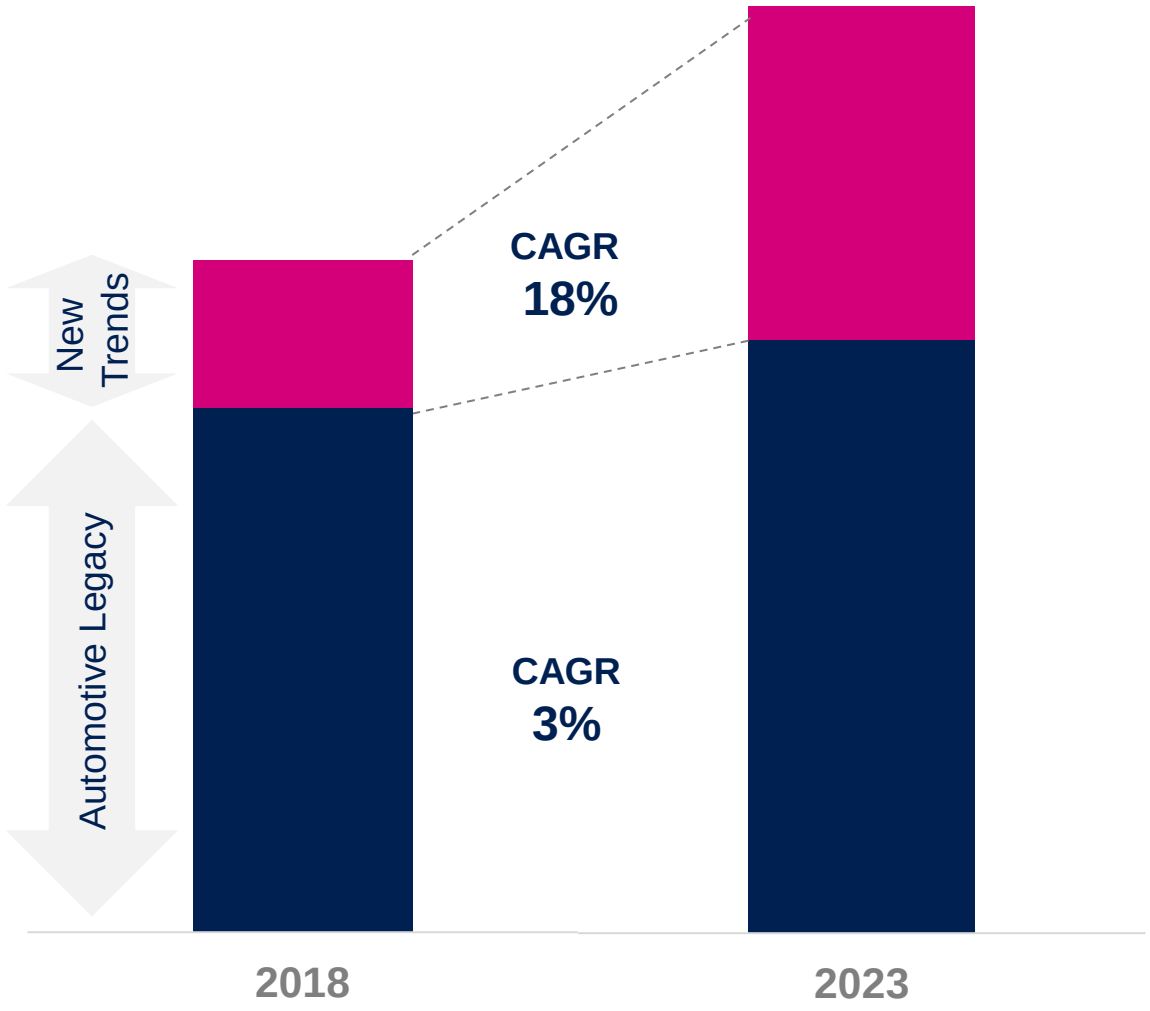
Electrification & Digitalization

Driving Growth



Car Digitalization
& Car Electrification

Growth driven by silicon pervasion, with smaller impact from growth of car volumes

Automotive Legacy Electronics

Growth linear with the car volumes
Exposed to market cycles

Source: Strategy Analytics

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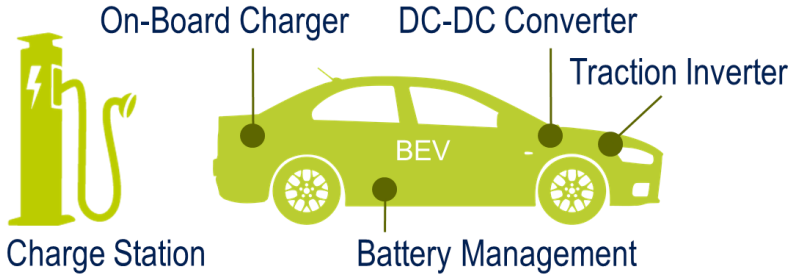
Car Electrification

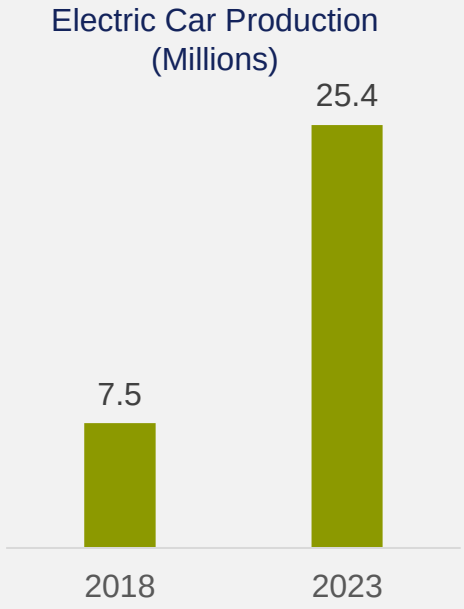
ST Leading with Disruptive Technologies

Mild Hybrid 48V
Low-end entry level electrification

Battery Electric Vehicle
High-end battery-based full electric car

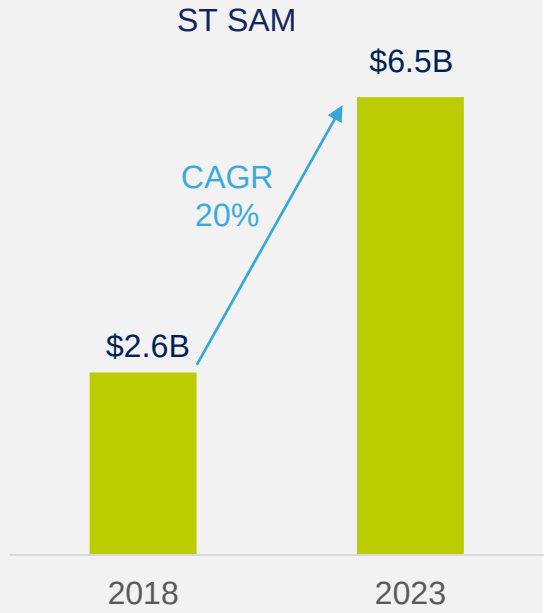


Electric Cars



$396 Average Content per BEV/HEV **$493**

Powertrain Electrification



Includes: BEV, mild hybrid, plug-in hybrid, fuel cell electric vehicle, full hybrid

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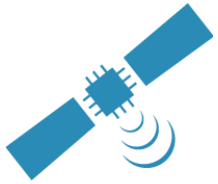
Source: Strategy Analytics

Car Digitalization

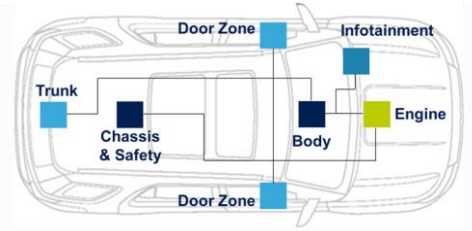
ST Leading with Disruptive Technologies & Partnerships

ADAS

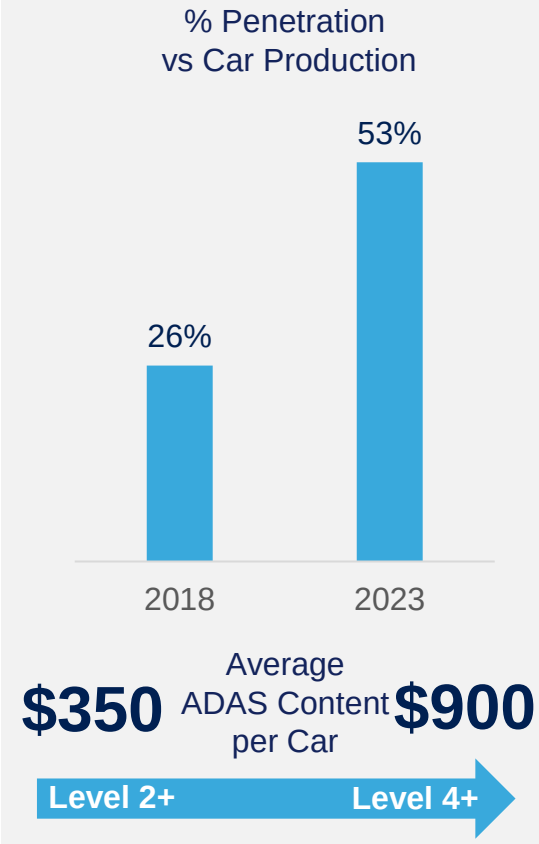
Connectivity



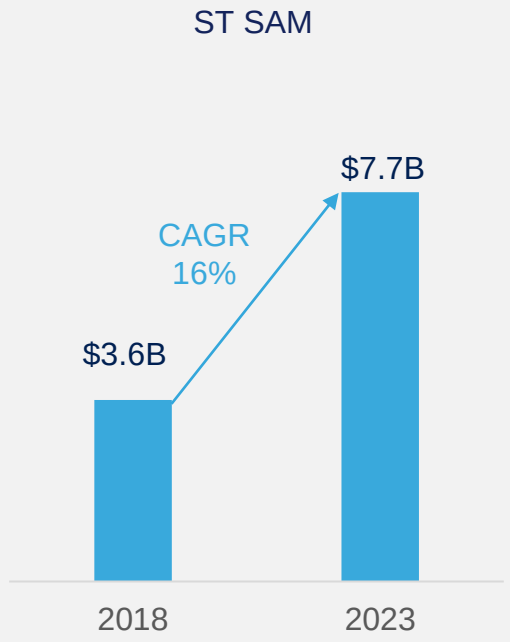
Domain controllers



ADAS System Penetration

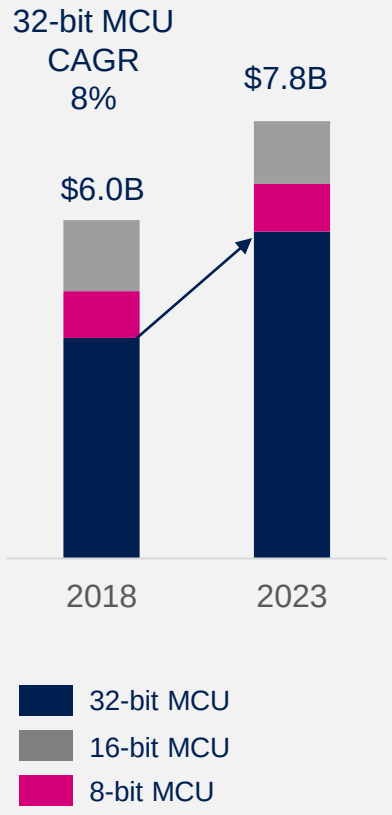


ADAS



ADAS includes: distance warning, drowsiness monitor, eCall, LDWS, night vision, occupant detection, Parking and other ADAS functions

Automotive MCU Growth



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Source: Strategy Analytics

Industrial

Application Approach

Use deep industrial knowledge to develop solutions optimized for specific applications, combined with a broad portfolio

- Factory Automation
- Motor Control
- Industrial Drives
- Industrial Power & Tools
- Energy Generation & Distribution
- Metering
- LED, General Lighting
- Home, Building & City Automation
- Appliances
- Power Supplies and Converters
- Point of Sales & Retail Logistics
- Medical & Healthcare
- Space, Avionics & Defense
- Smart Farming

Market Approach

Target industry leaders with leading-edge products adapted to their needs

SIEMENS

EMERSON

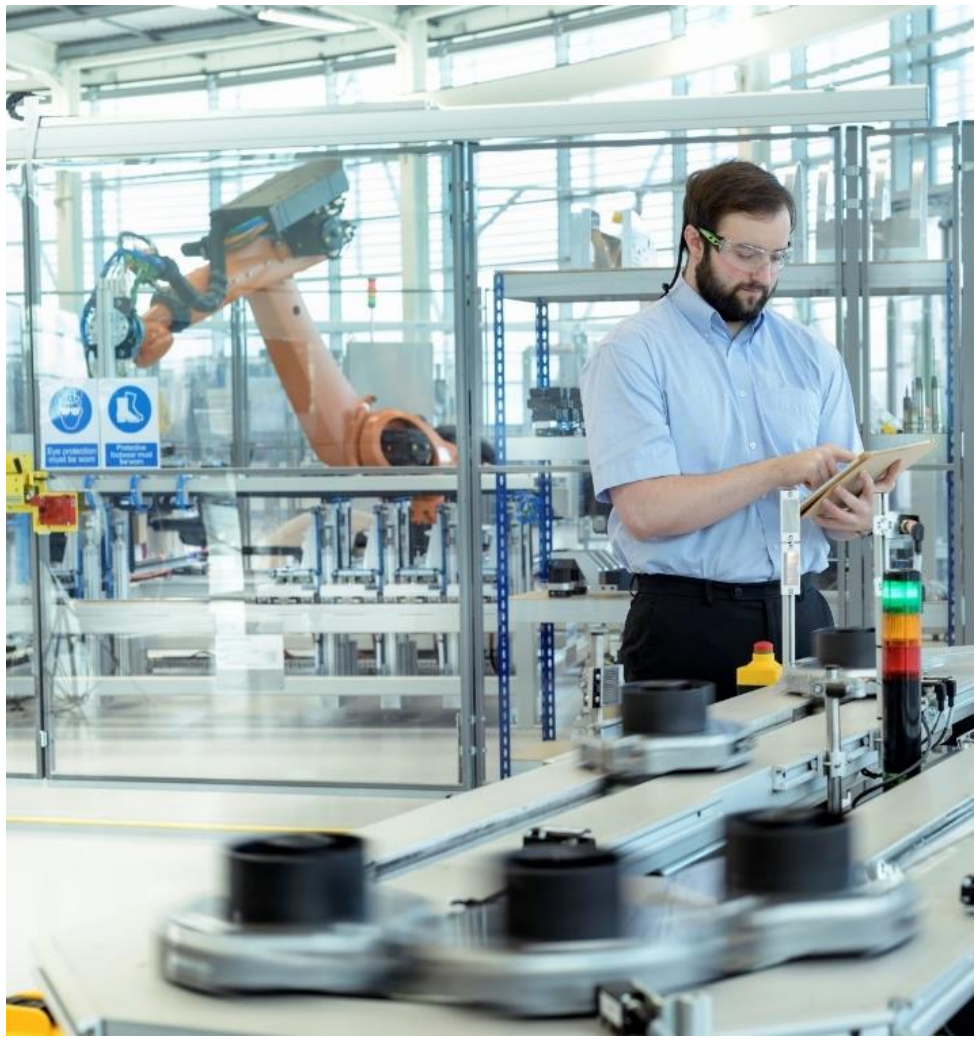
DELTA

BOSCH

Nidec All for dreams

PHILIPS

Target wider market with broad portfolio mainly through distribution



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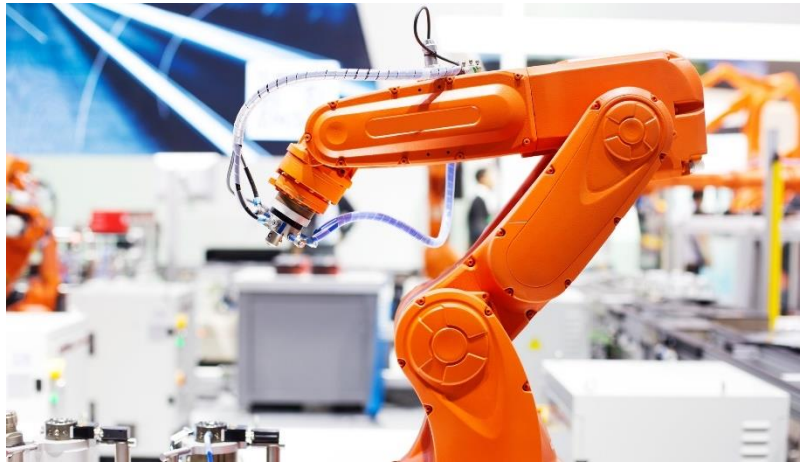
ST Strategy in Industrial

Expand Portfolio and Increase S&M Reach

Strategic Objectives

- Leadership in embedded processing
- Acceleration of growth in analog & sensors
- Expansion in power & energy management
- Acceleration of growth with industrial OEMs



Trends & Market

- Semiconductor content growth driven by automation, need for higher power efficiency, data-centric industrial IoT
- Industrial market highly fragmented with many different applications
- Healthy growth rates across the key applications where ST is focused

ST Approach

- Investing to keep leadership on key technology processes
- Expansion of product portfolio to address key trends and disruptions
- Sales & Marketing reorganized for sharpened industrial focus
- Expanding Field Application Expertise across all regions
- Creating more compelling offer and support for Industrial OEMs as well as for mass market with distribution partners

Industrial Trends

Driving Semiconductor Content

More Autonomous Systems
Intelligent & Aware

- Next levels of automation with distributed control
- Safer working environments & new man-machine interaction models
- Artificial Intelligence pervasion

Higher
Power Efficiency

- Higher energy efficiency for industrial machinery and appliances
- Digital power control and optimization

Securely Connected
Leveraging the Internet of Things

- Connection of machines inside the factory and to the cloud
- Capture & exploitation of machine condition data for predictive maintenance

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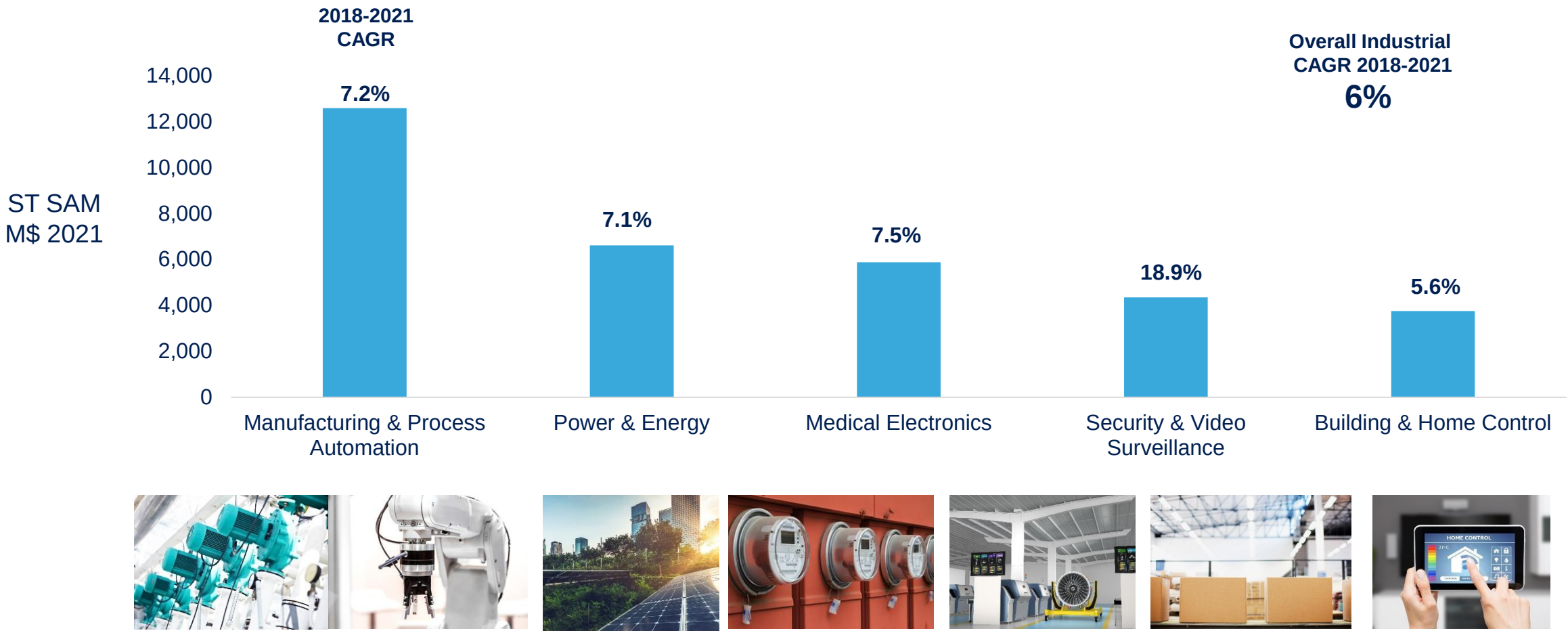
ST Focused on
Highest Growth Industrial Applications



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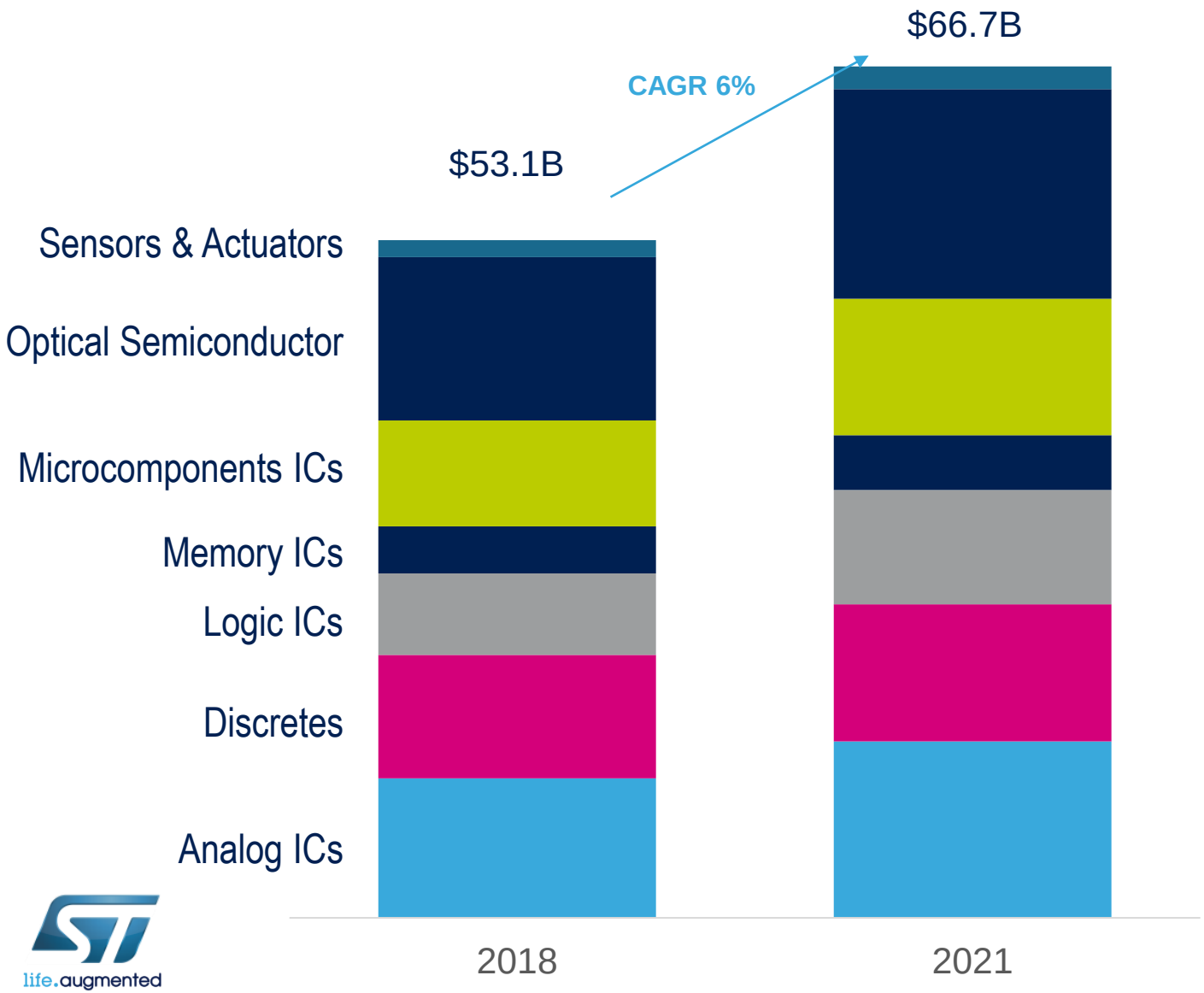
Source: IHS Markit

Industrial Semiconductor Market



Rank	Power Discretes
1	Infineon
2	STMicroelectronics

Rank	Analog IC
1	Texas Instruments
3	STMicroelectronics

Rank	Microcomponents
1	Intel
4	STMicroelectronics

Rank	Sensors & Actuators
1	Analog Devices
9	STMicroelectronics

Source: IHS Markit

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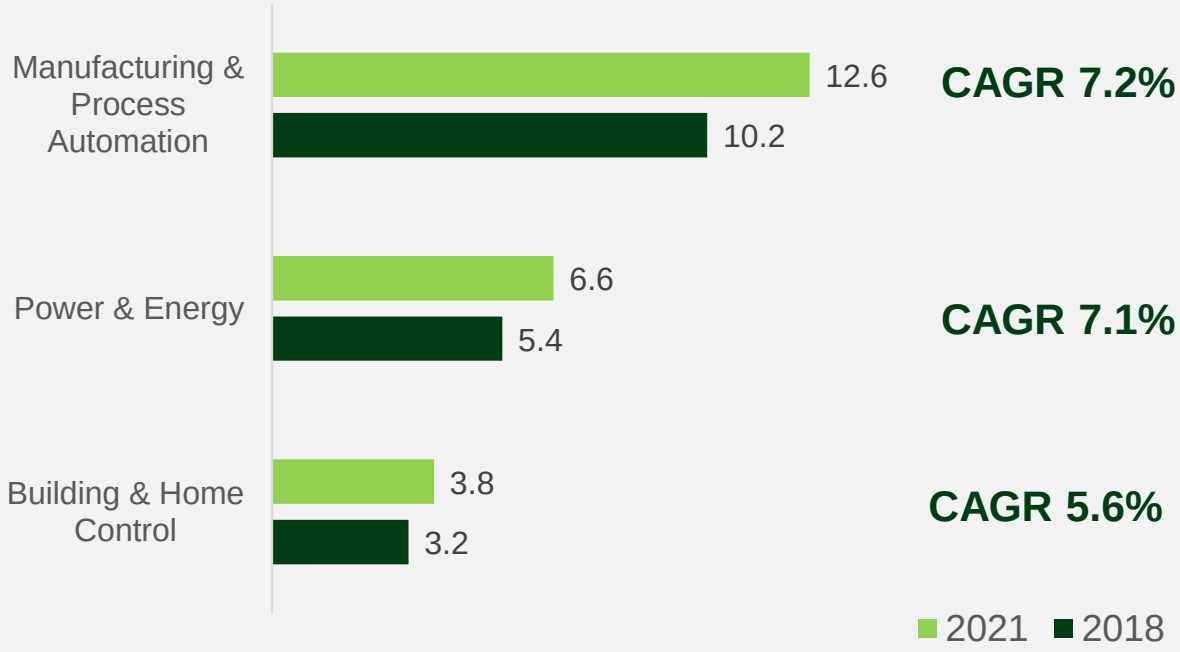
Power Semiconductors

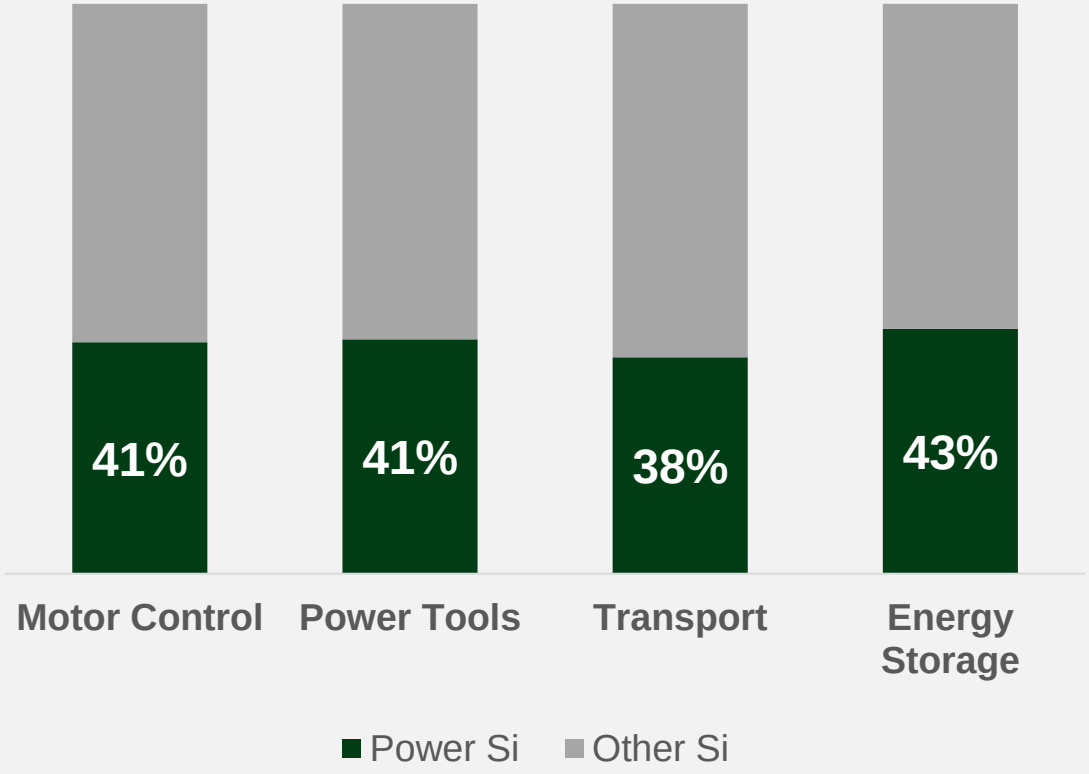
a Key Enabler of the Industrial Applications

Fast Growing Industrial Applications



>25% average **Power & Discrete Silicon Content**

Applications with very high Power Silicon Content



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Source: IHS Markit

Personal Electronics

Application Approach

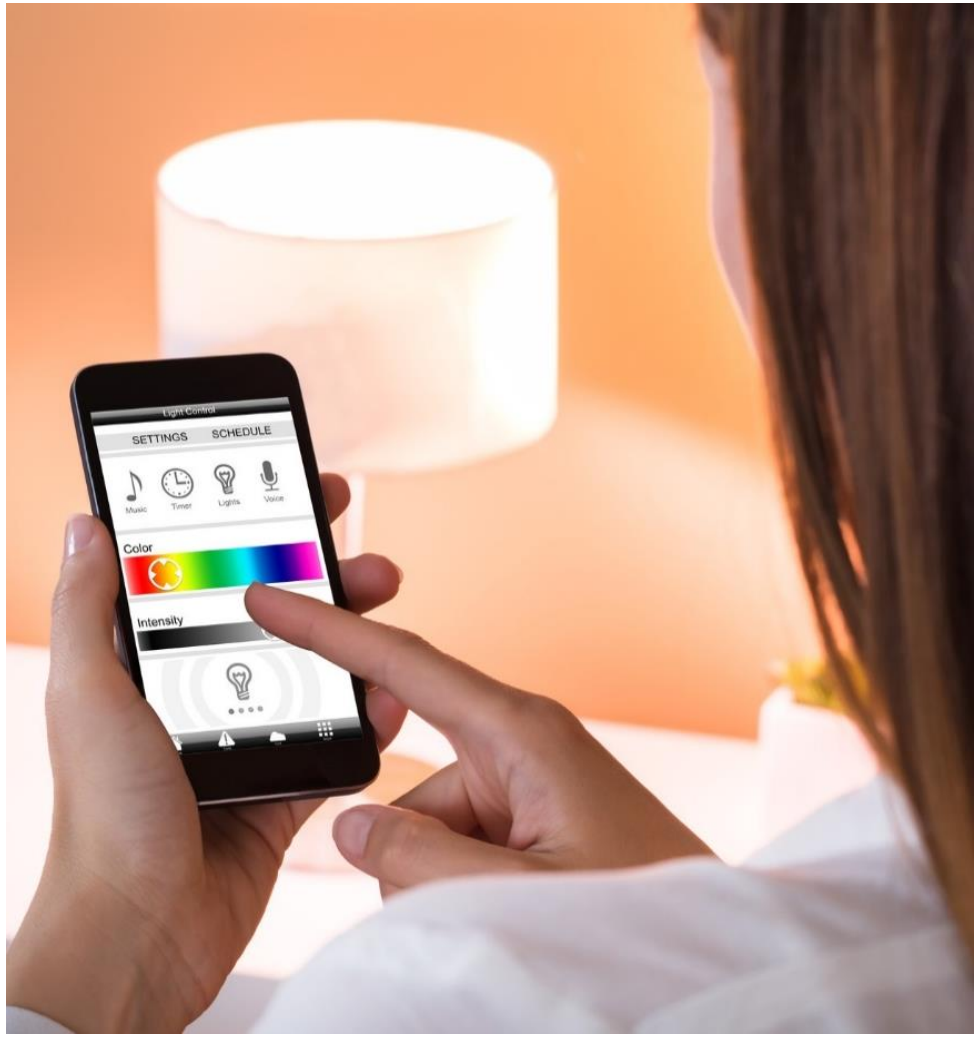
- Smartphone application-specific products also suited for other personal devices
- General purpose portfolio for broader PE market

- Smartphones
- Tablets & eReaders
- Wearables
- Personal Care & Hygiene
- Gaming
- Drones
- Audio & Video
- Virtual/Augmented Reality

Market Approach

Dedicated products for Top Smartphone Players

Market leading products for other players



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ST Strategy in Personal Electronics

Highly Selective Approach for Technology Leadership

Strategic Objectives

- Leadership in selected high-volume smartphone applications: sensors, secure solutions, power management and analog
- Capture opportunities in 5G

Trends & Market

- Smartphone volumes flat but content growth in specific peripheral areas: user interface, power & energy management, security and 5G RF
- 5G handsets fast growth within flat overall volumes
- Other personal devices using same architecture and peripheral components as smartphones

ST Approach

- Investing to keep technology and product leadership in selected areas
- Focus on 5 areas in Smartphones
  - Specialized Imaging Sensors
  - MEMS Sensors
  - Secure Solutions
  - Power management
  - 5G RF
- Leverage portfolio to address other personal devices

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ST Smartphone Content Focus

Power Management

Wireless charging, USB-C, Display PMIC

Secure Solutions

Secure Element, NFC Controller, eSIM

5G RF

Front-End Module

Sensors & Actuators

3,6-axis, OIS* gyroscope, pressure, temperature

Specialized Imaging Solutions

Depth/3D sensing (ToF, Sensors)

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OIS = Optical Image Stabilization

Communications Equipment,
Computers & Peripherals

Application Approach

Use deep knowledge of specific applications to develop dedicated products leveraging differentiated technology capabilities & IP portfolio

- Telecom and mobile (4G/5G) Infrastructure
- Advanced RF Amplifiers and Antennas
- Data Centers
- Enterprise Switching
- SOHO Servers
- Computers & Peripherals

Market Approach

Leverage long-standing relationships with networking & computer peripheral makers

WD SEAGATE hp

Selected customer & product opportunities for networking and satellite communications

CISCO HUAWEI

Partnerships to address specific technologies/markets

MACOM

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ST Strategy in CECP

Leverage Mixed Signal Technologies, Focus on Wireless

Strategic Objectives

- Transform approach to communication infrastructure: from digital wireline to mixed signal RF for cellular and satellite
- Capture opportunities in 5G with RF mixed signal

Trends & Market

- 5G driving a disruption in the communications market
- Need for new advanced technologies meeting the performance requirements
- Low Earth Orbit (LEO) Satellite communications needs similar technology

ST Strategy

- Leverage specific ST mixed-signal technologies to take advantage of opportunities in 5G and Satellite communications
- Continue traditional businesses where we are a leader such as power management for data storage

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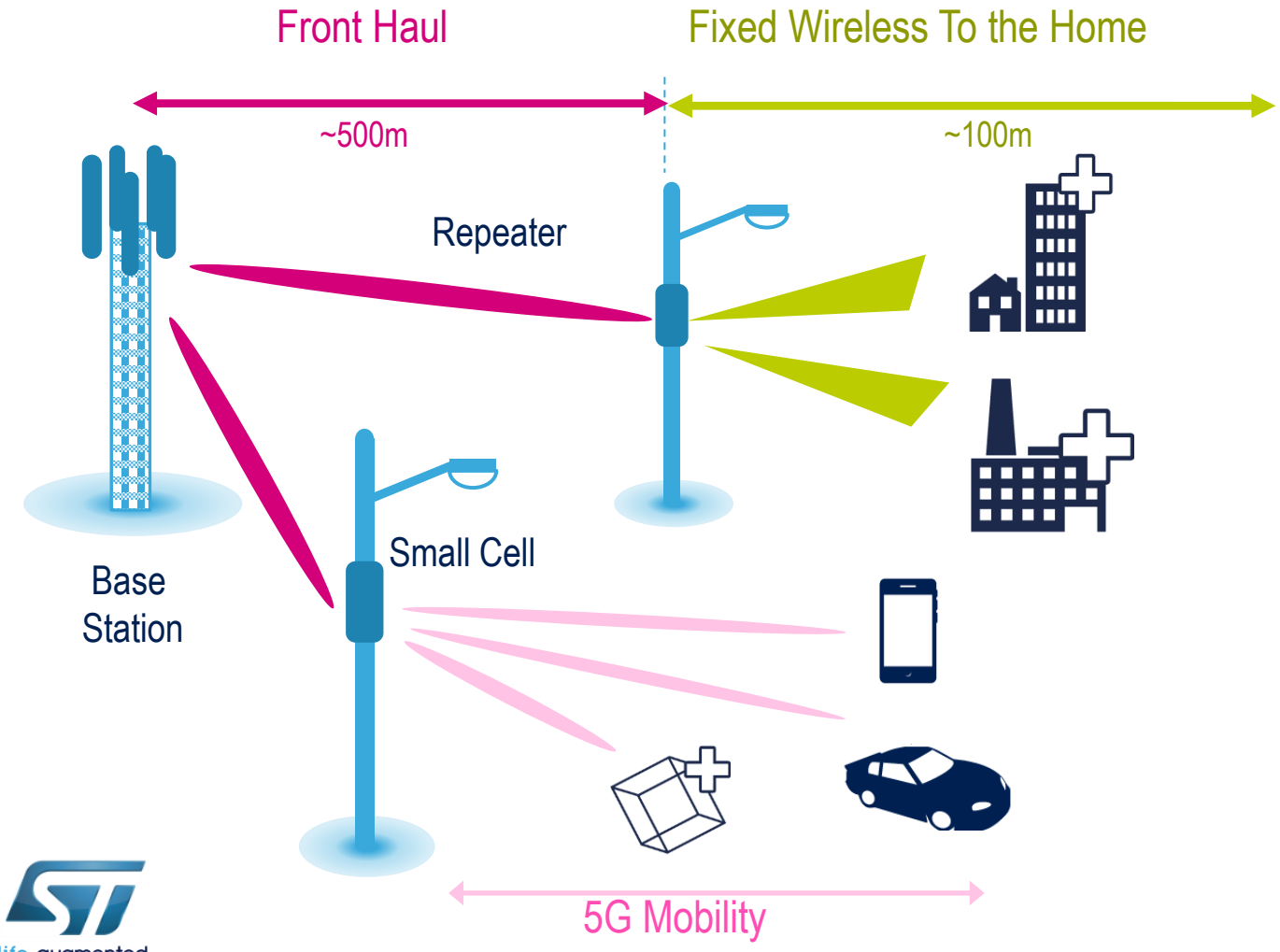
CECP = Communications Equipment, Computers & Peripherals

The 5G Disruption

5G mmW Network Infrastructure



- Very high data rate – **x100***
- Reduced latency – **5 times lower***
- Very high reliability – **99.999%**
- Connections of **billions** of nodes
- Improved coverage

* vs 4G

- **New architecture** with denser network (small cells)
- **New technologies**: Advanced beam forming, massive MiMo
- **New spectrum**: Use of millimeter wave

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5G Will Drive Growth Opportunities
in all End Markets

Automotive	Industrial	Personal Electronics	Communications Equipment, Computers & Peripherals
V2X Infotainment & Telematics Autonomous driving	Industrial IoT using 5G	Smartphones & other connected personal devices	5G Basestations & Repeaters
			
Opportunities for ST			
Driver for digitalization (ADAS, Vehicle Connectivity) and architecture change in the car	Many more Smart Connected devices requiring embedded processing with integrated connectivity & security + sensors, power, ..	5G RF in Smartphones requiring high performance front-end components	Technology for mmW Communication links RF GaN, RF-SOI Power management for basestations

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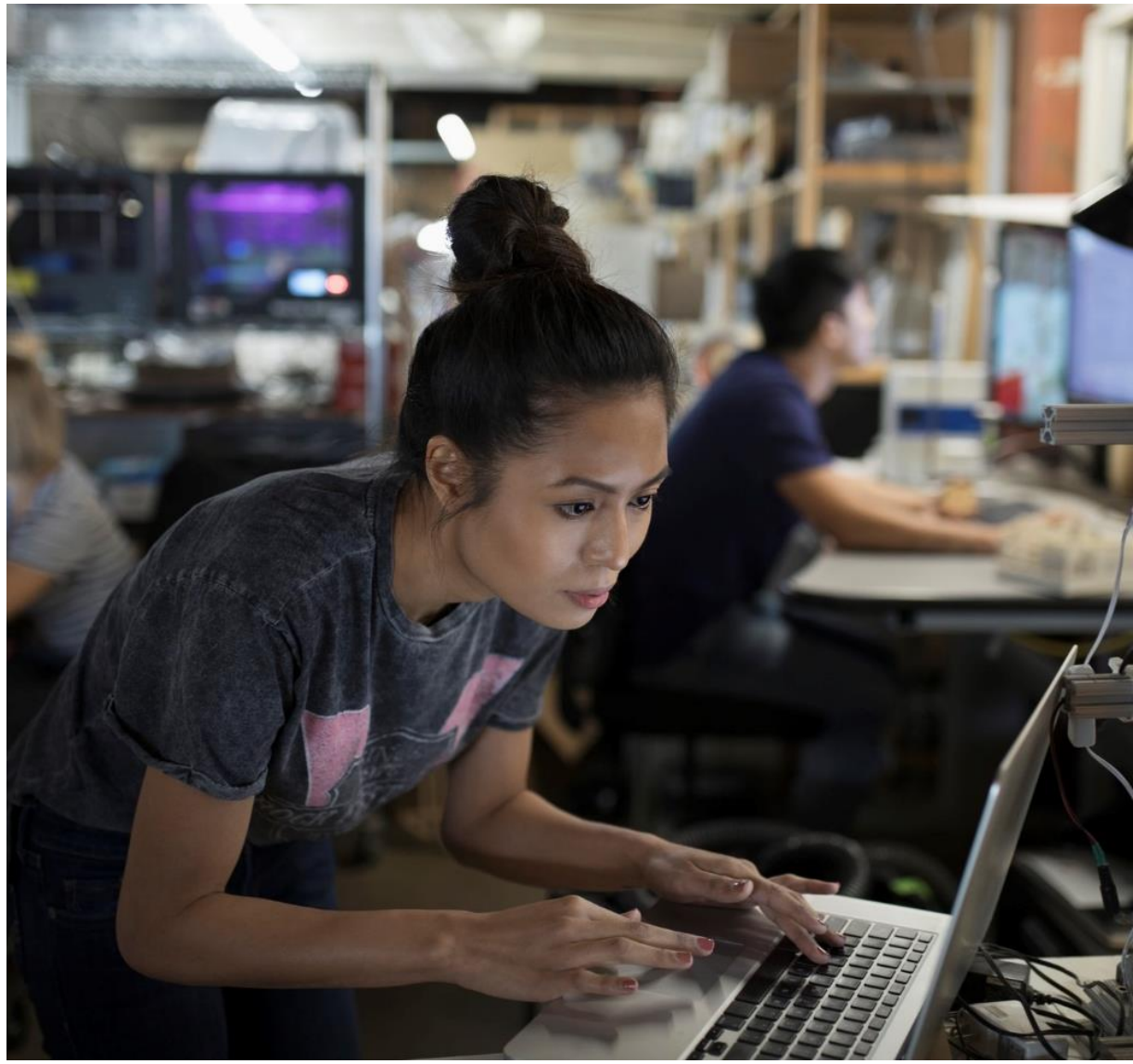
Takeaways

- ST well positioned to grow faster than our served market
- Leveraging technology disruptions to grow with ST proprietary processes
- Sharpened Industrial focus, Automotive content growth and highly selective in our approach to other end markets



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Automotive and Discrete Group

Marco Monti

President
Automotive and Discrete Group

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37%

ADG Contribution to ST

Automotive and Discrete Group

2018 – Key Financial Figures

ADG 2018 Revenues

$3.56B

2018 Net revenues

ADG +16%

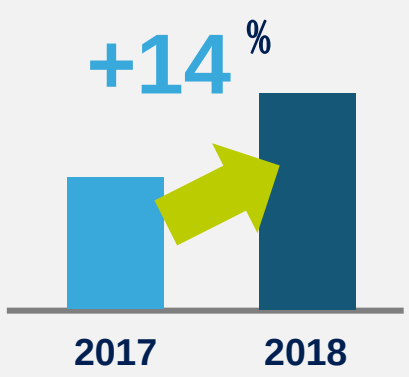
2018 vs. 2017

ADG by Sub-Group

Automotive Product Sub-Group

$2.22B

2018 Growth Rate



Power Discrete Sub-Group

$1.34B

2018 Growth Rate

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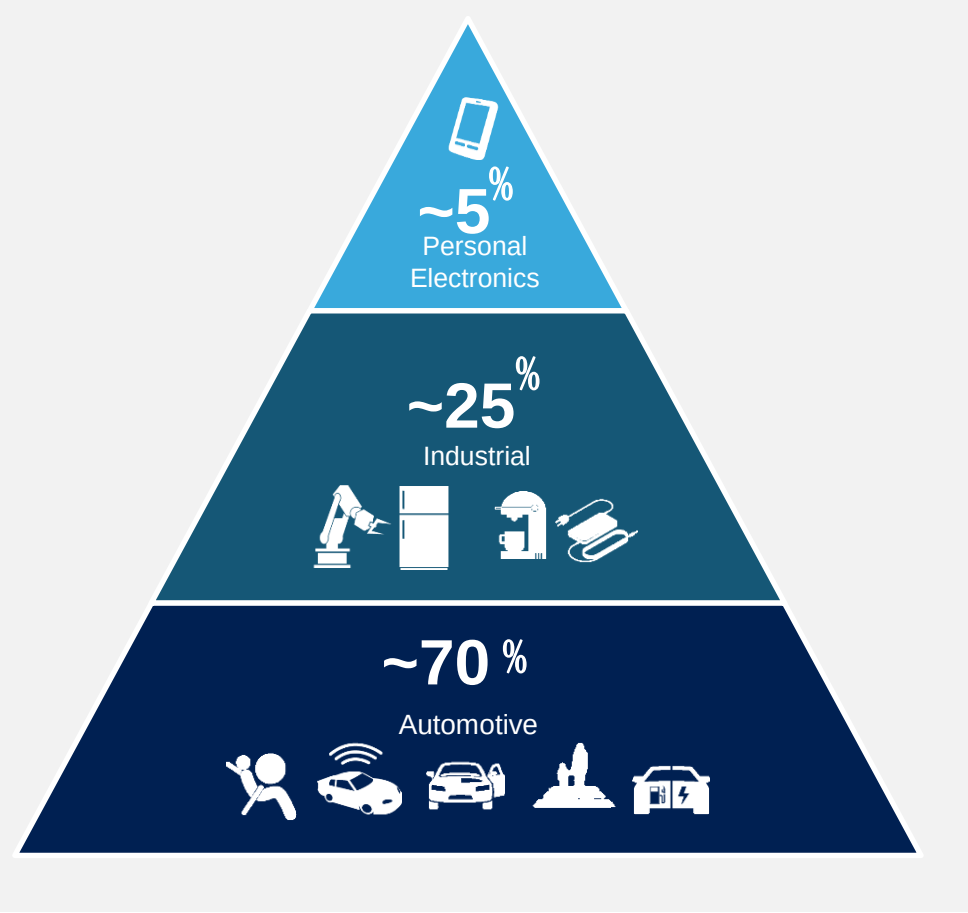
End Markets Coverage and Strategy

ADG Market Coverage(*)



(*): % of FY'18 ADG Revenues

Automotive

Main ST growth drivers and application focus:

- Electrification, Assisted and Autonomous Driving (ADAS)
- Car architecture change: Domain control

Key ST Technologies

Smart Power (BCD,ViPower), SiC & GaN MOSFET, IGBT, LV & HV MOSFET, 28nm FD-SOI & Phase change memory (P28), 7nm FinFET (foundry)

Industrial

Main ST Growth Drivers and Application Focus:

- Energy Conversion and Storage,
- Factory Automation (Motor Drive),
- Lighting
- Power Tools…

Key ST Technologies

HV MOSFET, IGBT, SiC & GaN MOSFET, Power Module & IPM

Source: IHS Markit, Strategy Analytics

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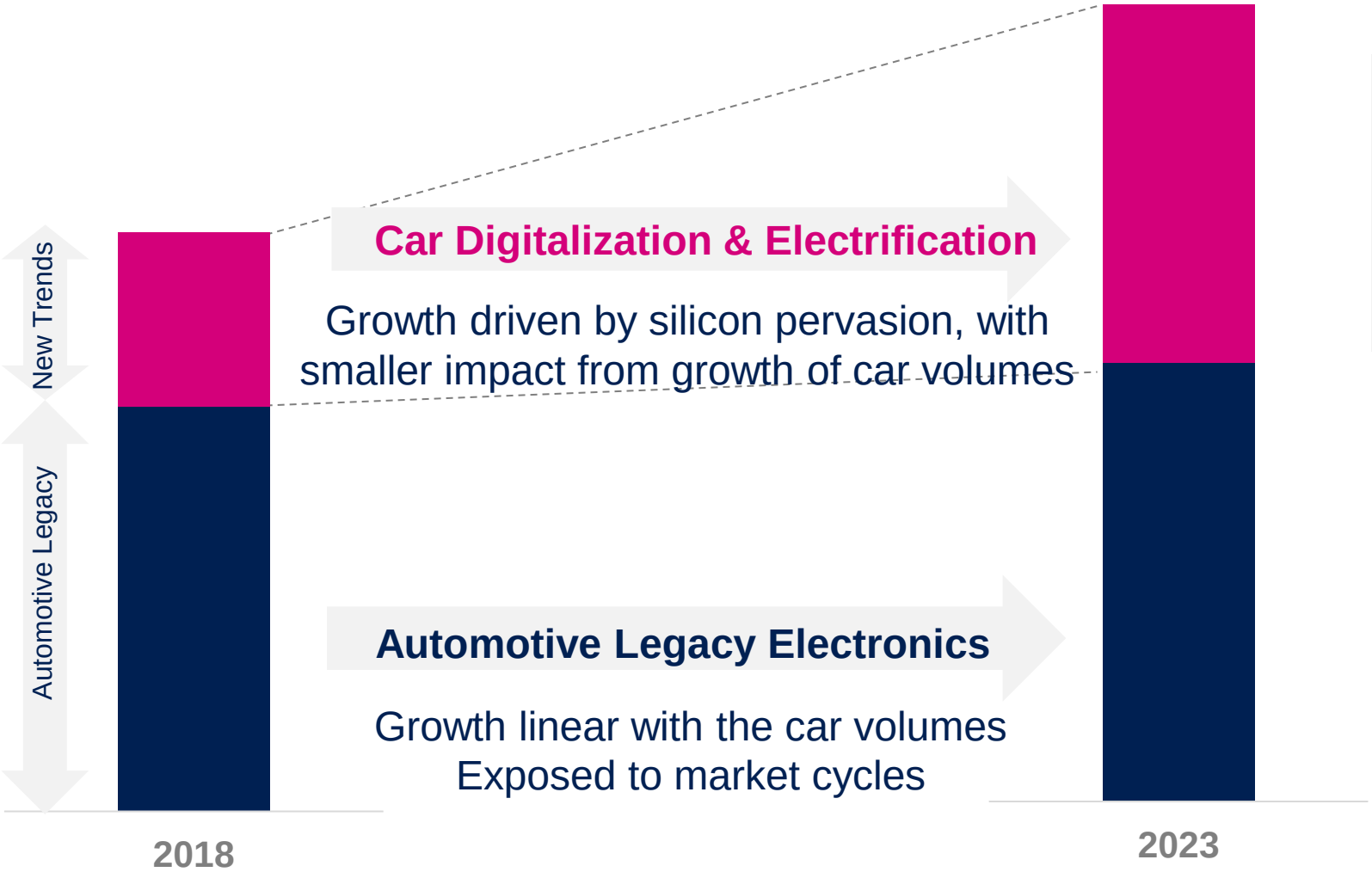
Automotive Semiconductor Market Dynamics



Car Electrification
CAGR '18-'23: ~24%
x9

Car Digitalization
CAGR '18-'23: ~14%
x5

Light Vehicle Production:
CAGR '18-'23: 2.6%

Car legacy Electronics
CAGR '18-'23: 3.5%

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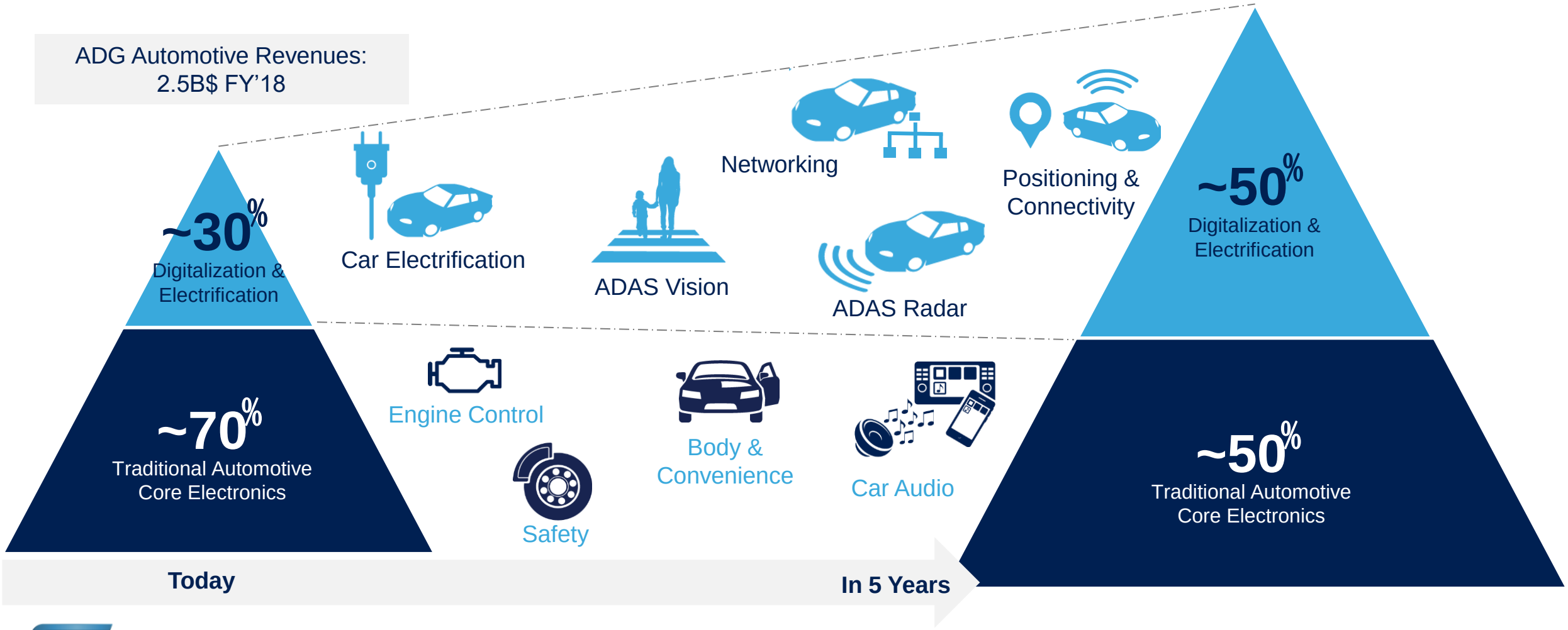
Source: IHS Markit, Strategy Analytics

ADG Automotive Business Evolution

Digitalization & Electrification Driving ADG Growth



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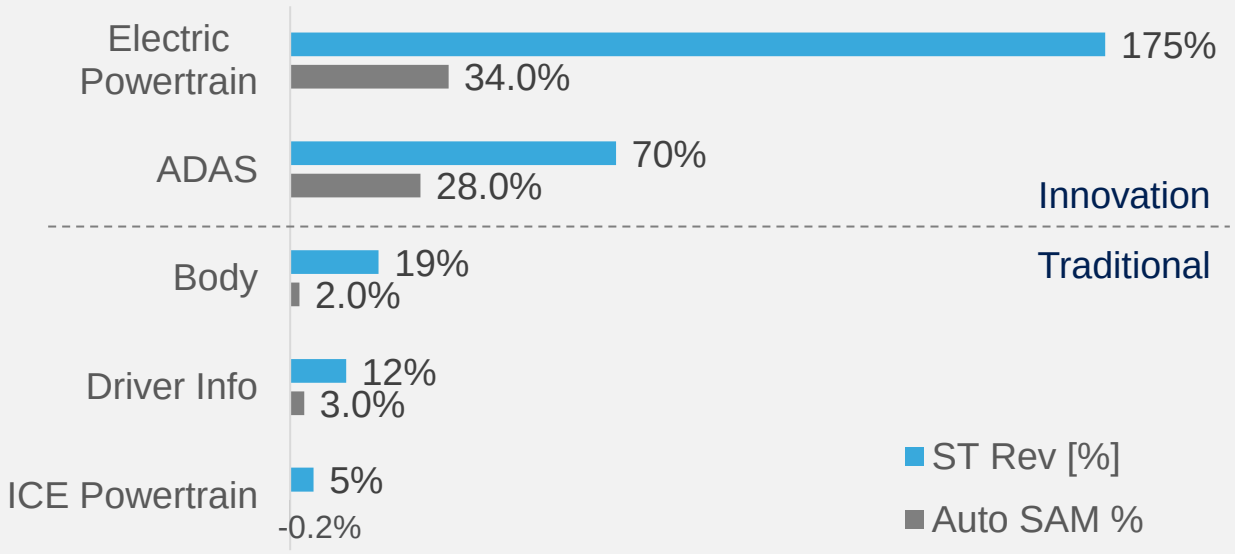
ADG Outperforming Automotive Market

2018 ADG Vs. Auto Market Growth

+18%

Growth Rate
x2 Vs. Semi Auto TAM

Highest Growth
Vs. *Top-10 Semi Auto Vendor*



Source: Strategy Analytics

ADG Outperforming Market on Automotive Megatrends

ELECTRIC POWERTRAIN

Traditional Silicon Power (*)
>150%
FY'18 Revenue Growth

ADAS

Vision Processor
>70%

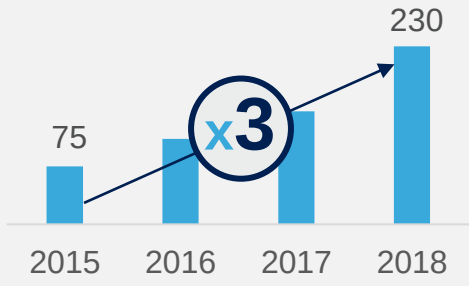
Radar Solutions(**)
>30%

FY'18 Revenue Growth

MICROCONTROLLER

32-bit MCU

>50%
FY'18 Revenue Growth ($M)



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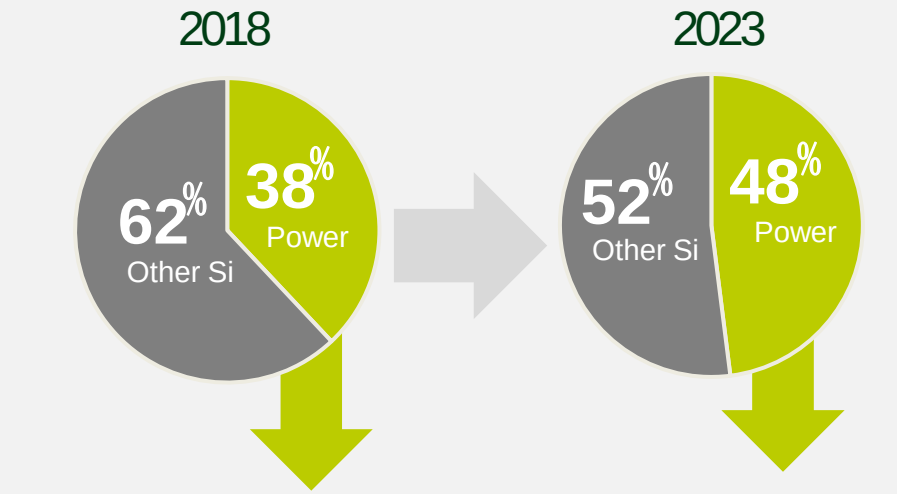
(*) Traditional technologies excluding SiC MOSFETs and Diodes
(**) including microcontroller and Radar MMIC

Car Electrification Boosts Power Content

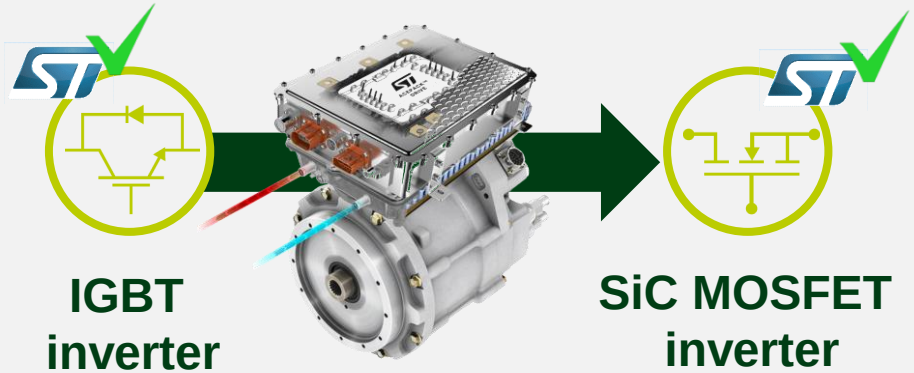
Powertrain TAM Evolution



IGBT and SiC MOSFET inverters will co-exist for several years

SiC MOSFET Vs. IGBT Advantages in Traction Inverter

Electric car motor and inverter

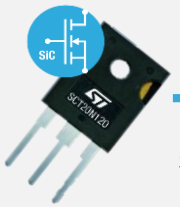


IGBT inverter

SiC MOSFET inverter

- 80% switching loss saving
- Direct inverter integration
- No separate liquid cooling
- Better thermal management
- Faster charging time

Potential saving thanks to SiC MOSFET usage in electric car



+300$

Sic MOSFET Additional Cost (*)

~2000$

Estimated Saving (*)

SiC MOSFET market size **by 2030** estimated to be **> 10B$**
representing ~**50% of the incremental growth** of power semiconductor in 2019~2030

ST has the full technology and product offer to support the two solutions

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(*) Source: Goldman Sachs

ST Silicon Carbide

In Line with our Target of >30% Market Share by 2025

Silicon Carbide: Business Status

>$100M
SiC MOSFETS /Diodes Revenues in 2018

>$200M
2019 Projection

#1 WW **Automotive** Supplier with SiC MOSFETs

Awards rate acceleration: More than **20 Car Makers** engaged

>10# OEM in production with ST SiC MOSFET

8 European Car-Makers ramping-up by 2019-20

RENAULT NISSAN MITSUBISHI

Partnering with **Renault Nissan Mitsubishi** on several SiC projects

HYUNDAI

Cooperating with **Hyundai Kia Motor** on several **SiC** MOSFET & Diodes

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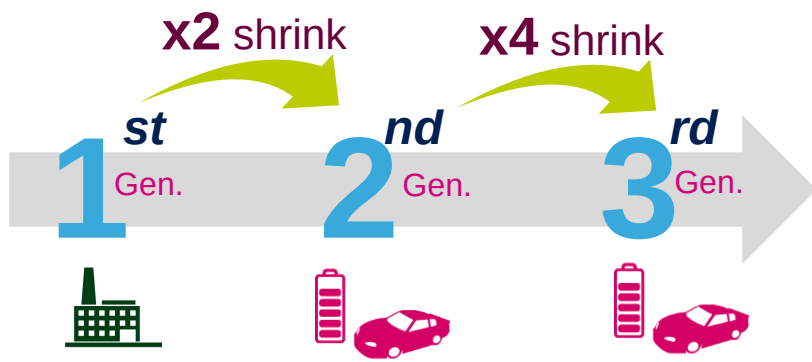
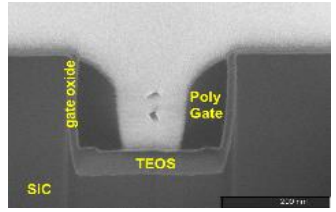
ST Strategy and Execution



Next Gen



Trench Technology

SiC Supply Chain
Vertical Integration Norstel AB

ST acquired majority stake to secure **Internal Supply** for SiC wafer substrates

Extended and **Secured** Supply Chain capability through Multi-Year supply agreement with **Cree-Wolfspeed**

Silicon Power Innovation

Electrification Beyond Silicon Carbide

Battery Management up to 800V to support the Chinese electrical mobility market

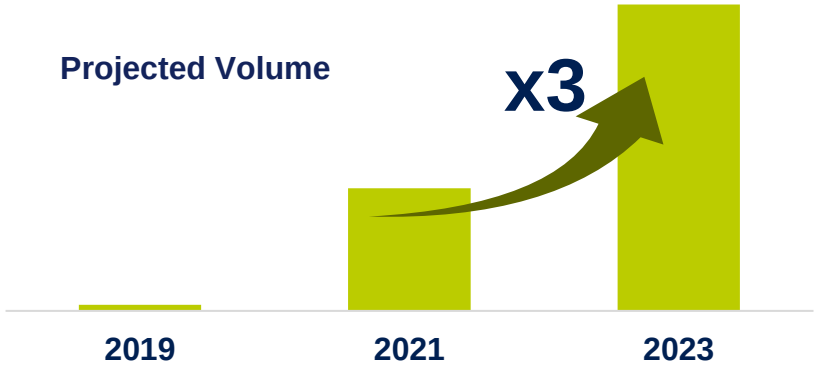
Innovative cell monitoring architecture in cooperation with ~10 Chinese car makers and IMECAS as part of "China 2025" national program - Production start Q4 2019

Lithium cell monitoring

Devices per Vehicle

>13

Suitable for **Hybrid** and **Full** Electrical vehicles



IGBT for EV applications

> 15 OEMs in production in '19

Multiple projects-wins in EV applications with new **IGBT** Trench Technology

ST-IGBT

>30%

FY'18-'23 CAGR

Agrate Fab

300mm

Investing in new Facilities to sustain **Power Silicon** solution growth

Solution for Mild-Hybrid vehicle (48V)

Tailored Low Voltage **MOSFET suitable for 48V systems**
➔ Already in production in multiple Hybrid Cars with Top Car Makers in EU, US and Asia

New VIPower™ intelligent power switches for Mild Hybrid:
48V Power Distribution and **Motor Control**
Targeting market leadership

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Power Modules

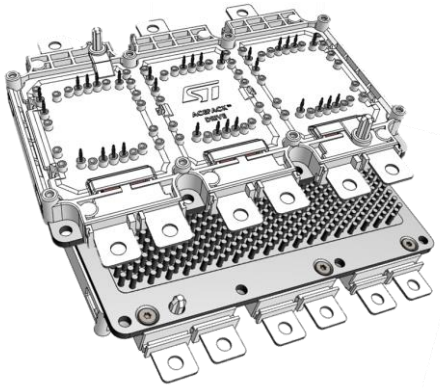
Standard & Custom Solutions Targeting Market Leadership

Broad range Module Portfolio

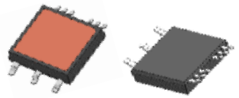
STPAK™

ACEPACK™ 1

ACEPACK™ DRIVE

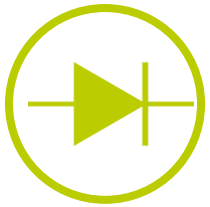


ACEPACK™ SMIT

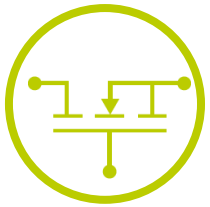


ACEPACK™ 2

Silicon and SiC Technologies Portfolio



Si & SiC Diodes

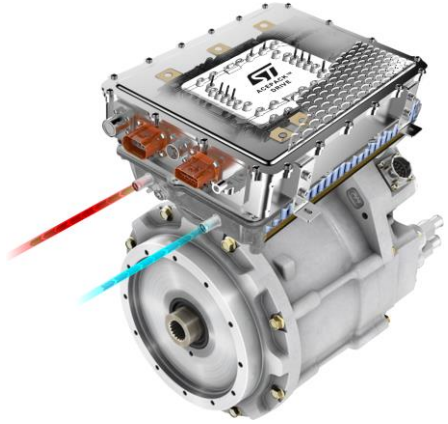


Si & SiC MOSFET

IGBT

Smart Power

Standard & Custom System Solution

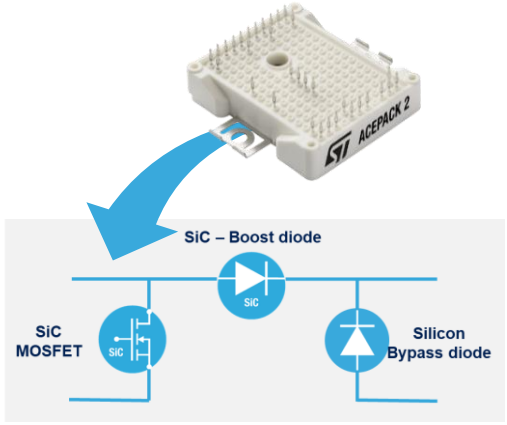


STANDARD Portfolio

Plug&Play Module for Traction inverter, On-Board Charger and DC-DC converter

CUSTOM Solutions

Combining semiconductor and package technologies addressing multiple design topologies tailored to specific customer needs



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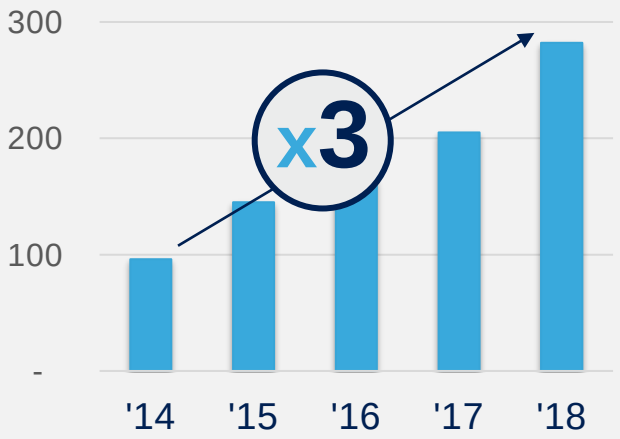
ADG Leading ADAS Market

ADG ADAS

Solid and stable revenue growth ($M)

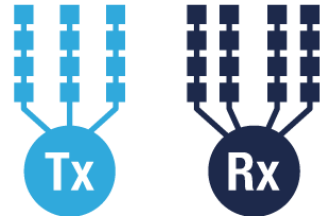


x2

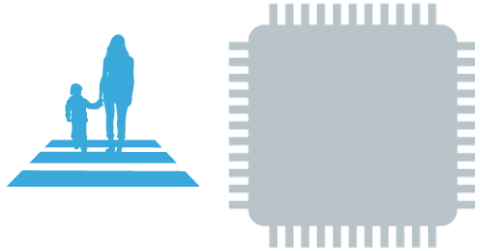
Doubling Business by **2023**

Market Leadership in Core Functions ADAS-Specific ICs Solutions

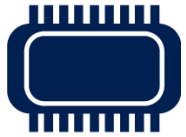
RADAR
MMIC Transceiver & MCU



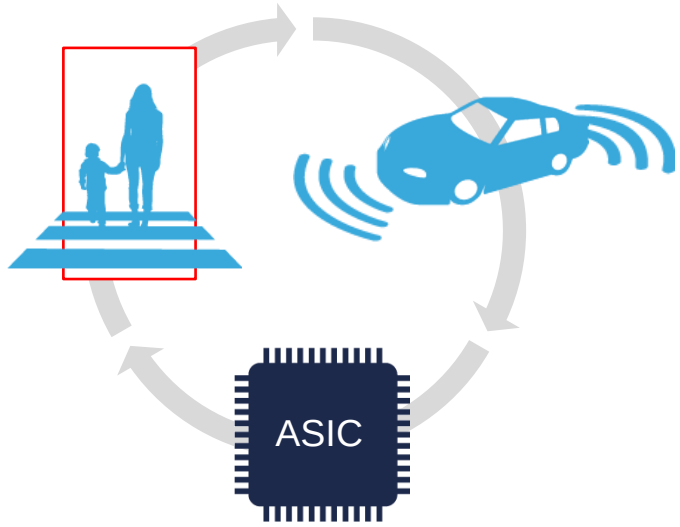
VISION
Processor



ASIC Smartpower
Sensor Interface
ADAS-specific Voltage Regulator



>30%
Market Share(*)



Source: Strategy Analytics, ST Internal

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(*) Share on ADAS-SAM including Processor, MMIC, Application Specific

Active Safety and Autonomous Driving

Multiple ST Developments Supporting Silicon Content Increase in ADAS Systems

Leading Vision-based system with Mobileye

MOBILEYE® An Intel Company

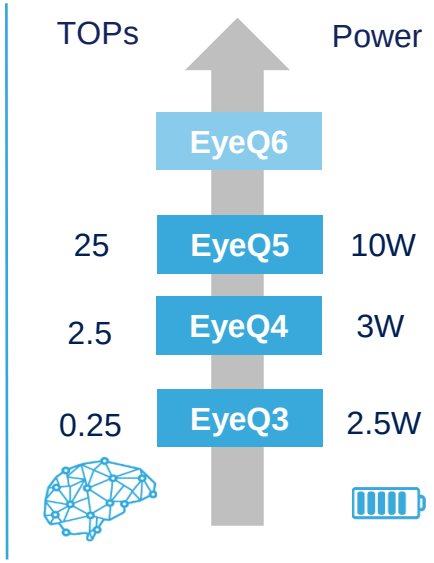
78#
2018 new car models launched

32M
Mobileye EyeQ systems delivered to OEMs globally

EyeQ5

- 1st product designed for Automotive in 7nm FinFET suitable for both ADAS and Autonomous Driving market
- Functional samples delivered to customer in Dec 2018
- High volume business already acquired with car makers

Today under field test



Moving towards autonomous vehicles with Auto-parking ability

Panasonic

- Advanced solution for mobility and Autonomous Parking
- Co-development leveraging ST Expertise in designing safe and secure Automotive SoCs and Panasonic leadership in image manipulation and system design
- 16nm technology samples delivered

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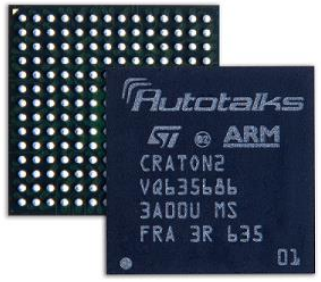
ADAS Beyond Vision

Leading Innovation with 5G Cellular V2X and High Precision GNSS

Market 1st dual-mode solution supporting **5G Cellular V2X**



Single Ics Solution

Cellular
(Automotive low latency 5G)

&

Wi-Fi 11.p
(for Automotive)

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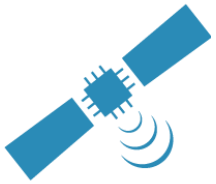
Autotalks solution awarded for production:

- 4 of the top 10 automakers deploy Autotalks V2X solution
- > 10 Tier1s selected the chipset
- Volume production by 2020

TESEO APP: Precise Positioning enhancing Assisted and Autonomous Driving

Full Production

Single-Band



Sub-meter positioning

Ramp-up by 2020

Multi-Band ASIL-D

- Sub-meter positioning for Assisted Driving
- Multi-constellation(*) system including now Indian System (NAVIC) with 3 customers certified with ST solution (1st in the market)
- Enabling ADAS (Tolling, Insurance Box, Assisted Driving...)

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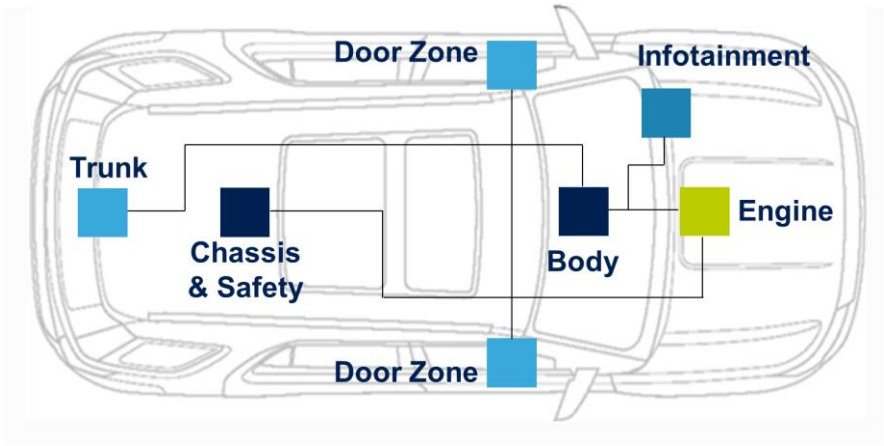
(*) GPS, Galileo, Glonass, Beidou, NAVIC, QZSS

Car Digitalization: New Architectures

…Software accounting for 30% of vehicle value by 2030

ST Technology enablers: FD-SOI 28nm with embedded Phase-Change Memory (PCM)

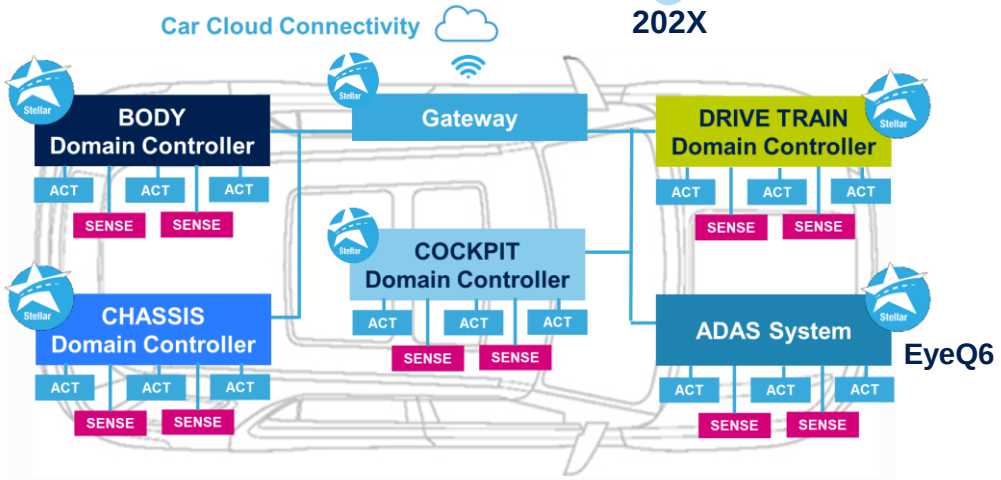
2017



x10

Car Computational Power

202X



Distributed Architecture: 9k DMIPs per Car

- Local Control Units with up to **130 ECUs/Car** (with 8-16-32-bit MCUs)
- Limited connectivity and in-vehicle data flow (up to 10 Mbit/s)
- Heavy and expensive harness
- Extremely complex car software management
- No car functionality upgrade

Integrated Real-time Domain Architecture: 90k DMIPs per Car

- ~5 Domain-Control Units with higher power computation: **+30% Silicon Value**
- **Stellar** with multiple Arm® Cortex®-R52 cores embedded Phase-Change Memory (PCM)
- Autonomous Driving Super-computer (MPU ext. Memory) ~**100 Trillion Operations per second**

- Architecture simplification, SW rationalization, harness drastic reduction
- Easy car functionality reconfiguration and SW upgrades
- High-speed in-vehicle communication
- Over-the-Air Software upgrade capability

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STM8 A

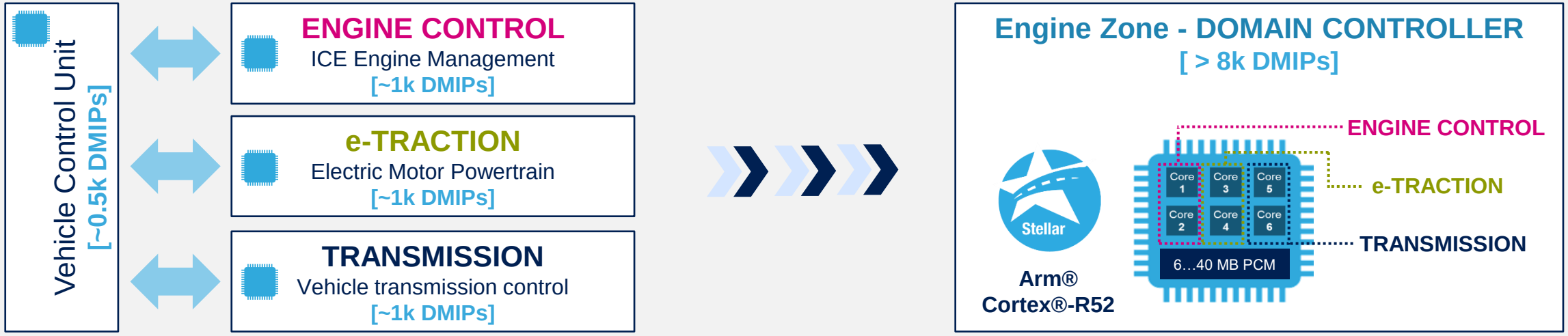
SPC5

SPC5

Stellar

…from ECUs to Domain Controllers

Example: Evolution for Vehicle Traction



Requirements:

- High density technology
- Real-time
- Working Frequency > 400MHz
- Low power consumption
- >16 MB of high speed access Non-Volatile Memory

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Stellar: ST 28nm FD-SOI with embedded Phase-Change Memory

ST in-house production at Crolles300

P28 technology platform

- **FD-SOI** Technology → Achieving Low Power Consumption requirement
- **28nm** Lithography → Supporting Higher working Frequency (> 600MHz)
- **PCM** Memory → ST Phase-Change Memory (High-Speed High-Density robust embedded NVM)

Stellar

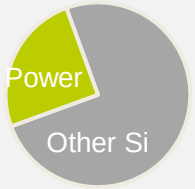
- Samples delivered to *lead customers* currently running in vehicle testbeds
- **> 10** running programs

Industrial Applications – A Solid Base

ST Leadership in Power Solutions

Power Share in Industrial TAM(*)

>25%

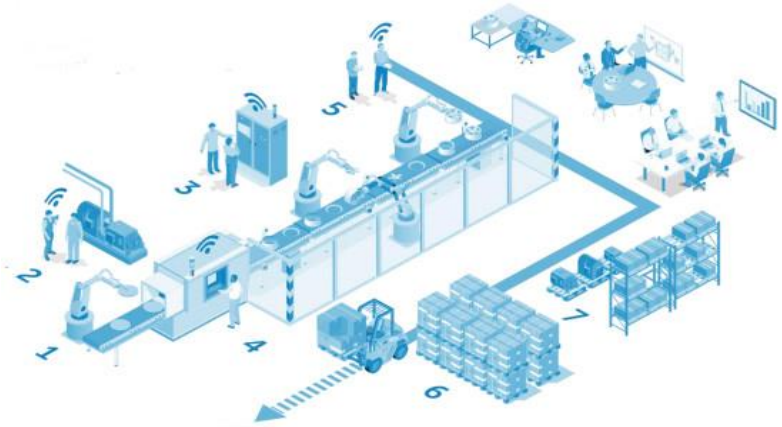


#2 In **Industrial Power Discretes**

#1 **Discrete** supplier in many **industrial** application domains

- Power tools
- Medical Diagnostic
- Security & Surveillance
- Networking systems
- Building Safety systems
- ….

Smart Factory



Smart Home

Automation

>15% Share LV MOSFET in **High-End Industrial**

Energy Management

>30% HV MOSFET Super-junctions in **Lighting & Power conversion**

Motor Control

>10% Share IGBT & IPM in **Home Appliance**

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Source: IHS Markit

(*) Estimation based on Manufacturing & Process Automation, Power & Energy, Building & Home Control, and other industrial

STPOWER Portfolio

Broad range Power Offer Tailored to the **Industrial Market**

Silicon HV & LV MOSFETs

Silicon Carbide MOSFET

IGBT

Modules

STPOWER

~20%

2018 ADG YoY Growth

Continue to expand penetration in Industrial outperforming the market

Supporting Continuous Growth

HV MOSFETs

Gaming & SmartTV

Charging Station

LED Lighting

Solar Inverter

IGBT & Modules

Air-conditioning

Washing Machine

Solar Inverter

Induction Heating

SiC MOSFETs

EV Charger

UPS

Industrial Motor

Power Supply

LV MOSFETs

Adapter

Power Tool

Garden Tools

e-Scooter

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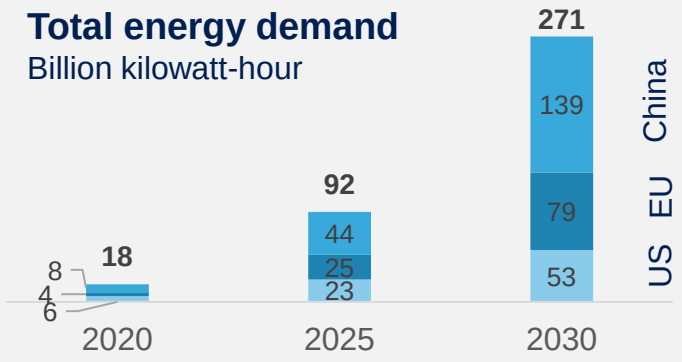
Scalable Solution for Charging Pile

Strongly Contributing to Power Silicon Pervasiveness in Industrial

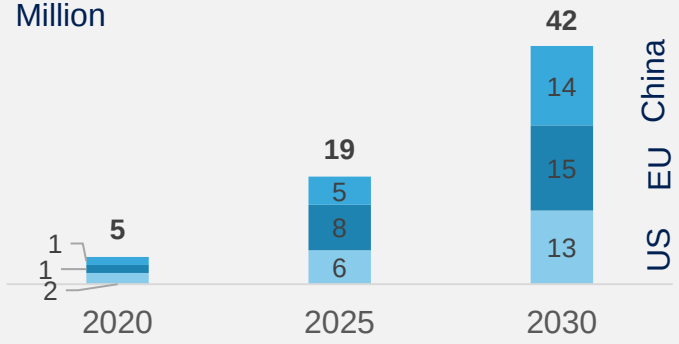
50B$ WW investment for 280kW per hour by 2030

Total energy demand
Billion kilowatt-hour



280 BkW-h
Estimated charging energy demand for electric vehicle

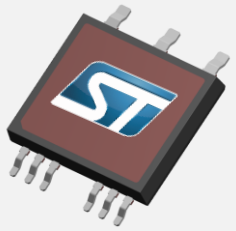
Estimated Number of Chargers
Million



50 B$
2030 Investment plan to meet the target

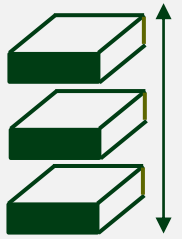
Application Scalability with ST Power Modules

ACEPACK™ SMIT



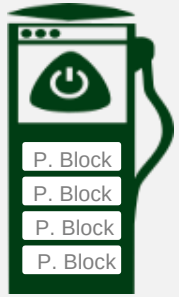
Up to **x4**
ST ICs/Power Block

Power Block
~ 20 kW



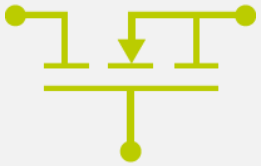
Up to **x18**
Power Block

Charging Pile:
60 – 350kW



Solutions Tailored to Customer Needs

SiC MOSFET

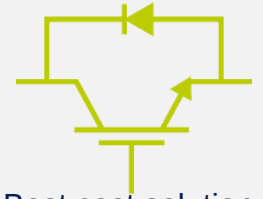


Best Performance solution
up to 1700 V

High Power, High Efficiency

Balancing Cost & Performance

Si IGBT



Best cost solution
up to 650 V

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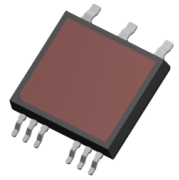
Source: McKinsey

Power Module Solutions for Industrial

Intelligent Power Module
SLLIMM™
Granular offer **with ≈70 Part Numbers**

Power Module
ACEPACK™
Silicon MOSFET & IGBT, Silicon Carbide MOSFET

30W — **500W** — **3kW** — **5kW** — **20kW**

Home Appliances

Washing Machine

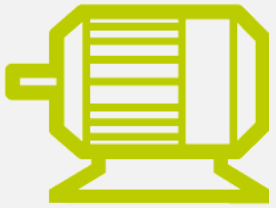
Fridge

Air Conditioning

Motor Drive

Motor Pump

Electric Motor



Energy Conversion & Storage

Wind Turbine

Solar Inverter

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ADG Supports the Company Strategy in 5G

GaN Power RF Amplifiers

Telecom Base Station

- Business Model: ST 8” technology development and manufacturing based on MACOM IP
- GaN on Silicon displacing LDMOS with significant cost advantage vs. competitor GaN on SiC solutions
- Engaged with major world wide market players
- Production Start: 2019. Volume ramp-up by 2020

Targeting **>50%** Base Station Market Share

Capability to address **>80%** of 5G Demand

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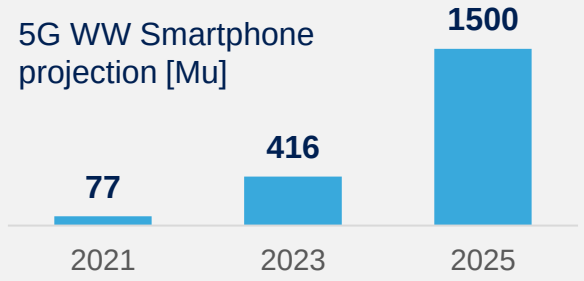
0.25µm — RF GaN Technology node — 0.15µm

Mobile & Handsets market

- ST licenses MACOM IP
- Targeting GaN on Silicon RF Power amplifiers for handset
- GaN on Silicon huge cost advantage vs traditional GaAs and competitors GaN on SiC grants an effective market penetration
- Engagements with market key players already initiated



2019 …scaling manufacturing capacity for these opportunities **2023**

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Takeaways

ADG is committed to **outperform** the market growth in **Automotive** and in **Industrial** application domains

- ADG is ready to support the mobility transformation, seizing market opportunities coming from electrification and digitalization with a flexible product offer to satisfy the needs of our customers
- ADG is well equipped to support the Industrial market domain thanks to a complete offer of Power and Discrete products covering multiple applications
- ADG supports the 5G strategy of the company thanks to an innovative Power-RF product offer and an extended partnership
- Technology innovation, complemented by world-class manufacturing, remains a priority to support new Automotive, Industrial and Personal Electronics trends, with a strong focus on new power materials (wide bandgap) and digital applications (FD-SOI and Phase Change Memory)

Analog, MEMS & Sensors Group

Benedetto Vigna

President
Analog, MEMS and Sensors Group

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33%
of ST 2018 revenues

AMS Group at a Glance

Key Financial Data by Sub-Group

Group 2018 Revenue

$3.15B

Analog, MEMS & Sensors Group

$1.35B
Analog

$1.8B
MEMS & Sensors

FY18 vs FY17 Growth

AMS
+20%

Analog
+11%

MEMS & Sensors
+28%

A wide range and diversified product portfolio to support a large customers base

Serving more than
70,000
Customers

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AMS Strategy

Products

Analog

- General Purpose
- Application Specific

MEMS & Sensors

- MEMS Sensors & Actuators
- Specialized Imaging Sensors

Markets

- Strategic **focus** on industrial & automotive end markets
- Address specific large **opportunities** in personal electronics
- **Selective** approach in communications equipment and computers & peripherals focusing on advanced power management

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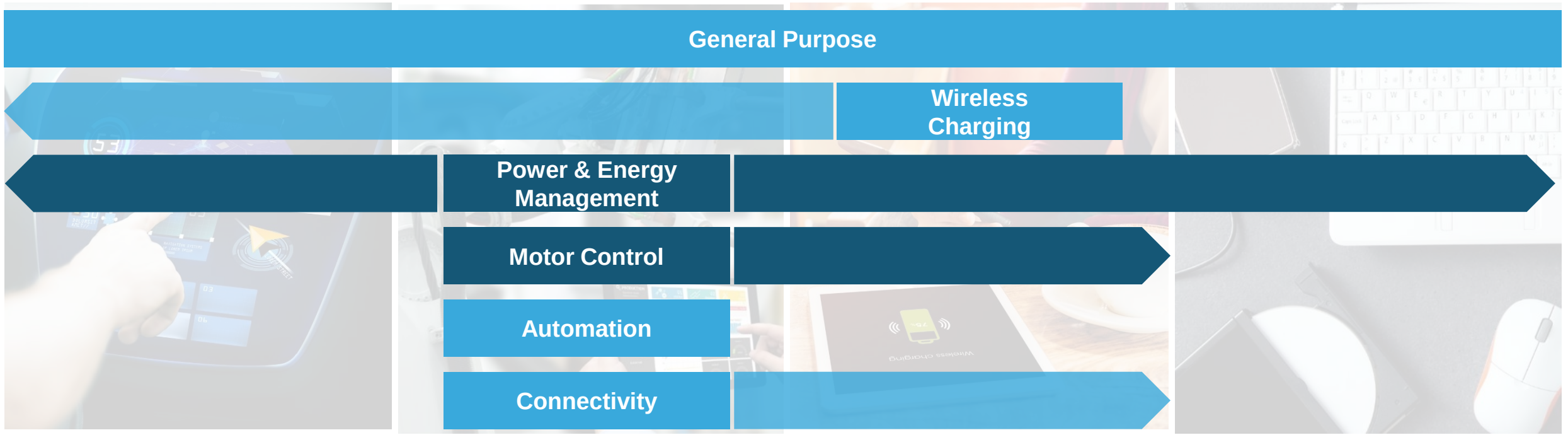
Analog Products For All End Markets

Automotive	Industrial	Personal Electronics	Communications Equipment, Computers & Peripherals



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Analog – General Purpose

Power Management

- AC-DC Converters
- DC-DC Converters
- Battery Management ICs
- Hot Swap Converters
- Linear Voltage Regulators
- LED Drivers

Interfaces

- USB Type-C & Power Delivery
- USB Charging Controllers & Transceivers
- Standard Interfaces
- Advanced RS485 Interface

Signal Conditioning

- Operational Amplifiers
- Current Sensing Amplifiers
- Comparators
- Voltage Reference

Industrial

Automotive

Personal Electronics

Communications Equipment, Computers & Peripherals

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Analog – Application Specific
Wireless Power solutions

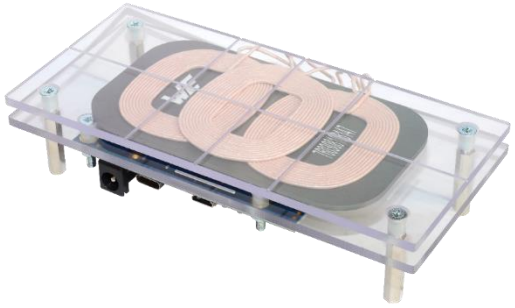
Next

30 W - Under Development -
Suitable for industrial applications e.g. power tools

15 W Multi-Coil, Multi-Market
Larger charging area & freedom of positioning

15 W Smartphones and Tablets
Charging up to 3 time faster Qi 1.2.3 certified

5 W Smartphones
Qi 1.2 certified



1 - 2.5 W Wearable Devices
Optimized for ultra-compact battery-operated

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11 Complete solutions including Tx and Rx
Compatible with key proprietary protocols and fast charge extensions

Analog – Application Specific

Industrial

Focus Area		Product Leadership	
	Power and Energy Management	Powerline Communication ICs	 120 Millions smart meters with ST solutions **38% Market Share***
	Motion Control	Motor Drivers	 >1 Billion low voltage motors driven by ST smart power solutions **11% Market Share***
	Automation	Intelligent Power Switches	 >1 Billion I/O channels in factories with ST drivers **12% Market Share***

12% of business in 2018 coming from Products less than 2 years old

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Source: ABI Research, WSTS, ST Estimation

Solutions
from Watt to kW

Analog – Application Specific
Power & Energy Management

High-Efficiency / High-Voltage Converters

VIPerPlus — ANALOG

High End Combo Architecture

STNRG — DIGITAL

75 W

- AC-DC High-Voltage Converters
- Wireline, Wireless, USB-PD Chargers
- ASSP for LED Lighting

500 W

- Power Factor Correctors
- AC-DC Controllers
- Analog & Digital Combo (PFC+ Ctrl)

Over 1,000 W

- Digital Controllers
- SiC, GaN Isolated Drivers
- Secondary-Side Controllers

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Stepper

Brushed DC

Brushless DC

Analog – Application Specific

Flexible Solutions for all Types of Motors

Broad portfolio with more than 130 products and more than One Billion Units sold

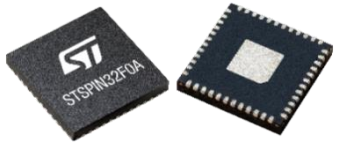
Galvanic Isolation

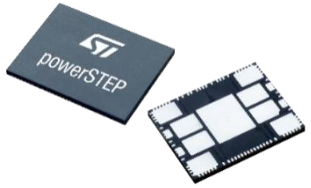
Motor Control

Power Transistors (Si or SiC)

Microcontroller

Heterogeneous Integration





Up to tens of kW

Up to 700 W

Up to 500 W

Smallest footprint and most power efficient Module

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Analog – Application Specific

Factory Automation

Sensors

MCU/MPU

Connectivity

IO-Link

Sub-1 GHz
BLE
Sigfox

Isolated
Interfaces

Powerline
Communica
-tion

Actuation

Safety
Integrity
Level ICs

Intelligent
Power
switches

Galvanic
Isolated
ICs

ASICs
Embedded
Diagnostics

- Communication and **Flexibility** to adapt in real-time to external events
- **Robustness** and reliability thanks to embedded intelligence and diagnostics
- Higher efficiency and **Safety** at all points in power usage
- **Distributed** intelligence, decentralized diagnostics

Based on **BCD, BiCMOS, Galvanic Isolation**

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Emerging Industrial Applications

Driven by Connectivity and Sensors

- Predictive maintenance and automation
- Asset tracking & supply chain
- Real-time monitoring & calibration
- Shock detection Anti-tampering
- Electric and gas metering
- Flow metering Water-level monitoring

KNX Transceiver

Wired

- IO-Link
- Isolated Interfaces
- Powerline Commun-ication
- KNX

Wireless

- Sub-1 GHz
- Bluetooth Low Energy
- Sigfox

Ultra Low Power BLE

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SW and HW Tools Enabling New Applications

Development Platforms and Reference Designs

Wireless Industrial Node

IO-Link

ISM330DLC
6x IMU. Wide Bandwidth

ST Op Amps

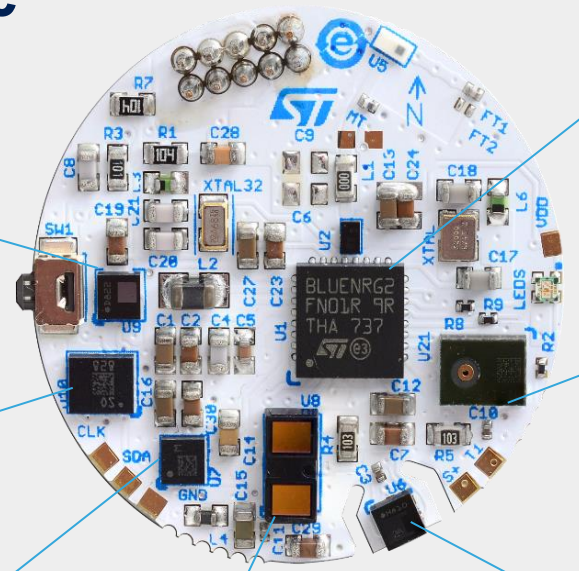
IIS2DH
Accelerometer. Wide bandwidth, Ultra-low power

Sub 1GHz

IIS2MDC
Magnetometer. Low-Noise, Low Power

BlueNRG

BlueNRG-Tile



BLENRG SoC

BlueNRG

Pressure Sensor

Microphone

Accelerometer + Gyroscope

Magnetometer

Time of Flight

Humidity + Temperature

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Sensors & Actuators Covering All End Markets

Automotive	Industrial	Personal Electronics	Communications Equipment, Computers & Peripherals

MEMS Actuators

MEMS Sensors

Specialized Imaging Sensors

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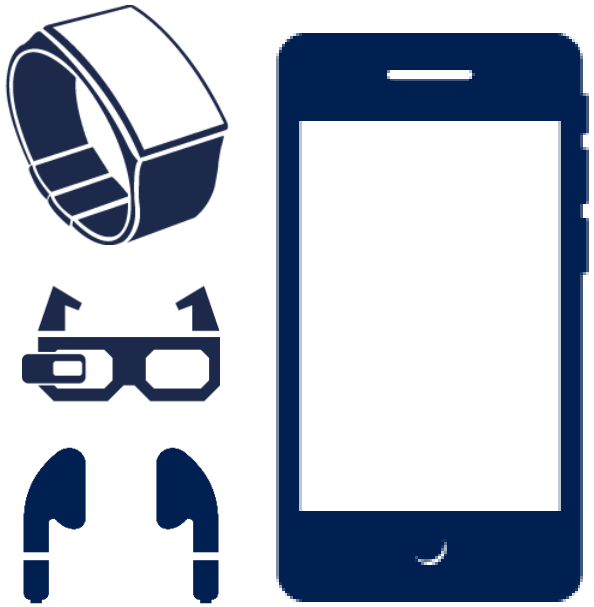
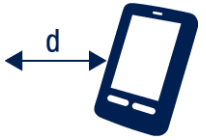
Personal Electronics

What AMS did in the Last Year

Motion and **pressure** sensors wins in the flagship models from most of the world's top smartphone and wearables manufacturers



Multiple design wins and growth of volume shipments for **FlightSense™** products in smartphones



Wins for **power management, voltage regulators, motor drivers,** and **touchscreen controllers** for platforms from major smartphone makers

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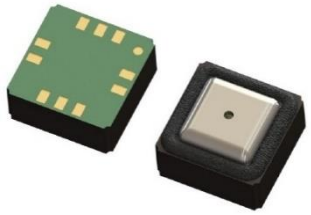
50% Market Share in Motion MEMS in Personal Electronics & Automotive Telematics

MEMS Sensors & Actuators
Technology and Products

Next Generation ThELMA*

- Higher accuracy
- Ultra-low power
- Embedded Machine Learning Core

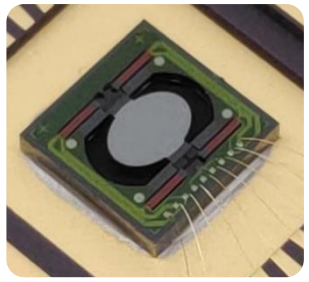
→ Motion sensors for Personal Electronics, Automotive & Industrial



Next Generation BASTILLE*

- Higher accuracy
- Size reduction
- Waterproofing

→ Environmental sensors for Personal Electronics & Industrial



Thin Film Piezoelectric PεTRA*

- Innovative piezoelectric materials
- Higher efficiency
- Lower cost

→ Microactuators for Ink Jet printing, Speakers & Infrared Scanners

*ST proprietary MEMS technologies

Source: IHS Markit

MEMS Sensors

Higher Accuracy for Industrial & Automotive

Motion, Vibration, Angle Measurement

Temperature Monitoring & Calibration

Pressure Monitoring

Humidity Monitoring

Acoustic Monitoring

MEMS motion sensors
Accelerometers, gyroscopes, 6-axis IMUs, magnetometers

Temperature sensors

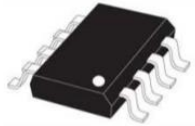
Pressure sensors

Humidity sensors

MEMS microphones
Analog, digital, top and bottom port solutions

Inclinometer

Hi-g accelerometers for airbags



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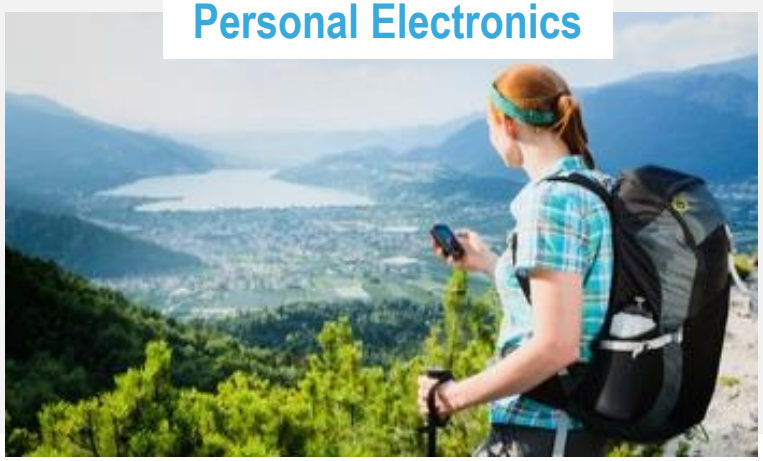
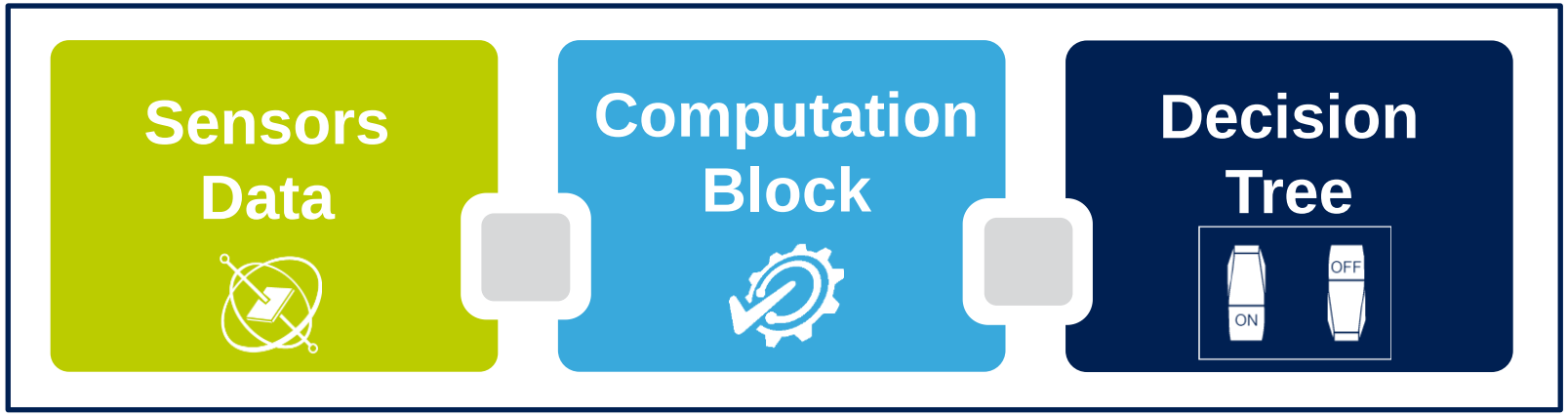
More intelligence
with Embedded Machine Learning

10 to 1,000 Times Power Saving

Industrial Robots

Personal Electronics





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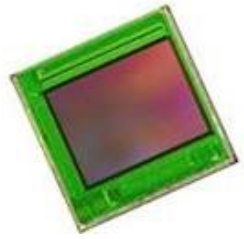
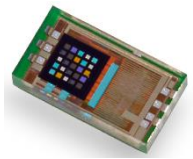
Specialized Imaging Sensors

Technology Focus





Time of Flight

- Direct & Indirect, SPAD & Fast PhotoDiode
- Increasing resolution
- All-in-one & low power
- Multi-zone & multi-object capability
- 3D-BSI, 40 nm SPAD

Structured Light

- Global Shutter
- High Quantum Efficiency
- 3D-BSI

Ambient Light Sensor

- High sensitivity
- Small size & low power
- Flicker detection

3D Sensing
for smartphones
(Front facing and rear facing)
and automotive
(LiDAR & in cabin)

Proximity and ranging Sensors
for Personal Electronics
and Industrial

Low cost spectrometers
for home & building automation

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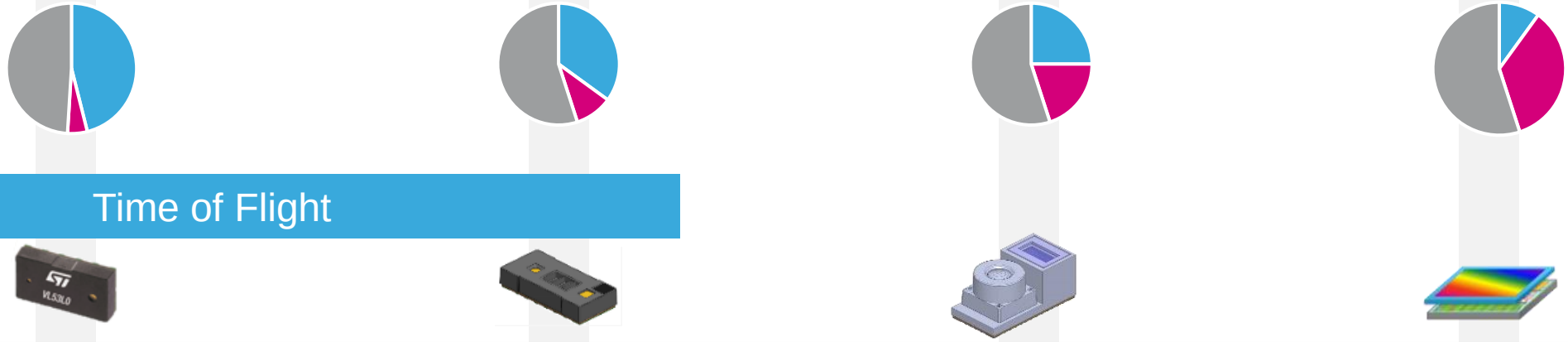
Expanding our Imaging Sensing Offer

3D & Depth sensing
in smartphones
% application type

- Rear Facing Laser Autofocus
- Rear Facing Depth
- Front Facing Depth



Time of Flight

FlightSense

From 1 pixel to 1Mpixel, from 2m up to 6m, from 27º to >70º Field of View

Stereoscopic and Structured Light

Global Shutter Sensor

Up to 2.3Mpix by shrinking pixel size & embedding Image Signal Processing

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Diversifying our Imaging Offer

For Automotive

Sensing & Viewing Camera

Rolling Shutter

- High Dynamic Range (HDR)
- Low Noise
- High Sensitivity
- FSI

- Flicker Free
- No Memory
- Low Noise
- High Sensitivity
- BSI

In-Cabin Optical Sense

Global Shutter

- HDR
- Low Noise
- High sharpness
- Multi zone
- FSI

LiDAR

FlightSense™

- integrated SoC receiver solution
- 40nm & 3D CMOS
- SPAD

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Takeaways

- Strategic focus in **Industrial** with Analog (GPA and ASSP) and Sensors
- **Broadest** Sensor and Microactuator portfolio in the industry expanding in Automotive and Industrial markets
- **Innovation** driven by a wide IP and Technology portfolio to boost growth on emerging applications

Well positioned for balanced growth with both Distribution and Key Customers

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Microcontrollers & Digital ICs Group

Claude Dardanne

President
Microcontrollers and Digital ICs Group

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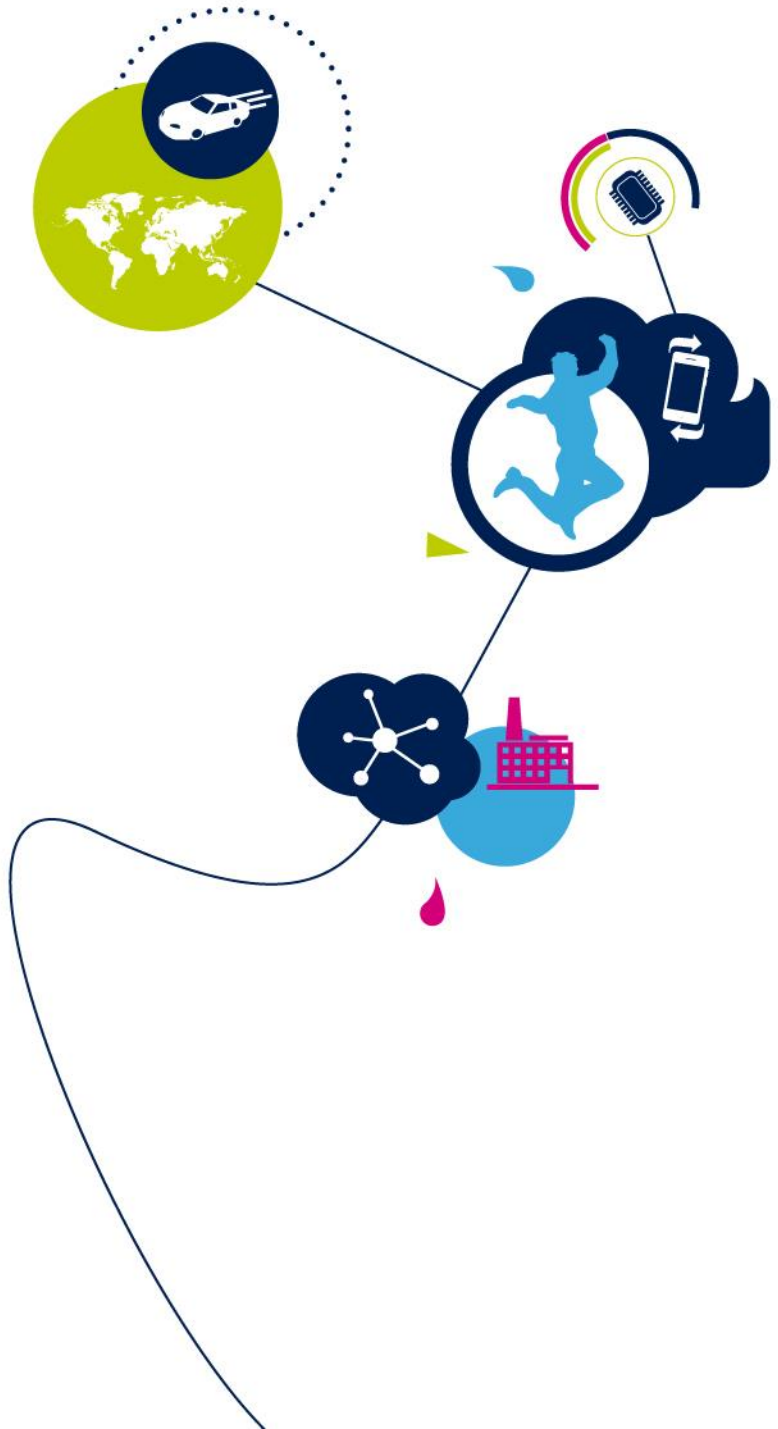

30%
of ST 2018 revenues

MDG Group at a Glance

Key Financial Data by Sub-Group

Group 2018 Revenue

$2.94B
Microcontrollers & Digital ICs Group

$2.29B
MMS

$0.65B
Digital

FY18 vs FY17 Growth

+11%
MDG

MMS **+11%**

Digital **+11%**

MMS Microcontrollers & Memories
Digital Digital and Mixed ASICs, Aerospace, Defense and mmW Communication

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mmW = millimeter Wave

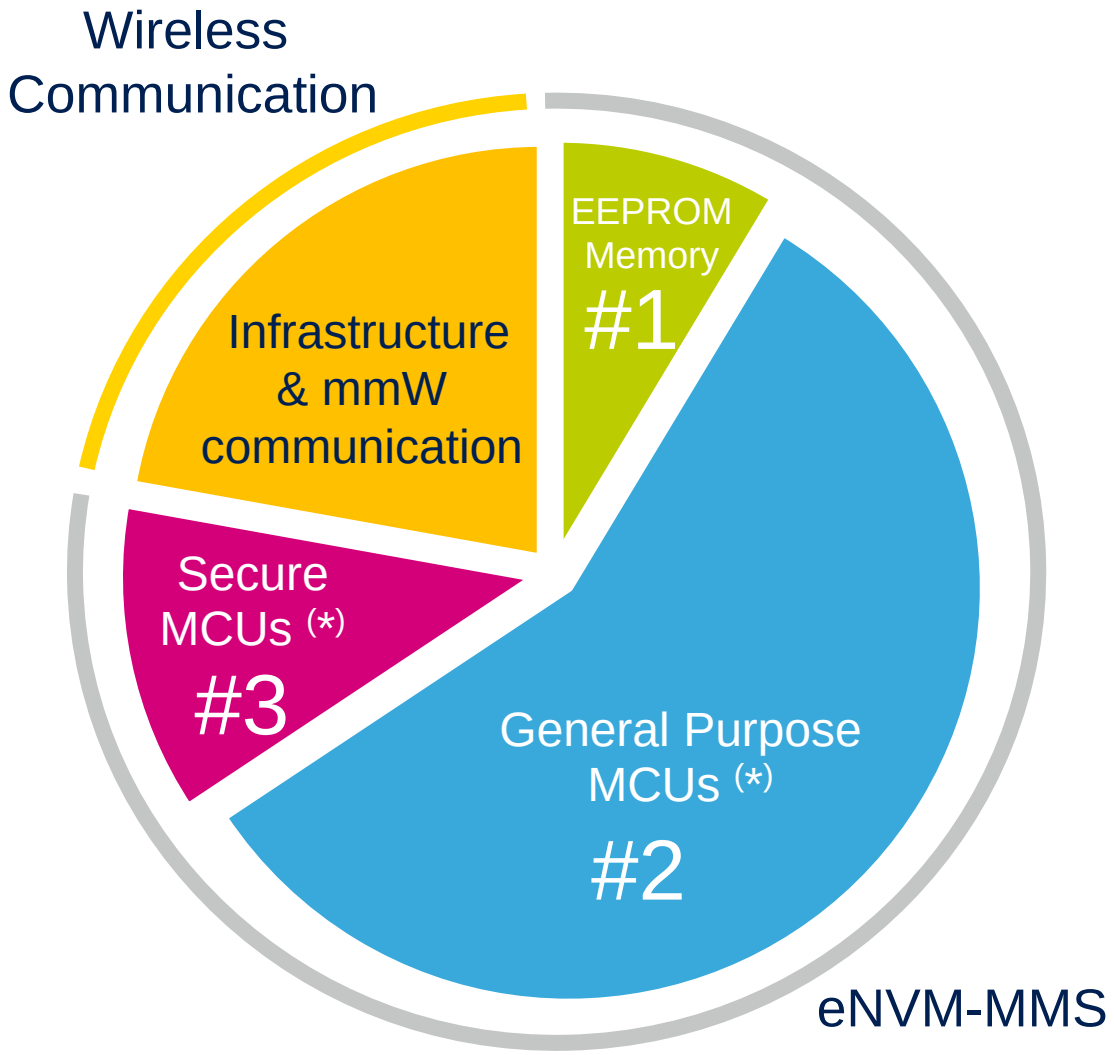
Microcontrollers & Digital Group

2018 Revenues Split

- ~ 70% Revenues with Microcontrollers
- ~ 20% Revenues with Digital products
- ~ 10% Revenues with EEPROM memories

Three Year Target

- Leadership on Embedded Processing (*)
- Migration of Digital competences to Industrial (MPU/AI) & RF mmW, capitalizing on ST differentiated technologies & IP
- Consolidate leadership in EEPROM Memories



(*) Excluding automotive MCUs
Source: IHS Markit

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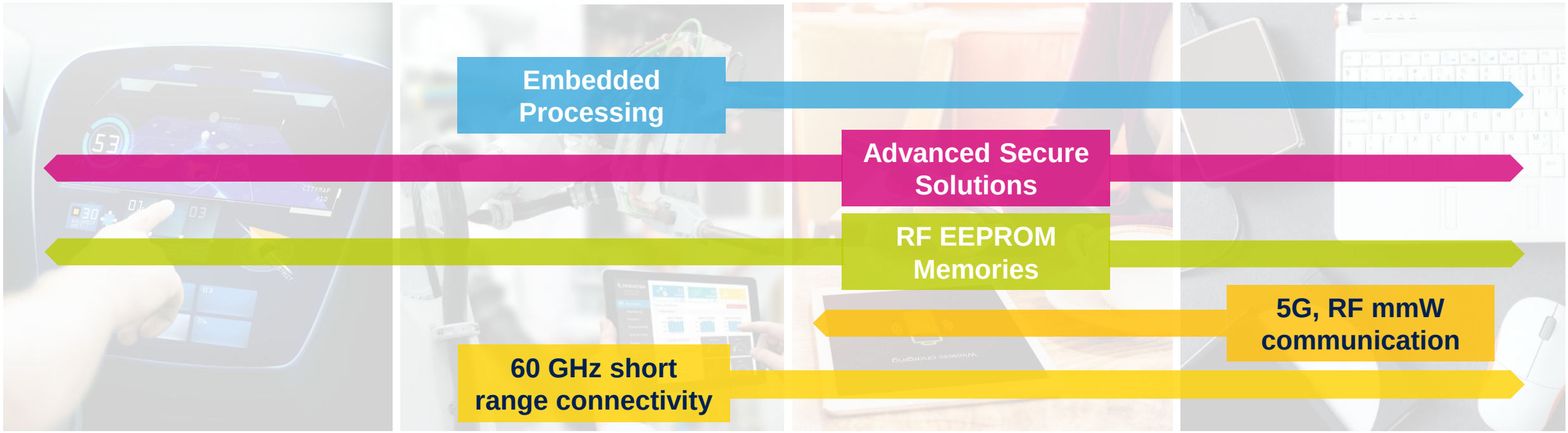
MDG Products for all End Markets

Automotive	Industrial	Personal Electronics	Communications Equipment, Computers & Peripherals



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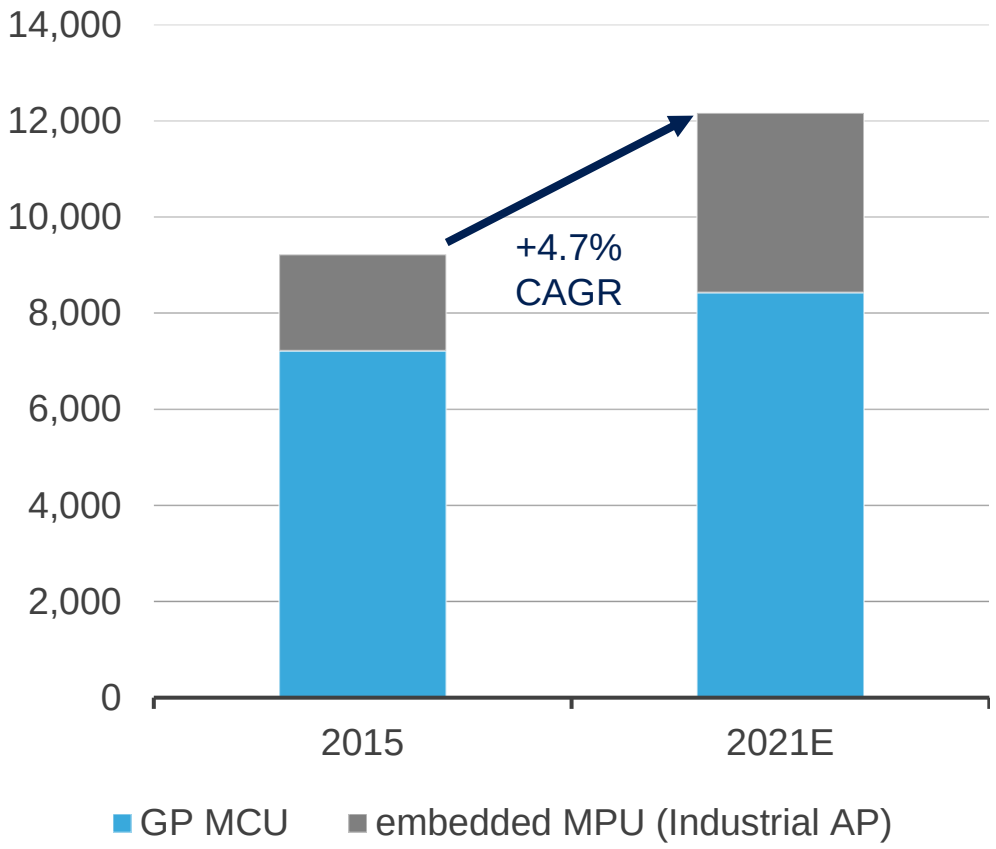
Embedded Processing Market Trend

Embedded Processing* TAM



* Excluding Automotive MCUs
Source: WSTS and ST estimates

Growth Driver Industrial

- The brain of a large variety of applications
- IoT pervasion accelerated by 5G deployment
- Artificial Intelligence disruption at the edge
- New applications enabled by secure IoT

- Industrial Robotics / Factory Automation
- Medical Diagnostic and imaging
- Drones
- Point of Sales

- Appliances
- Wellness & fitness
- Additive manufacturing
- Portable Point of Sales
- Industrial & Power tools
- Smart Metering
- Personal healthcare
- Smart Farming

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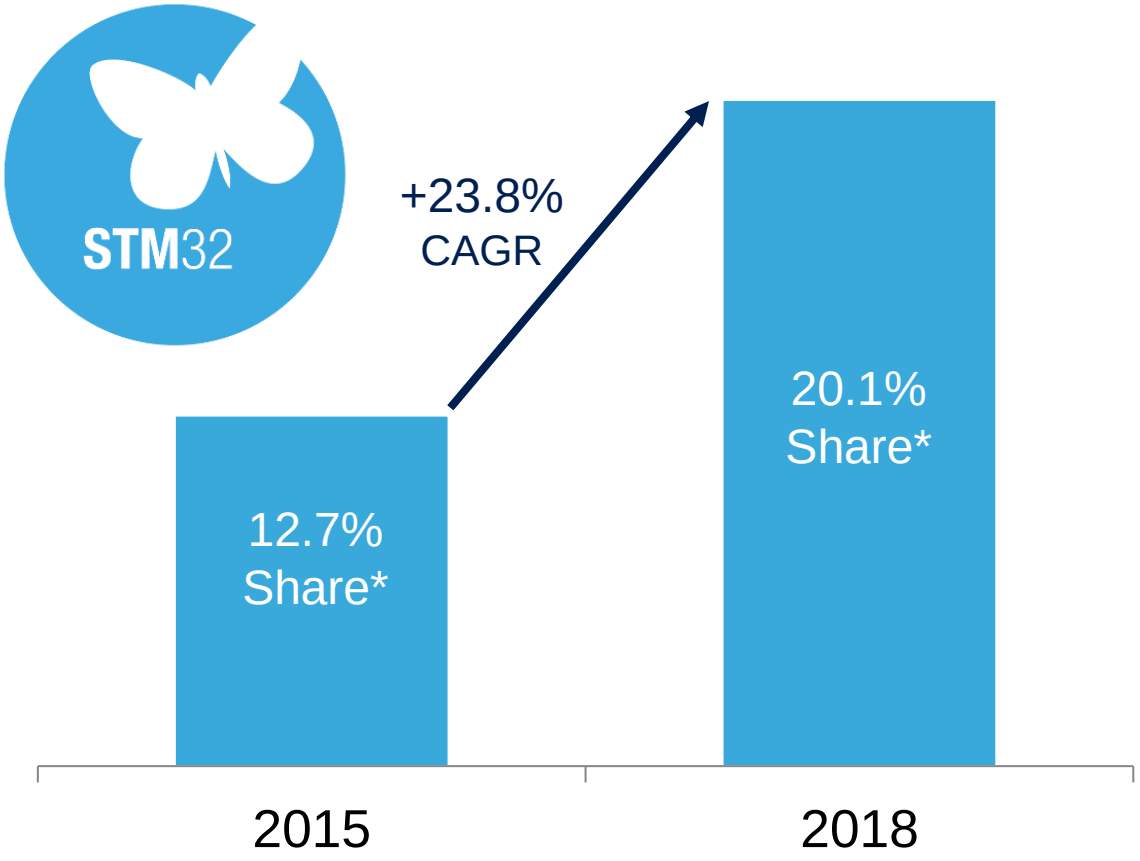
ST & Embedded Processing

ST Embedded Processing Revenues *

Mainly STM32 MCUs



* Excluding Automotive MCUs
Source: WSTS

STM32 Microcontroller family

- Based on single or dual ARM Cortex M core
- Broadest global portfolio
- > 1000 products available
- Serving more than 60,000 customers worldwide
- More than 4 Billion units shipped from 2008
- Advanced technology down to 18nm FD-SOI

STM32MP Microprocessor family

- 1st product launched 1Q19
- Multi-core Arm Cortex-A cores
- Very high performance
- Advanced Technology down to 16nm FinFET

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STM32 Product Family

Strengthening Embedded Processing

Expanded ecosystems

STM32 MCU

More Wireless Connectivit

More Advanced Security

More Local Autonomy (100-300 GOPS) AI

More application-specific value-added IP

More Wired Connectivity

Lower Power

More computing Power 32-bit CPU Cortex-M Realtime OS

Flexible Memory Interfaces

More SRAM

More Embedded Flash Optional

STM32 MPU

Advanced 3D Graphics Processing Unit

More Advanced Security

More Local Autonomy (1-2 TOPS) AI

More application-specific value-added IP

More Computing Power Multi-core 32/64-bit CPU Cortex-A Linux OS

More Wired Connectivity

Cortex-M Realtime OS

More SRAM

Flexible memory Interfaces Flash, DDR DRAM …

Advanced Non-Volatile Memory technology …18nm FD-SOI

Advanced Digital technology …16nm FinFET

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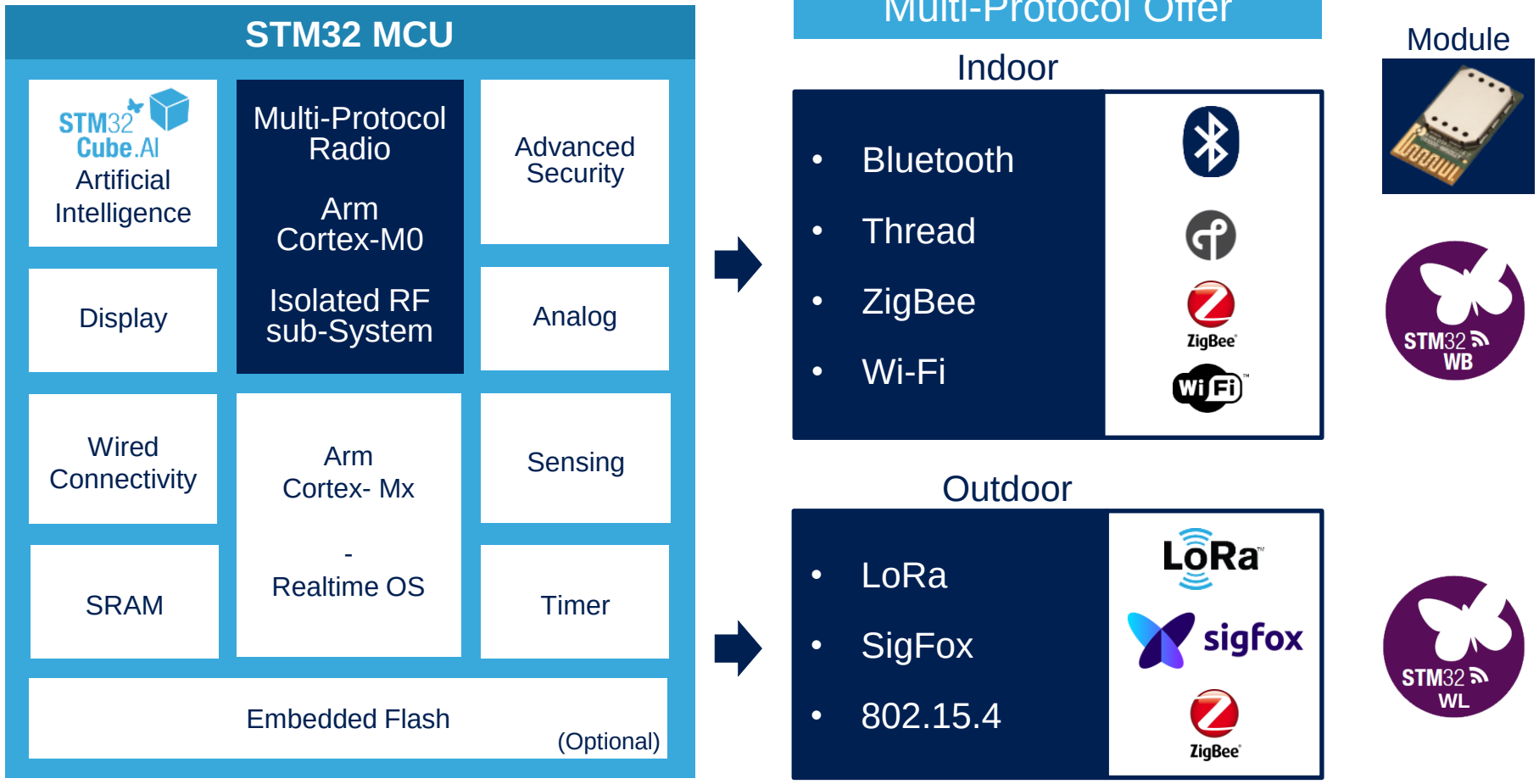
STM32 Wireless Connectivity

Non-cellular Communication

- Dual-core architecture
- Entry level to high end
- Ultra low power
- Embedded security
- STM32Cube.AI support
- Software compatibility
- STM32 ecosystem



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STM32 Wireless Connectivity

IoT Cellular Communication

Dual CPU architecture

Ultra low power

STM32Cube.AI

STM32CubeIDE

NB IoT & LTE-M modem through partnership

eSIM - OS

First Global Platform certified product for M2M

GSMA remote SIM Provisioning

Module

Massive pervasion expected with 5G network deployment

- City lighting, traffic
- Logistics asset tracking
- Environment air quality
- Industry 4.0
- Home access control
- Smart metering for utilities

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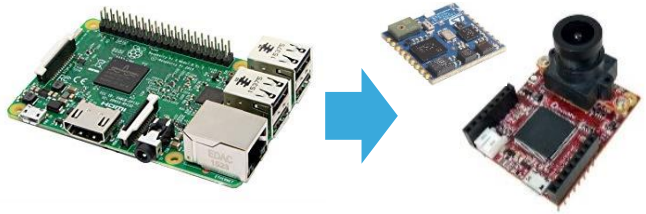
STM32 Enables AI on the Edge

Innovation & Simplicity

- Business expansion: Deployment on current applications
- Business creation: Access to new applications
- Cost & power consumption optimization: Microprocessor applications run on microcontrollers
- Extend to high performance: Additional computing power to access vertical applications

STM32 Cube.AI



STM32 MPx

STM32 xx

STM32 roadmap enabling a new era of Autonomous Edge devices
Machine Learning accelerated devices, power efficient, more application specific

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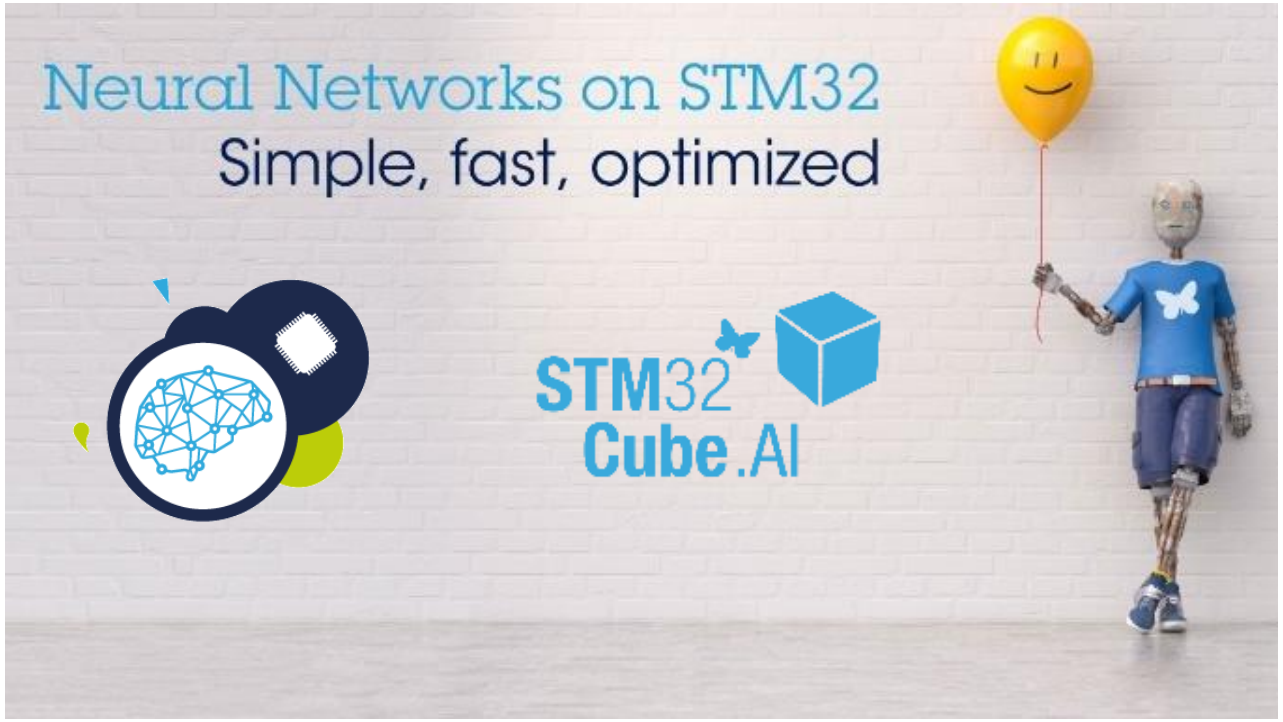
STM32 Solutions for Embedded AI

Extensive Toolbox to Easily Create Your AI Application



STM32 Cube.AI

AI extension for STM32CubeMX
to **map pre-trained Neural Networks**

Resources

Software examples for Quick prototyping

Audio and Motion Function packs

STM32 **Community** with dedicated Neural Networks topic

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Partner Program

STM32 AI Partner Program
with dedicated Partners providing
Machine or Deep Learning engineering services

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STM32 Machine Learning

Use Cases

Low

- Sensor analysis
- Activity recognition (motion sensors)
- Stress analysis or attention analysis

Medium

- Audio & sound
- Speech Recognition
- Object detection

High

- Objects detection / classification / tracking
- Natural Language Understanding / Speech Synthesis

10s MOPs **GOPs** **0.5-1 TOPs** **1-2 TOPs**

MCU → From IP embedded in MCU/MPU to dedicated SOC

Sagemcom

Industrial Maintenance Module

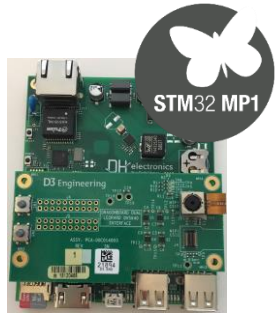
Smart Shoes
Human Activity Tracking

nnf
no new folk studio

Object & Gesture Detection device

neonode

OpenMV Machine Vision Camera

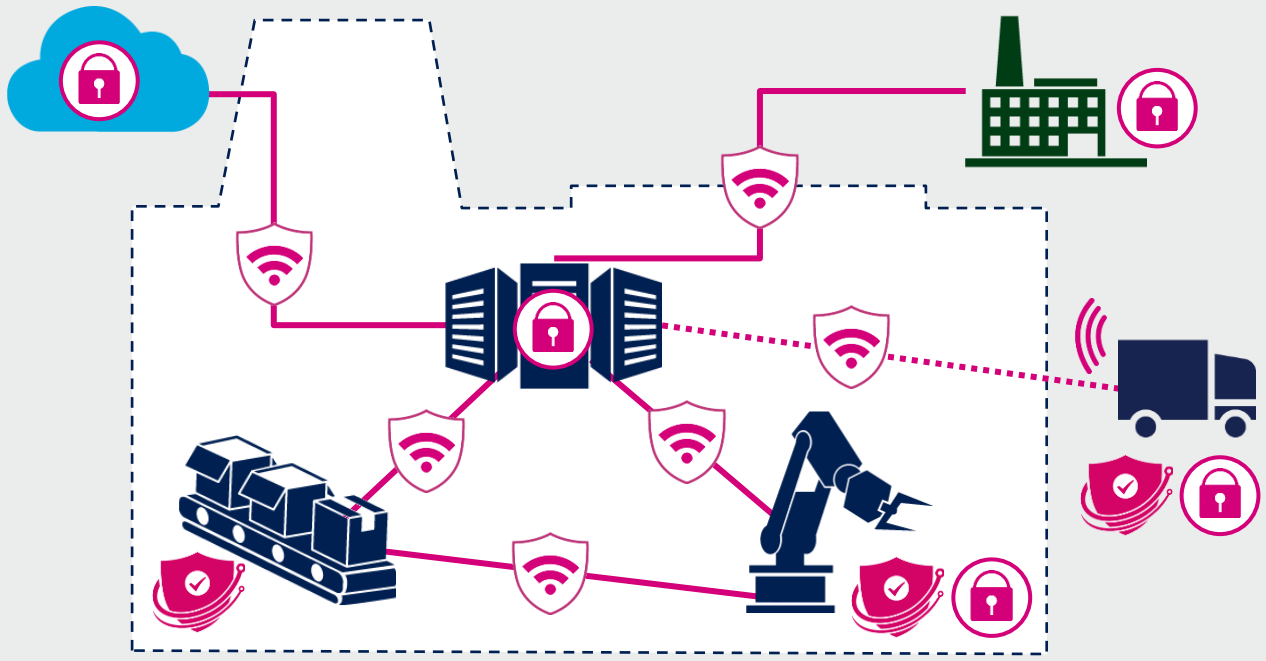


Arrow Avenger96 Board + Camera Module

Making everything secure

ST Solutions for IoT Security

End-to-end security covering the full ecosystem



System integrity
Secure boot and crypto services

STSAFE STM32

Authentication and verification
Secure storage of keys and parameters

STSAFE STM32

Secure communication
Secure Over-the-Air FW install & update

eSIM STSAFE STM32

Secure MCU Common Criteria
CC = Common Criteria Security certification

STM32 psacertified™
PSA = Platform Security Architecture ARM framework certification

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State-of-the-Art STM32 Ecosystem

Key Criteria for MCU/MPU Choice by OEMs

User Application

Software Development Tools

STM32 Cube

- STM32 CubeMX
- STM32 CubeIDE
- STM32 CubeProgrammer
- STM32 CubeMonitor-UCPD/PWR/RF

Configure → Debug → Program → Monitor

Embedded Software Solutions

- STM32 Cube.Expansion
- STM32 Cube MCU Packages

- Vertical application + AI
- Graphics – Audio - Motor Control – Cloud*
- Communication**
- HAL – File System- RTOS***

*
aws, Tencent Cloud, Microsoft Azure, Alibaba Cloud, Google Cloud, Baidu Cloud, IBM, 机智云 Gizwits

**
Zigbee, Thread, Bluetooth, NFC, Wi-Fi, sigfox, LoRa

Hardware Development Tools

Flexible Prototyping

EVAL
Dev Kit
NUCLEO

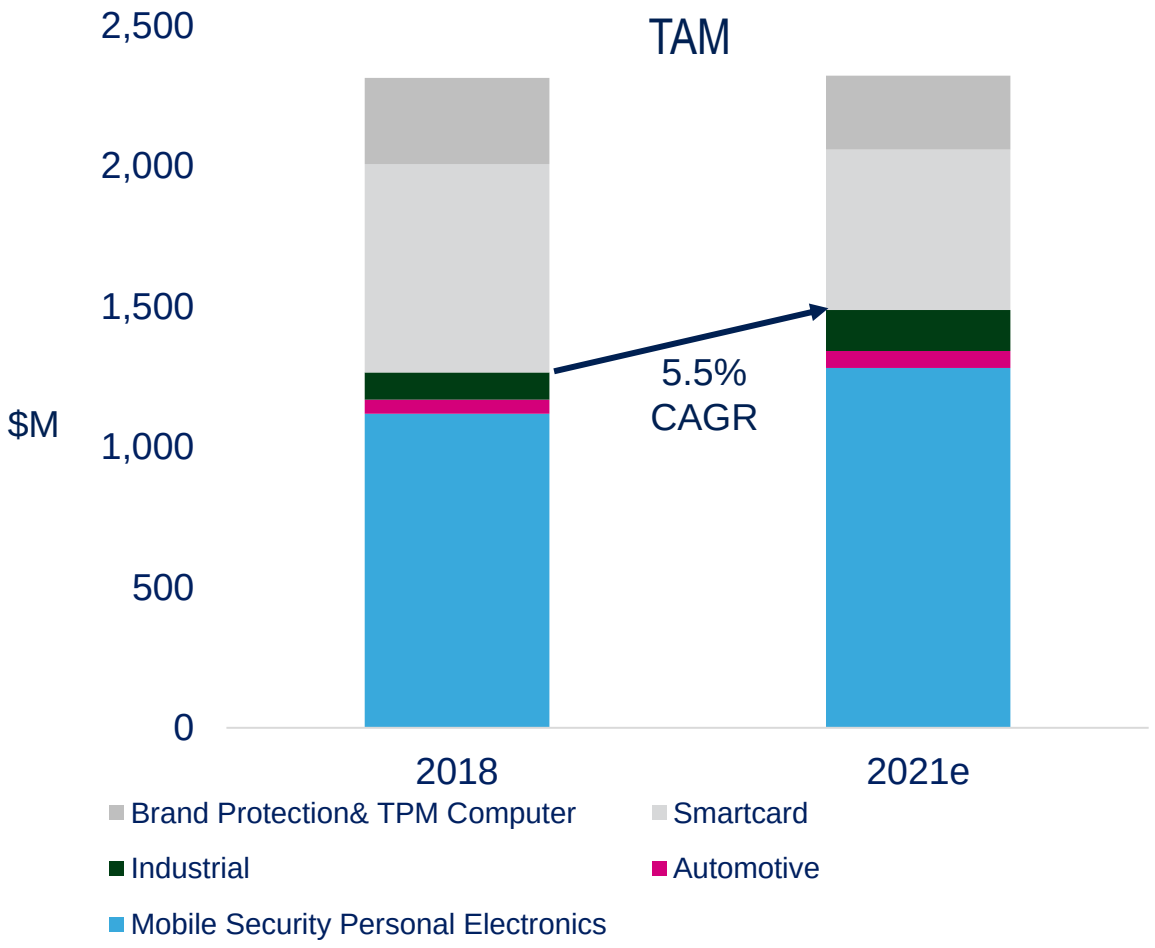
Wide Portfolio

STM32 | STM32 | STM32 | STM32 | STM32MP

***
OpenSTLinux Distribution

Complete offer
Partner
Open Source
& Framework

Secure Solutions
Growth Driver Markets



Industrial

TAM 2019 = 99M$ **CAGR 2018-21: + 14.6%**

- Secure IoT solution (STSAFE)
- M2M solution (eSIM)

Automotive

TAM 2019 = 56M$ **CAGR 2018-21: + 6.9%**

- Secure connected car (eSIM & eSE)

Personal Electronics

TAM 2019 = 1165M$ **CAGR 2018-21: + 4.6%**

- Mobile security transactions (NFC, eSIM, eSE)
- Smartphone, wearable…

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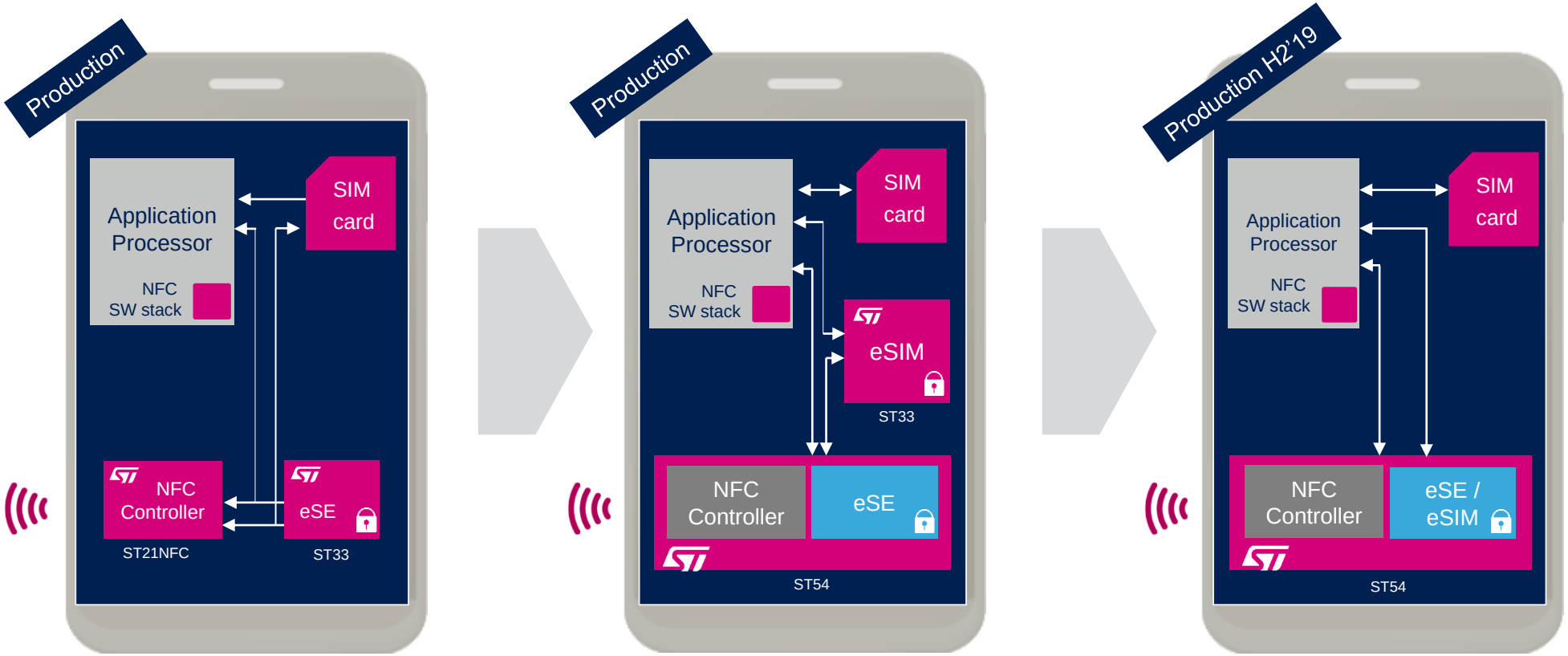
Source: WSTS and ST estimates

Mobile Security Solutions

Leading Market Position in eSIM (*)

Volume production for eSIM products
Deployment of ST Secure Element + NFC controller SoC solution



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*Source: ABIresearch, SIM Card Technologies

Over 1 Billion ST33 Secure Elements Sold

Personal Electronics

ST33G / ST33J
in eSIM consumer

GSMA SAS-UP sites certified

ST33F

Introduction of 1st Secure Element

Automotive

ST33-A

Automotive grade compliant

Industrial / M2M

ST33-M

supporting the growing IoT & industrial market

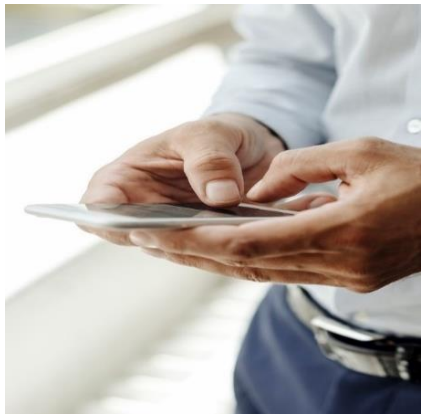
Computer / TPM

STSAFE-TPM

solutions for computer & secure IoT

Secure Solutions

Complete Portfolio to Cover all Market Needs



Secure Automotive	M2M for Industrial & IoT	Mobile Security Consumer	Banking & ID	Authentication
ST33-A eSIM, eSE ST33-A TPM	ST32-M ST33-M M2M Solutions	ST33 eSIM , eSE ST21NFC ST54	ST31 STPay ST53	STSAFE-A STSAFE-J STASFE-TPM Custom
Automotive	Industrial	Personal Electronics		Computer & Accessories

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Wireless Communication Trends

The 5G Disruption

4G

User Expectations

- Improved global coverage
- Very high data rate : **> 1 Gbps**
- Reduced latency : **< 1 ms**
- High density connected nodes: **> 10^6 / km^2**

5G

> 24 GHz

- Disruptive innovation
- mmWave frequency
- Massive beamforming & MIMO
- Data Rate > 10 Gbps

< 6 GHz

- 4G continuity
- Data rate >1 Gbps
- Latency <1 ms
- Improve mobility/security

< 1 GHz

- Massive IoT market
- NB-IoT evolution
- Low power, low data rate
- Low cost

STM32

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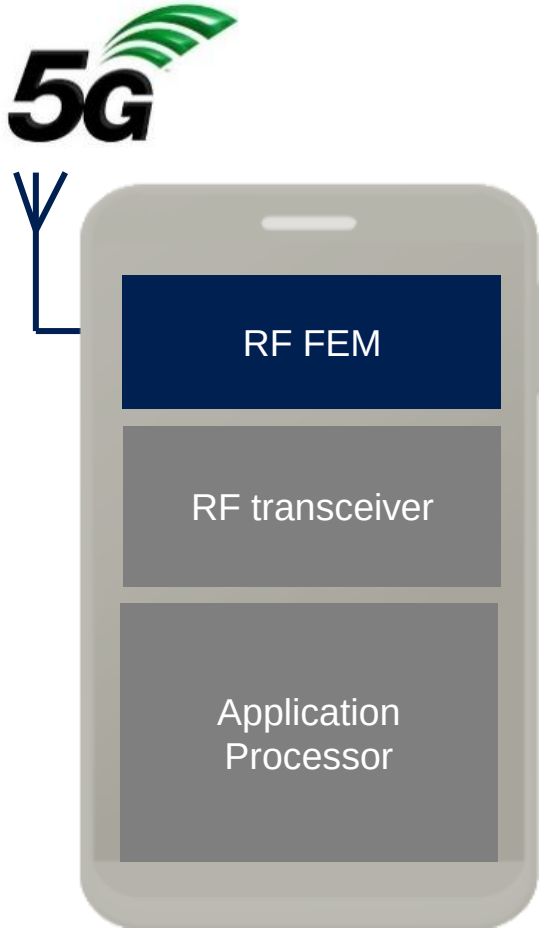
5G RF for Smartphones

ST Silicon Technologies for 5G RF Front-End Modules

- 5G massive multi-band requirement expands Si content in Front End Module (RFFE)
- ST RFSOI and SiGe technologies extensively used in RF Front End modules
- 5G deployment starting with sub-6 GHz
- mmW >24 GHz deployment expected for hot spots, high density city center connections
- RFFE ST Solutions also deployed in 5G Base stations



	4G	5G Frequency Spectrum	
	Legacy band	**5G bands extension**	**5G mmW bands**
	600 MHz – 2.6 GHz	3.1 GHz - 6 GHz	24 GHz - 40 GHz
130nm RFSOI	**Production**		
65nm RFSOI		**Production**	
55nm SiGe			**Prototype**

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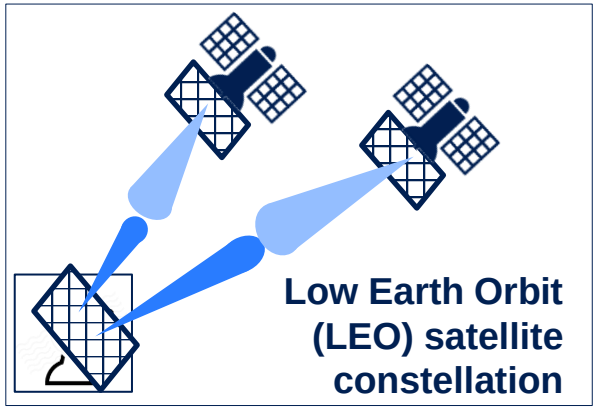
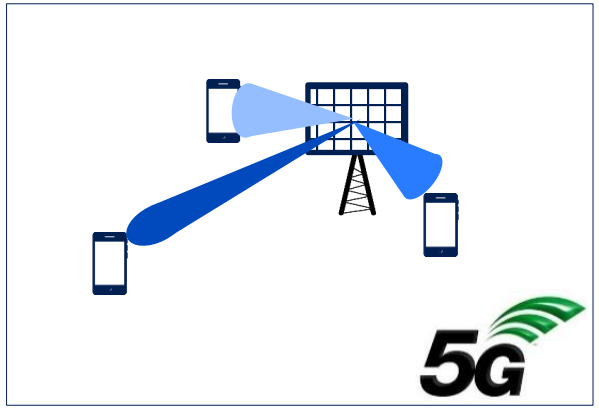
mmW = millimeter Wave

Phased Array Antennas

Disruptive mmW Solutions for Communication Networks

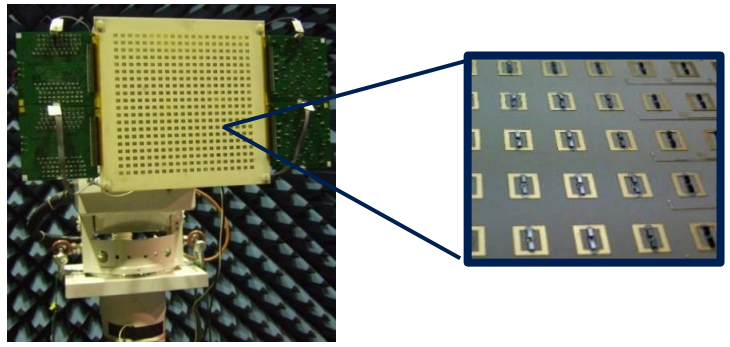




Phased array technology deployment

- Beamforming for LEO satellite tracking
- Best link budget
- Better connection density for 5G networks

Phased array technology enabled by high RF performances Si technologies



From 128 up to 1000 RF chips per antenna

Production ramp-up for satellite communication
capitalizing on ST Advanced processes: 130nm SiGe and 28nm FD-SOI

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mmW = millimeter Wave

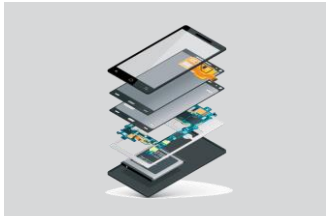
ST60 - 60 GHz Transceiver

High-speed, Low-power Wireless Link for Close Proximity

Industrial

Computer & Peripherals

Personal Electronics



Life-proof connector-free devices

60 GHz RF Transceiver for cable-free & connector-free solutions

Board-to-board
Contactless connection

Firmware upload
Factory automation

PC 2-in-1 and mobile continuum

ST60 ST60

Integrated millimeter-wave RF transceiver

Seamless docking and
on-the-go device-to-device sync

- Transfer speeds up to **6 Gbps**
- Very low power: **40 mW**
- Miniature form factor with **optimized BoM**

Freedom of movement with
contactless connection

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Takeaways

- Reinforce our Embedded Processing leadership position
  - Pervasion of STM32 MPU focusing on industrial market.
  - Proliferation of STM32 MCU SoC embedding wireless connectivity and advanced security
  - Inclusion of AI in all segments (through SW solutions and HW accelerators)
- Establish leadership position for Advanced Secure solutions.
  - Proliferation of eSIM solution for mobile and IoT
  - Pursue NFC / Secure Element and RF EEPROM families deployment.
- Contribute to 5G deployment
  - Key Silicon supplier for RF Front End Module capitalizing on ST advanced technologies
  - Production start of chip set for mmW phased arrays dedicated to LEO satellites

Manufacturing Strategy

Orio Bellezza

President
Technology, Manufacturing and Quality

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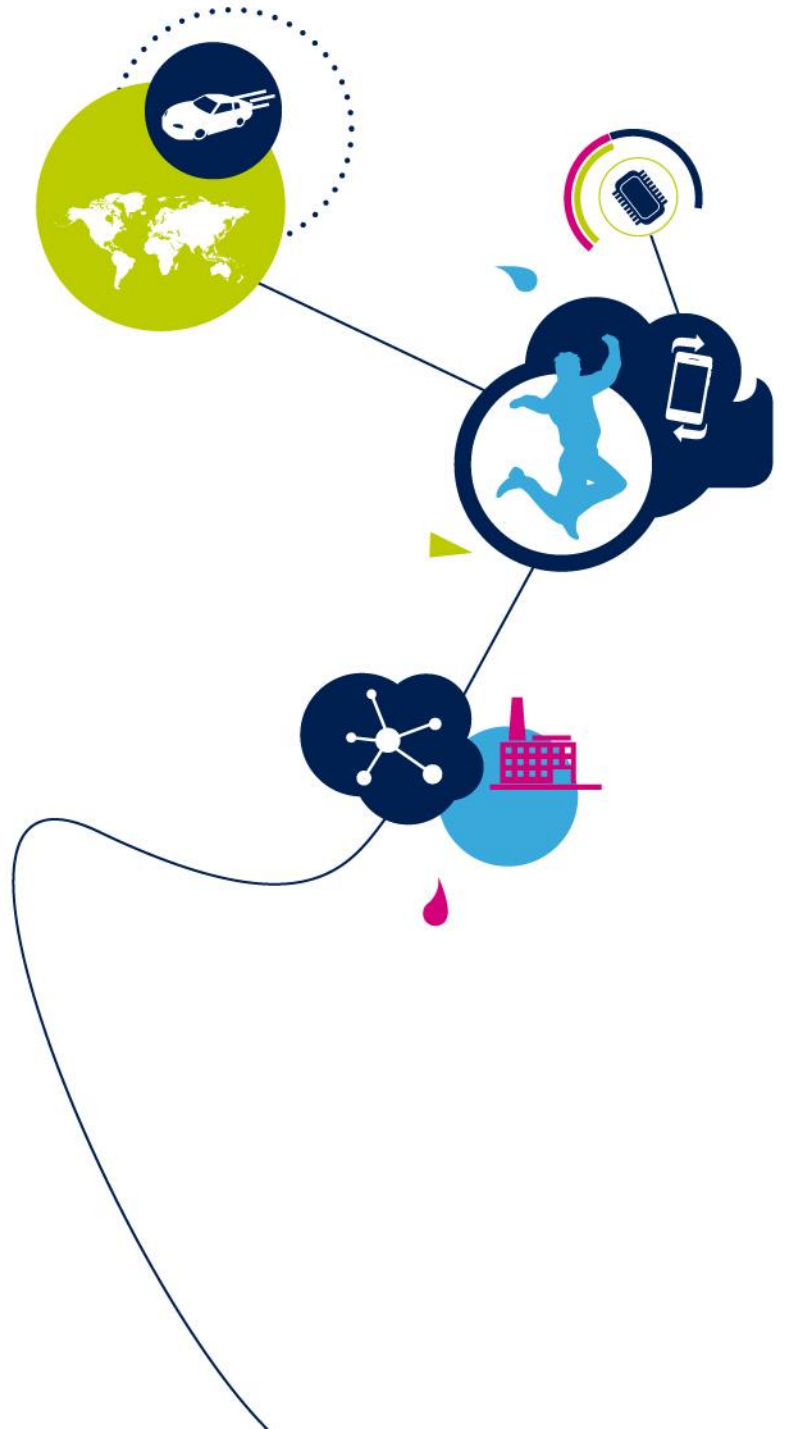
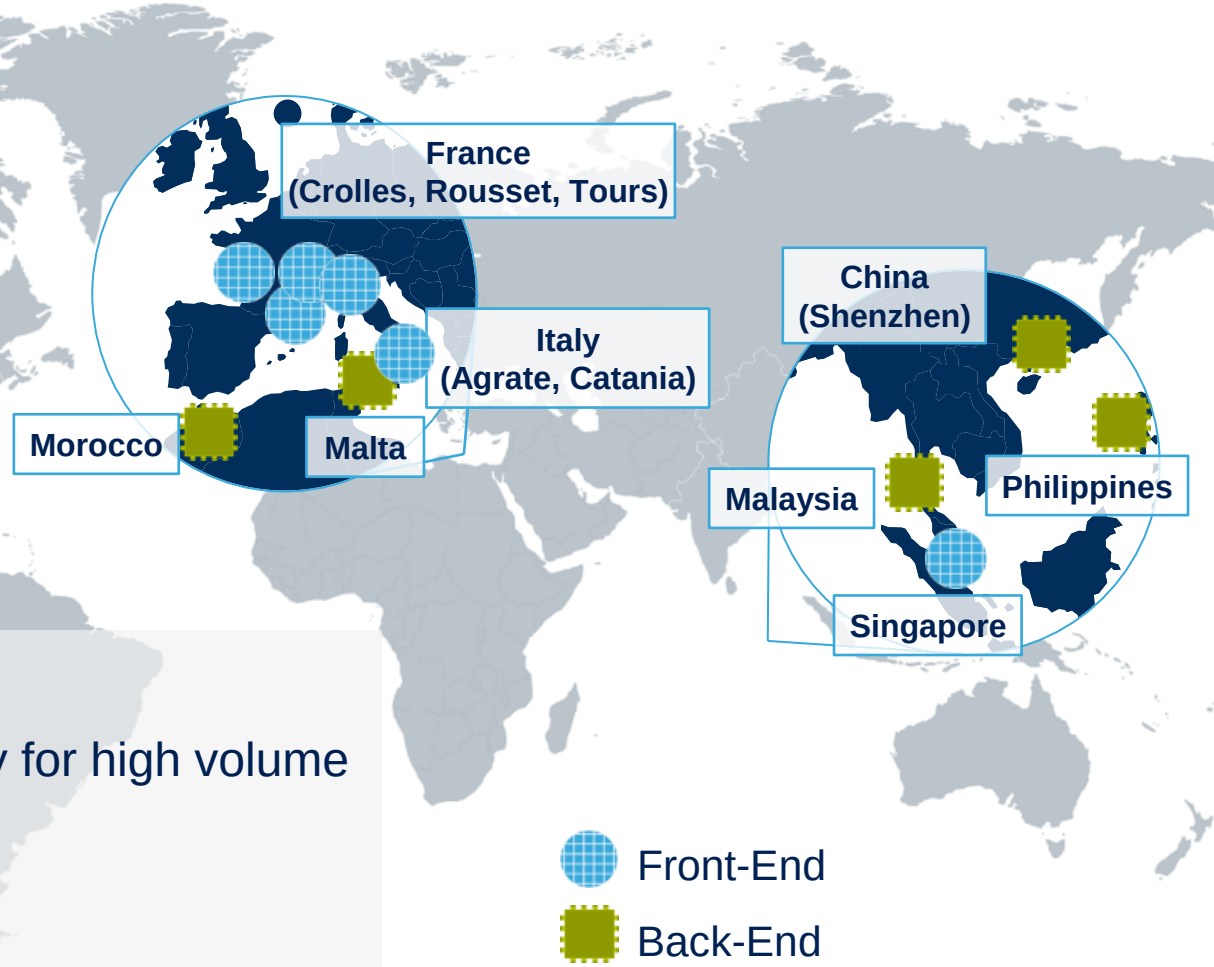


Manufacturing Strategy
a Key Business Enabler

- Integrated internal manufacturing and R&D on differentiated technologies and packages
- Partnership with foundry and OSAT for standard technologies and packages as well as advanced FinFET CMOS
- Offer our customers multiple sources and integrated supply chain control



- SiC and GaN technologies
- 300mm wafer fabs strategy for high volume differentiated technologies
- Power Modules
- Outsourcing

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Key Programs

Silicon Carbide

150mm capacity expansion

Vertical integration of substrate supply chain

Gallium Nitride

150mm investment for RF for 5G

Installing 200mm pilot line in Tours for Power Discretes

300mm Strategy

New fab in Agrate to support growth in Smart Power, PMOS and IGBT beyond 2021

Modular expansion of Crolles300, in specialized imaging, FD-SOI 28nm, RF mixed signal and embedded-NVM

Power Modules

Vertically integrated internal manufacturing,
Si and SiC capability, multiple sources planned

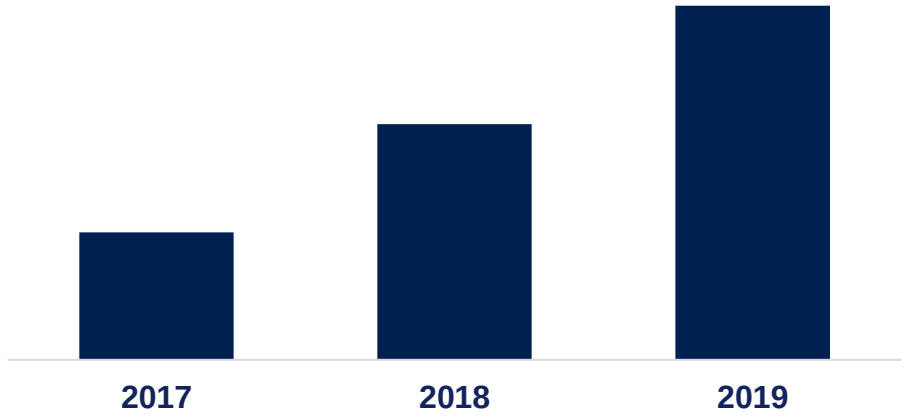
Partnerships with Foundries and OSATs

Increase the number of technologies qualified in outsourcing, targeting 30% Front-End in foundries
and >30% back-end in subcontracting

Silicon Carbide Manufacturing

- 150mm in volumes in Catania since 2017
  - Automotive grade Power MOSFET and Diodes
  - Yields and quality at industry standard
  - Second source planned
- Committed to invest for growth - capacity expansion almost 3X in 2019 versus 2017
- Integrated teams of Design, R&D and Fab to support technology development and prototyping
- Secured supply of SiC substrates for future growth

Normalized capacity evolution



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SiC Manufacturing Strategy

Device Manufacturing	Today	2021 Additions	Beyond 2021
Power MOSFET Technology	Gen2/Gen3 (planar)	Gen4 (trench)	Next Generation
Front-End fabs	Catania 150mm	Asia 2nd fab 150mm	Evolution to 200mm
Back-End plants	Shenzhen	Asia 2nd plant	

Substrate Supply	Today	2021 Additions	Beyond 2021
External Qualified suppliers	4 qualified suppliers		
External Supply agreements	LTSA with CREE	Enlarge base	
Internal	Norstel technology development & integration	Internal supply 150mm	Evolution to 200mm

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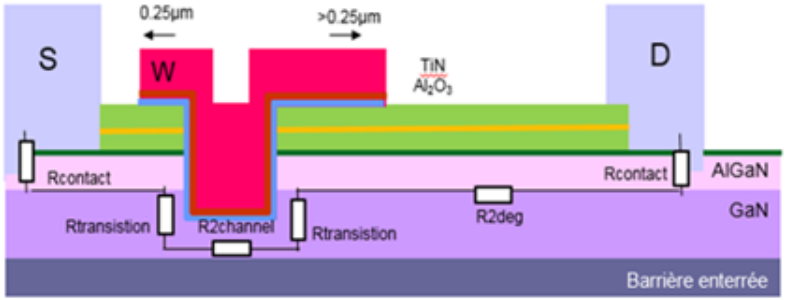
Gallium Nitride

- **RF GaN-on-Silicon** production line in Catania
  - Technology under development, production maturity by end 2019
  - Wafer fab capacity 150mm investment under installation, volume ramp up in 2020
  - Plan to expand in 200mm to support technology roadmap and volume growth starting in 2021

- **GaN for Power Conversion** applications
  - Pilot line under construction in Tours in 200mm, active in H2 2020
  - First volume production start planned by 2021
  - Partnership with CEA LETI for Diodes and Transistor technology development



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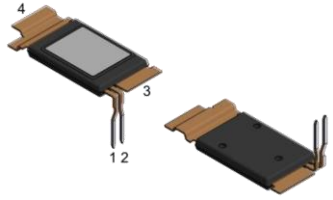
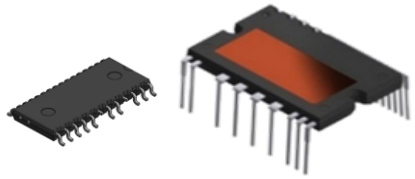
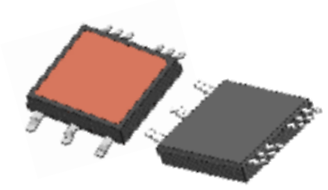
Power Module Manufacturing



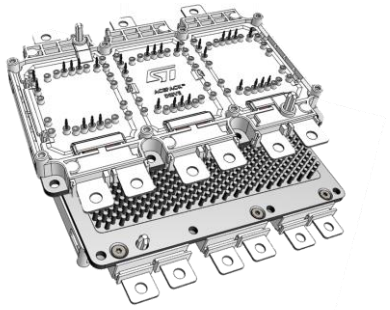
STPAK™



SLLIMM™ IPM



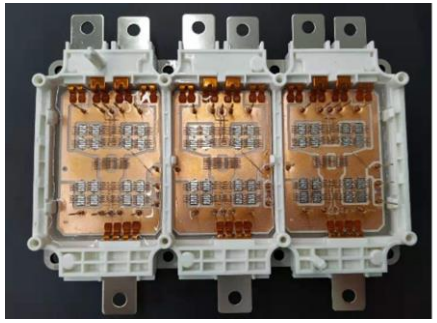
ACEPACK™ SMIT

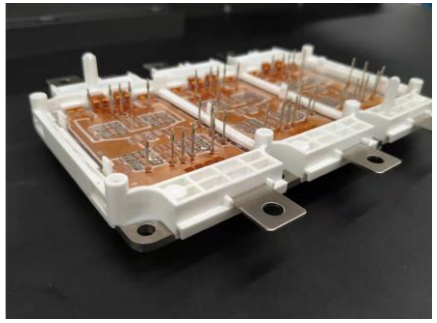


ACEPACK™ DRIVE

ACEPACK™ 1 & 2

- Development competence center and prototyping capability in Catania
- Internal production capacity in Asia, supporting standard and customized solutions
- External source active





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300mm Strategy

Establish 300mm Cluster “Agrate + Crolles + Silicon Foundries”

ST Internal manufacturing

Specific Technology Mission	Common manufacturing base for flexibility	Specific Technology Mission
Crolles 300mm • Specialized Image Sensors • 28nm FD-SOI & derivatives • RF and Analog Mixed signal (≤ 65nm) • Embedded-NVM (≤28nm)	• RF and Analog Mixed signal (130/90nm) • Embedded-NVM (90/40nm)	**Agrate 300mm** • Advanced Smart Power (BCD) • Advanced Power MOS& IGBT

Silicon Foundries

- Embedded-NVM (90/40nm)
- 28nm FD-SOI
- FinFET 16/7/5nm

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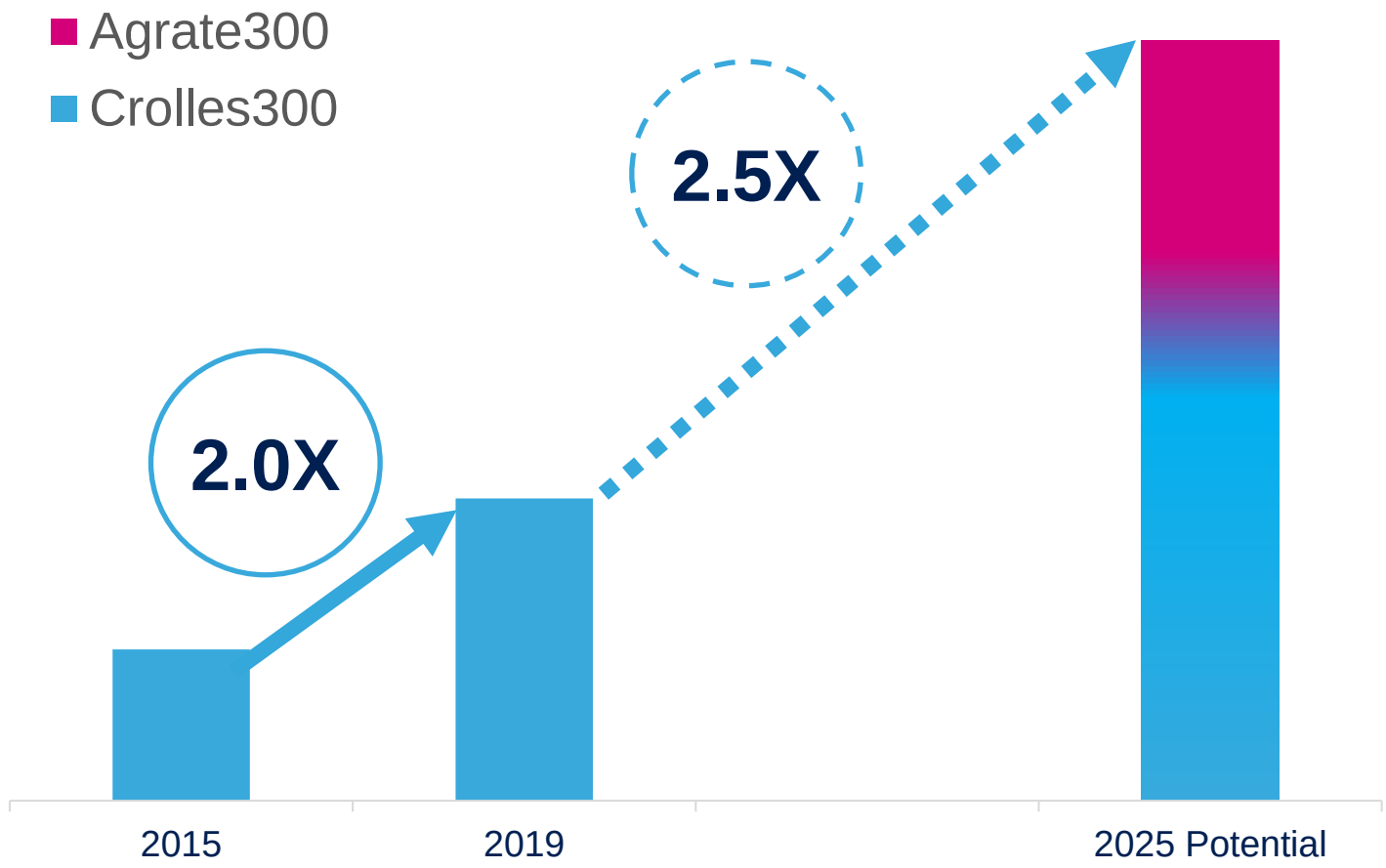
300mm Internal Capacity



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Agrate 300mm

Smart Power & Power Fab

Mission and Size

- Development and manufacturing of Smart Power (BCD), Power MOS and IGBT
- About 68,000 m^2 total covered building space
- About 13,000 m^2 total clean room, at full build out

Status and Planning

- Development and first industrial deployment phase:
  - Start of construction H2 2018
  - Ready for equipment in H2 2020
  - Wafers out H1 2021
- High volume manufacturing start >2021
- Modular expansion of facilities and clean room, tuned to market demand

Agrate-Crolles preparation tasks

- Several workstreams in place (facilities, equipment, automation…)
- BCD and IGBT process modules scale from 200 to 300mm, speeding learning curve & qualification

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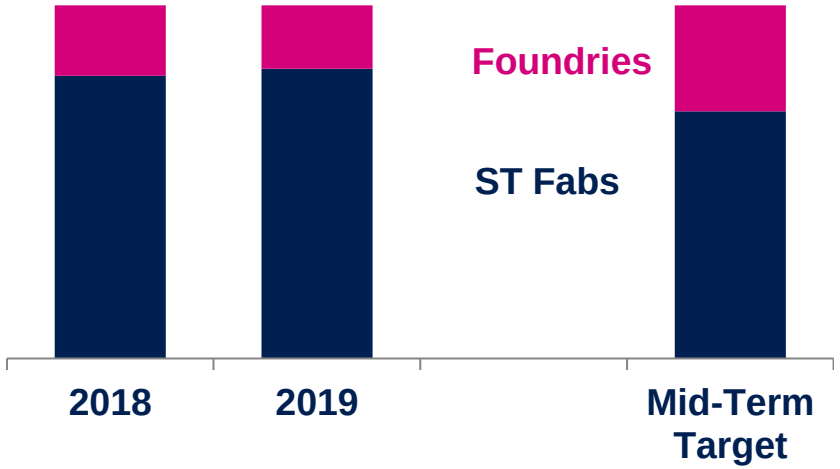
Foundries Strategy

Targeting to increase from ~20%
to ~30% of total production value

Extending the number of technologies in outsourcing

All Front-End technologies



Technology	Sources	
eNVM 180nm	Foundry	
eNVM 90nm	Crolles Rousset	Foundry
eNVM 40nm	Crolles	Foundry
CMOS FD-SOI	Crolles 300	Foundry
FinFET 16/7/5nm	Foundry	
Power MOS LV	Catania Singapore	Foundry
IGBT	Catania Singapore	Foundry
BCD 160nm	Agrate Catania	Foundry
Analog CMOS 130nm	Crolles	Foundry

Qualification on-going Active

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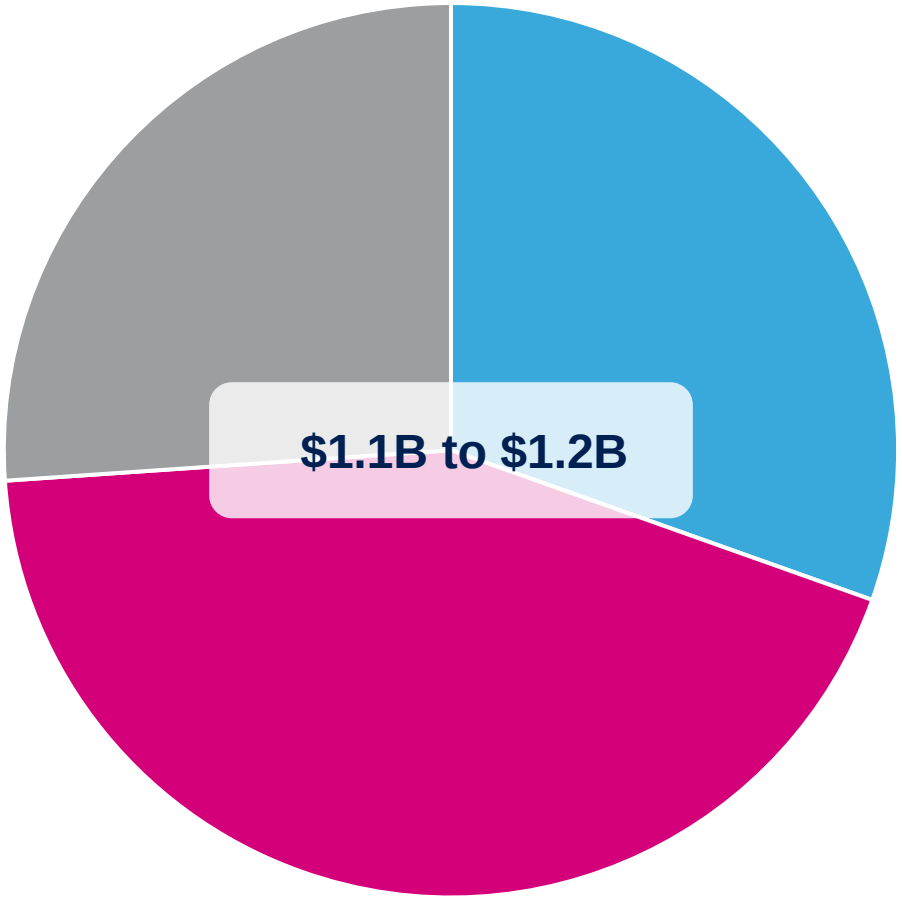
2019 Capital Spending

Mix change, R&D, others

- Smart power evolution to BCD8/9 for automotive and industrial
- Technology development
- Fab automation, quality, digitalization, equipment obsolescence



Strategic initiatives

- SiC 150mm in Catania
- Agrate 300mm buildings
- GaN in Catania and Tours
- Specialized imaging in Crolles300

Capacity growth

- Power MOS/IGBT in Singapore
- 28nm FD-SOI in Crolles300
- Singapore fab acquisition
- Assembly and Test

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Takeaways

Manufacturing is a key enabler to achieve our strategic objectives in balanced make-or-buy strategy

2019 Capital investment plan supports both ongoing business and strategic programs

Key programs focus

- SiC growth and vertical integration entering GaN production
- 300mm fab construction in Agrate
- Power modules ramp up
- Increase foundries technology base

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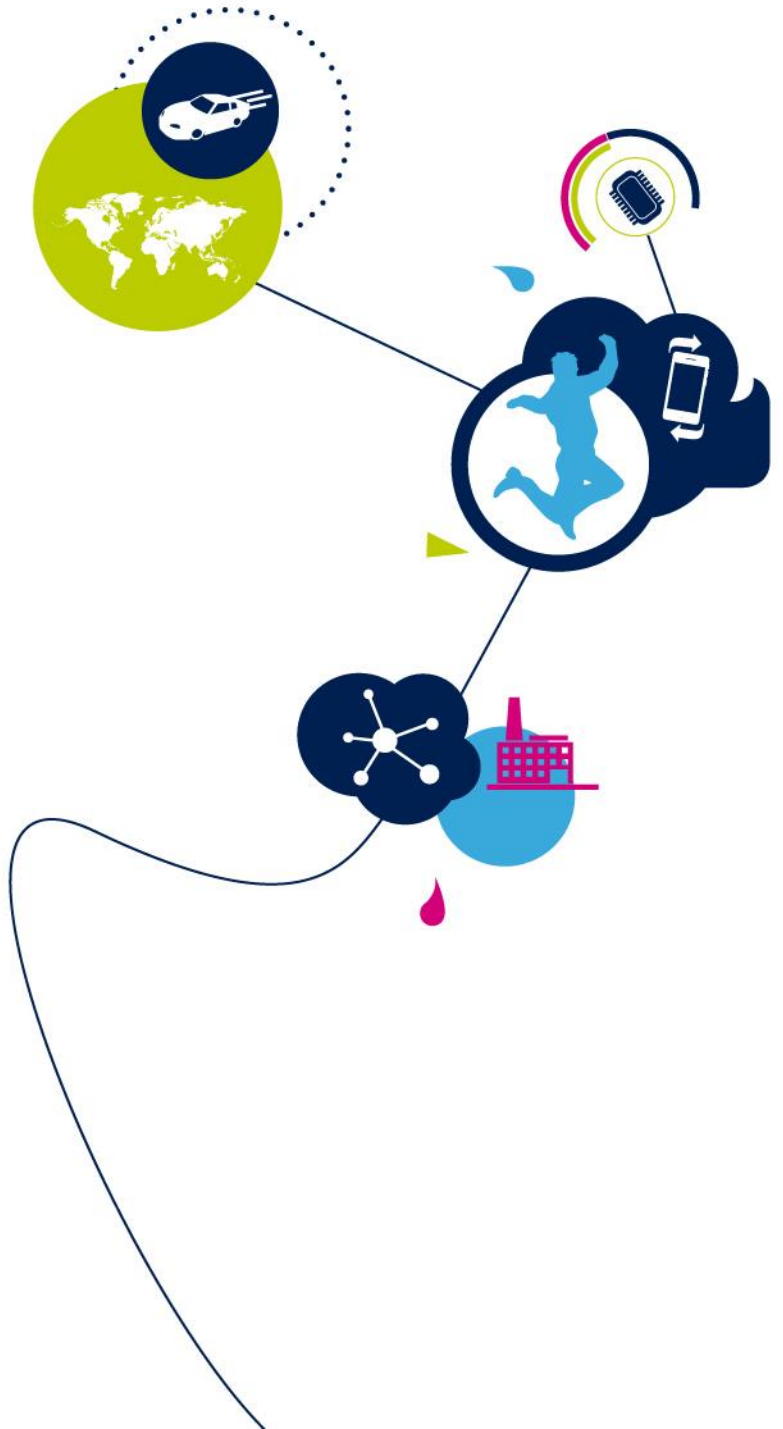
Financial Results & Priorities

Lorenzo Grandi

Chief Financial Officer
President, Finance, Infrastructure and Services



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Sustainable Profitable Growth

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ST Transformation – from FY15 to FY18

In US$M	FY15	FY16	FY17	FY18	Δ FY18 vs FY15
ST Revenues	6,897	6,973	8,347	9,664	+ 40.1%
Served Market (SAM) Y/Y	-1%	4%	13%	10%	
ST Revenues Y/Y	-6.8%	1.1%	19.7%	15.8%	
Gross Margin	33.8%	35.3%	39.2%	40.0%	+ 620 bps
Operating Margin	1.6%	3.3%	12.0%	14.5%	+ 1290 bps
Net Income	104	165	802	1,287	+ $1,183 M
Free Cash Flow*	327	316	308	533	+ 63.0%
Net Financial Position*	494	513	489	686	+ 38.9%

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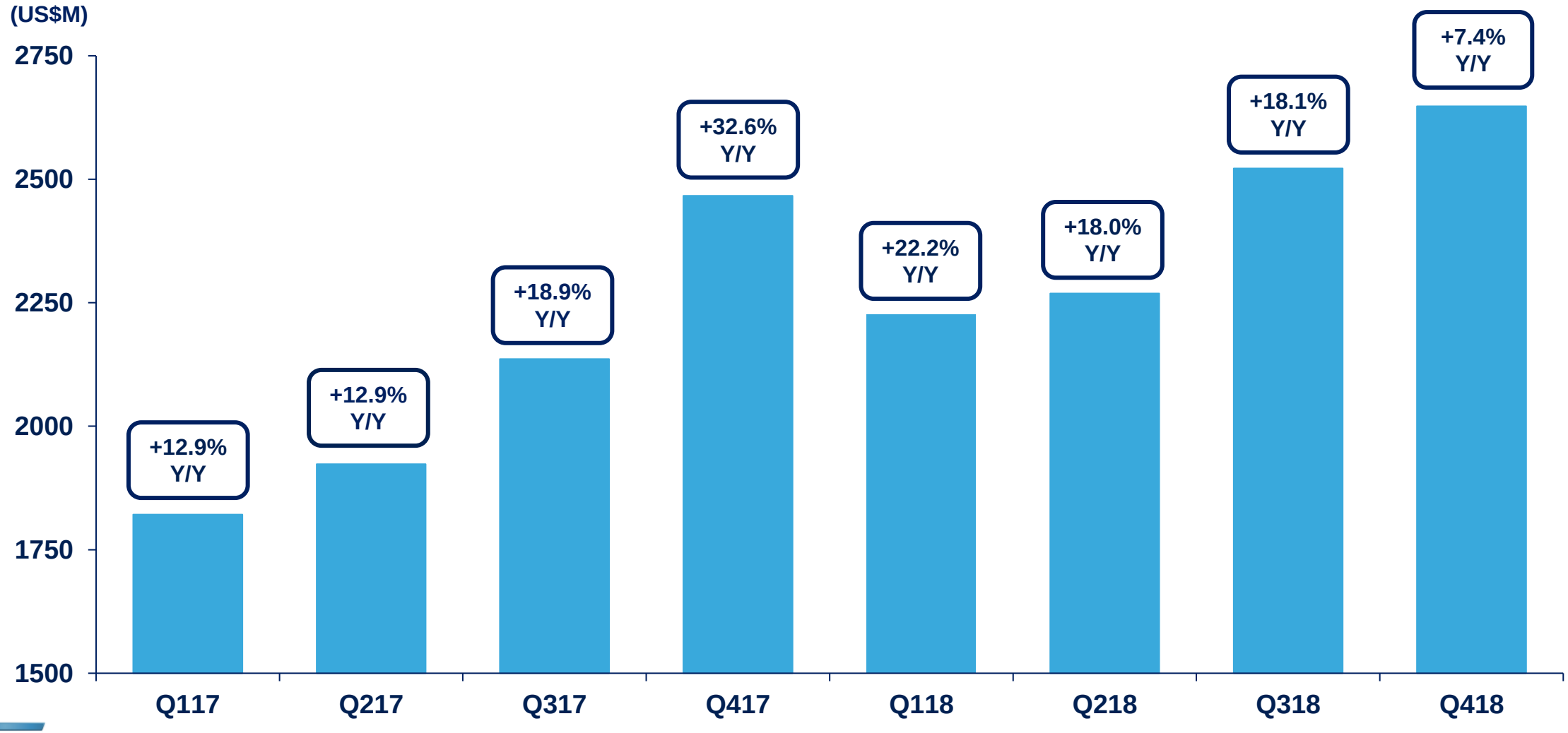
*__Non-U.S. GAAP measure__. See Appendix for additional information explaining why the Company believes these measures are important.

Solid and Consistent Revenue Growth



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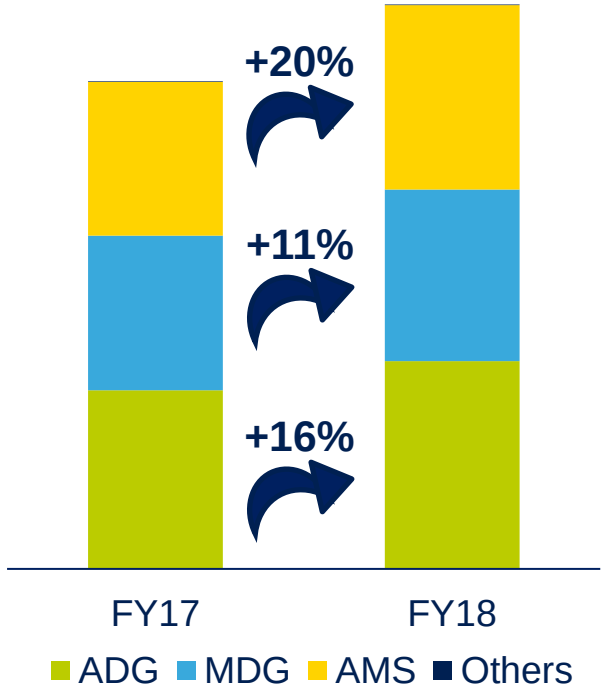
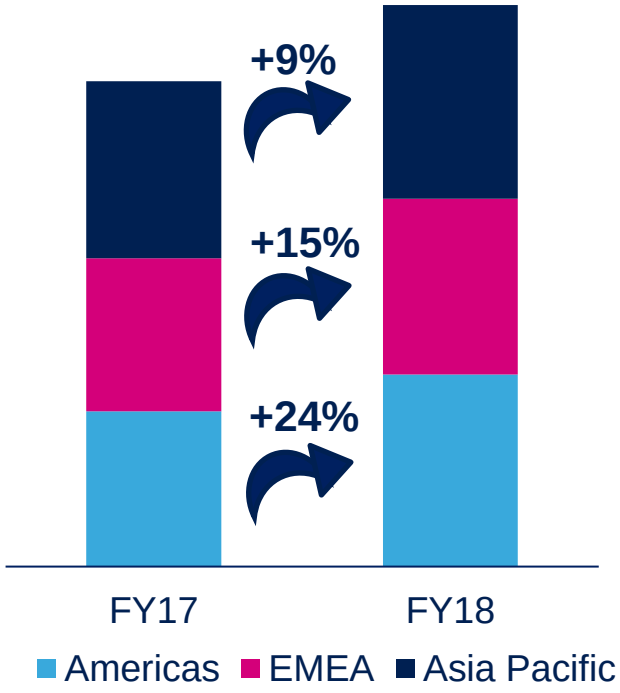
Balanced Revenue Growth

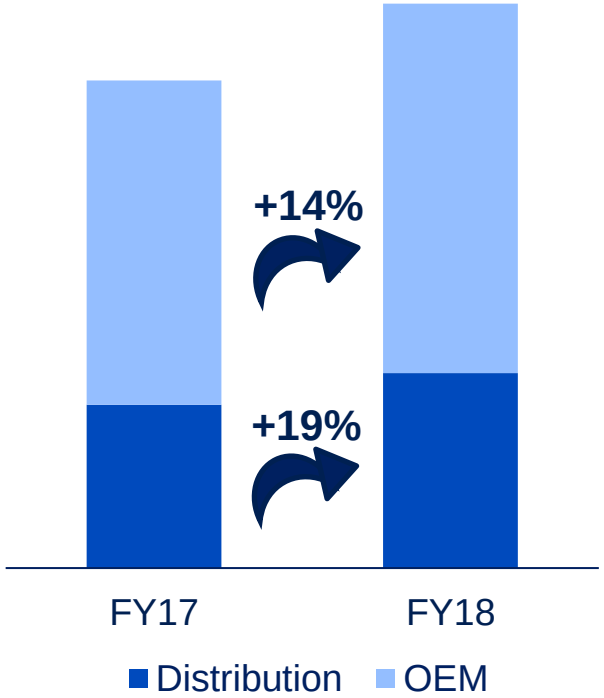
Product Group



Region of Origin



Customer Type



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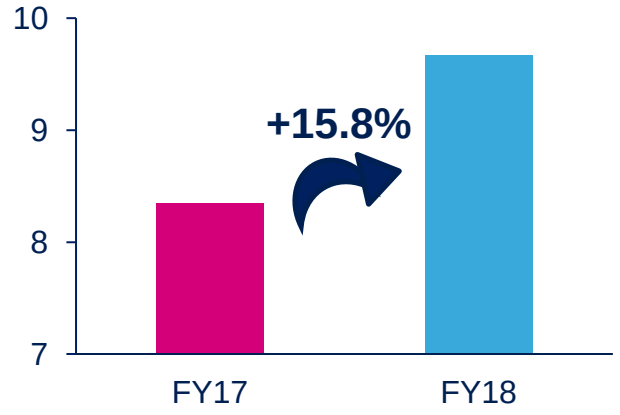
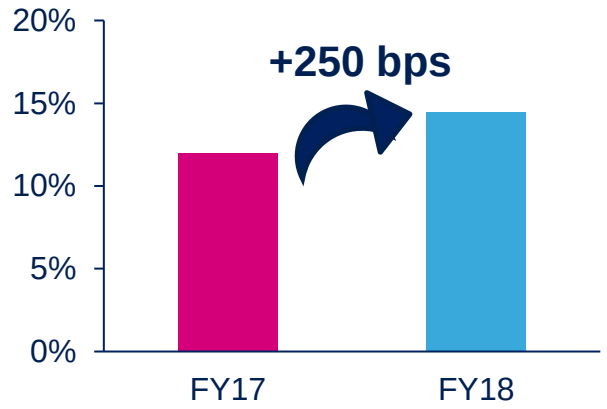
FY18 Financial Highlights

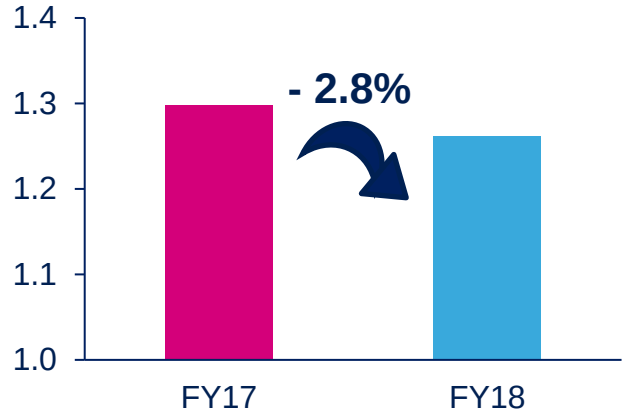
Revenues = $9.66B



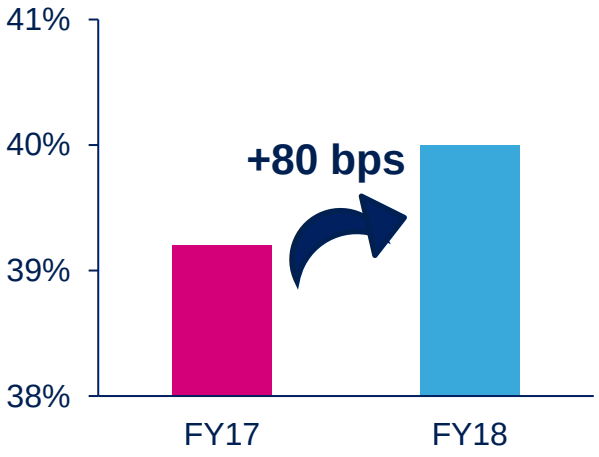
Operating Margin = 14.5%



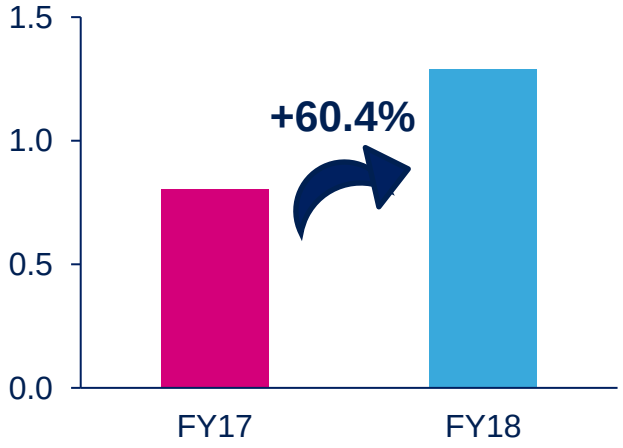
Capex= $1.26B



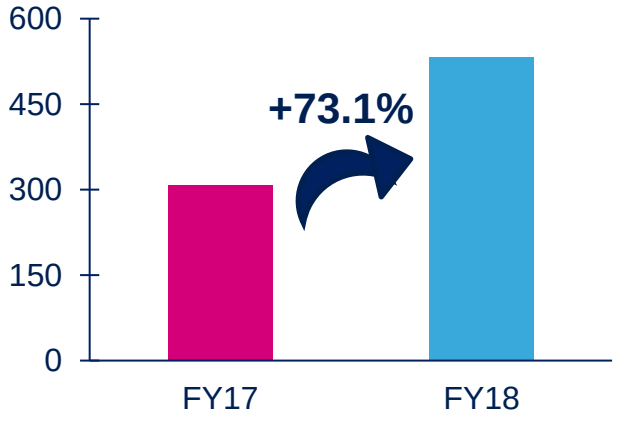
Gross Margin = 40.0%



Net Income = $1.29B



Free Cash Flow* = $533M



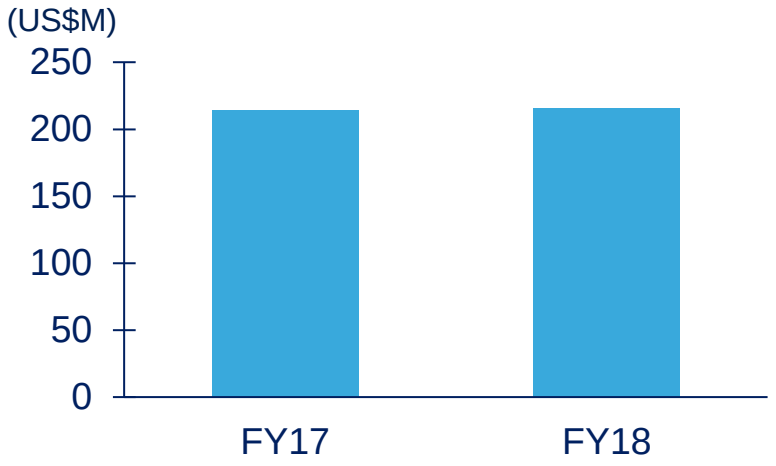
*__Non-U.S. GAAP measure__. See Appendix for additional information explaining why the Company believes these measures are important

Solid Capital Structure

Net Financial Position*

End of period (US$M)	Dec 31, 2018	Dec 31, 2017
Total Liquidity	2,596	2,190
Total Financial Debt	(1,910)	(1,701)
Net Financial Position*	**686**	**489**

Cash Dividend



Cash Dividend proposal to shareholders at 2019 AGM is stable at **$0.24** per share.

On November 5, 2018, STMicroelectronics announced the launch of a share buy-back program of up to $750 million to be executed within a 3 year period.

Period from	To	Shares Repurchased	Weighted Average Price	Total Amount Paid	Currency
5-Nov-18	**10-May-19**	**10.4M**	**13.58**	**141.4M**	**EURO**

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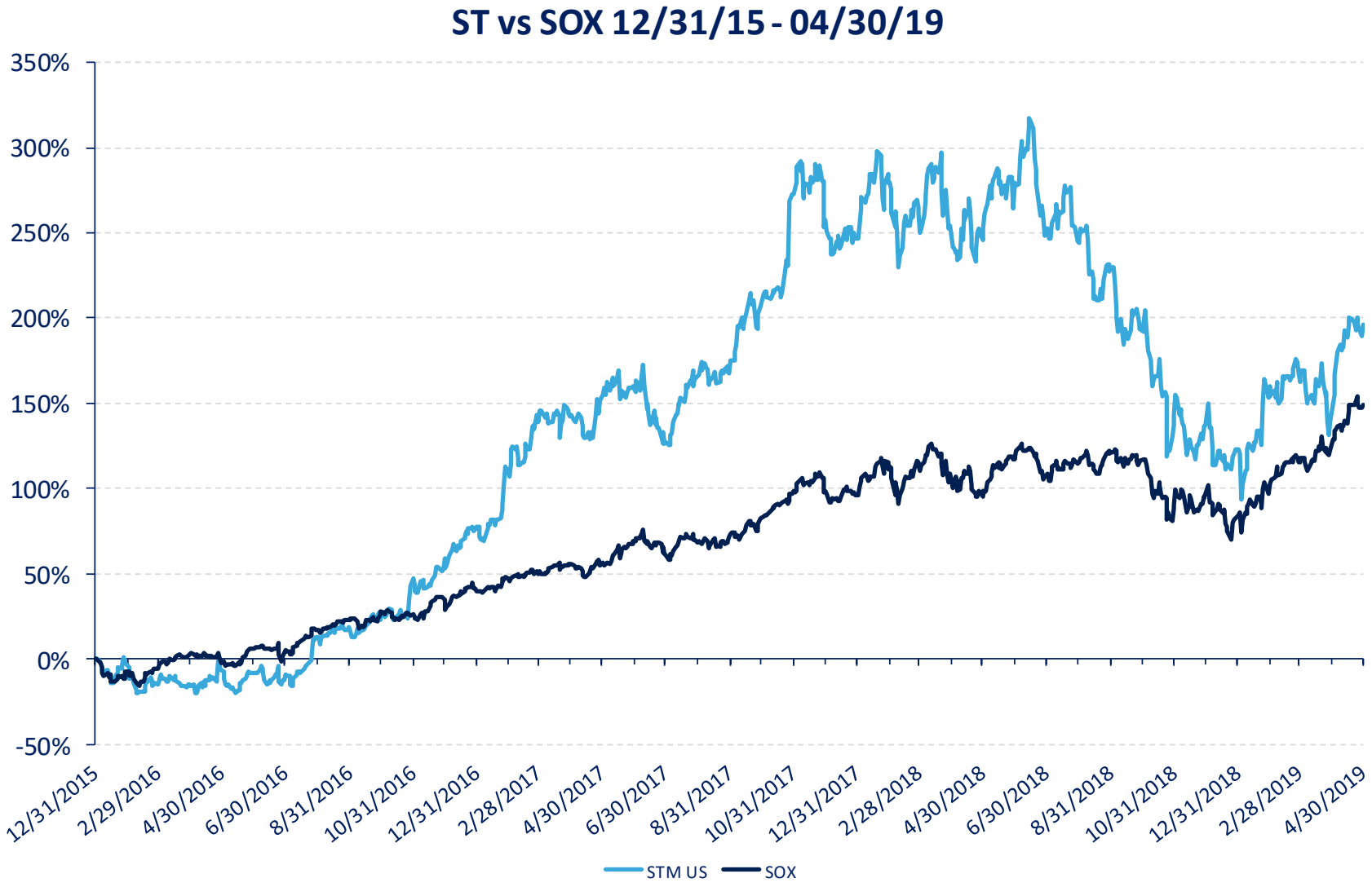
*__Non-U.S. GAAP measure__. See Appendix for additional information explaining why the Company believes these measures are important.

Shareholder Returns



Range	12/31/2015 - 04/30/2019	
Security	**Price Change**	**Total Return**
STM	176%	196%
SOX Index	135%	149%

All rating agencies which report on ST on a solicited basis (Moody's, S&P and Fitch) are aligned in rating ST's credit profile well within investment grade and with Stable Outlook

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2019 Outlook

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2019 Market Dynamics

Volatile macroeconomic indicators, slowing economic growth and accelerating contraction of certain end markets

May

- **Q119** Eurozone economy grew 1.2% Y/Y, better-than-expected but lower compared to 2.4% Q118 Y/Y growth

  US economy grew 3.2% Y/Y, the first time since 2015 that Q1 GDP topped 3%

  Chinese economy grew 6.4% Y/Y, better than expected, but matching Q418 growth rate at the lowest level in nearly 30 years

April

- IMF's 2019 world economy forecast lowered to 3.3% from 3.5% forecasted in January. This growth rate is the weakest since 2009.

March

- ECB's 2019 Eurozone economic growth forecasts lowered to 1.1% from 1.7% forecasted in December.
- China set its 2019 economic growth target at 6.0 to 6.5%, the lowest since 1990.

Trade situation negatively impacting business and consumer confidence

- On May 10th the US introduced additional tariffs on Chinese goods
- Growth of China's manufacturing sector is slowing
- Negative impact on domestic and international supply chains
- Potential for US trade war with Europe

Lack of Growth Catalysts

- Volatility in order rates
- Weak end markets
- High inventory levels

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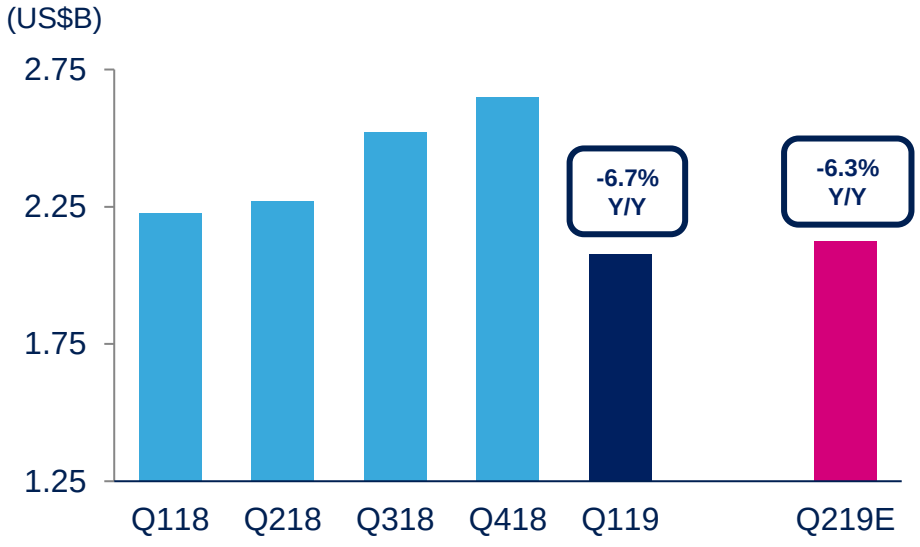
Sources: IMF, Eurostat, National Bureau of Statistics of China, US Bureau of Economic Analysis

Q119 Key Metrics & Q219 Outlook

Q119 Revenues = $2.08B
Q219 Revenues Outlook = $2.13B

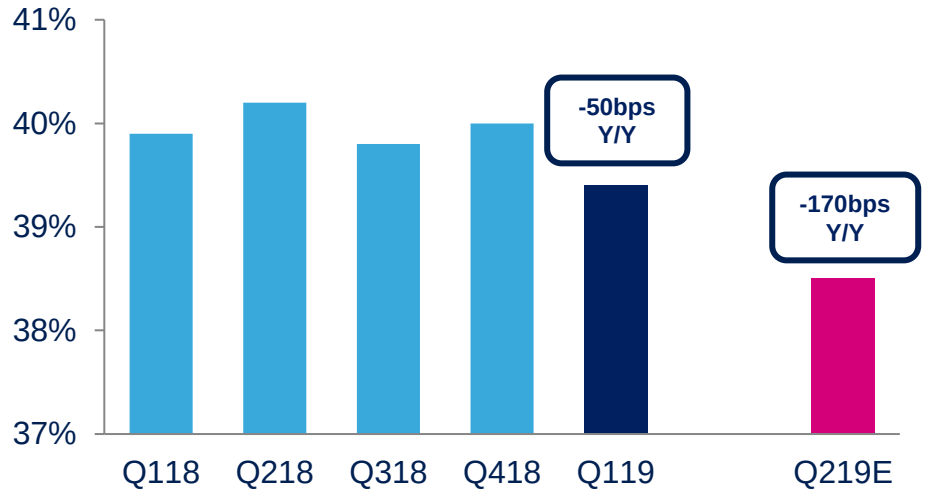


Q219 Revenue Outlook

Up Q/Q by about 2.4% (+/- 350 bps)

Down Y/Y by about 6.3% at mid-point

Q119 Gross Margin = 39.4%
Q219 Gross Margin Outlook = 38.5%



Q219 Gross Margin Outlook

About 38.5% (+/- 200 bps)

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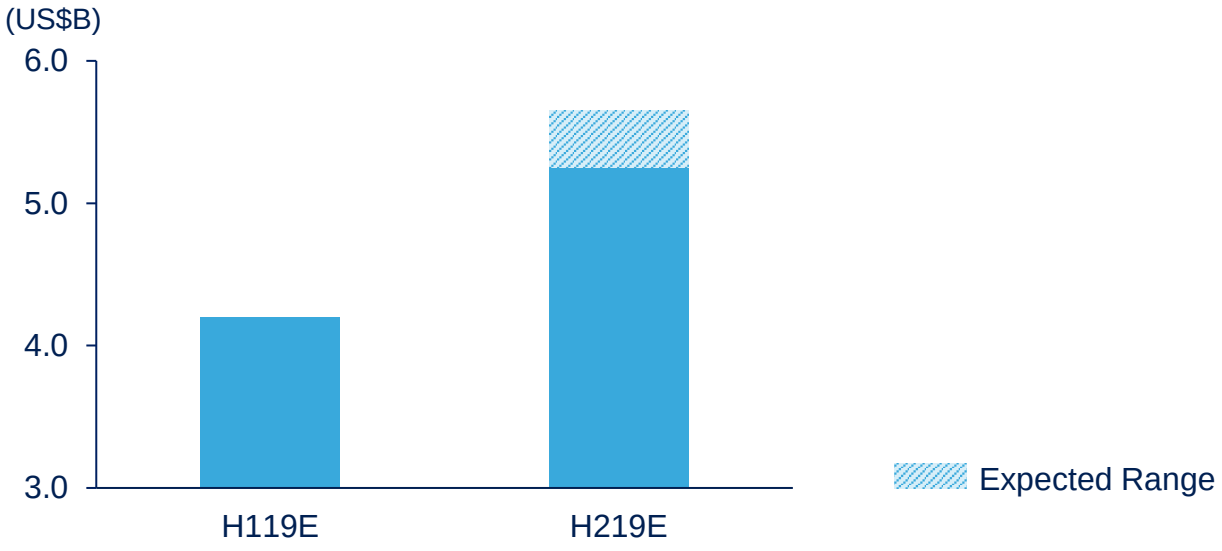
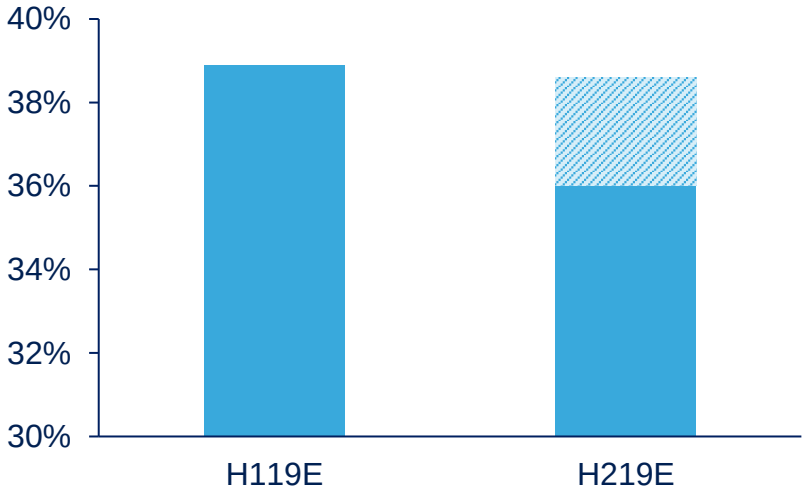
H219 Growth Drivers

Revenues H119 to H219



Gross Margin H119 to H219



Evolution from H119 to H219

Strong growth planned in H219 compared to H119 across several end markets:

- Automotive
- Industrial
- Personal Electronics

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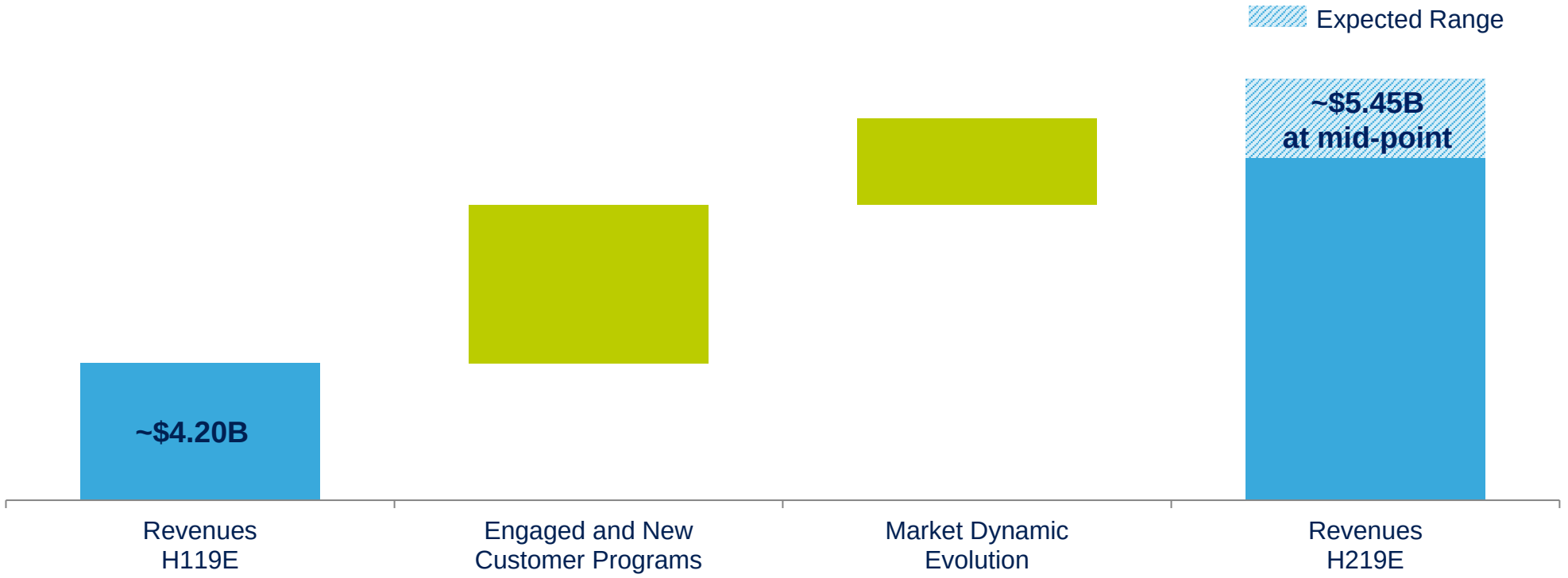
ST Revenue Drivers – H119 to H219



Main Drivers

- Personal electronics (Specialized Imaging Sensors, Secure Solutions, Power Management and RF Front-End Modules)
- Satellite communications deployment
- Silicon Carbide devices to benefit from additional capacity available in H219
- Microcontrollers, Analog and Power Discrete driven by expected improved market conditions

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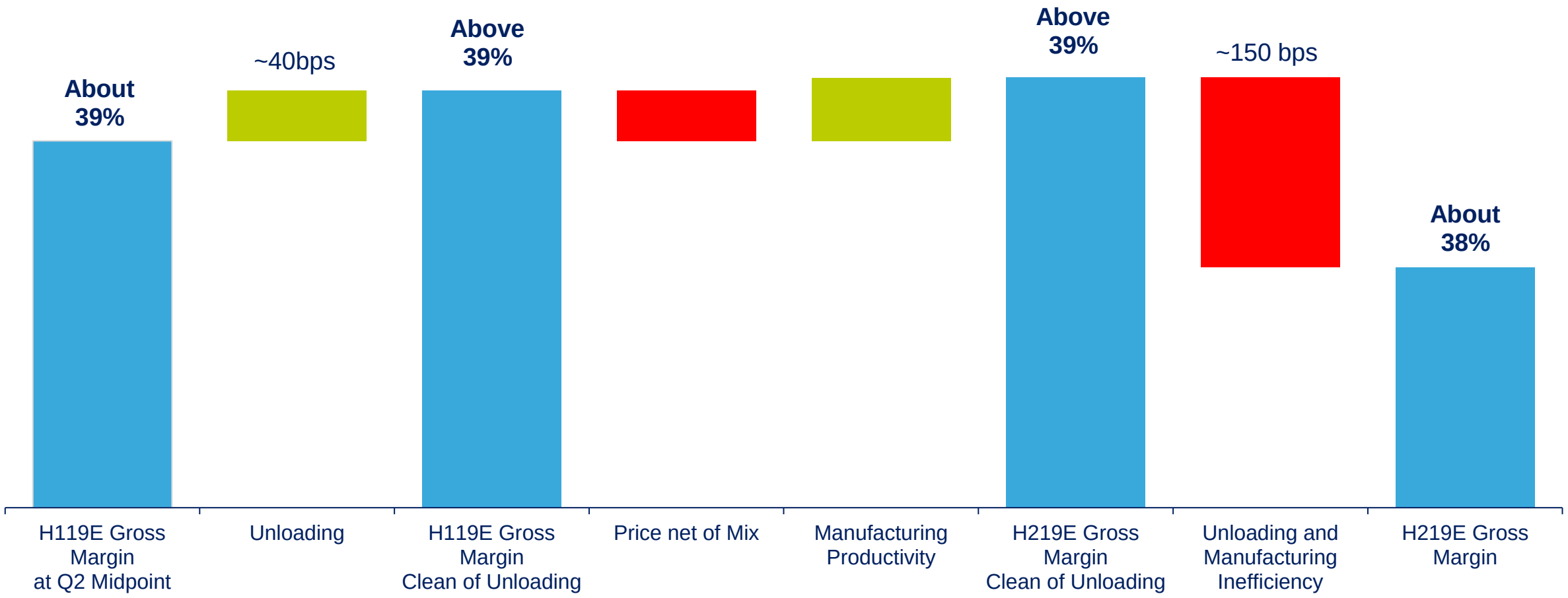
Gross Margin Evolution



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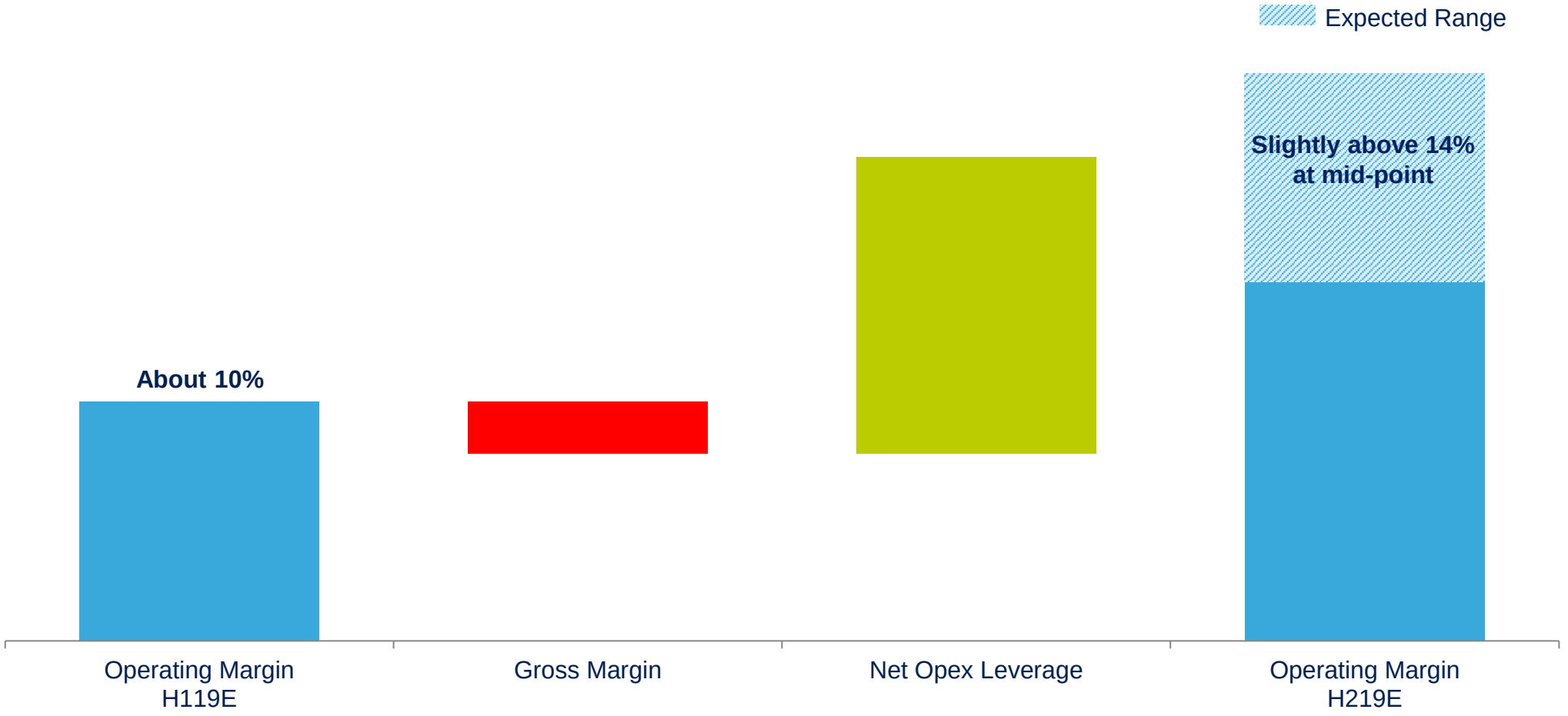
Operating Margin - H119 to H219



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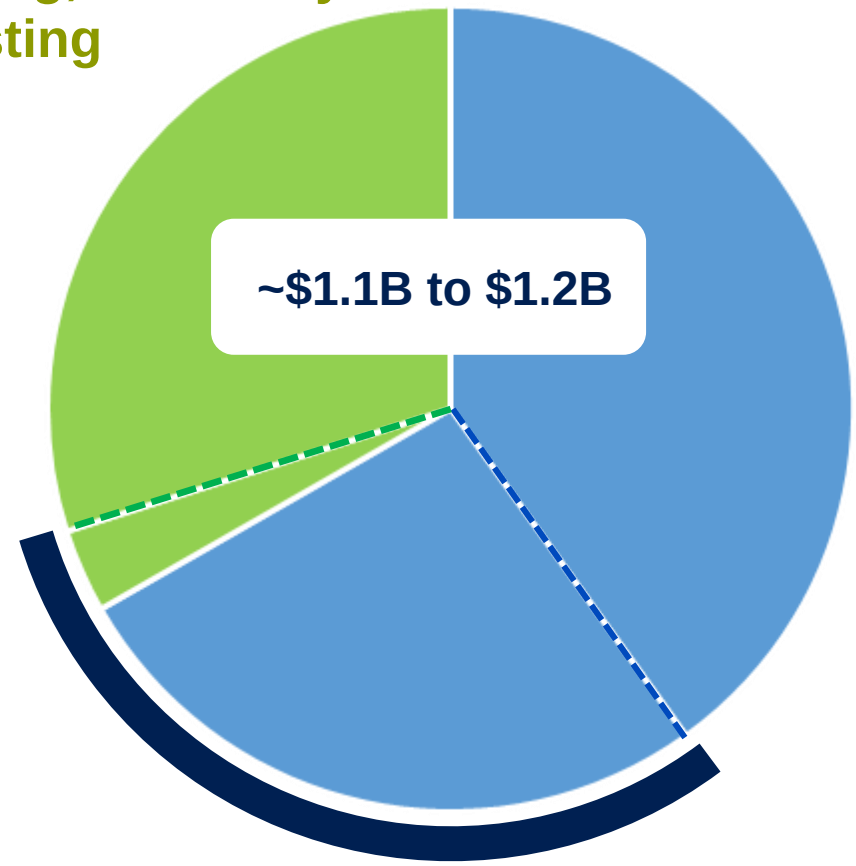
2019 Capital Spending

Probing, Assembly & Testing



Front-End Manufacturing and R&D

3 Key Strategic Initiatives

Investment and Strategic Initiatives to prepare future business growth

Maintenance, R&D and capacity additions in some of our existing technologies

Plus 3 Key Strategic Initiatives

- New 300mm fab in Agrate for BCD, IGBT and Power technologies
- Expansion of installed capacity for Silicon Carbide and start of production ramp-up for Gallium Nitride for RF devices
- Next generation Imaging sensor technologies

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FY19 Scenarios

Served Market (SAM) *	~ -3.0% / +1.3%

Slight Decline to Slight Growth

ST Revenues	$9.45 / 9.85B
ST Revenue Evolution	-2% / +2%
Gross Margin	>37% / around 39%
Average quarterly Net Opex	$620 / 630M
Tax rate	14 / 17%

Strong discipline in protecting the balance sheet and capital spending for key strategic initiatives

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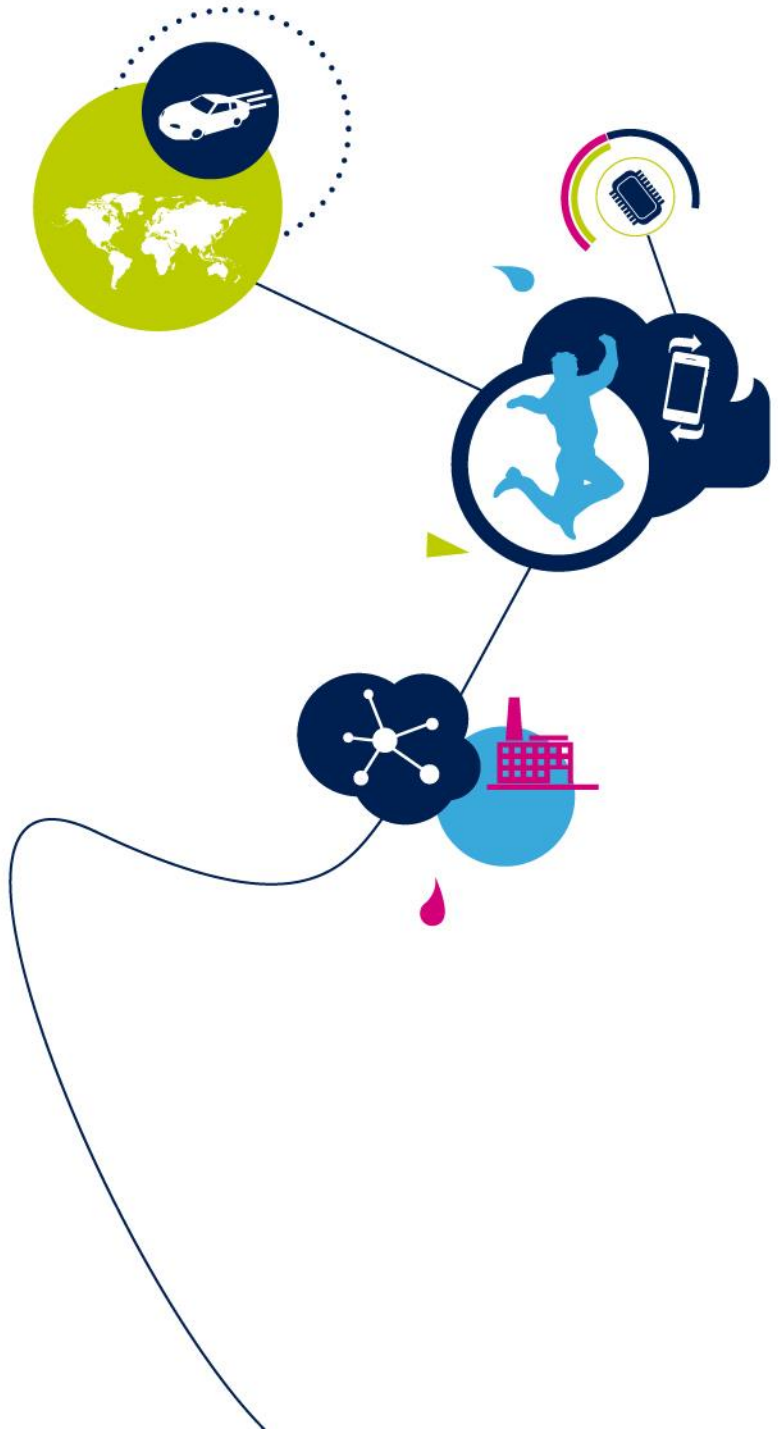
(*) ST Internal Market Estimates

Financial Model



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ST Growth Catalysts

Automotive

- Car Digitalization
  - ADAS and MCU
- Car Electrification
  - SiC MOSFET and IGBT

Industrial

- Embedded processing solutions
  - MPU, Connectivity and Security
- Analog & Power
  - Applications specific

Personal electronics

- Sensors
- Secure solutions
- Analog
  - Application specific (power management)
- RF Mixed Signal for Front-End modules

Communications Equipment, Computers & Peripherals

- Power management
- RF Mixed Signal for satellite constellation

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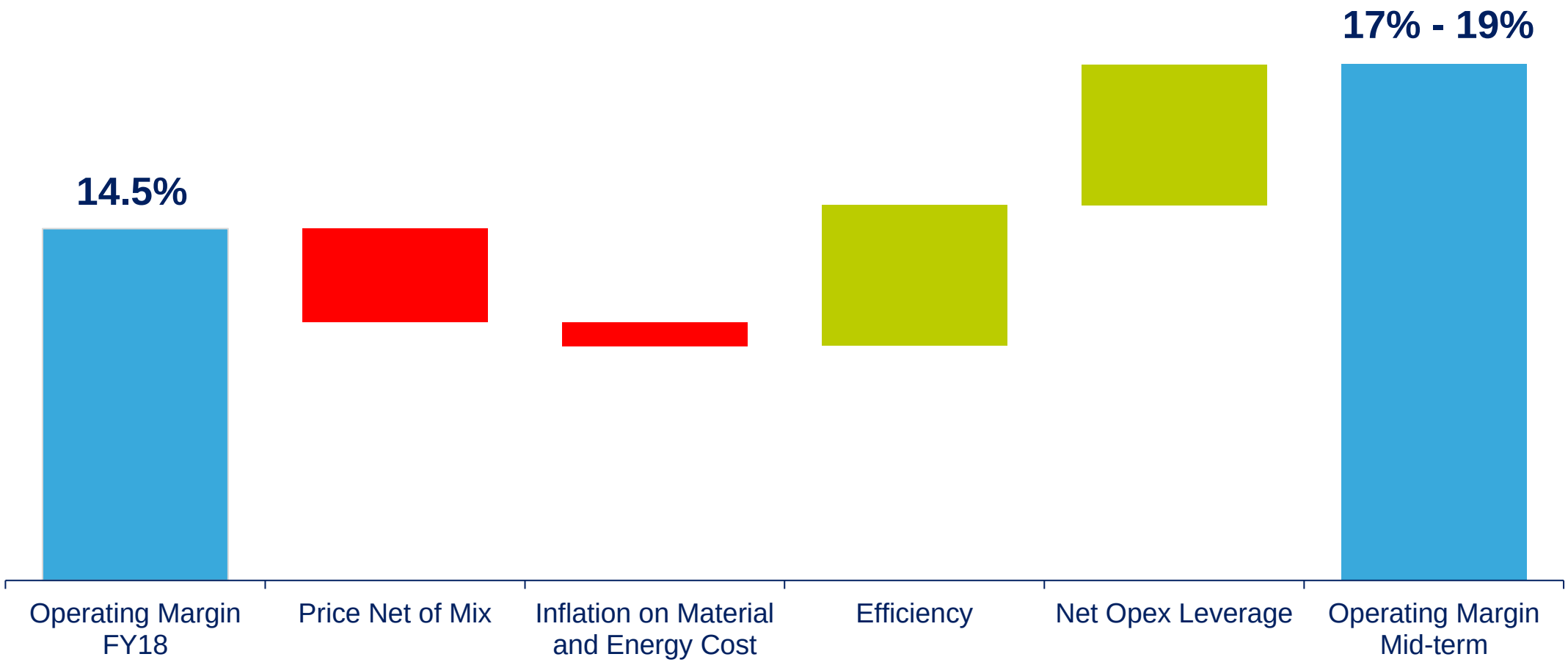
Operating Margin Drivers

Mid-term Model



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Path to Mid-Term Financial Model*

	*Mid - Term Model**
ST Revenues	$12.0B
Gross Margin	40% - 41%
Operating Margin	17% - 19%
Net Income	$1.7 - 1.9B
Free Cash Flow	> $1B

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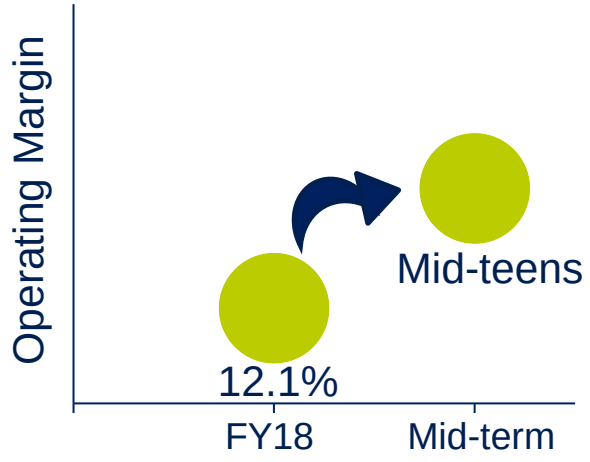
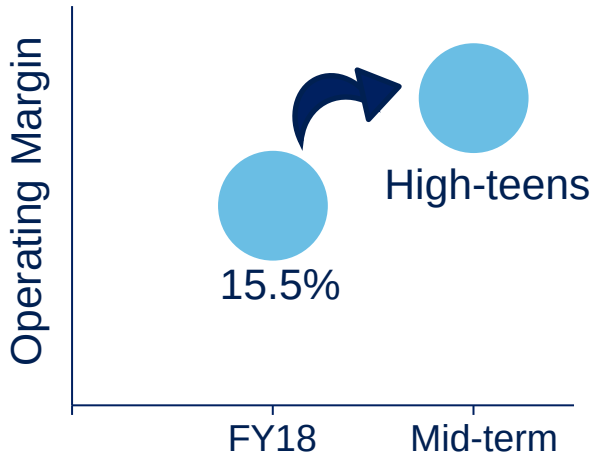
* **See Forward Looking Information for full disclosure.** Such information is subject to various risks and uncertainties, which may cause actual results and performance of our business to differ materially and adversely from the Forward Looking Information.

Product Group Profitability Evolution

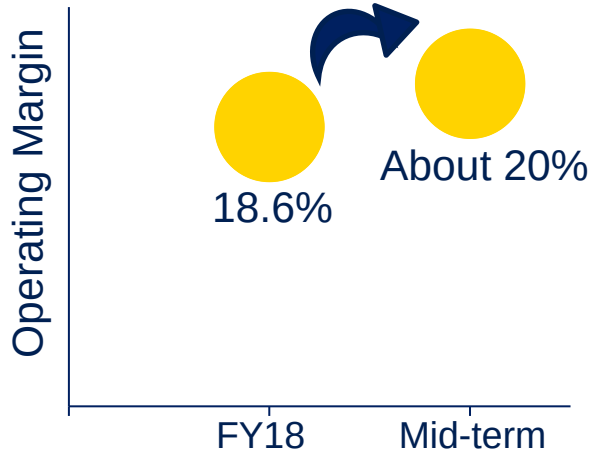
ADG



AMS



MDG



Margin Expansion Drivers

Leverage revenue growth

ADG	AMS	MDG
Improved mix	Improved Mix	Improved mix
ADAS, SiC power devices, IGBT & MCU	Analog and Sensors	MPU, MCU and RF mixed signal

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Capital Allocation Plan

Sustain Growth

Capex

- Average yearly Capex of ~ $1.1 – $1.5B over the near/mid-term horizon
- Mitigate spending via higher outsourcing

Acquisition

Focused on:

- Organic growth
- Small and targeted strategic acquisitions

Shareholder Return

Dividend

- Dividend payment at $0.24 per share in 2019
- Dividend consistent with our planned cash generation

Share Repurchase

- In Q418, we announced the launch of a share buy-back program of up to $750 million to be executed within a 3 year period

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Value Proposition for Shareholders

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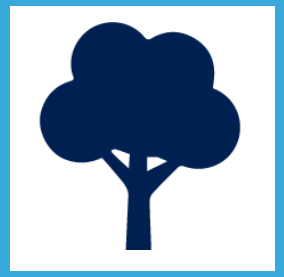
ST Value Proposition for Shareholders

Commitment to organic
and self-financed growth



Strong focus on
Long-term value creation

Significant opportunity
to increase profitability

Capability to increase
shareholder value

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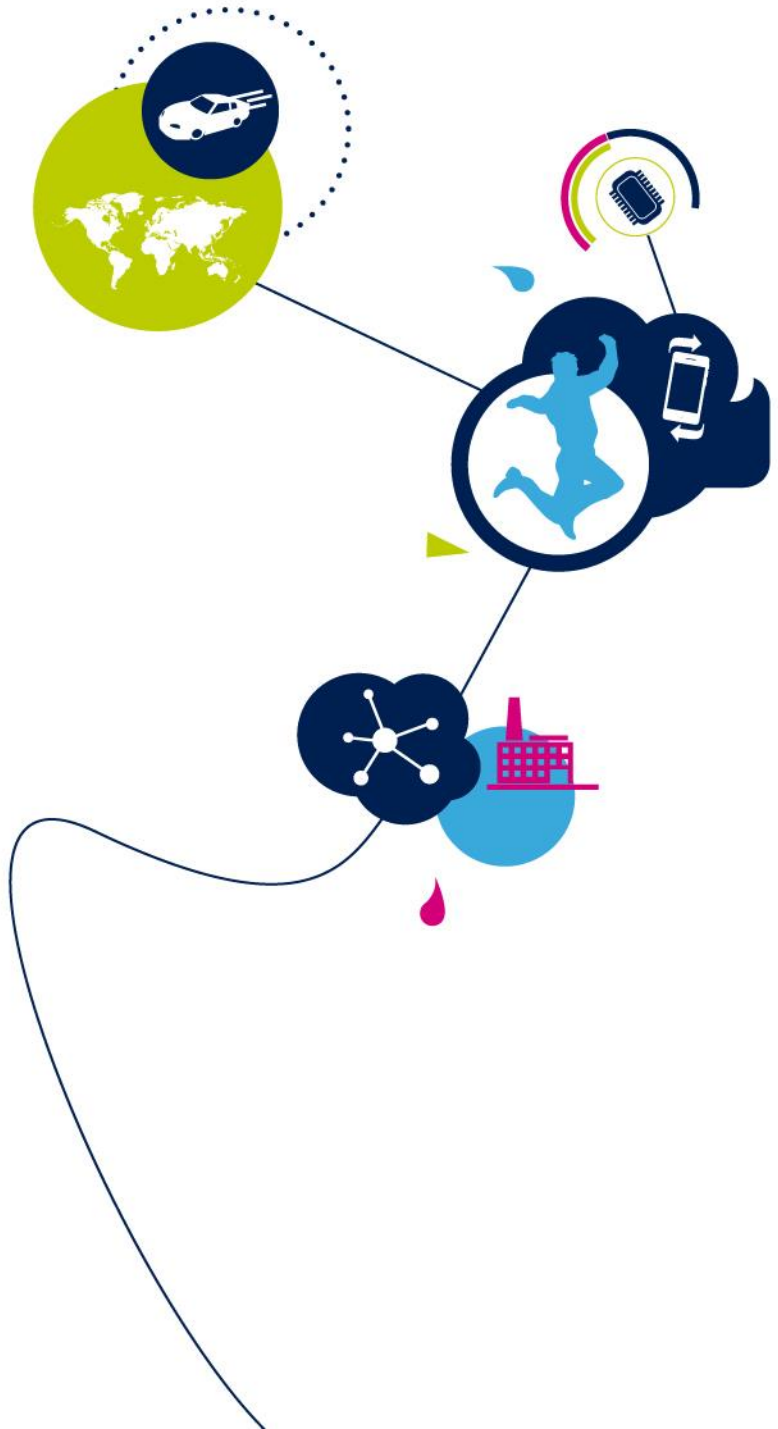
STMicroelectronics

Capital Markets Day 2019



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