Digital Challenges:
Semiconductors Driving Innovation

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Part A

Who We Are

- A global semiconductor leader
- 2016 revenues of **$6.97B**
- Listed: NYSE, Euronext Paris and Borsa Italiana, Milan

Legend:
- Research & Development
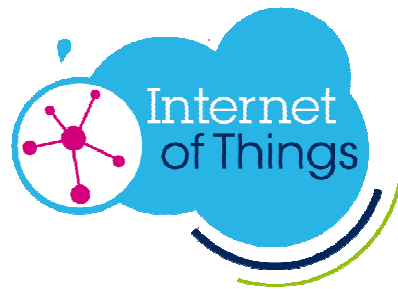- Main Sales & Marketing
- Manufacturing

- Approximately **43,500** employees worldwide
- Approximately **7,500** people working in R&D
- **11** manufacturing sites
- Over **80** sales & marketing offices

As of December 31, 2016

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ST Application Strategic Focus

The leading provider of products and solutions
for Smart Driving and the Internet of Things

Internet of Things

Smart Driving

Smart Things   Smart Home & City   Smart Industry   Smart Driving

Driving Innovation in the IoT

Smart Things

Smart Home & City

Smart Industry

A Smart Thing …

- Understands the environment
- Manages data & transforms to info
- Connects to the world
- Protects your data
- Is energy efficient

Smart City

- Smart city infrastructure to improve traffic and municipal services
- Smart Grid
- Intelligent, adaptive street lighting
- Smart Buildings

Smart Home

- Smart control of heating, air-con, appliances, locks & alarms
- Smart meters to connect homes to the smart grid
- More energy efficiency, convenience, comfort and security

Smart Industry

- More efficient factories
- More flexibility and customization
- More sustainable production
- Safer working environments
- Better man-machine cooperation

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Driving Innovation in Smart Driving

| safer | • Having cars drive better than we can & always watching for threats |
| | • Making driving safer for car occupants and other road users by actively avoiding accidents |

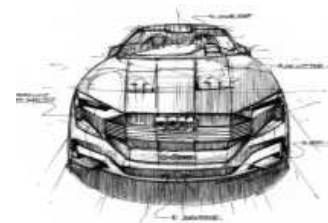| greener | • Improving power and fuel efficiency, and helping minimize emissions and car maintenance |
| | • Moving towards electric vehicles |

| more connected | • Enabling personalized car entertainment and connectivity |
| | • Allowing vehicles to communicate with each other and the infrastructure (V2X) |

Smart Driving is about putting the driving experience of the car occupants as the focus point

ST is making driving safer, greener and more connected through a fusion of innovative technology

80%
of all innovations
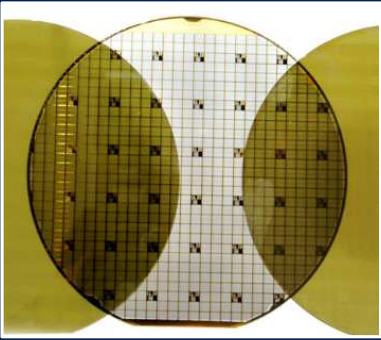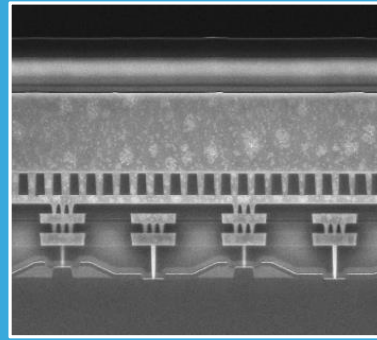are directly or indirectly
enabled by semiconductors

Courtesy of Audi

Differentiated Technologies
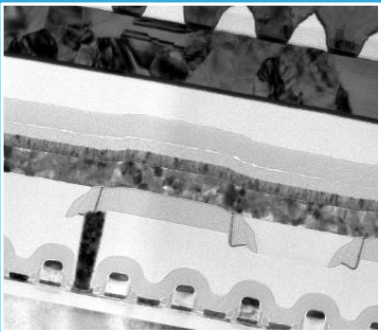## enable industry leading products

Silicon Carbide

MOSFETs and Diodes
for Automotive & Industrial
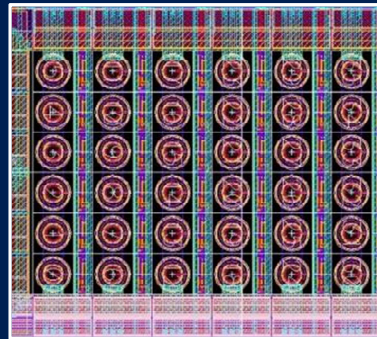applications

Advanced BCD

Smart Power devices
for Automotive & Industrial
applications

CMOS eNVM
(Embedded Non Volatile Memory)

Advanced General Purpose & Secure
Microcontrollers for Consumer,
Automotive, Industrial applications

Imaging

Time-of-Flight &
specialized image sensors

ST and CEA-LETI

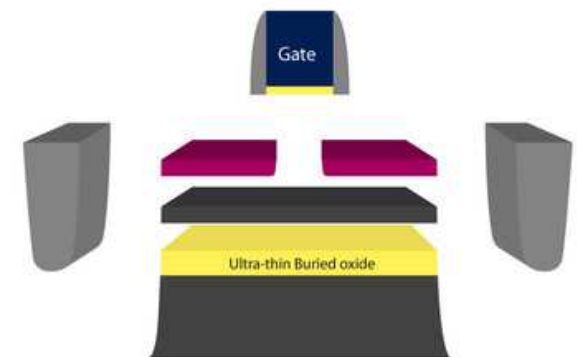**Long History of Cooperation**

Mutual Success
Trust

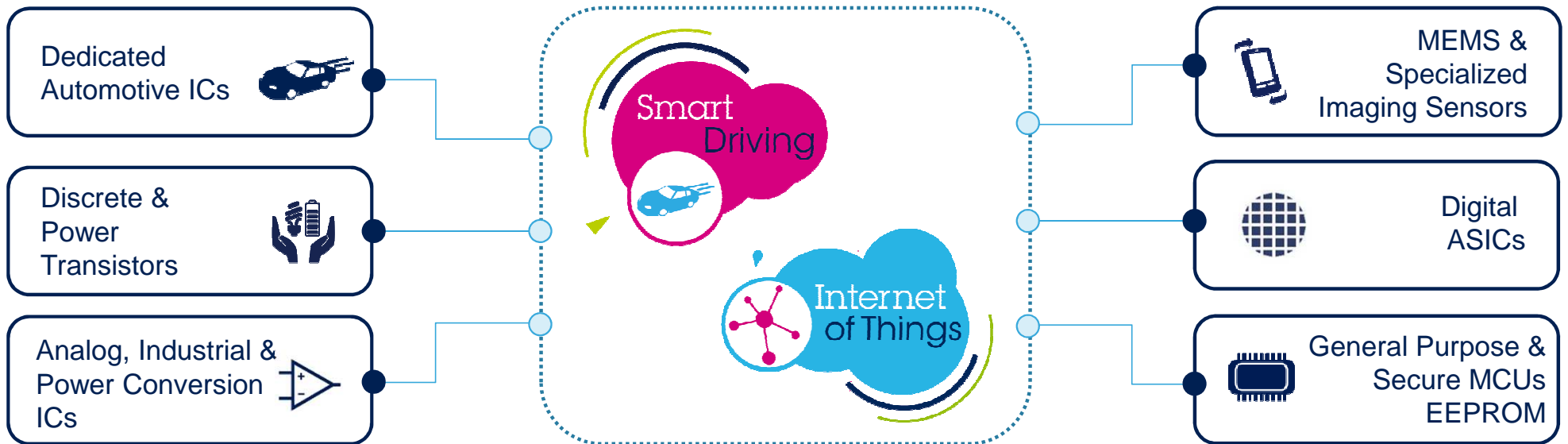**Recent Successes**

FD-SOI
Specialized Image Sensors

Shared innovation investment

Faster
Less resource intensive for ST

Gate

Ultra-thin Buried oxide

Product Families

Dedicated Automotive ICs

Discrete & Power Transistors

Analog, Industrial & Power Conversion ICs

Smart Driving

Internet of Things

MEMS & Specialized Imaging Sensors

Digital ASICs

General Purpose & Secure MCUs EEPROM

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- Automotive 77GHz radar chip for long-range applications
- Miniature Multi-Sensor Module — Jumpstarts IoT and Wearable Designs
- Next-gen automotive microstep controllers boost reliability and power efficiency
- MDmesh™ DK5 — VHV MOSFETs with fast recovery diode
- High-voltage power converter for Smart Homes and Factories
- Tiny 2.6A H-bridge DC motor driver for portable, battery-powered devices
- Security in Smartgrid

- STM32 hardware tools boost LoRa® technology
- STM32™ IoT secure solution with STSAFE and ProvenCore-M™
- Battery-charger IC — High integration and low power consumption
- EyeQ@5 System-on-Chip — Towards full autonomous driving
- STM32F412 MCUs expand STM32F4 Access lines
- 800V SCRs for miniaturized power converters
- 40V automotive-grade MOSFETs in PowerFLAT™ 5x6

- New STM32L4 ultra-low-power MCUs — advanced audio and energy efficiency
- 3 MHz chopper op amp for high-accuracy signal conditioning
- ST Boosts Trusted Computing with New Advanced Security Modules
- High-temperature 600V SCRs
- World's first 1500V device in TO-220FP wide creepage
- Future-proof telematics processors for secure connected-driving services
- Tiny micropower comparator targets space-constrained applications

- Intelligent motion control for Smart Industry
- MOSFET-based SLLIMM™-nano modules
- Satellite navigation and V2X Combined
- Save your energy with STM32L0 MCU series
- Smart motion sensors for always-on activity tracking
- Secure solution for wearables
- More HMI and IoT applications with STM32F769 Discovery kit

- STM32L4 discovery kit — IoT node
- Versatile 3-axis accelerometer for IoT and wearable devices
- Sub-1GHz transceiver connects Smart Things to the Cloud
- Op Amps and Comparators in miniSO8 operate up to 150C
- Best-in-class infotainment processor for all classes of vehicles
- SLLIMM™ 2nd series Intelligent Power Modules
- 1200V SiC diodes — Industrial and automotive-grade

- Configurable interleaved PFC controller unlocks digital-power advantages
- Enabling new scenarios — USB Type-C™ and Power Delivery
- STM32L4 MCU series Available from 128KB to 1MB
- SPWF04 Wi-Fi module
- Optimized secure element for IoT-device and brand protection
- STM32Cube Low-Level APIs — MIN footprint, MAX performance
- Tiny low dropout regulator — ultra-low noise and high-precision sensing

- Accelerating Electrification — Silicon-Carbide Power Devices
- New FlightSense™ ranging sensor — multi-zone, multi-target detection
- World's first Integrated EMI Filter — Automotive Ethernet Connectivity
- New 36V ST op amps raise ruggedness & efficiency
- STM32F413 MCU — The new King of STM32F4 Access lines
- Wireless battery-charging chipset for wearables
- Tiny nano-power op amp — Enables longer battery life

- New STM32 high-part MCU series — Advanced 40nm Flash technology
- Secure MCU for eSIM & Secure Element
- Contactless-ready mobile payment solution for wearables
- World's smallest full-featured motor drivers for battery-powered devices
- TSX low-power comparators — better performance and robustness
- Automotive multi-regulators for car-infotainment systems
- New STM32L0 MCU lines and Ecosystem available now