Smart Mobility in Action

@ EcoMobility World Congress 2017

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Who We are

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

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- 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

Application Strategic Focus

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

Smart Driving

Safer

More connected

Greener

Internet of Things

Smart Industry

Smart Home

Smart City

Smart Things

Addressing a Serviceable Available Market (SAM) of around $150B

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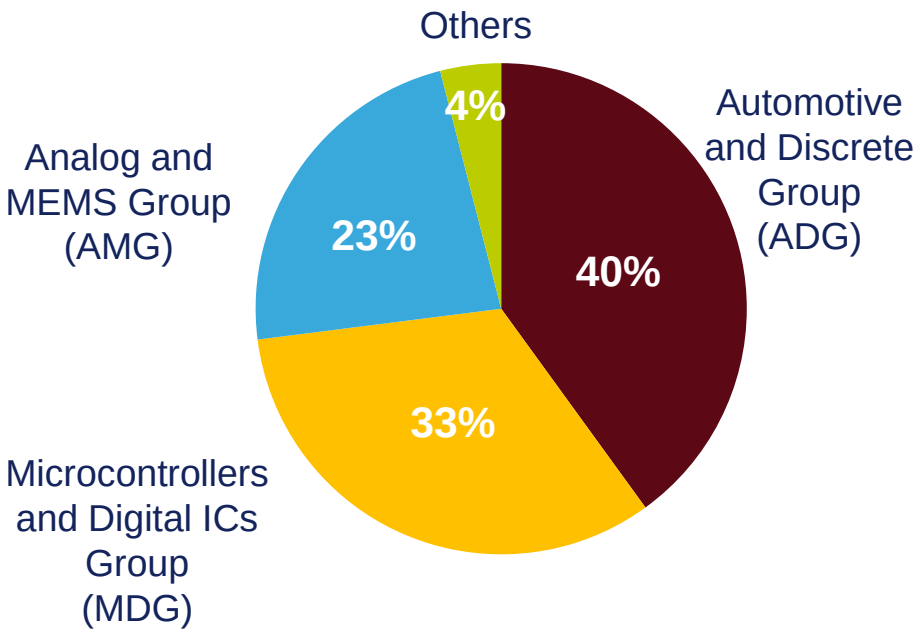
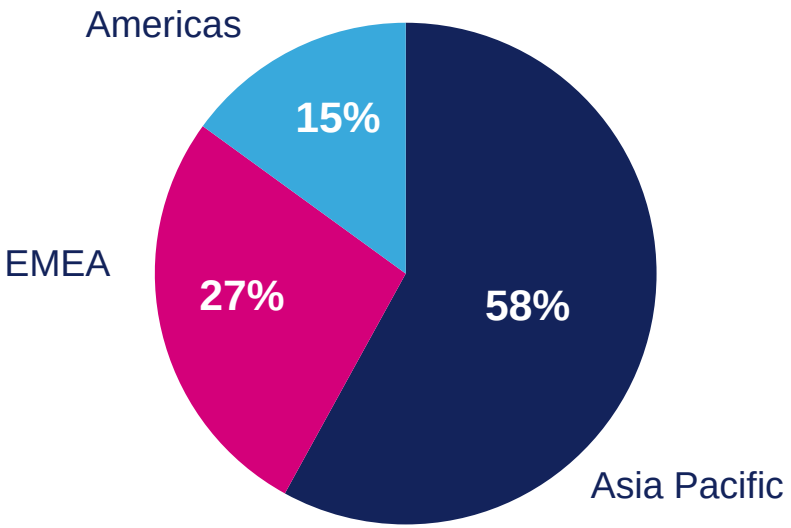
2016 Revenues

% by product group

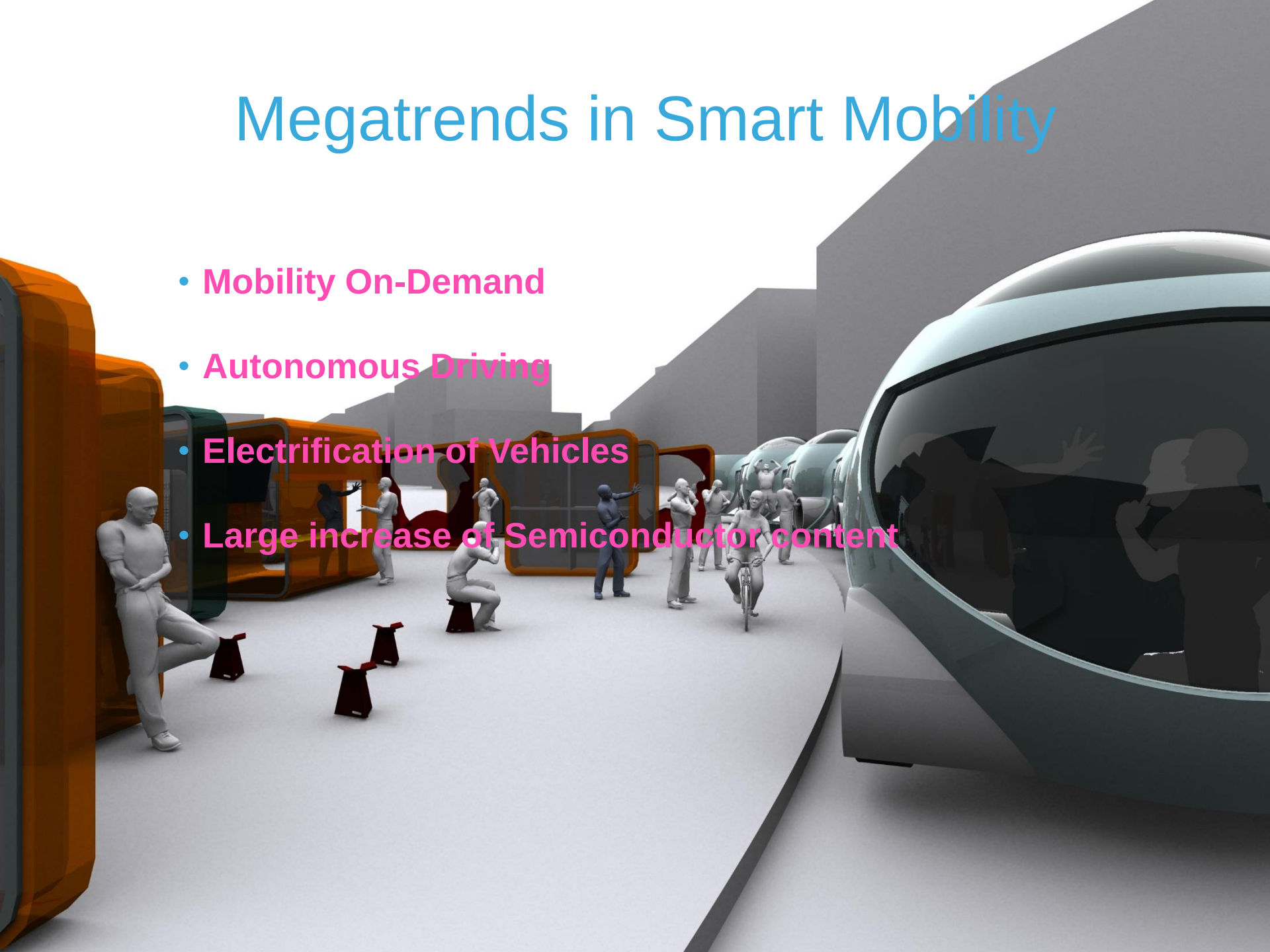


% by location of order shipment




The way ahead, Smart Mobility

Megatrends in Smart Mobility



- **Mobility On-Demand**
- **Autonomous Driving**
- **Electrification of Vehicles**
- **Large increase of Semiconductor content**

Societal Changes : MOD will replace Private Cars

- 30% to 60% of people in Large Cities will switch to Autonomous MOD -

Cost of Vehicle Ownership today :
0.9$ / Mile in MSA's, 0.75$ Nationwide

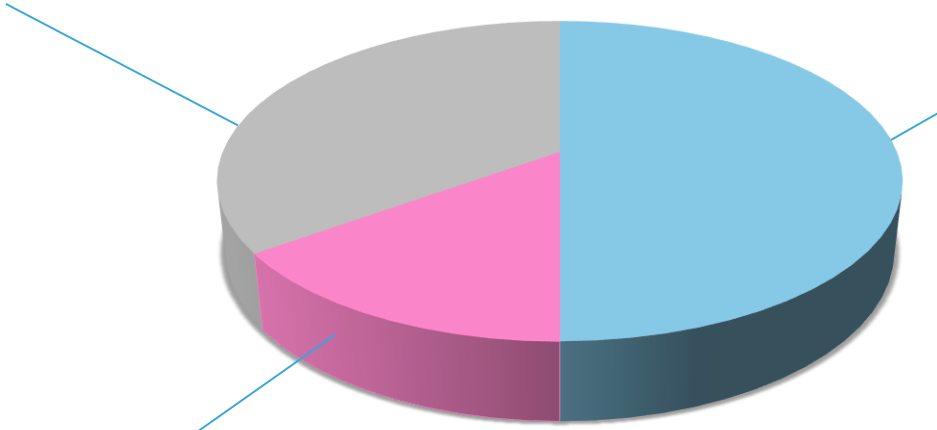
Alternatives keep proliferating
Cost of Alternatives keeps decreasing

Service Experience : cheaper, more convenient, safer, efficient, more clean, waiting time

- In the US it will reduce the number of Cars on the Road by 18.5 Munits by 2030
- The entire Population of Singapore could be served by 1/3 of the Vehicles if they were Autonomous MOD's

Source : Deutsche Bank, 2016

2030 McKinsey predictions



Automation will increase and will bring an estimated **120BUS$ opportunity**, The Semiconductor Content per car will be **1000US$**

- From today 350$ and 450$ will come from ADAS alone.

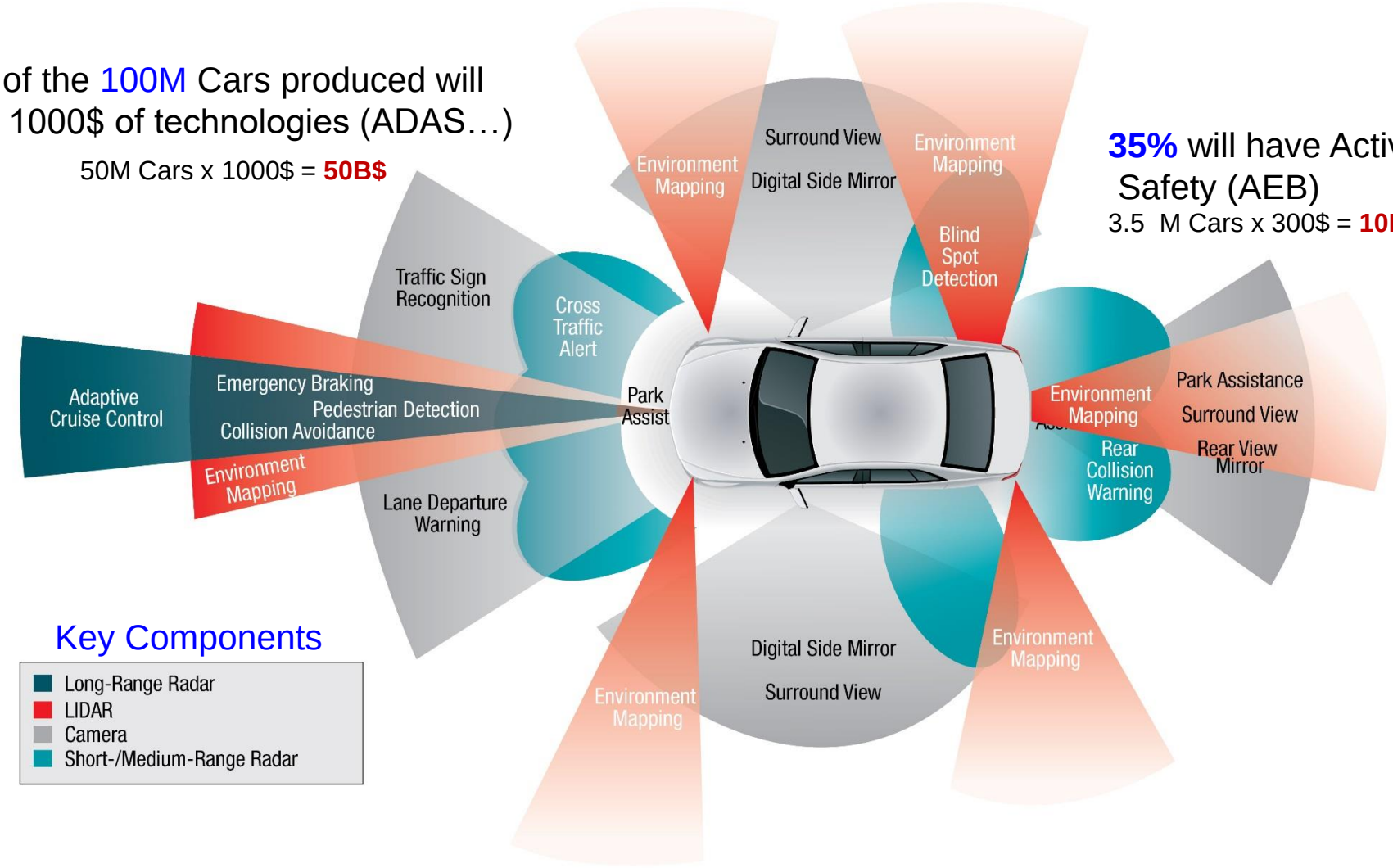
Automation worth 120B$ for SW and HW
- by 2030-

50% of the 100M Cars produced will have 1000$ of technologies (ADAS…)

50M Cars x 1000$ = **50B$**

35% will have Active Safety (AEB)

3.5 M Cars x 300$ = **10B$**



15% will be full Autonomous and will have 4000$ of Technologies

15 M Cars x 4000$ = **60B$**

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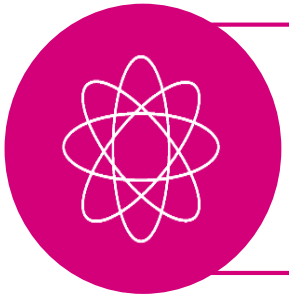
Key Factors for Automation

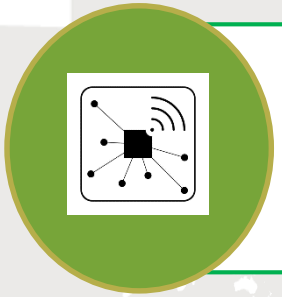


Power of Computation

- New Artificial Intelligence Development Tool
- Multi-Agent Interactions, Probabilistic Predictions Path Planning, Self Learning

Advanced Mapping

- Improvement in 3D Map
- Wide dissemination of GPS , with Redundancy for localization and accuracy



Everything Sensed and Connected

- Accurate Vision Sensors (360 degrees) , with Redundancy

Smart World

- Internet of Things
- Smart Environments
- Connected car
- Wearable technologies
- Secure world

ST: Global and Diversified Automotive Leader with over 30 Years Experience

Broad Automotive Offer

- Automotive Microcontrollers
- Infotainment and Telematics
- V2X
- Radar & Vision ADAS
- Automotive Sensors
- Power & Smart Power

32% of ST revenue

Market Share (on SAM) **9%**

2016

>$2.2B Revenue

2015

+6% Y-o-Y

$2.1B Revenue

#1

- Engine Management
- 24 GHz RADA
- ADAS Safety
- Entry & Mid-end Telematic
- Car Audio Amplifier
- GNSS
- Smart Power

ST Leadership in key Automotive Applications

Source: Strategy Analytics, ST

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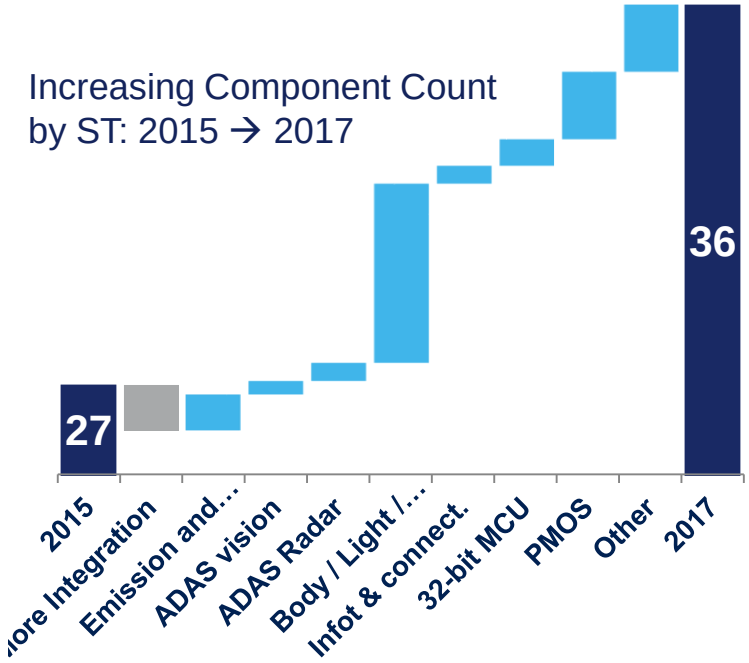
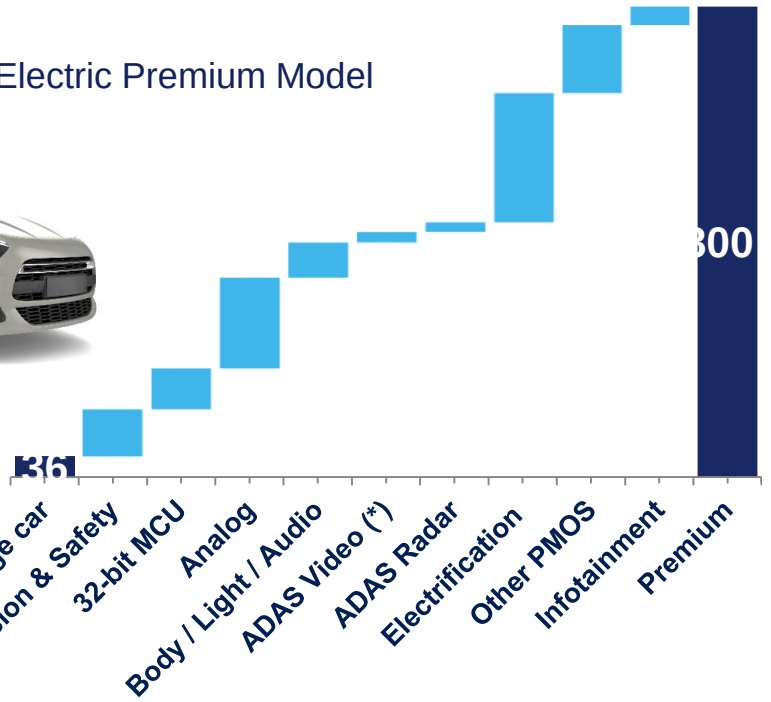
Strong Commitment to Automotive

36 ST components on average for each new car produced, up to 800 ST components in premium models

Increasing Component Count
by ST: 2015 → 2017



Electric Premium Model



(*) including surround view

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Automotive Market Trend
Importance of Electronic Components

Today, a premium class vehicle contains on average

- **130** electronic control units (ECU's) and
- about **150** motors and actuators

Within the new Audi A8 (2018 model) there is an average of about **8,000** total active semiconductor components, including

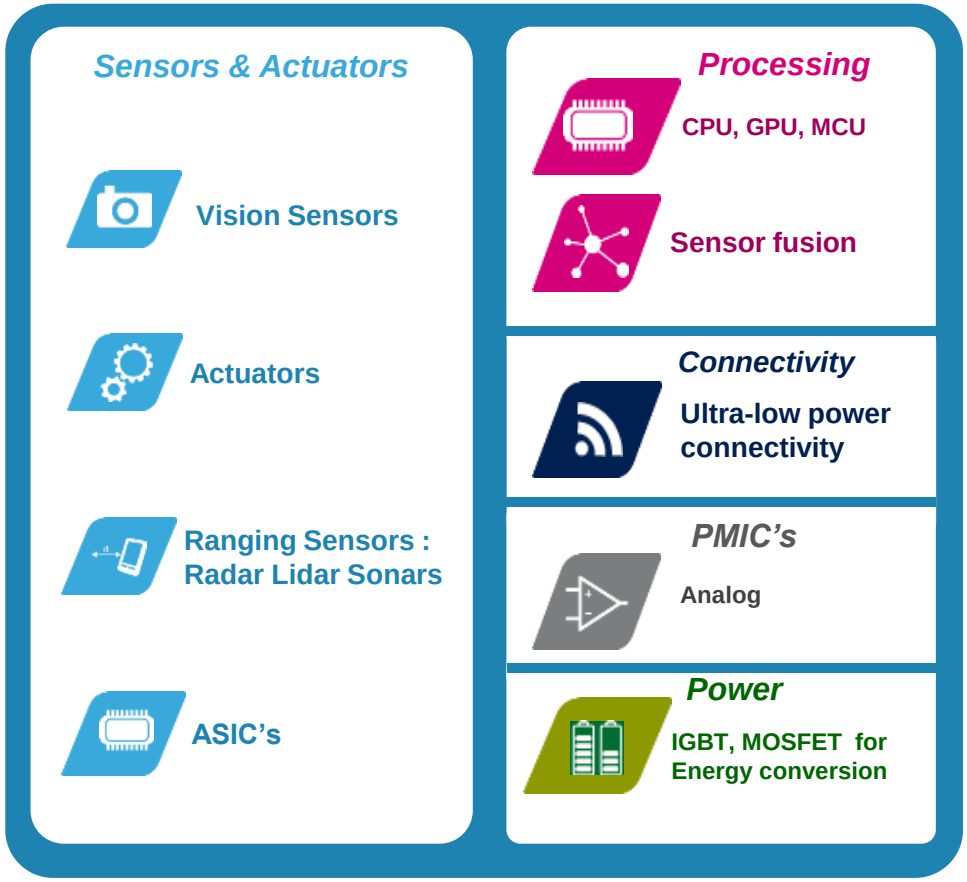
- more than **1,000** LEDs and LASER diodes
- **several hundred** microcontrollers, ASICs, memory, processing units
- as well as more than **1,000** power semiconductors
- and **several hundred** sensor elements

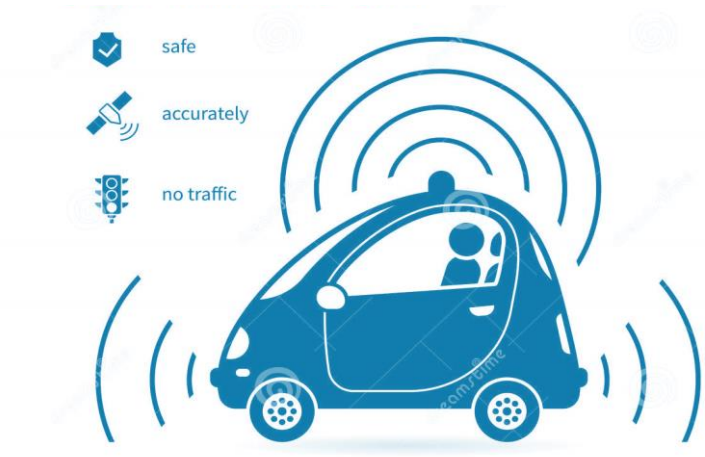
ST provides between

~720 to 1040

semiconductor components in the new Audi A8, depending on the options and car version

The Building Blocks of Smart Vehicles are here





Other Smart Mobility requirements

Vertical integration

Focus on few big **pilot projects for vertical applications**, such as **Autonomous Driving for On-Demand Mobility**

Standardization

Define the level of Automation And Build up the associated infrastructures

Ecosystem

Gathering the full chain: Semiconductor Suppliers, Tier1, Automakers, Digital Companies, Start-ups

Regulation

Governments play a big role as an enabler or a blocker

Thank you !

ST stands for

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