



PREMO

Innovating in Magnetics

CARCIS

Car Assisted with Radar and Camera Intelligent Sensors

CSCO	1.01	↓	1.89
CHK	0.02	↑	10.91
AAPL	+2.58		
PRTG	-0.1		
AMZN			
TSLA			
AVGO	0.37		
SIRI	-0.65		

PREMO at a Glance



55 Years of Innovation



1500 Employees Worldwide



47 M 2018 Turnover

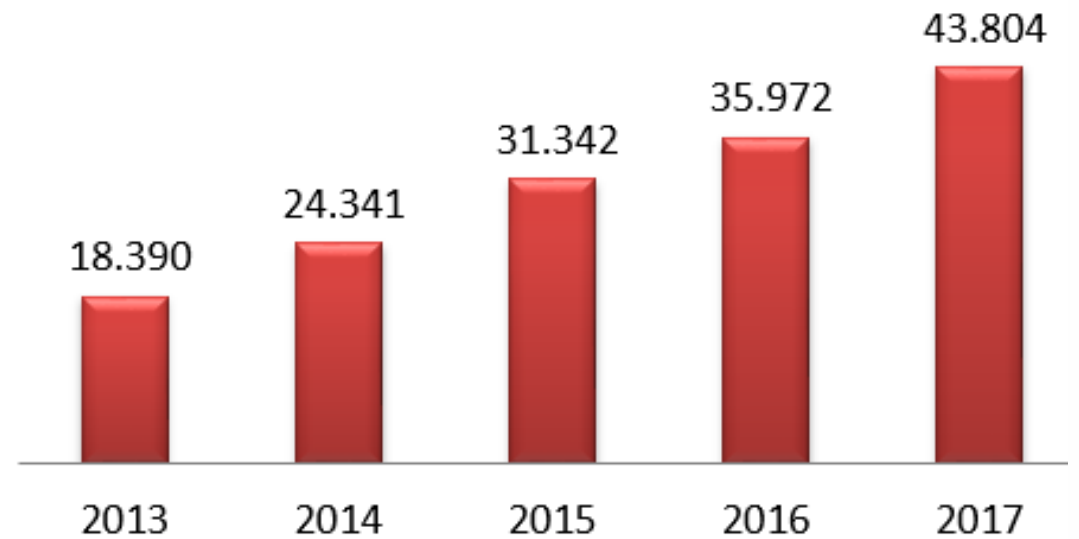


>100M Pieces/year



>50 Patents

Premo Turnover k€



PREMO at a Glance

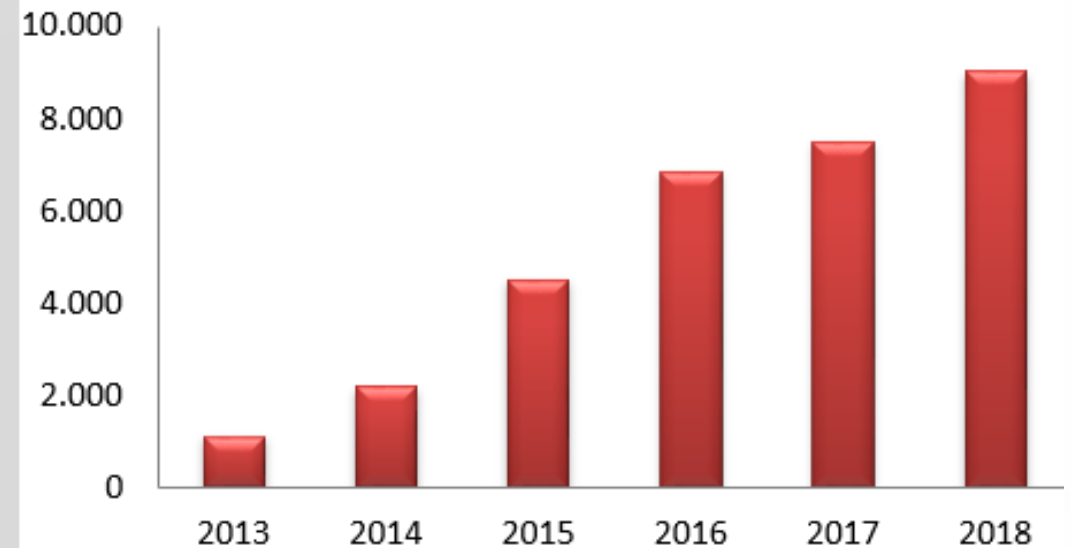
36 Countries

10% Staff R&D& Innovation

8% Budget Innovation

>52% Global Share of RFID
Keyless Entry Systems Antenna

EBITDA k€



PREMO at a Glance

PRODUCT LINES



RFID

Inductive

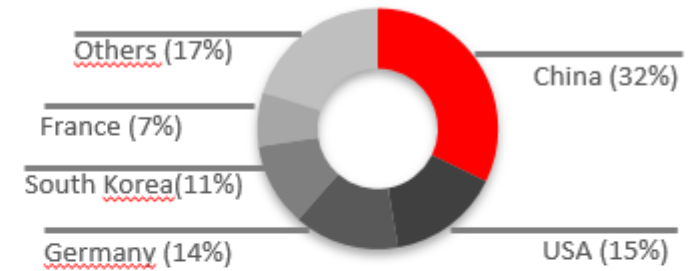
Filters

65%

30%

5%

DELIVERY BY REGION



SECTORS



Auto

Industrial

Smart Grid

New Tech

75%

15%

5%

5%

GLOBAL FOOTPRINT



Sales Offices

Factories

R&D Centers

>35

3

5

Worldwide Sites Overview

1500 Employees
Worldwide

3 Factories
5 Sales-R&D Centers

- Sales-R&D Centers
- Production
- Headquarters

Spain (Málaga)

Spain (Barcelona)

France (Grenoble)

America (California)

Morocco (Tangier)

China (Wuxi)

Vietnam (Da Nang)

South Korea (Seoul)

Members

- Premo: Radar designer & qualification
- Top Digital: V2V & V2C Communication
- IERTEC: Fusion sensor ECU designer
- Actisa: Ai Data analysis

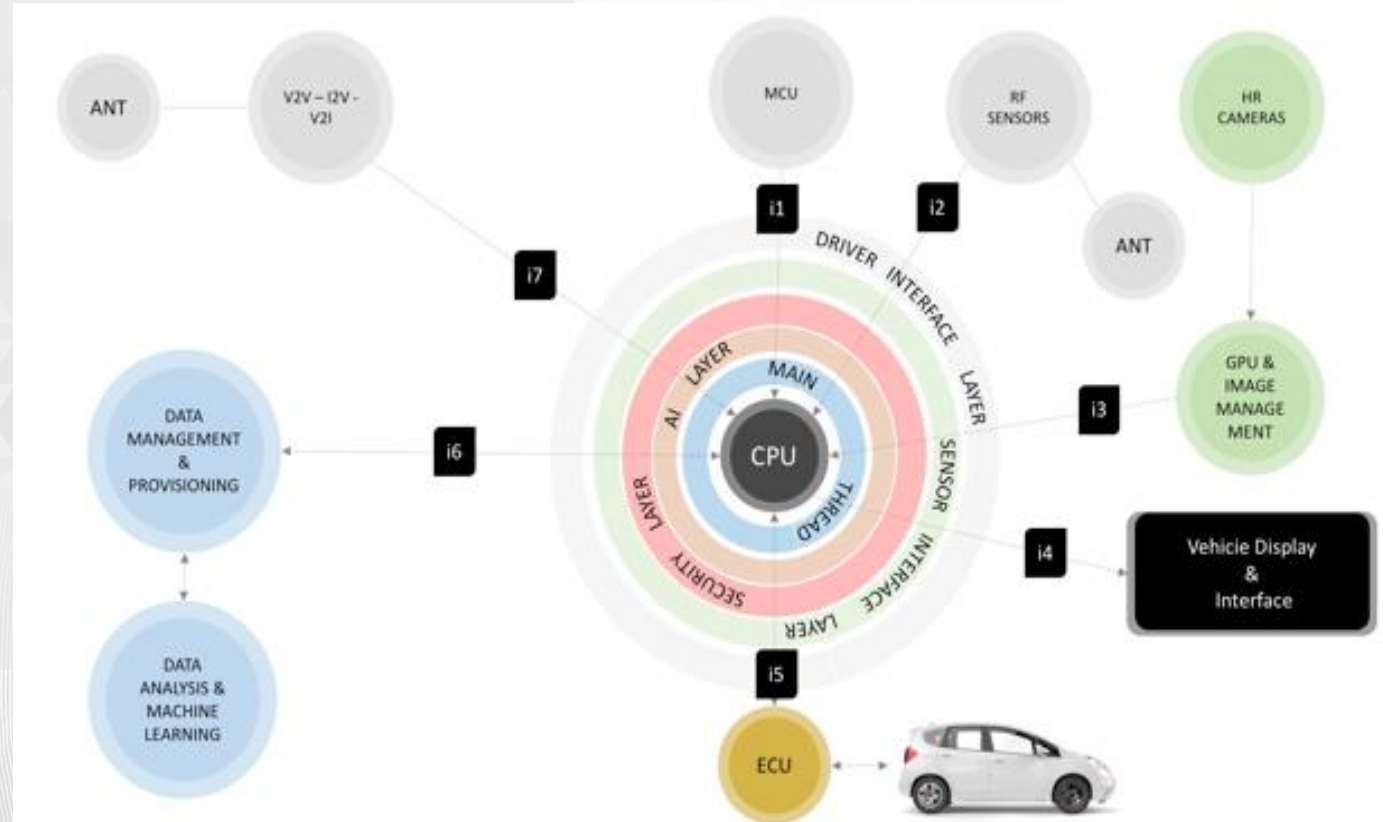


Organismos de investigación

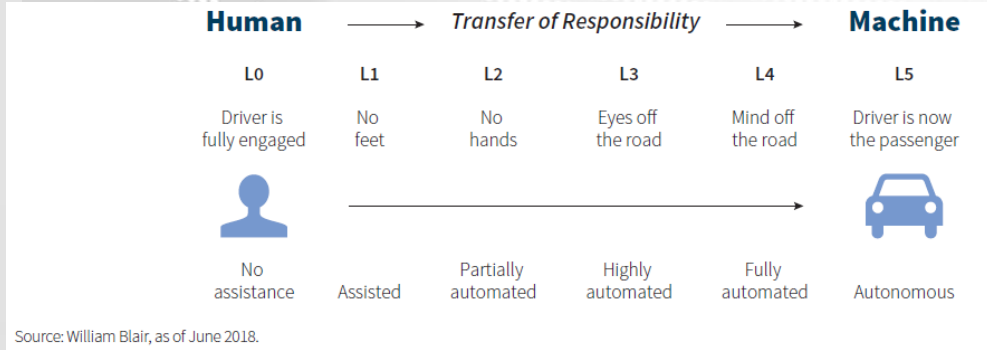


Targets

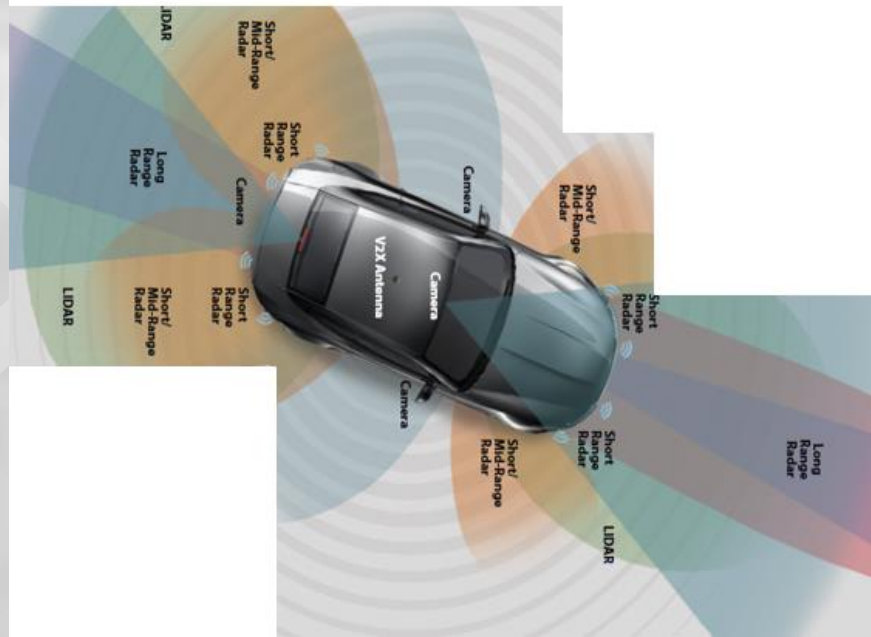
- Level 4 of Automation given by SAE J3016
- Sensor Fusion with AI: Radar + Camera
- Fiber Optic interface
- Low cost system
- V2V & V2C Communication through 5G
- Circuit Verification Test



Level of Automization



Source: William Blair, as of June 2018.



Level 4 to reach High Automation

	LEVEL 0 DRIVER ONLY	LEVEL 1 ASSISTED	LEVEL 2 PARTIAL AUTOMATION	LEVEL 3 CONDITIONAL AUTOMATION	LEVEL 4 HIGH AUTOMATION	LEVEL 5 FULL AUTOMATION
DRIVER	Driver continuously performs the longitudinal and lateral dynamic driving task.	Driver continuously performs the longitudinal or lateral dynamic driving task.	Driver must monitor the system at all times .	Driver does not need to monitor the system at all times .	Driver is not required during defined use case* .	No driver required during entire journey .
AUTOMATION	No intervening vehicle system active.	The other driving task is performed by the system.	System performs longitudinal and lateral driving task in a defined use case*.	System performs longitudinal and lateral driving task in a defined use case*. Recognizes its limits and requests driver to resume the dynamic driving task with sufficient time margin.	System performs the lateral and longitudinal dynamic driving task in all situations in a defined use case* .	System performs entire dynamic driving task on all road types, speed ranges and environmental conditions.

* Use cases refer to road types, speed ranges, and environmental conditions

State of the Art

Level 4 at demonstration stage? Not sure...Legal Framework?



Audi AI Traffic Jam Pilot



- First Level 3 system available as series option on the market
- First series LIDAR (front bumper)
- Legally not yet allowed in any country
- Legal framework (ECE homologation) expected end 2018/2019

Audi AI parking pilot



BMW Remote Parking



Tesla Auto Pilot

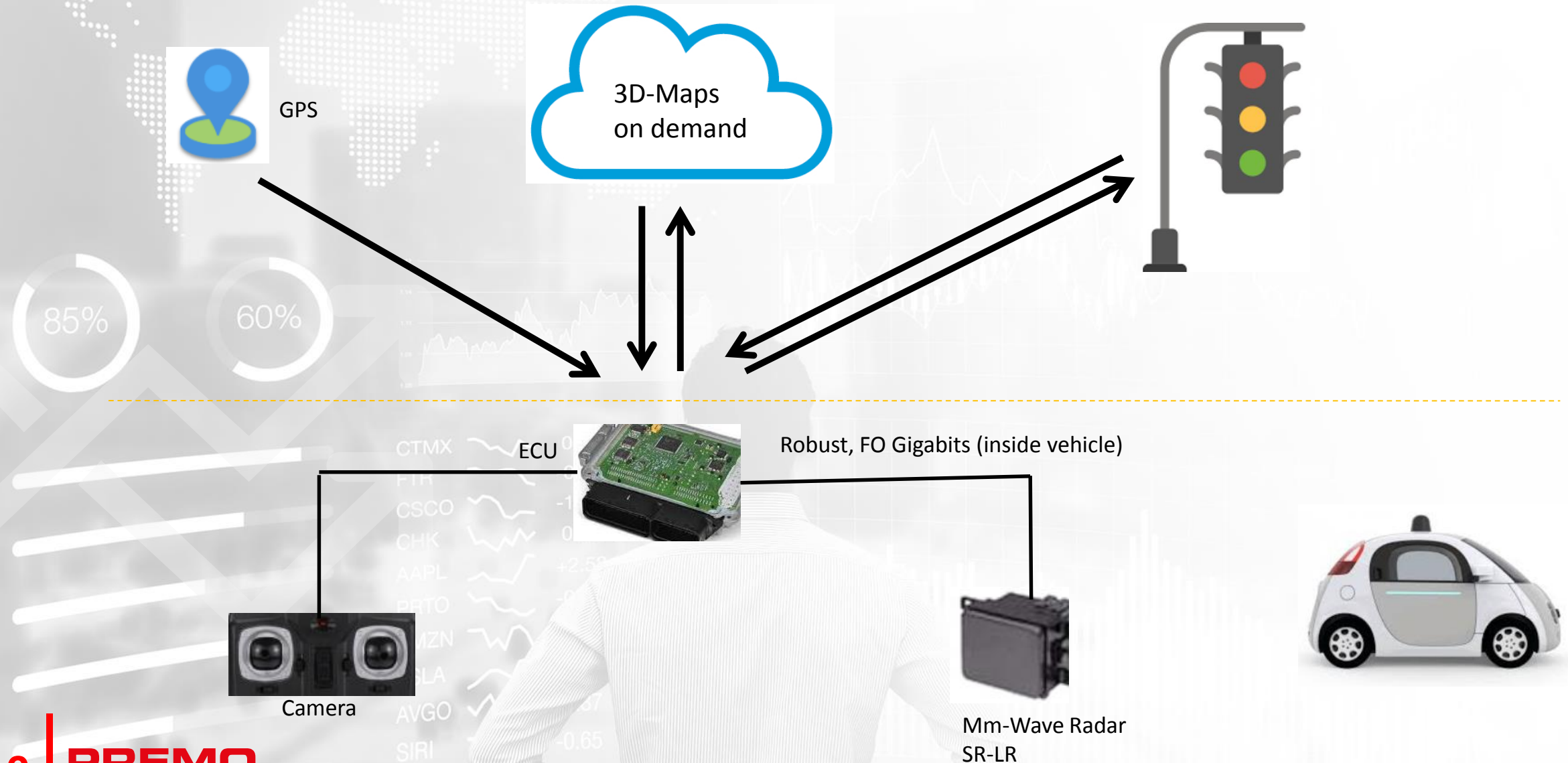


Daimler Drive Pilot



Source: From A Signal Processing Perspective on Current Technology and Future Systems. Markus Gardill

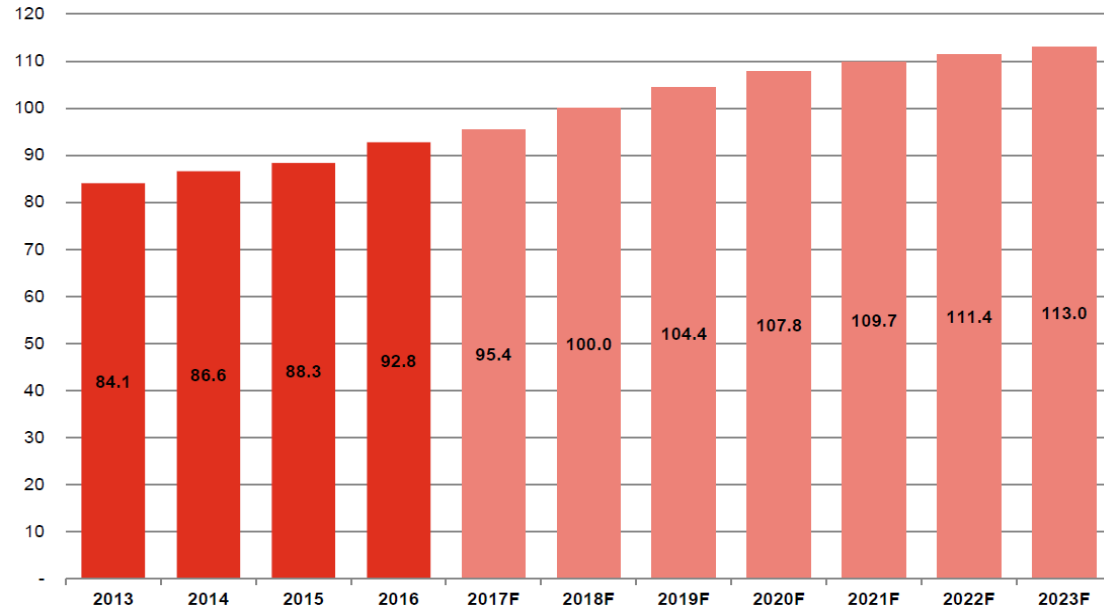
Project Concept



Market evolution

Global Light Vehicle Assembly

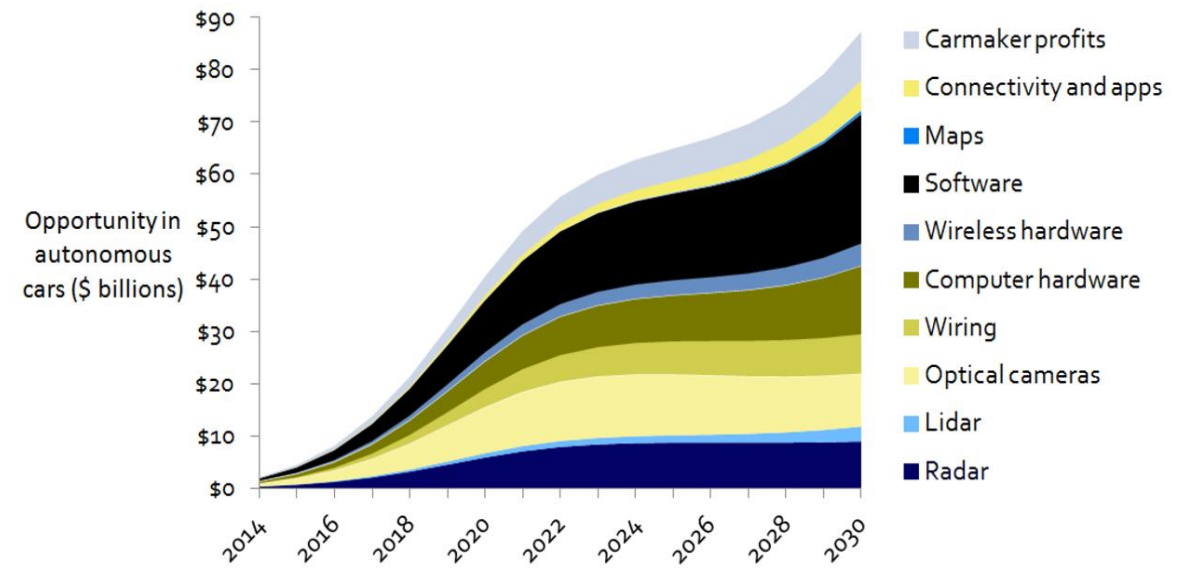
2013 – 2023F (millions)



Source: Autodata 2017 Q1 Forecast Release

Radar gets a big share in market segmentation

Behind-the-Scenes Software Will Capture the Largest Slice of the Autonomous Car Opportunity



Source: Lux Research, Inc.
www.luxresearchinc.com



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Thanks