

Automotive Conference Call

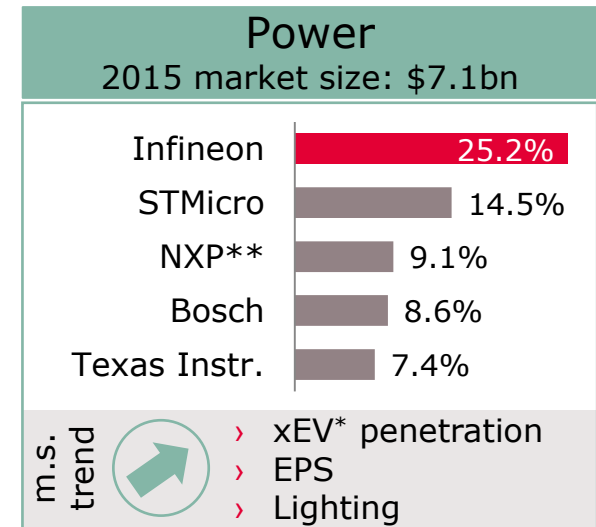
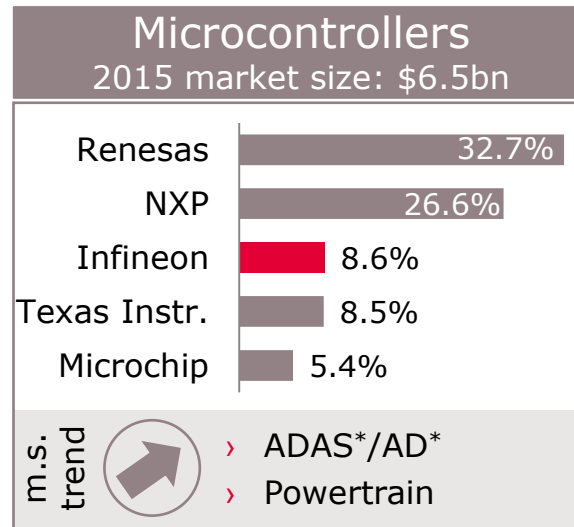
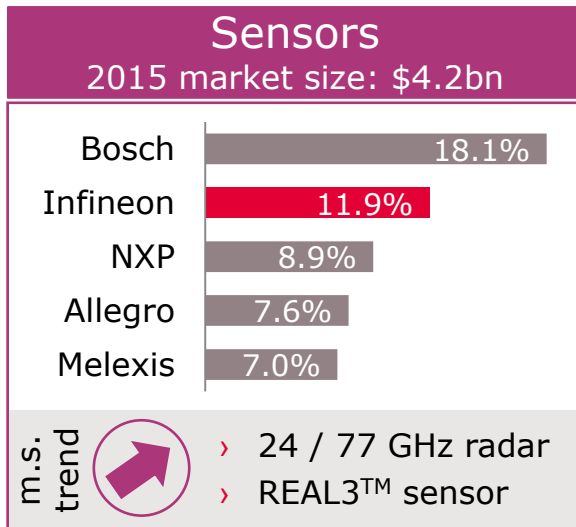
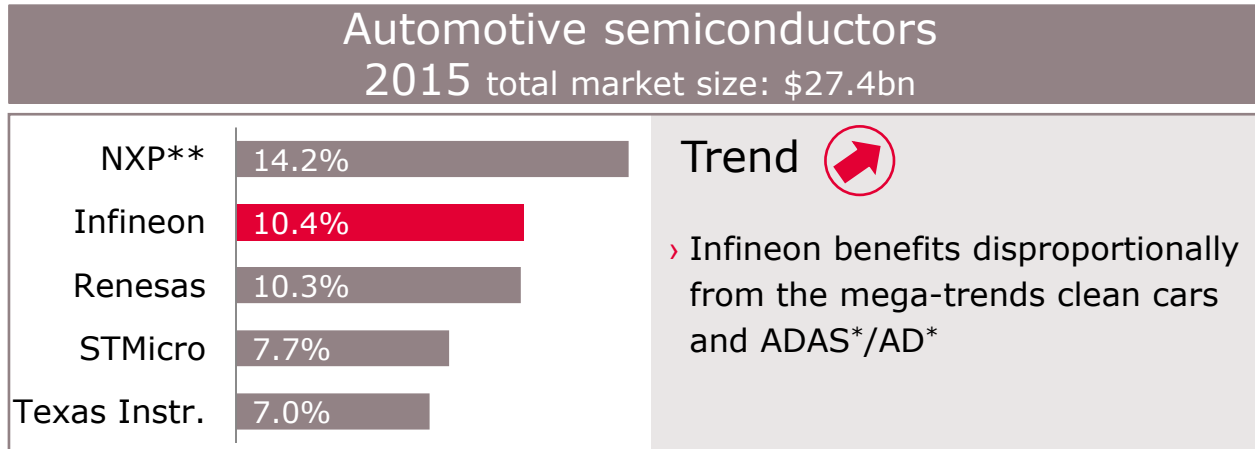
11 October 2016



Peter Schiefer
Division President Automotive



Infineon's position in the automotive semiconductor universe



* See glossary; ** Divestment of Standard Products business announced

Source: Strategy Analytics, "Automotive Semiconductor Vendor Market Shares", April 2016

Megatrends shaping the automotive market; significantly increasing semi content per car

ADAS*/AD*

- › ADAS* and AD* (automated driving) are critical enablers to reduce the number of fatalities and serious injuries (“Vision Zero”)



Clean cars

- › To reach CO₂ emission goals, the automotive industry has to focus on
 - a higher efficiency of the classic ICE*, and
 - the electrification of the drivetrain (xEV*)



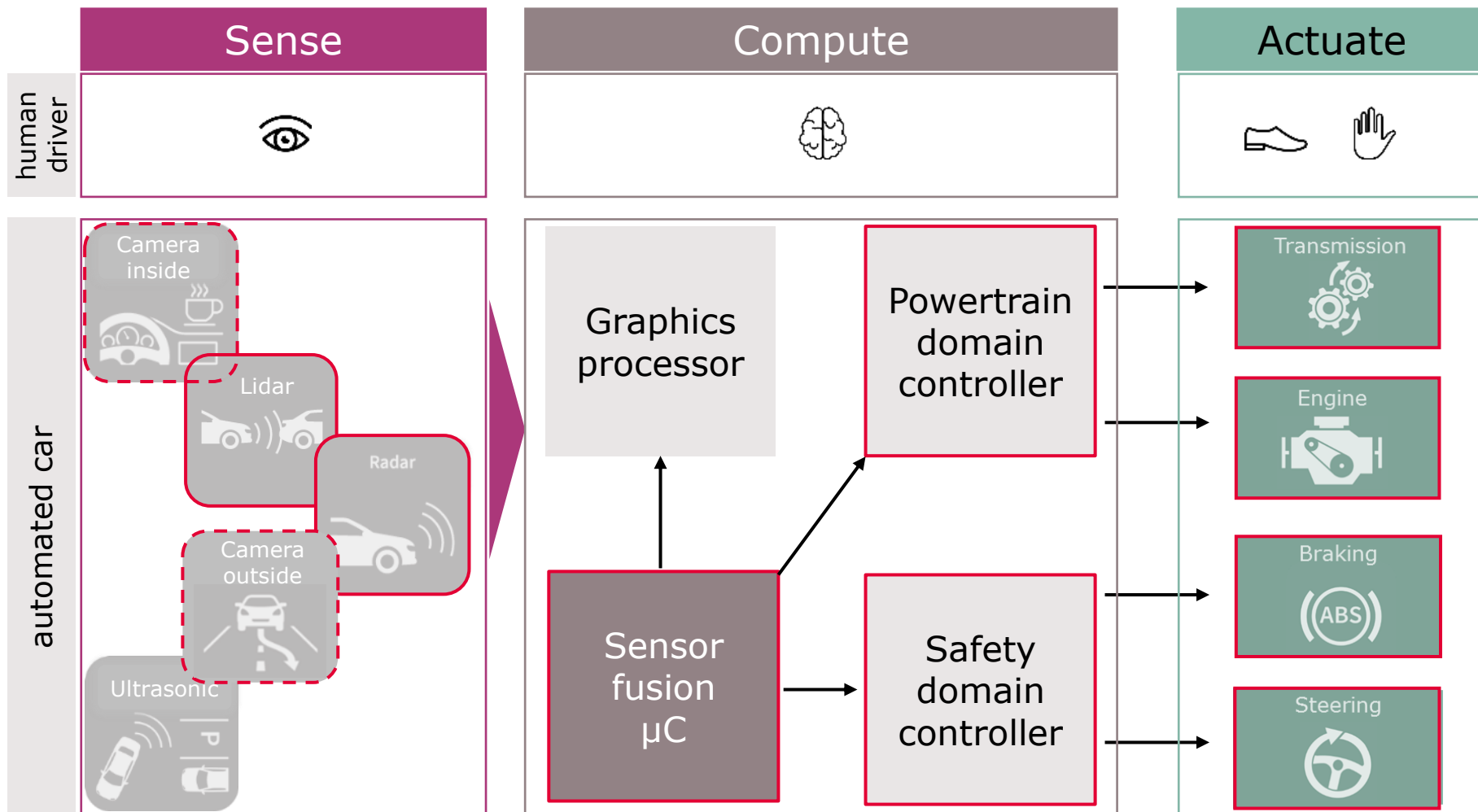
Connectivity/security

- › Advanced connectivity is driven by making the car part of the internet
- › Connectivity must be secure



* See glossary

Overview of an ADAS*/AD* system

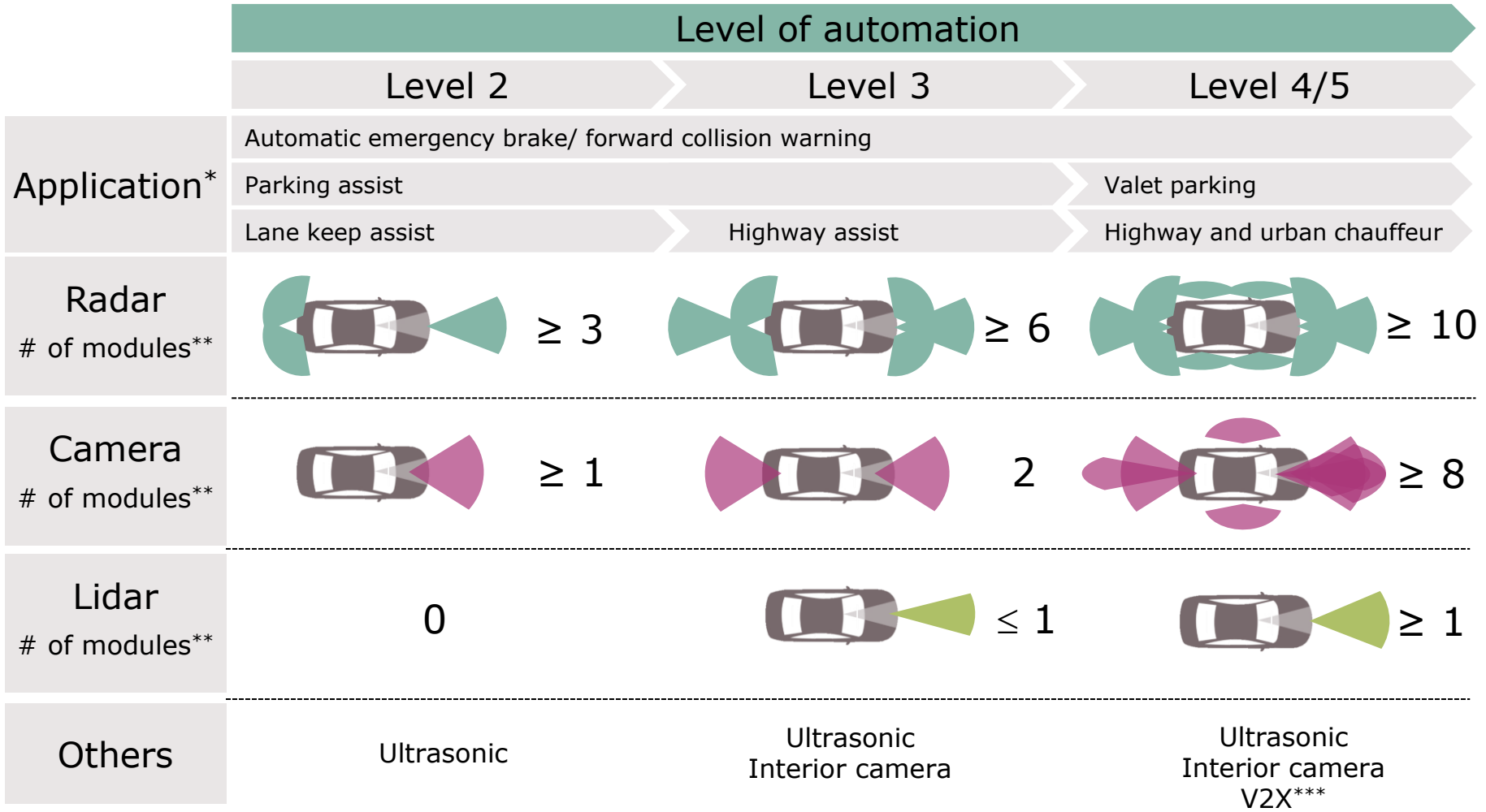


* See glossary

Partially covered by Infineon

Fully covered by Infineon

More sensors required for any next automation level lead to sensor "cocoon" in level 4/5

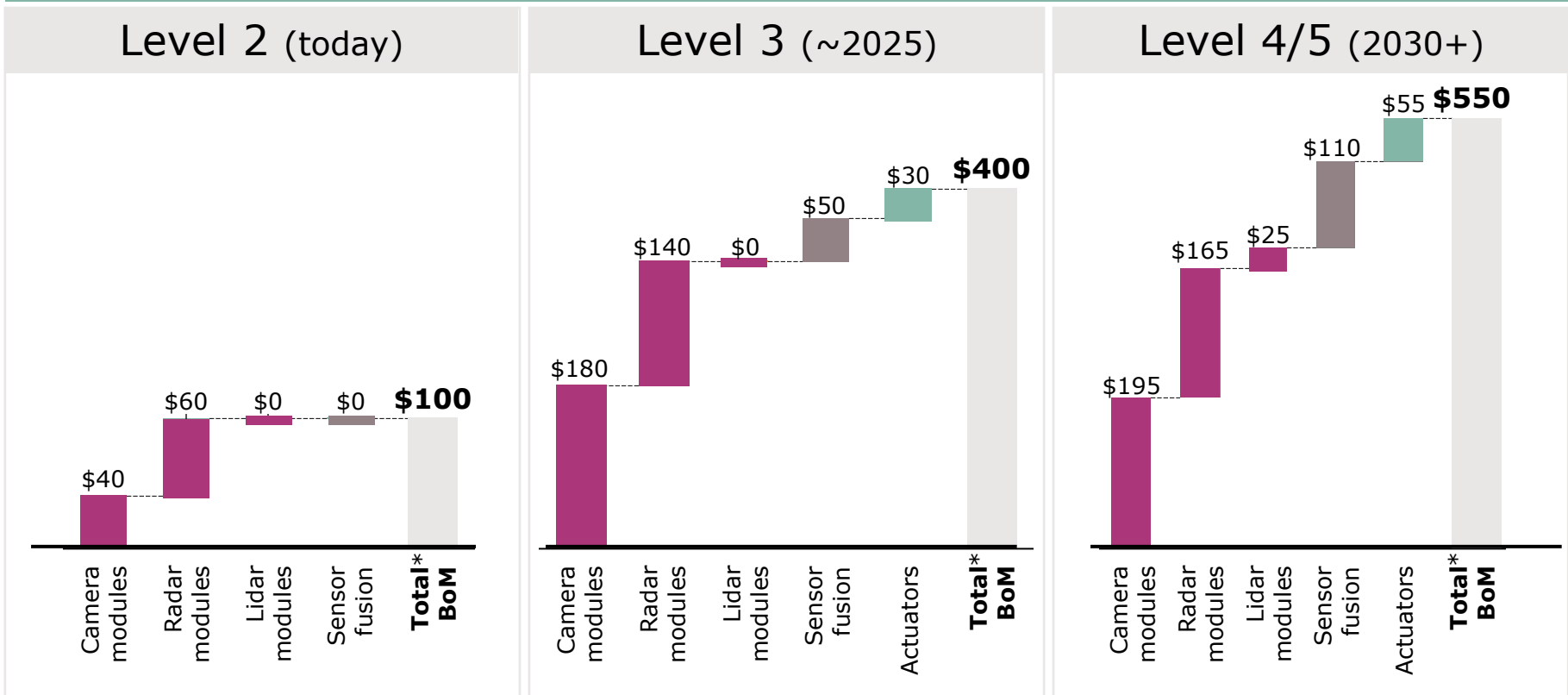


* Source: VDA (German Association of the Automotive Industry), Society of Automotive Engineers
 ** Market assumption; *** See glossary

ADAS*/AD* semi growth driven by radar and camera sensor modules over the next 5 years



Average semiconductor content per car by level of automation**



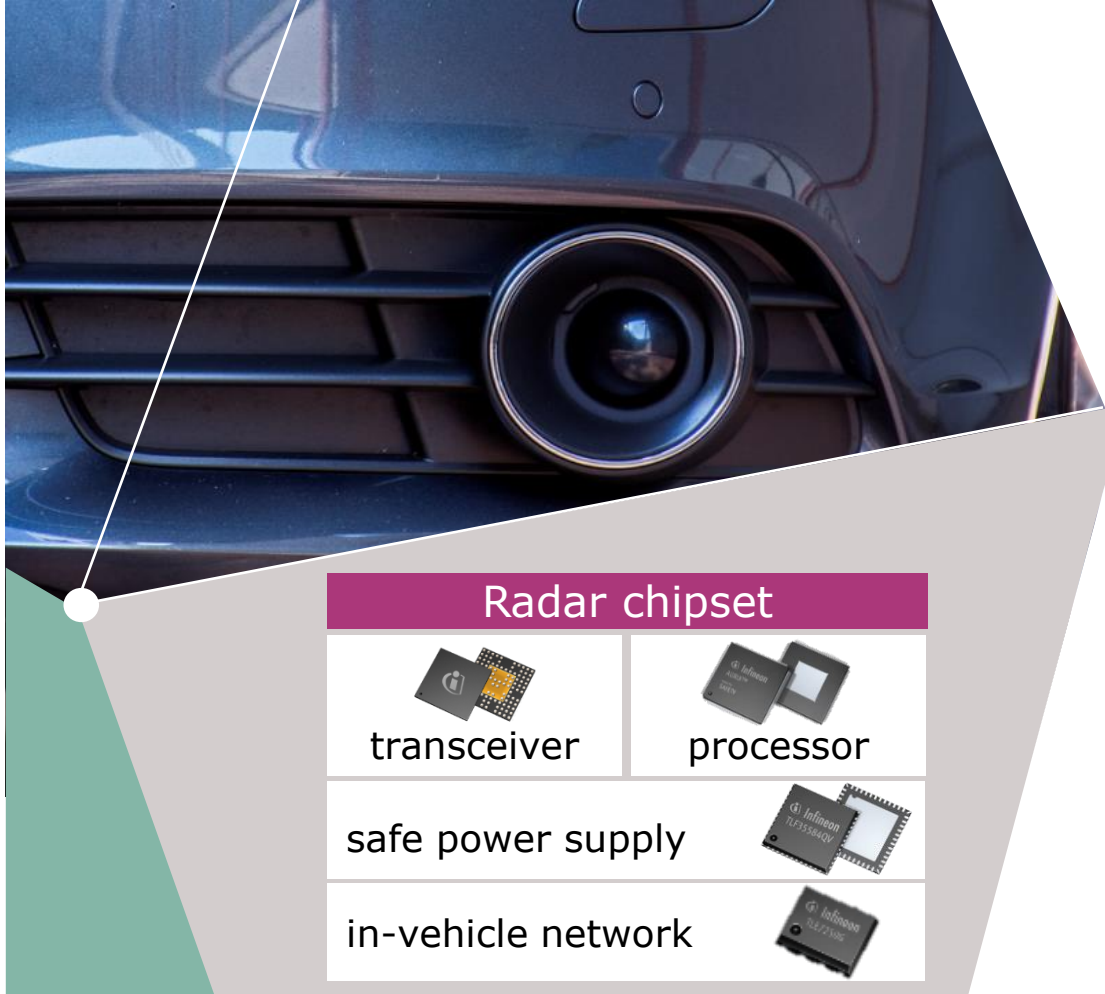
Bill of material estimates include all type of semiconductors***

* See glossary

** Source: Strategy Analytics, IHS Markit, Infineon; *** e.g. radar includes μ C (see page 7)

Sense
Compute
Actuate

Infineon's radar solutions reduce development efforts on customer side

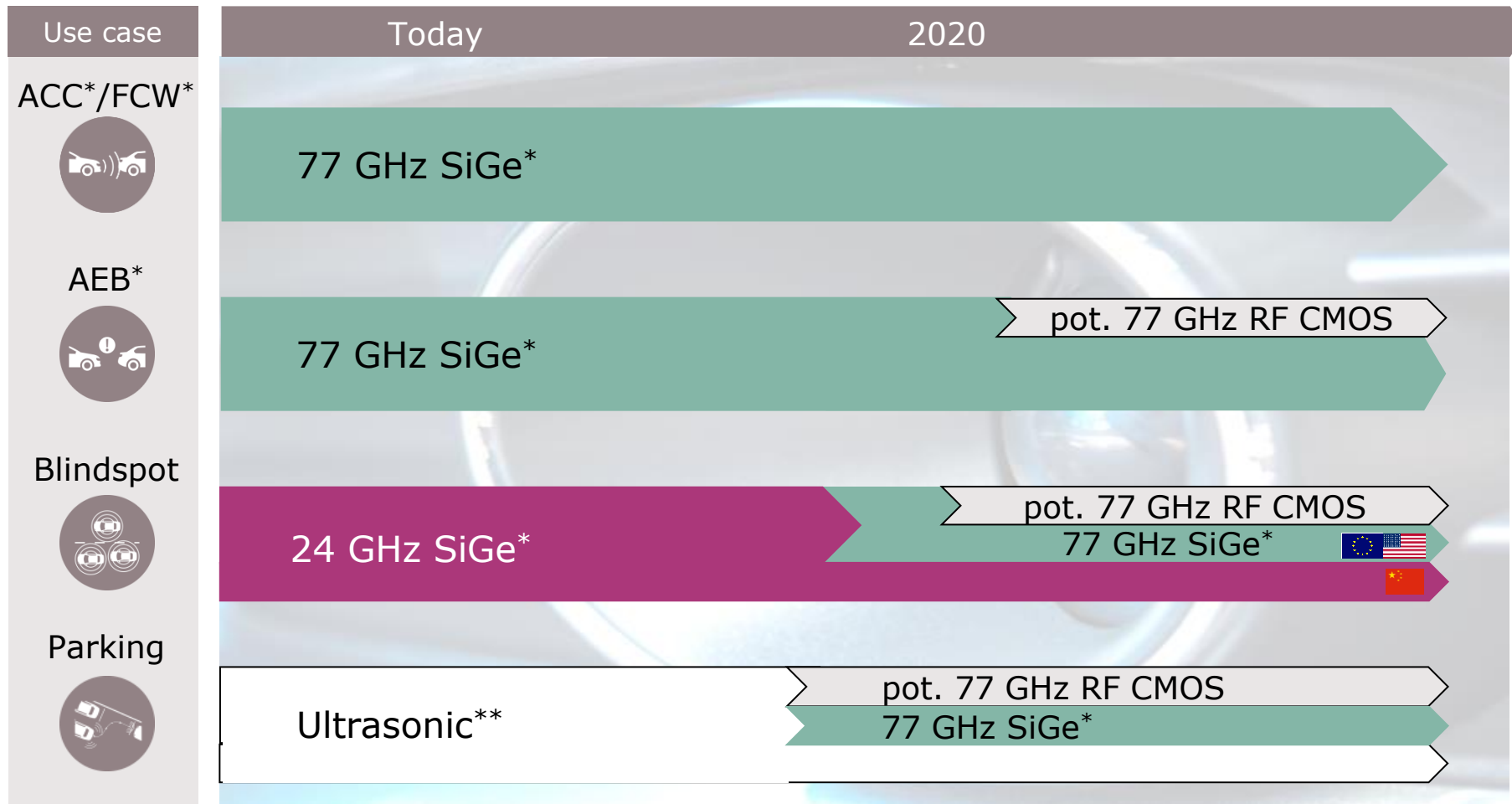


Infineon's value proposition

- › The SiGe*-based radar solutions are the best solutions on the market
- › Infineon's radar solutions facilitate the system integration at customers and reduce their development efforts
- › Infineon's optimized solutions safeguard component interoperability and comply with functional safety requirements

* See glossary

Radar technology roadmap



* See glossary

** not offered by Infineon

Based on current design wins, Infineon will outgrow 24 / 77 GHz radar sensor IC market



Past...

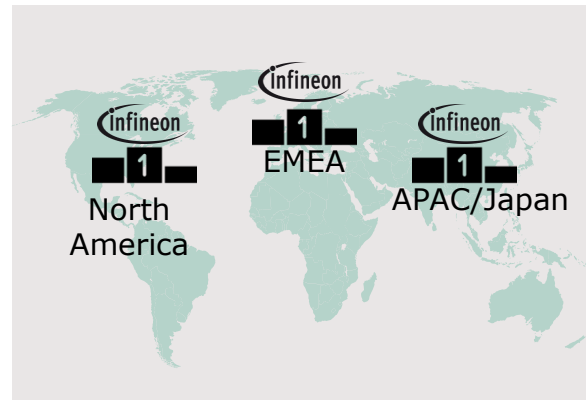
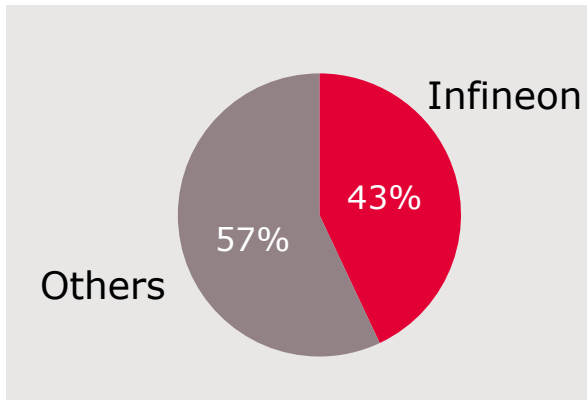
...today...

...tomorrow

Radar sensor IC market
2015 market size: \$86m*

Leading
customer base

Infineon's radar
sensor IC market share



Infineon leads the market
for radar sensor IC

Infineon is key supplier to
the leading radar module
makers in every region

Infineon will outgrow the
market

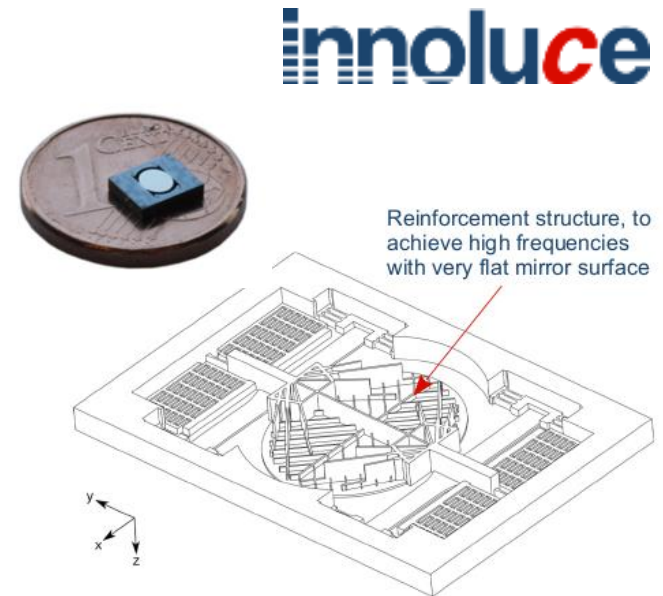
› Infineon is strengthening its market leadership in the radar sensor IC market

* Source: IHS Markit, "ADAS Sensor Market Database – H1 2016", August 2016

Infineon enters lidar business through acquisition of Innoluce

Key facts about Innoluce

- › founded in 2010 as an entrepreneurial spin-off of Royal Philips
- › fabless semiconductor company
- › headquartered in Nijmegen, The Netherlands
- › key competence on
 - › miniature MEMS-based laser scanning modules enabling long range (>200 m) and high resolution ($<0.1^\circ$)
 - › corresponding mirror control ASIC

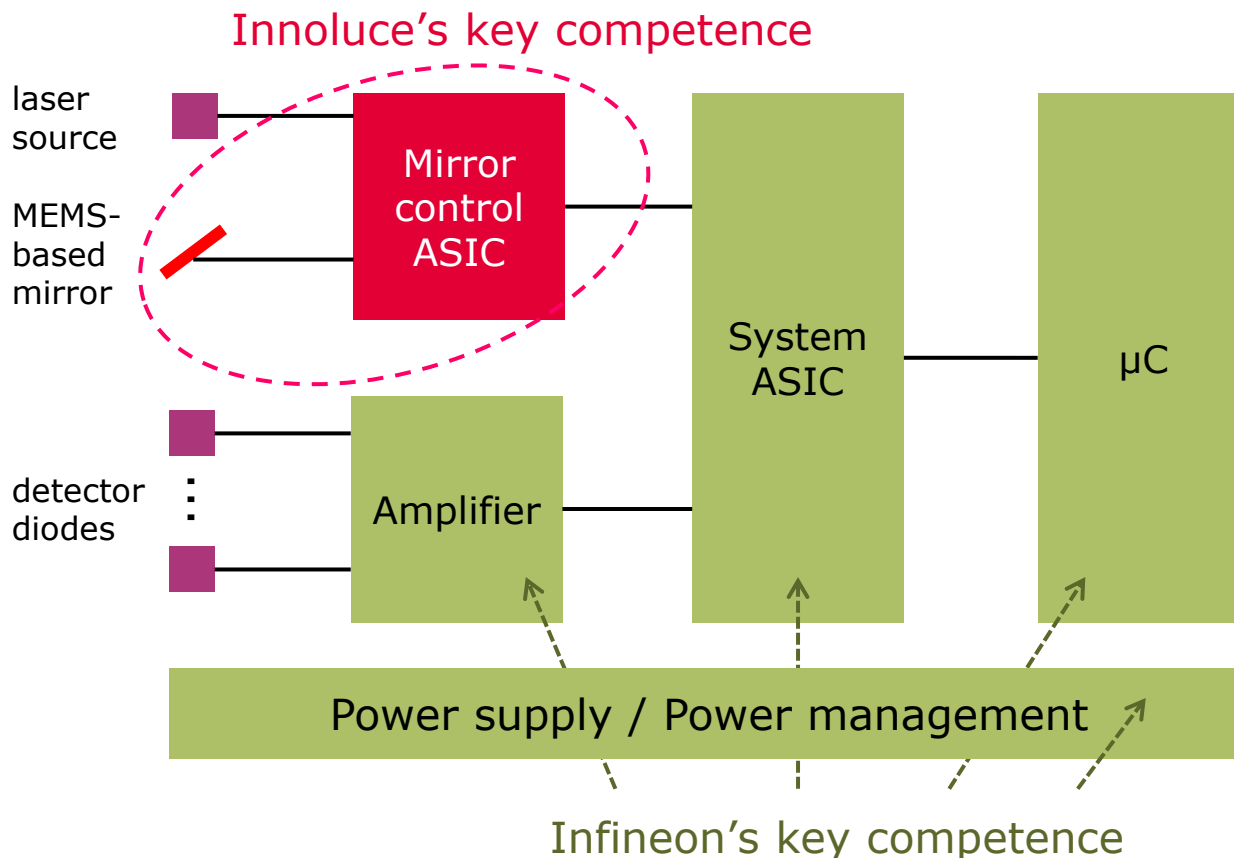


Deal rational

- › Infineon completes its ADAS sensor system offering
- › Infineon intends to repeat its radar success story
- › Infineon will make lidar an affordable feature for every new-built car

Infineon opens the door for mass-deployable lidar systems for automated driving

MEMS-based lidar reference design



- › The first lidar systems introduced in premium cars within the next couple of years are based on mechanical scanning mirrors which are bulky and less robust
- › In order to enter the car mass market lidar must get rid of mechanical parts
- › MEMS-based lidar systems are
 - › more compact
 - › more cost-effective
 - › more robust

Camera systems: AURIX™ 32-bit real-time μC is key element as host controller



Camera system overview				
	Sensor chip	Sign. processor	Safe host	Power supply
Front camera 	 x	 x	AURIX™ ✓	 ✓
Driver monitoring 	REAL3™ ✓	 x	AURIX™ ✓	 ✓

> AURIX™ microcontroller is today the reference for safety in fail-operational systems ("ASIL-D")

> The secure microcontroller with its embedded Hardware Security Module (HSM) is designed-in in many future camera systems

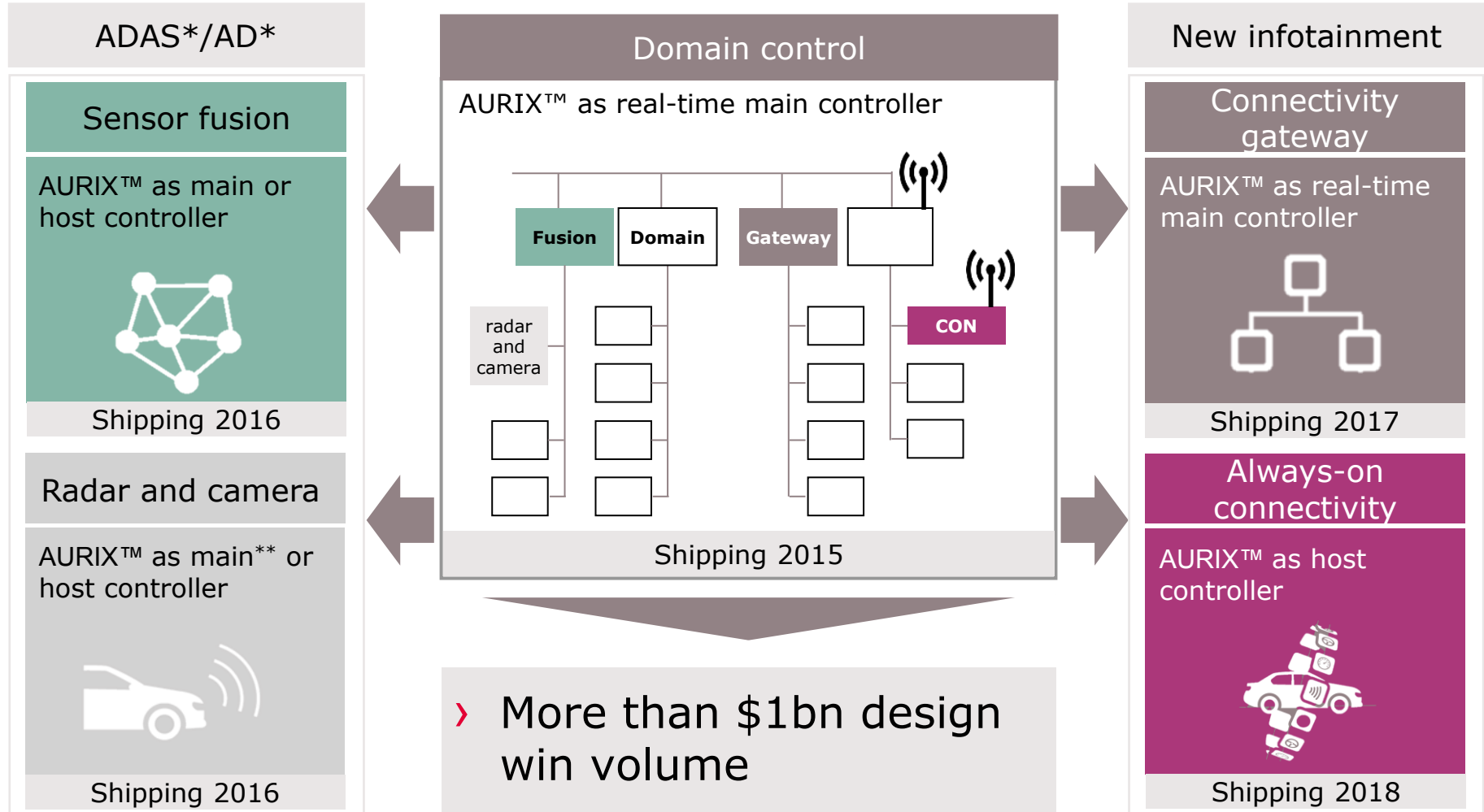


AURIX™
 positioning

✓ offered by Infineon

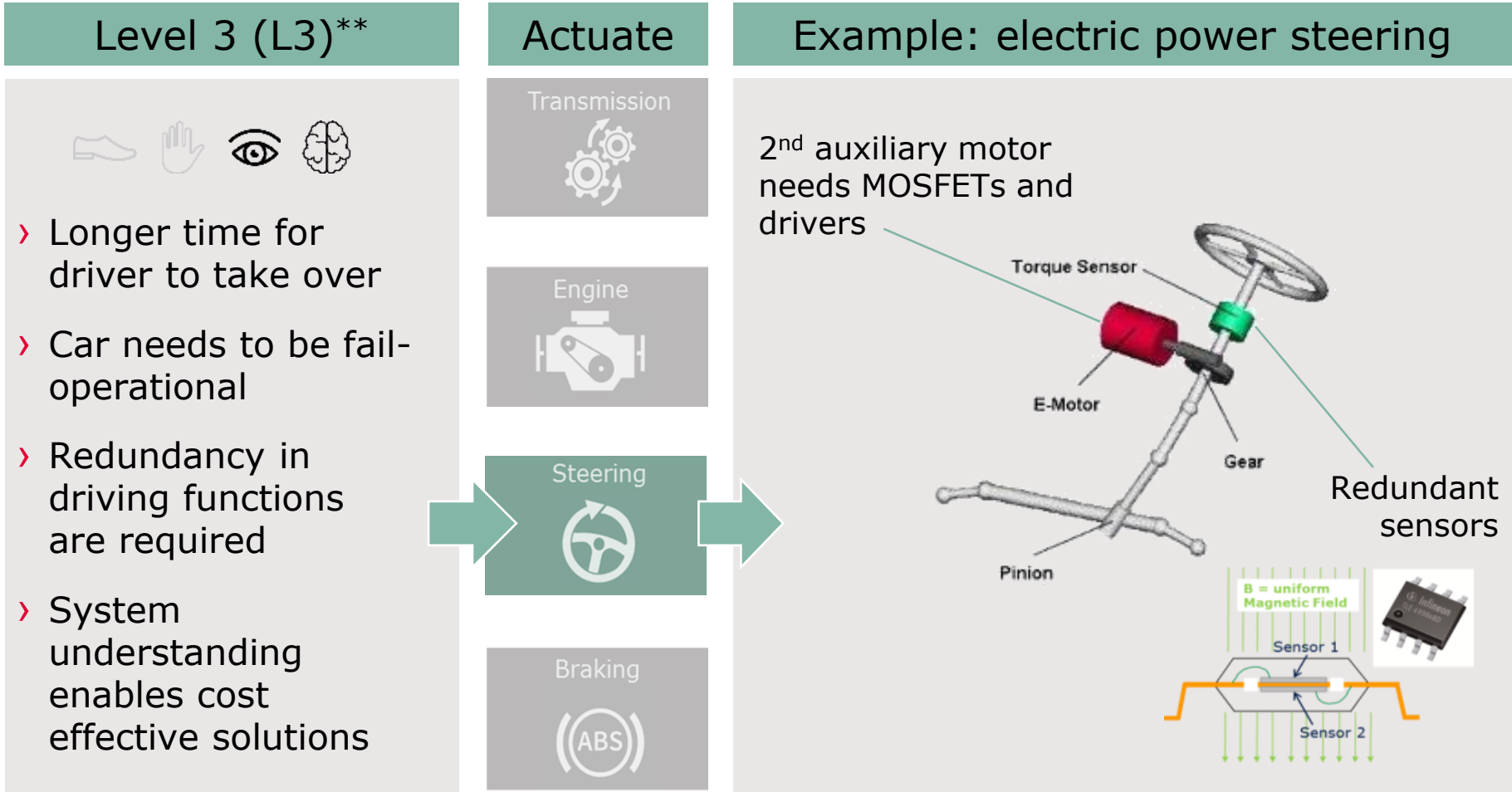
x not offered by Infineon

AURIX™ as market reference for safe and secure applications



* See glossary; ** for radar

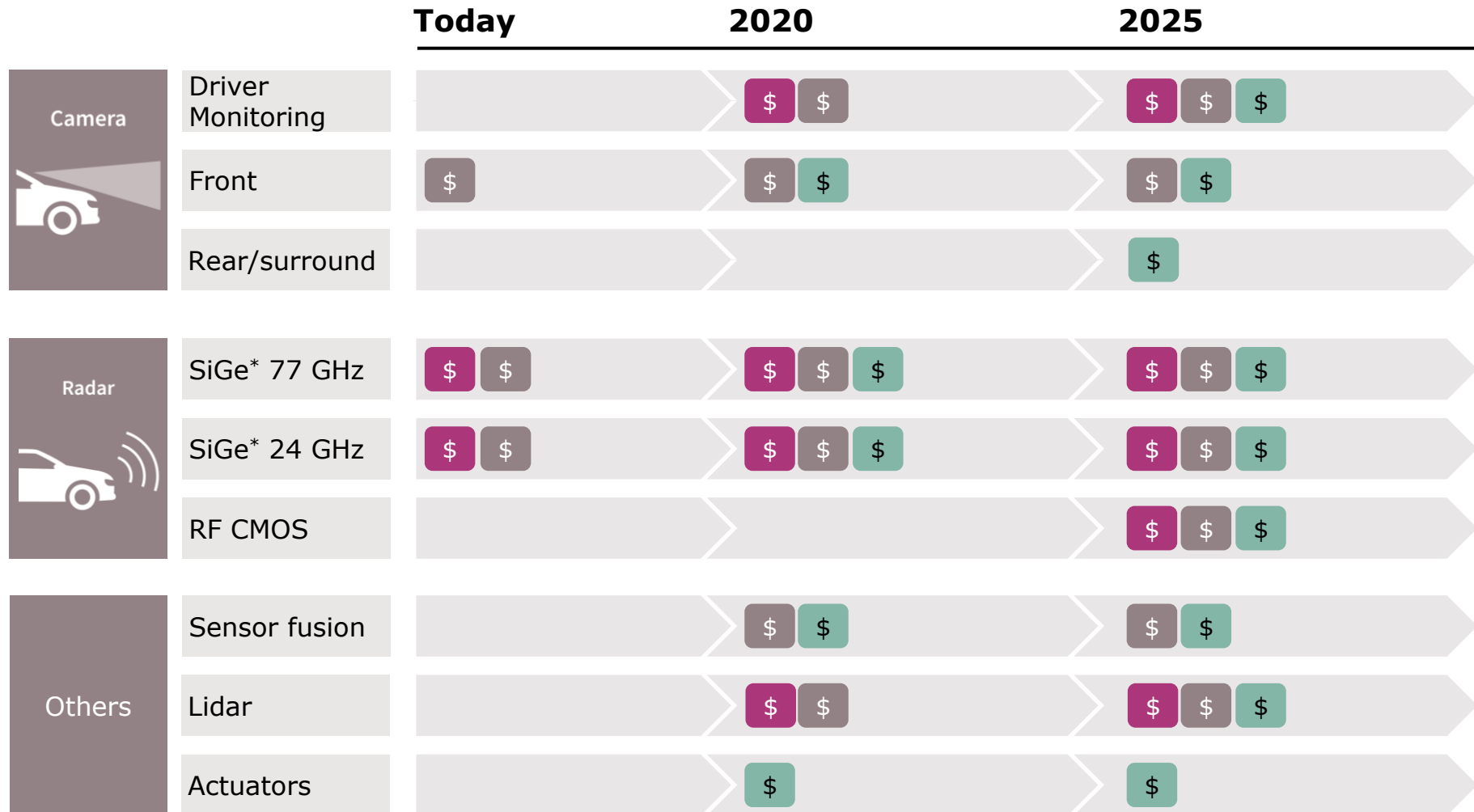
From L2 to L3, requirements for redundancy boost semi BoM* for driving functions by 30%



* See glossary

** "Hands and feet off, eyes and brain on" (see page 16)

Infineon's product portfolio fosters revenue growth in ADAS*/AD* for the next decade

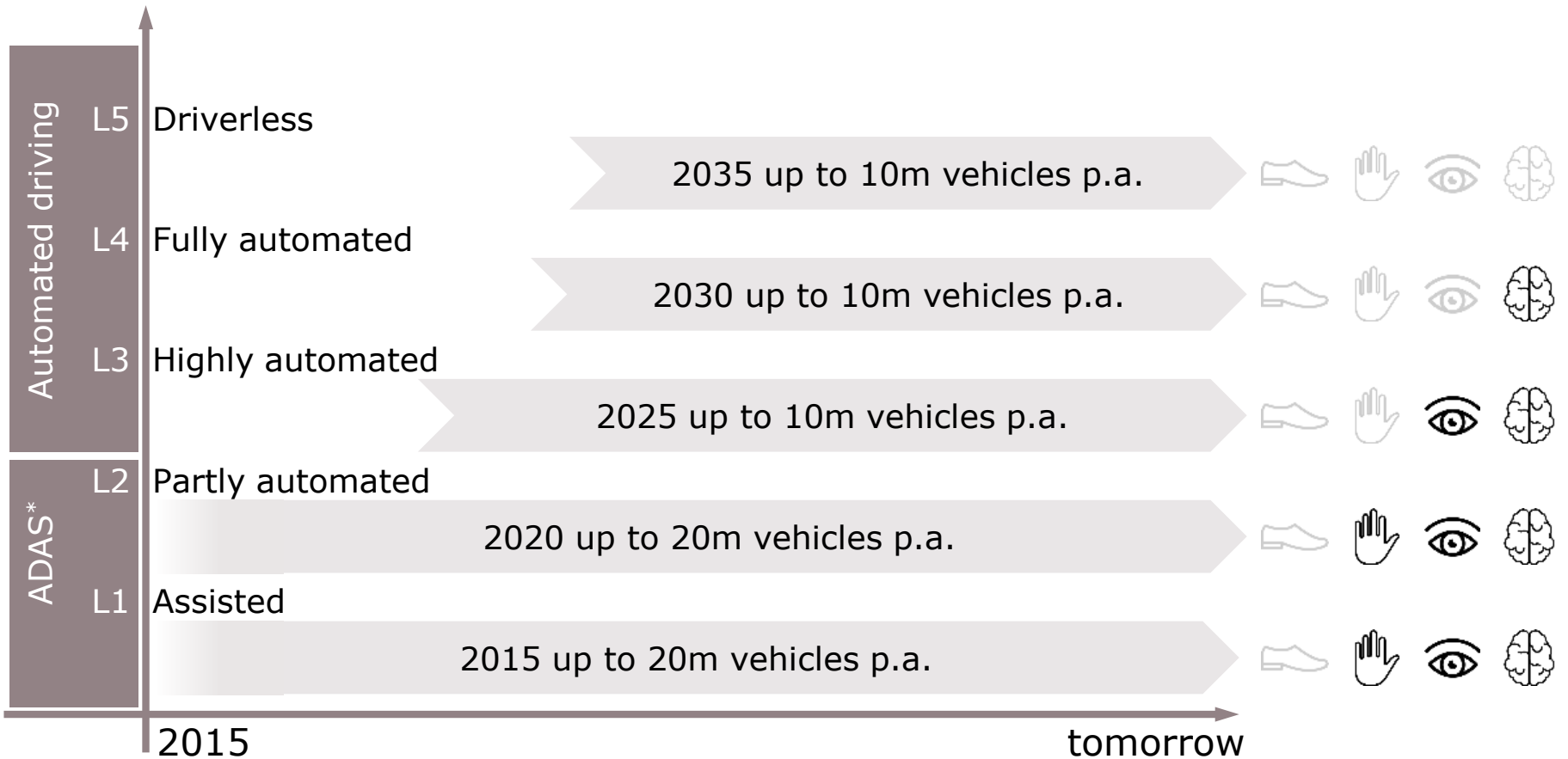


* See glossary



ADAS*/AD* semi BoM* growth is driven by radar and camera sensor modules

Market penetration per level of automation

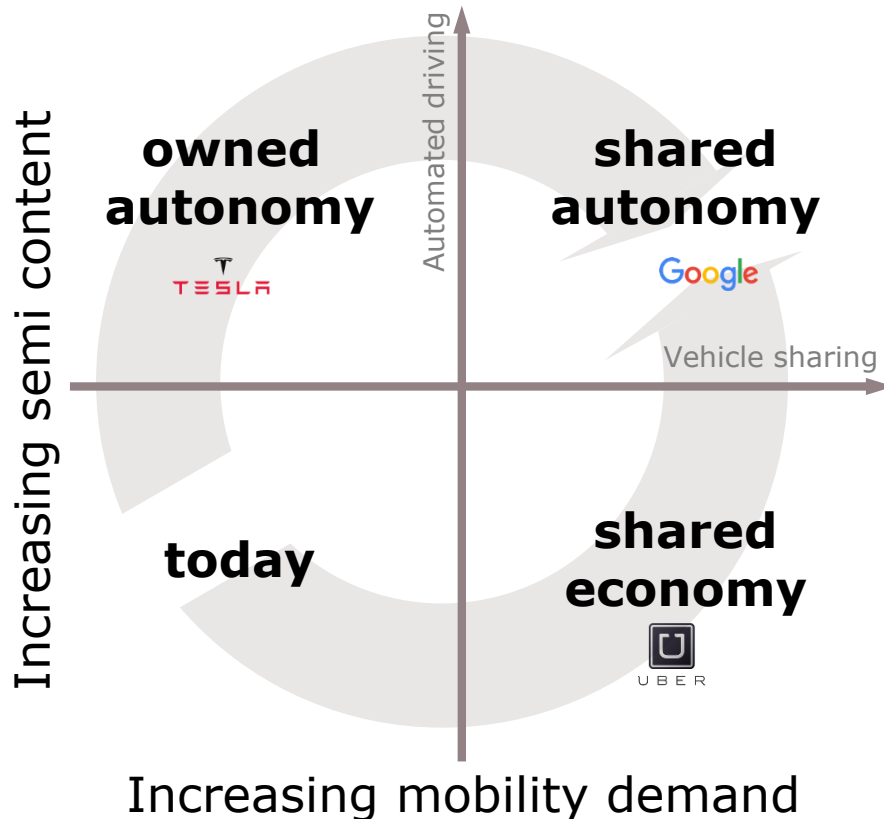


* See glossary

Source: IHS Markit, McKinsey, UBS, Infineon

Outlook: Infineon benefits from trend towards shared autonomy

Infineon enables shared autonomy



Increasing semi content

- > Legislation will drive ADAS*/AD* to reduce the number of fatalities and serious injuries
- > With the level of automation the average semi content of cars will increase

Increasing mobility demand

- > The demand for ad-hoc mobility will increase
- > Shared autonomy will be available for user groups which currently use other means of transport

- > Impact on fleet of vehicles: Shared autonomy leads to higher utilization and thus faster replacement cycles

* See glossary

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Connectivity/security

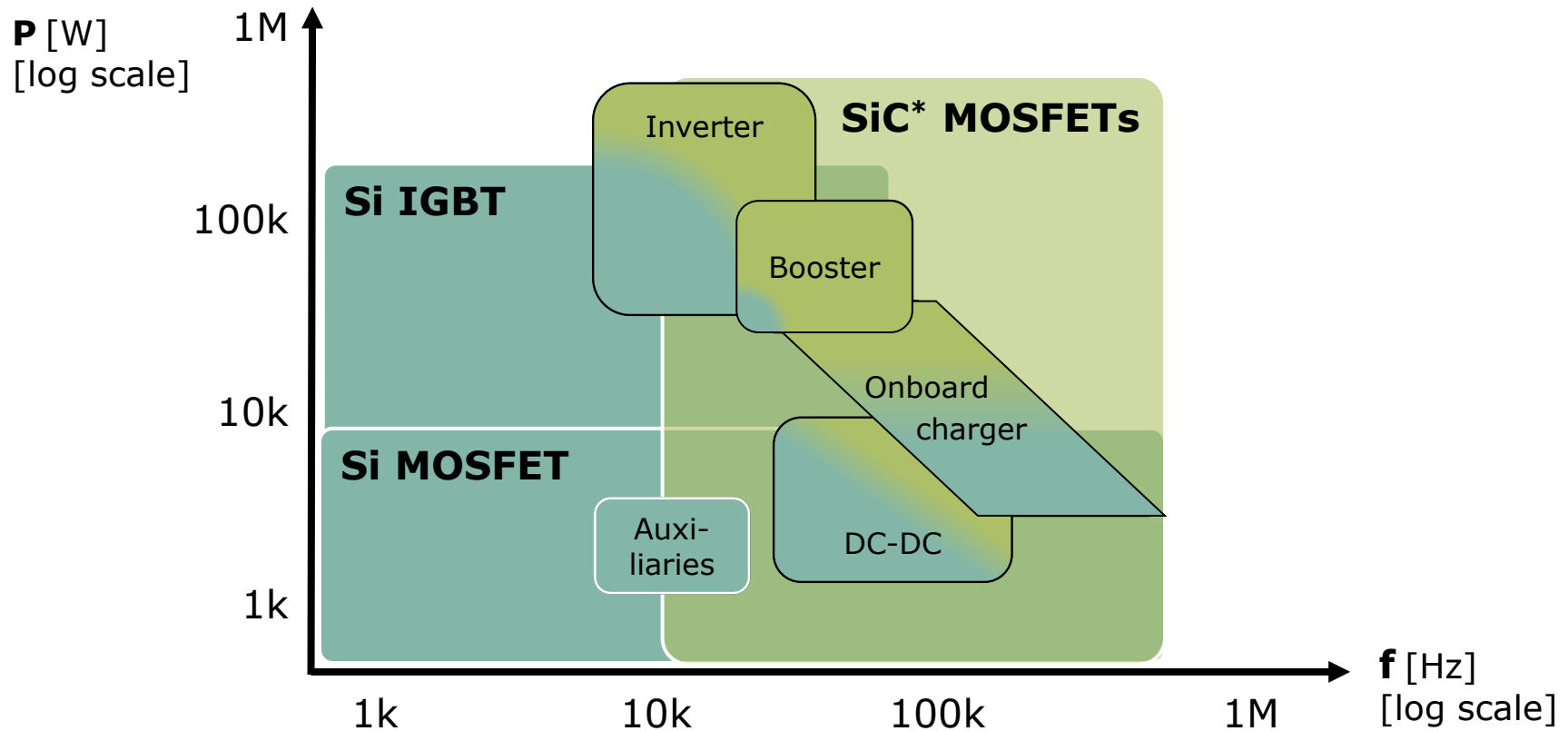
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Technology roadmap: SiC* is the option of choice for most demanding xEV* subsystems

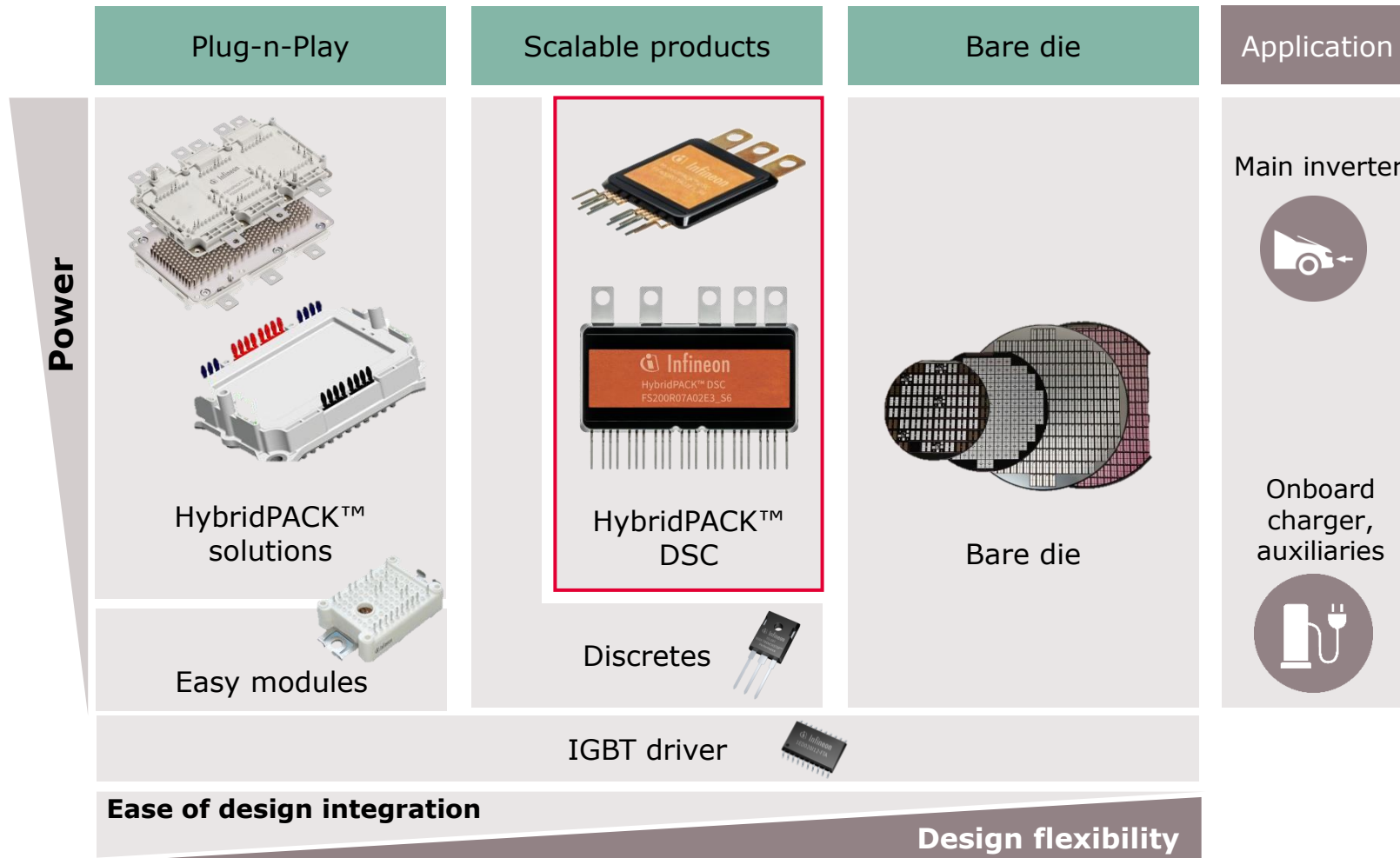
Sweet spots for SiC*-based xEV* subsystems



› Advancements in SiC* technology will penetrate more and more xEV* subsystems over the course of the next years

* See glossary

Infineon offers the most complete portfolio of power semis to match OEM and tier-1 needs



Infineon will benefit more and more from the increase in xEV* penetration

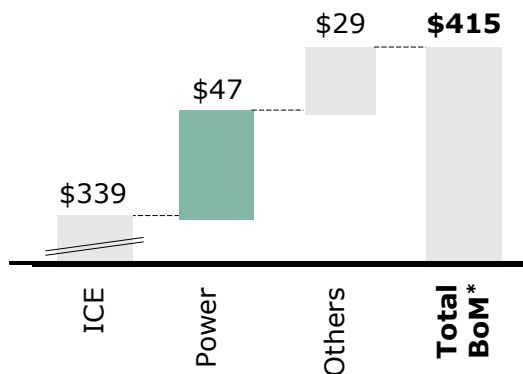


Average xEV* semiconductor content by degree of electrification

Mild-hybrid* / 48 V

In contrast to micro-hybrid systems, these systems support aside from start-stop functionality

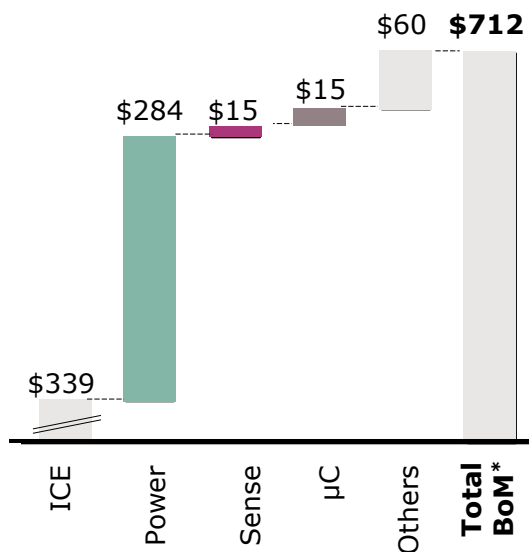
- > DC-DC conversion (12/48 V)
- > recuperation (coasting/sailing)
- > e-motor use
- > auxiliary applications



- > 2015: 0.2m units
- > 2020: 3.4m units
- > 2025: 15.0m units

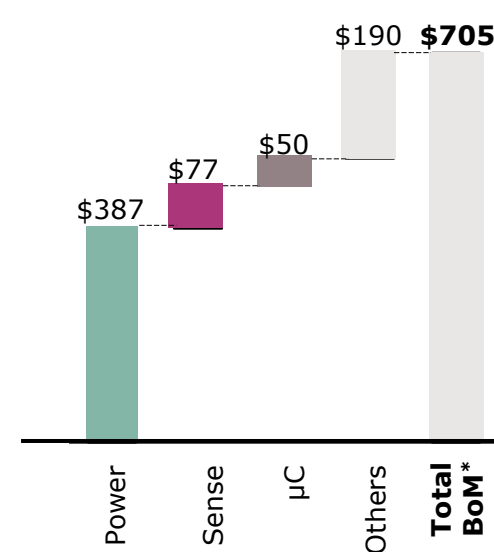
PHEV* / HEV*

Adder for DC-DC, inverter, onboard charger



- > 2015: 1.9m units
- > 2020: 5.5m units
- > 2025: 15.0m units

EV*



- > 2015: 0.4m units
- > 2020: 1.4m units
- > 2025: 10.0m units











* See glossary

Source: IHS Markit, "Alternative Propulsion Forecast", January 2016, Infineon



In 2015, 7 out of 10 top selling EVs* were powered by Infineon



World's top 10 selling EVs*		Sold cars in 2015	Drivetrain powered by Infineon
	Tesla Model S	51,390	✓
	Nissan Leaf	43,651	x
	Mitsubishi Outlander	43,269	x
	BYD Qin	31,898	✓
	BMW i3	24,083	✓
	Kandi Panda	20,390	x
	Renault Zoe	18,846	✓
	BYD Tang	18,375	✓
	Chevrolet Volt	17,508	✓
	Volkswagen Golf GTE	17,282	✓

Source: InsideEVs.com, Baader Helvea Equity Research, Infineon

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- › More information at [Infineon Automotive presentation](#) (pp. 19)



* See glossary

ADAS*/AD*, clean cars, and adoption of premium features drive growth

Vehicle production	Drivers for semiconductor content per car		
	Clean cars	ADAS*/AD*	Comfort, premium
<p>> ~2% growth p.a.</p>	<ul style="list-style-type: none">> Driven by legislation> Improvements of ICE* (e.g. EPS*)> Adoption of xEV*> Higher efficiency of all electric consumers	<ul style="list-style-type: none">> Today:<ul style="list-style-type: none">> crash avoidance> ADAS*> Tomorrow:<ul style="list-style-type: none">> AD*	<ul style="list-style-type: none">> Premium cars are early adopters of high-end comfort and safety features> Trickling down to mid-range

~8% p.a. through-cycle growth

* See glossary

Summary

Our achievements

#1

across the main applications
powertrain, safety, body and
comfort**

#2

overall position in the automotive
semi market***

40 years

of experience in the automotive
semiconductor market

50%

of revenue growth will stem from
ADAS*/AD* and clean cars over
the next 5 years

Our targets



Outgrow the automotive
semiconductor market



Sustain and expand high
market share in
ADAS*/AD* and clean cars

* See glossary

** Source: Strategy Analytics, Infineon; *** Source: Strategy Analytics



Part of your life. Part of tomorrow.



Glossary

ACC	adaptive cruise control
AD	automated driving
ADAS	advanced driver assistance system
AEB	automatic emergency braking
BoM	bill of material
EPS	electric power steering
EV	electric vehicle
FCW	forward collision warning
HEV	mild and full hybrid electric vehicle
ICE	internal combustion engine
micro-hybrid	vehicles using start-stop systems and limited recuperation
mild-hybrid	vehicles using start-stop systems, recuperation, DC-DC conversion, e-motor
PHEV	plug-in hybrid electric vehicle
SiC	silicon carbide
SiGe	silicon germanium
V2X	vehicle-to-everything communication
xEV	all degrees of vehicle electrification (EV, HEV, PHEV)