

4TU Binnenhofcollege:

Slimme mobiliteit

0 fatalities, 0 emissions, 0 congestion

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NXP

SECURE CONNECTIONS
FOR A SMARTER WORLD





NXP SEMICONDUCTORS

30+ COUNTRIES
Headquartered in Eindhoven,
The Netherlands

~30,000
Employees

9,000
Patent families

\$8.6B
2020 annual revenue

60+
Year history

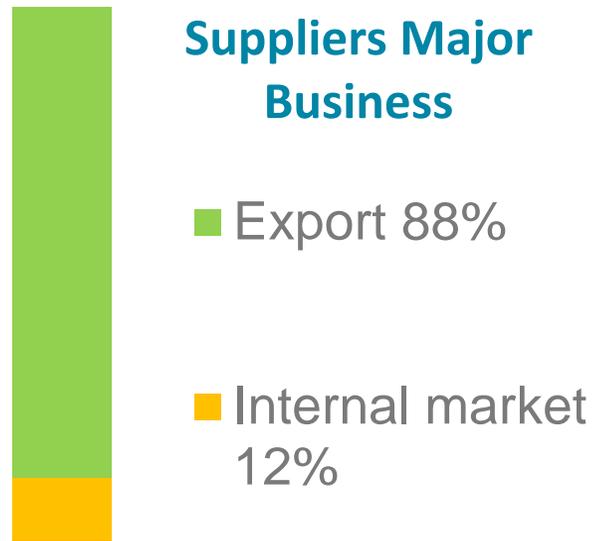
~9,000
R&D engineers



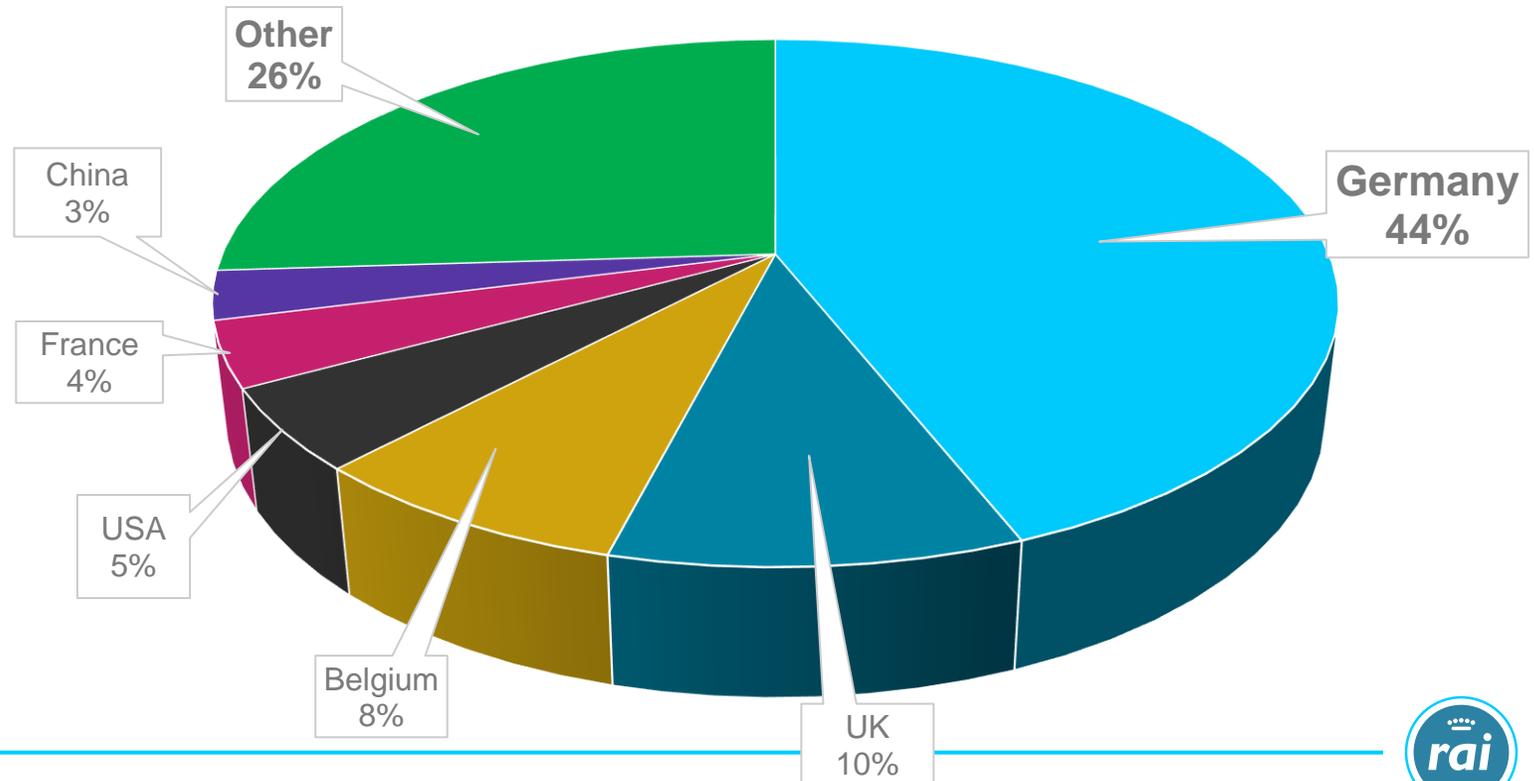
FACTS & FIGURES DUTCH AUTOMOTIVE INDUSTRY

OEMS: TRUCKS, BUSES AND CARS
MAJORITY BUSINESS FROM SUPPLIERS

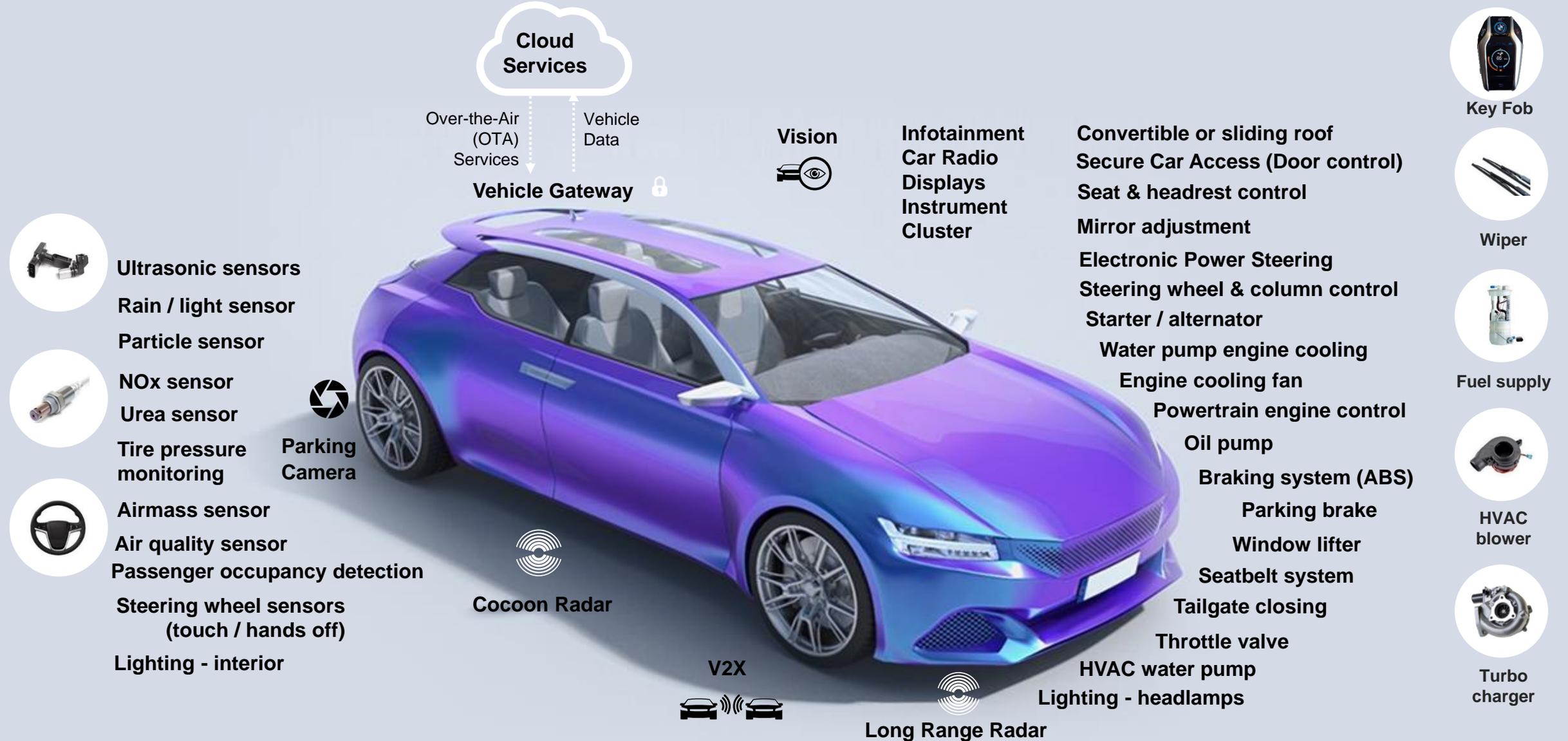
TOTAL TURNOVER
€20 BILLION



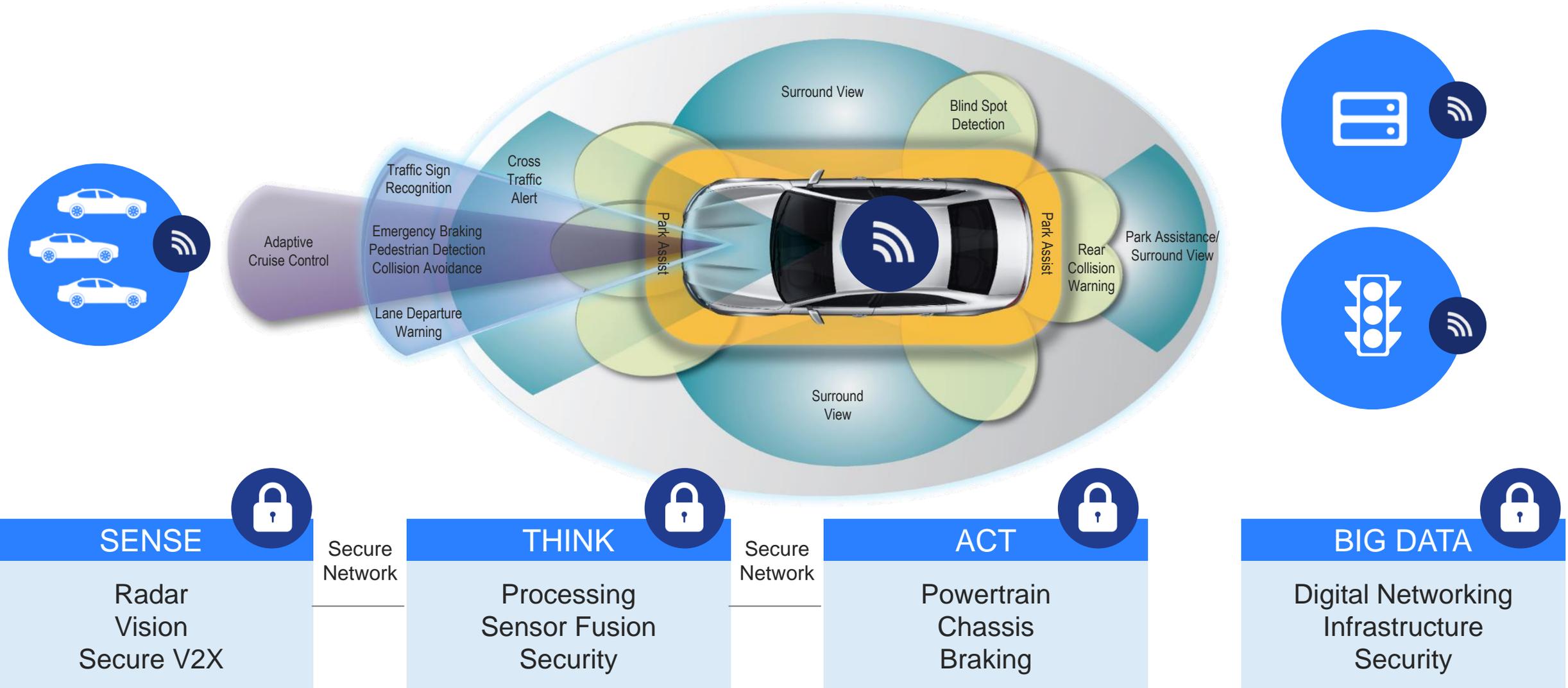
EXPORT COUNTRIES



**AVG VEHICLE TODAY HAS ~ 1,000 SEMICONDUCTORS (VALUE \$470 GLOBALLY)
BY 2030 GROWTH > 1,400 SEMICONDUCTORS AT \$800**



Tomorrow's Vehicles: Self Driving, Connected Robots



Mega Trends Transforming Mobility ... and the Automotive Industry Enabled by electronics



Connectivity

One hour per
day in the vehicle



Autonomy

1.3 million global road fatalities
every year



Electrification

US mandates 163 grams / mile
and 54.5 MPG by 2025



Safe and Secure Mobility

An incredible opportunity and an incredible responsibility

Mega Trends Transforming Mobility ... and the Automotive Industry

Enabled by electronics



Connectivity

+50\$ Cellular 4/5G
+50\$ e-Cockpit



Autonomy

+400\$ Level 3
+700\$ Levels 4&5



Electrification

+350\$ Hybrid
+700\$ Full Electric



Safe and Secure Mobility

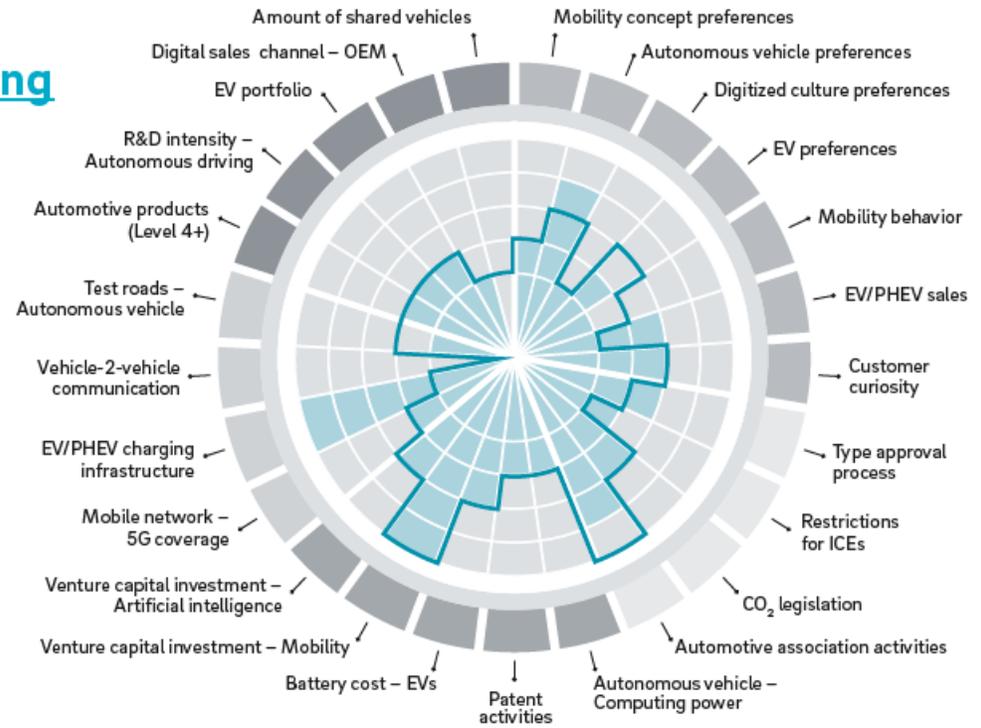
Semi value/car more than doubles through next 10 years





#1 The Netherlands

A winning combination: The Netherlands has comparatively high electronic vehicle sales, a very good EV charging infrastructure and a strong interest in autonomous driving.



EV charging stations top five



Source: International Energy Agency, *Global EV outlook* (2019). Scaled by population.

Autonomous Vehicles Readiness Index

Assessing countries' openness and preparedness for autonomous vehicles

Overall rank	Country	Total score	Policy and legislation		Technology & innovation		Infrastructure		Consumer acceptance	
			Rank	Score	Rank	Score	Rank	Score	Rank	Score
1	The Netherlands	27.73	3	7.89	4	5.46	1	7.89	2	6.49
2	Singapore	26.08	1	8.49	8	4.26	2	6.72	1	6.63
3	United States	24.75	10	6.38	1	6.97	7	5.84	4	5.56
4	Sweden	24.73	8	6.83	2	6.44	6	6.04	6	5.41
5	United Kingdom	23.99	4	7.55	5	5.28	10	5.31	3	5.84

TRUCK PLATOONING

Declaration of
Amsterdam

Cooperation in the
field of connected
and automated
driving

14-15 April 2016

EU
2016





Autonomous Driving at a High Level requires Artificial Intelligence

Monitoring and Modeling the Environment

Sensors mix

Semantic abstraction and
levels of complexity

Interoperability over
heterogeneous solutions

Model



Behavioral Policy and Actuation

Decision frameworks
and algorithms

Safe and secure decision

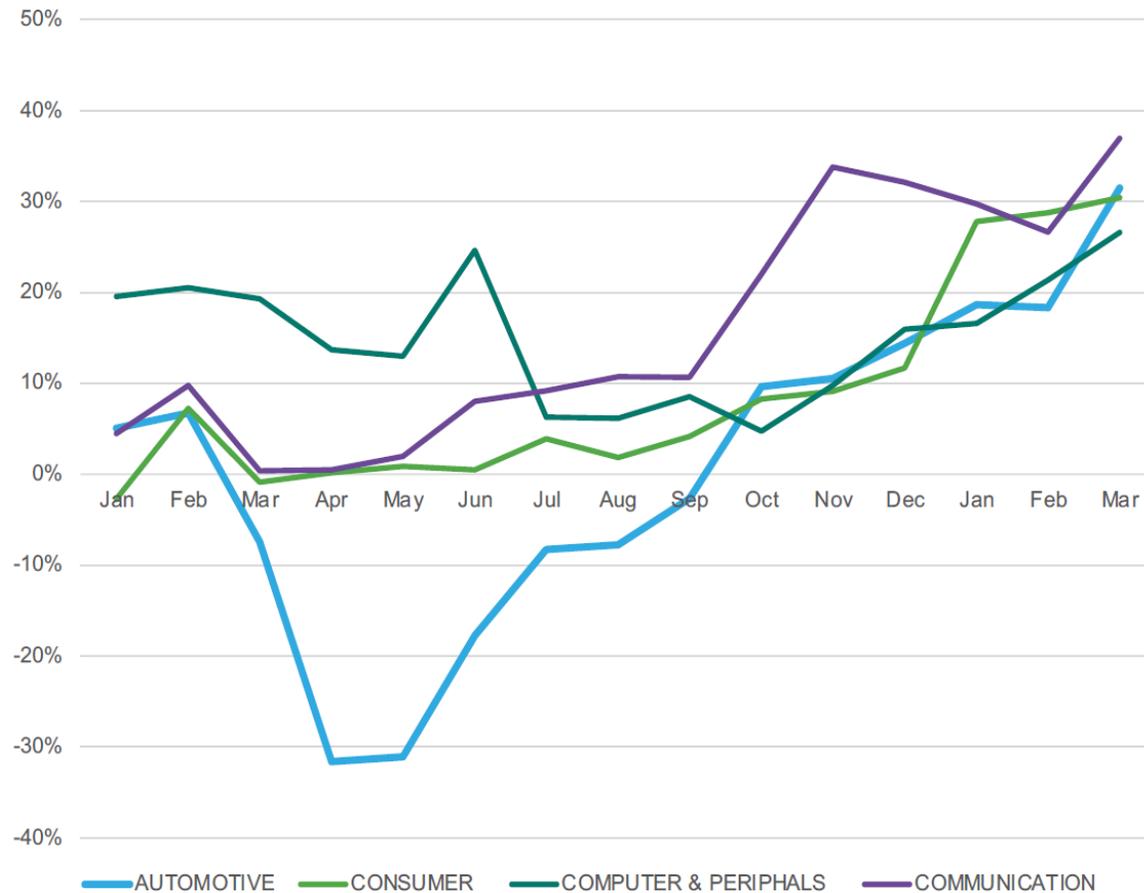
Scalability of application
and actuation

Planning

DEMAND SWINGS IN GLOBAL SEMICONDUCTOR MARKET

Year-over-year monthly sales growth percentage change

January 2020 through March 2021

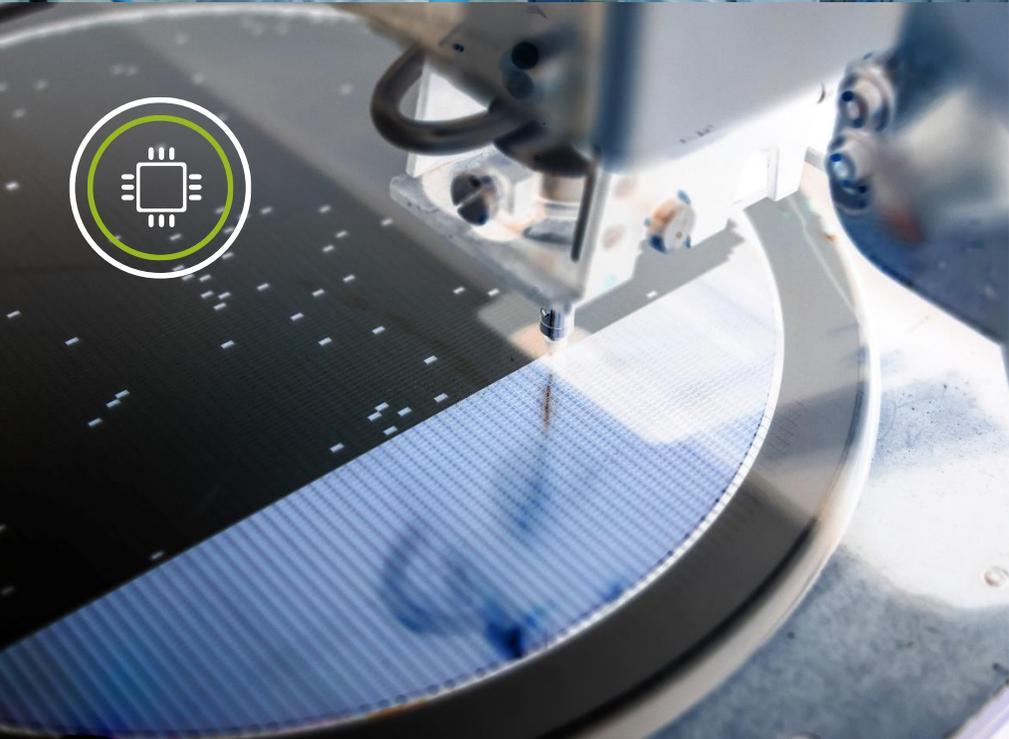


Auto chip sales dropped dramatically in 1H 2020 due to cancelled/reduced orders

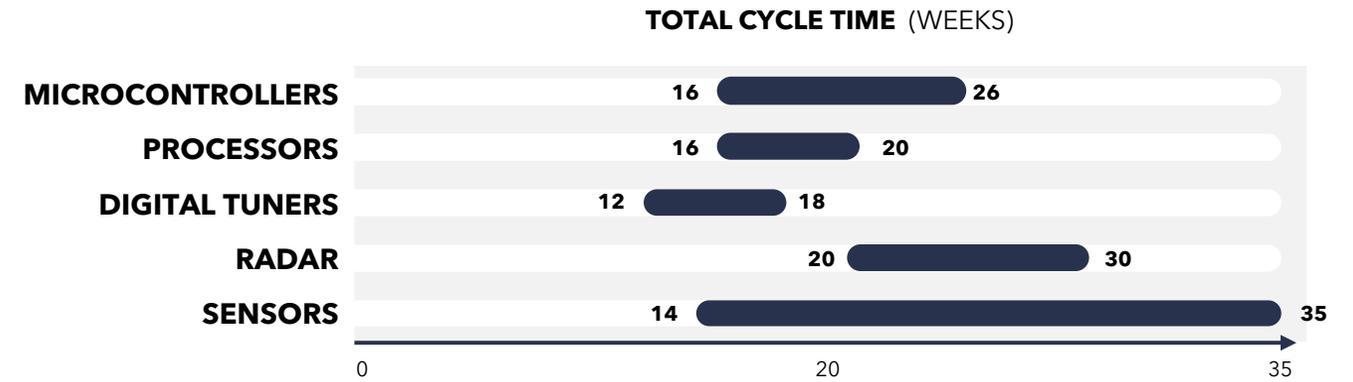
At the same time, sales in other major customers segments increased to meet demand for work/school/play from home during the height of the pandemic

Source: World Semiconductor Trade Statistics (WSTS)





MANUFACTURING CYCLE TIME IN EXISTING CAPACITY



ADDITIONAL CAPACITY IN QUALIFIED CLEAN ROOM

18-24 MONTHS

NEW CLEAN ROOM CAPACITY ADDITION

24 MONTHS

NEW FAB BUILD (TSMC CHANDLER EXAMPLE)

5 YEARS | \$35 BILLION

Source: Report: TSMC plans to now spend \$35B in Arizona fab, Electronics360, March 16, 2021

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