

# An industry view on the future of ECSEL,

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Sustainability and External Affairs*

*Chair of Private Members Board of ECSEL*

*President ARTEMIS Industry Association*



Rome, Feb 13<sup>th</sup>, 2020.

## VALEO KEY FIGURES 2018



**19.3 BN**  
TOTAL SALES



**113,600**  
EMPLOYEES



**33**  
COUNTRIES



**186**  
PRODUCTION  
SITES

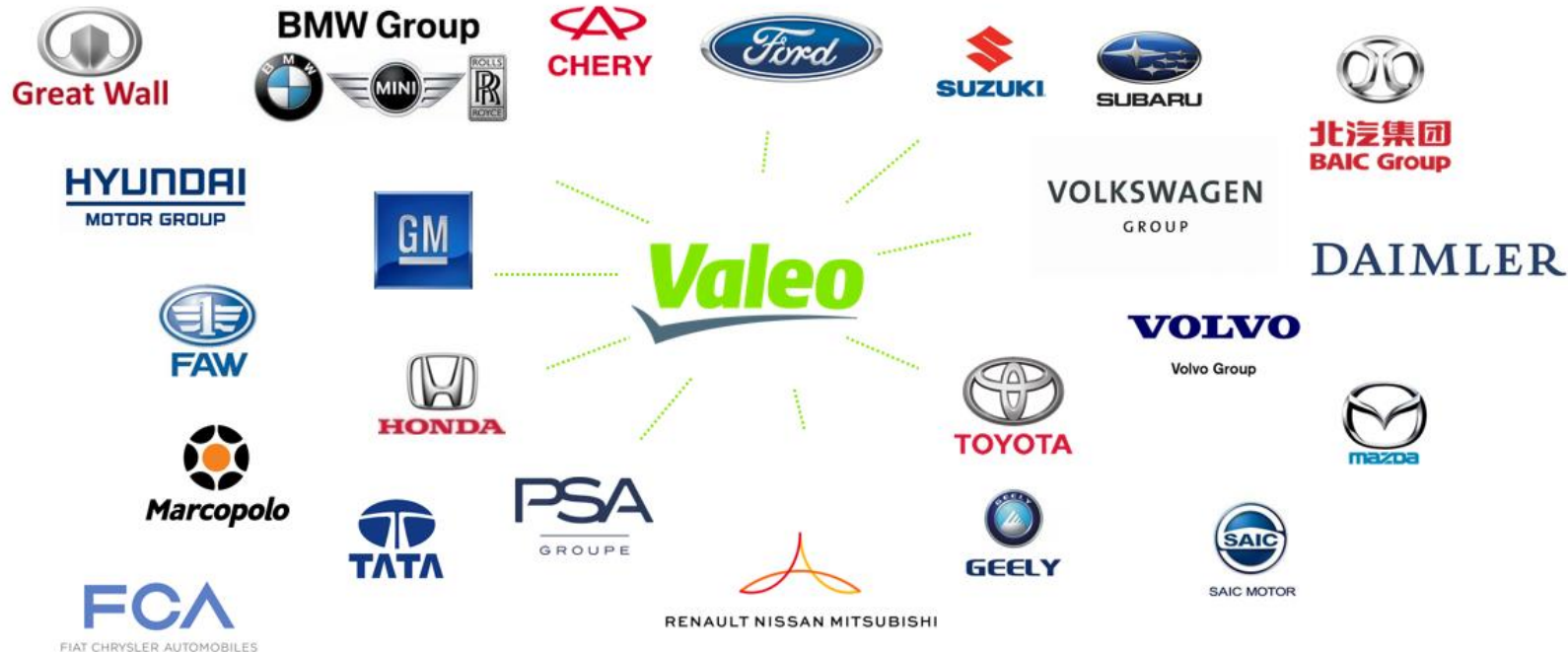


**59**  
RESEARCH &  
DEVELOPMENT  
CENTERS



**15**  
DISTRIBUTION  
PLATFORMS

## VALEO CLIENTS



# VALEO'S STRATEGY – IN LINE WITH THE 3 REVOLUTIONS IN THE AUTOMOTIVE INDUSTRY

**Valeo**

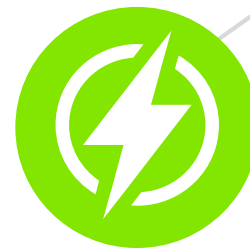


**INNOVATION**

**DIGITAL MOBILITY**



**Valeo**



**ELECTRIFICATION**



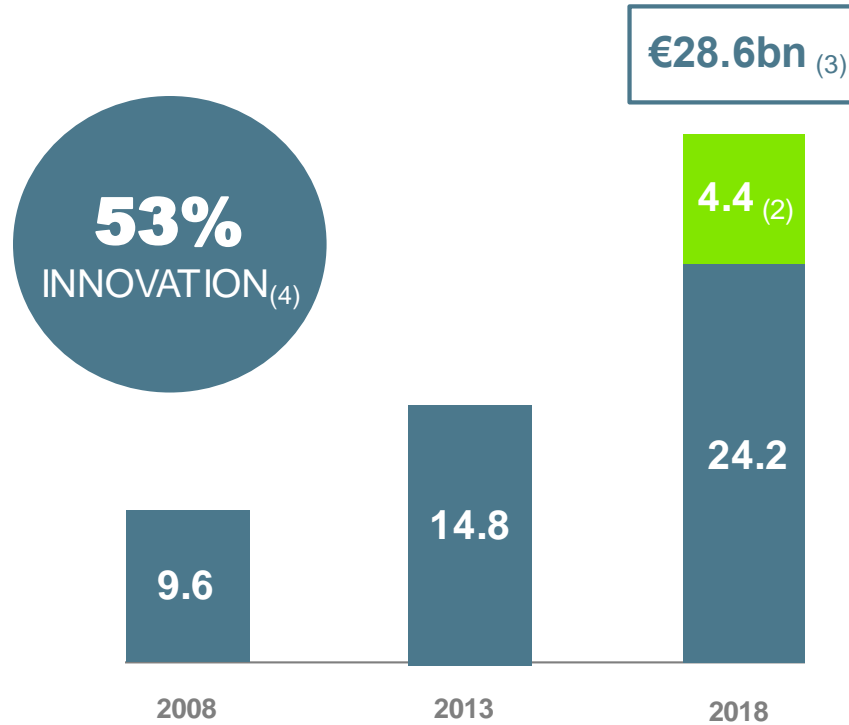
**AUTONOMOUS CAR**

## ORDER INTAKE AT END 2018 FUELED BY INNOVATIONS<sup>(1)</sup>

● Valeo Group order intake

● Valeo Siemens eAutomotive

(a cumulative € 10.5 bn order intake at end 2018)



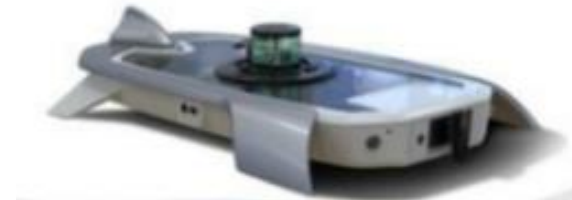
<sup>(1)</sup> Products and technologies in series production for less than 3 years

<sup>(2)</sup> Valeo Siemens eAutomotive order intake at end 2018

<sup>(3)</sup> Valeo & Valeo Siemens eAutomotive order intake

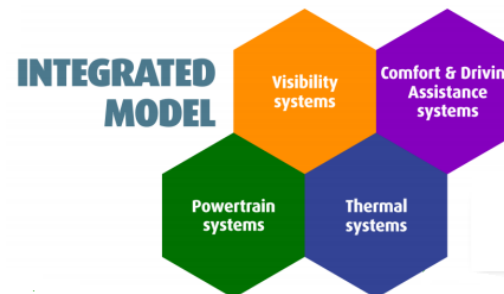
<sup>(4)</sup> Excluding Valeo Siemens eAutomotive

### Artificial Intelligence by Valeo



> €1bn order intake: AI-enriched surround view & automated parking systems with object and pedestrian detection features

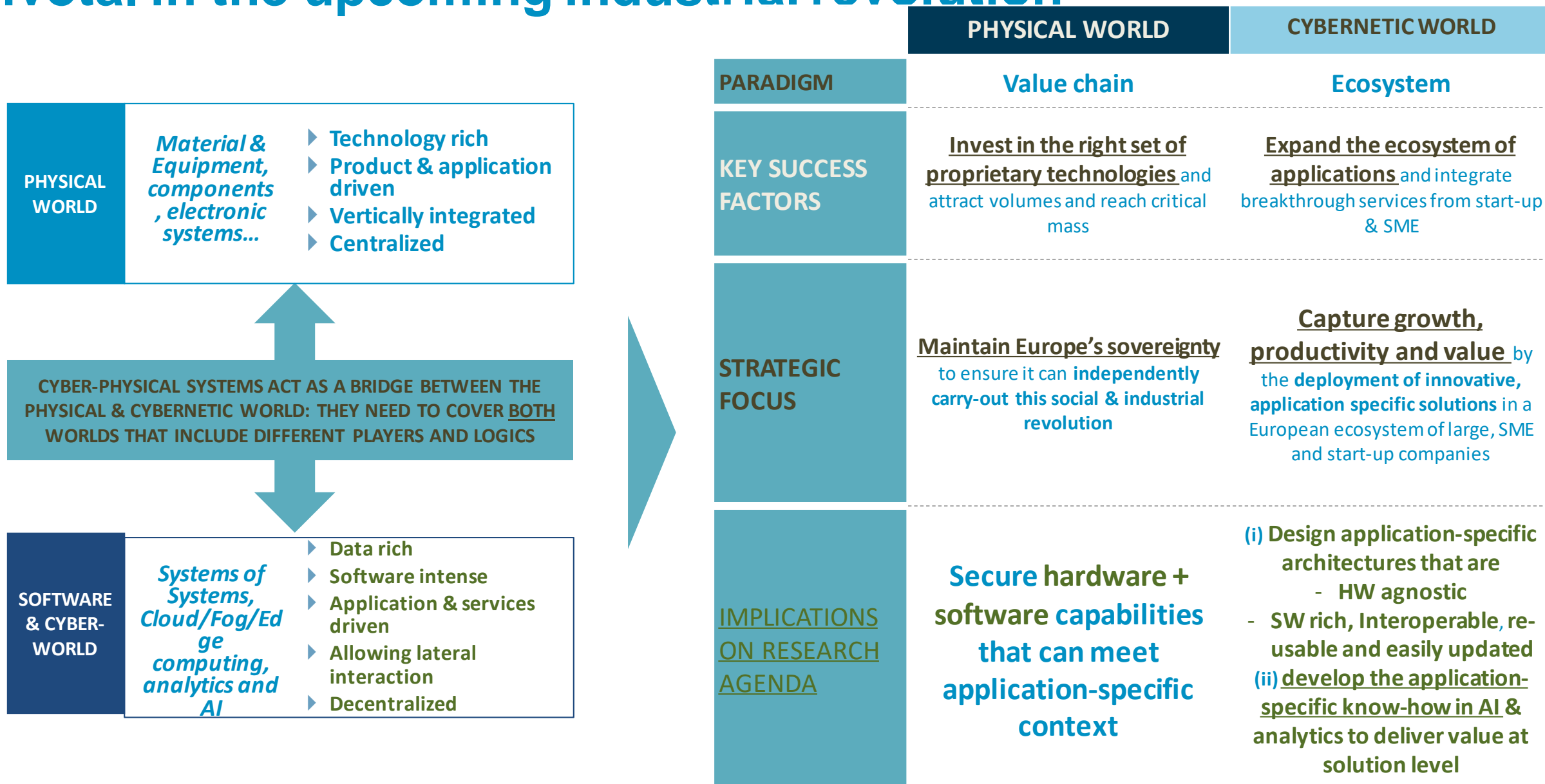
**€1bn order intake for robotaxis**



Increasing order intake for cross-Business Group systems:

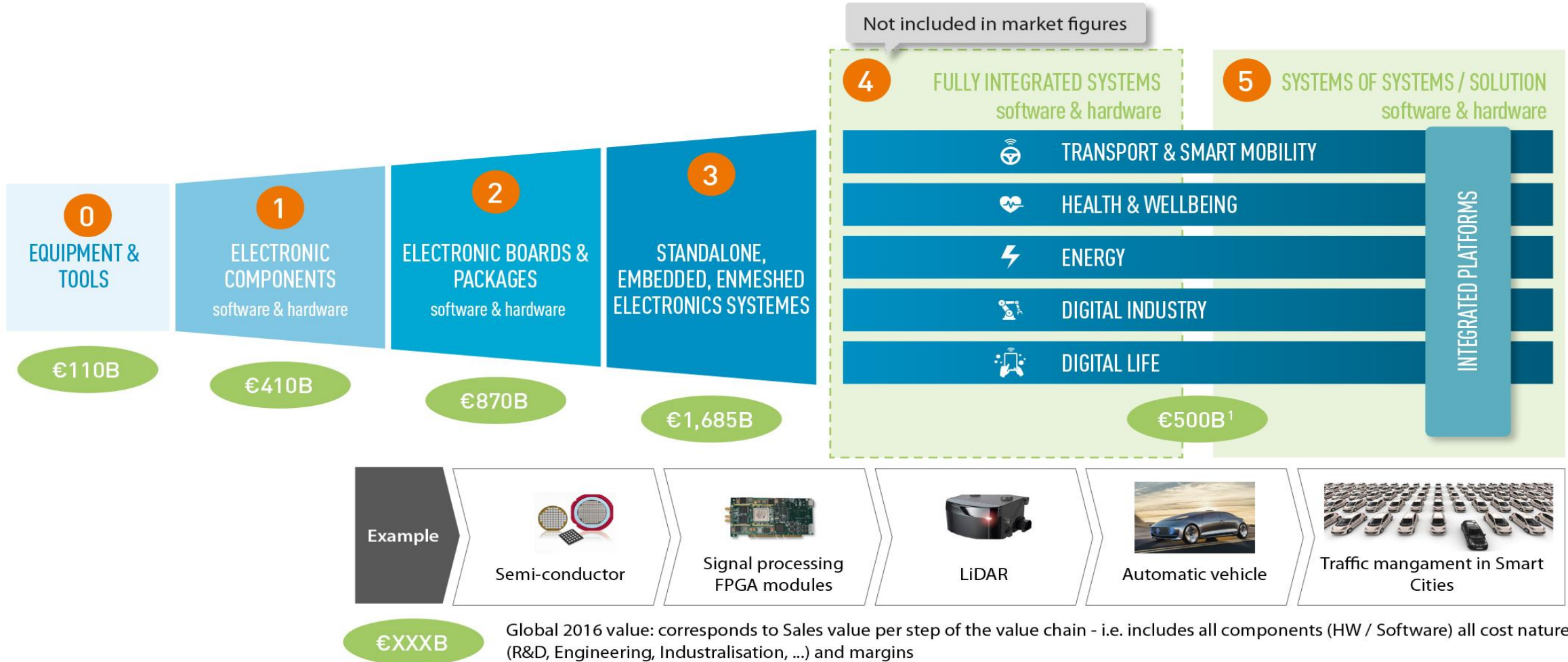
**POWERTRAIN/THERMAL/  
DRIVING ASSISTANCE/  
WIPING+LIGHTING/  
AFTER-MARKET**

# Embedded & Cyber Physical systems will be pivotal in the upcoming industrial revolution



# Value is shifting across the CPS value chain (1/2)

## Today value is concentrated at 75% upstream



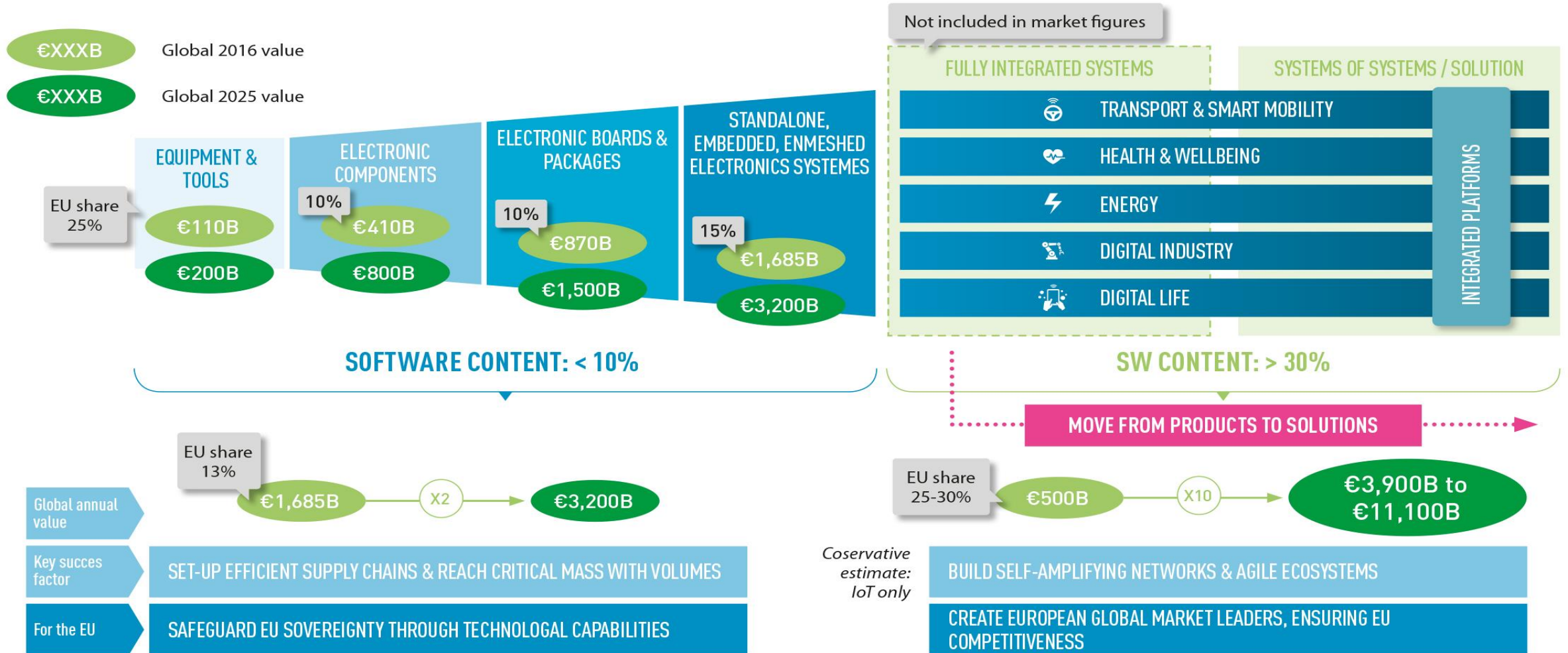
Note: rounded figures. (1): 2025 estimate value potential for the Internet of Things, not the full potential for ECS end-applications.

Source: Decision, IDC, MGI, Advancy analysis



# Value is shifting across the CPS value chain (2/2)

## By 2025, 2/3<sup>rd</sup> of the value will be captured

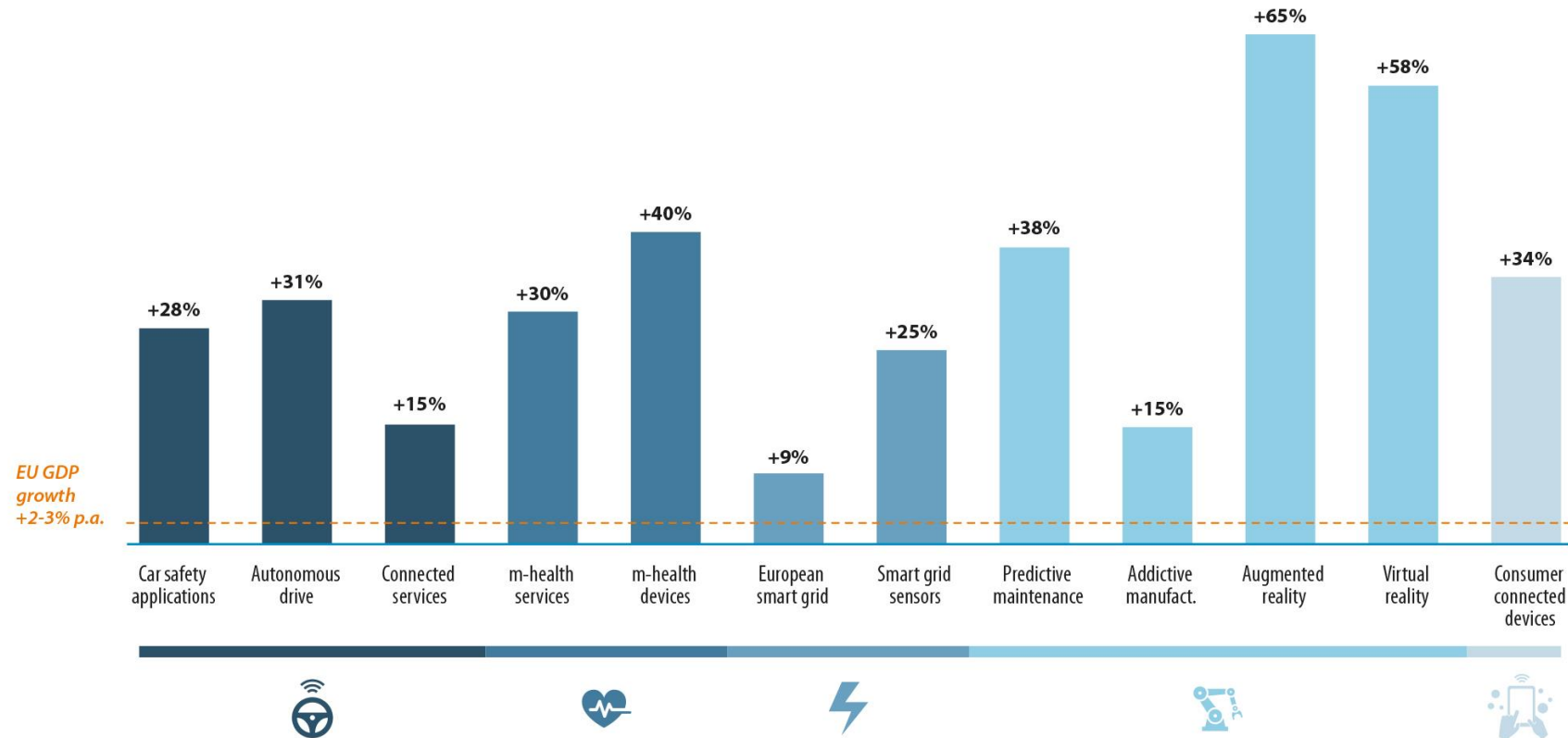


Note: rounded figures. (1): 2025 estimate value potential for the Internet of Things, not the full potential for ECS end-applications.

Source: Decision, IDC, MGI, Advancy research & analysis

# If EU becomes a leader in these new markets, it could access a significant growth reservoir

FORECAST GROWTH BY MARKET VS. EU GDP GROWTH 5 YEARS COMPOUND ANNUAL GROWTH RATE



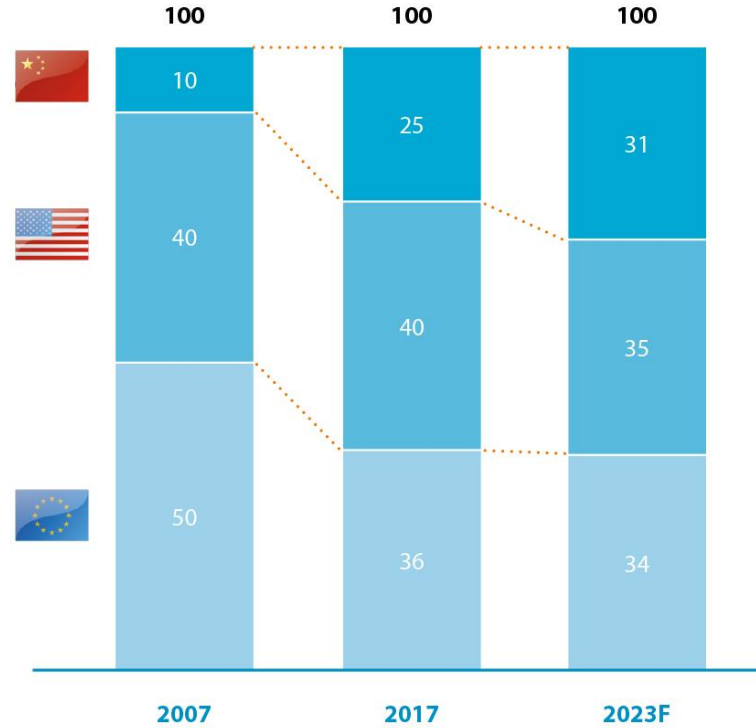
Sources: Goldstein Research "Smart HHealthcare" - 2018, International Energy Agency "Energy efficiency" - 2017, Frost & Sullivan "European Smart Grid" - 2016, Bloomberg New Energy Finance "Global storage market" - 2017, IHS "Smart Grid Sensors" - 2015, BIS Research "Global augmented and virtual reality" - 2016, Gartner (IoT) - 2017, MGI "The Internet of THings: mapping the value beyond the hype" - 2015



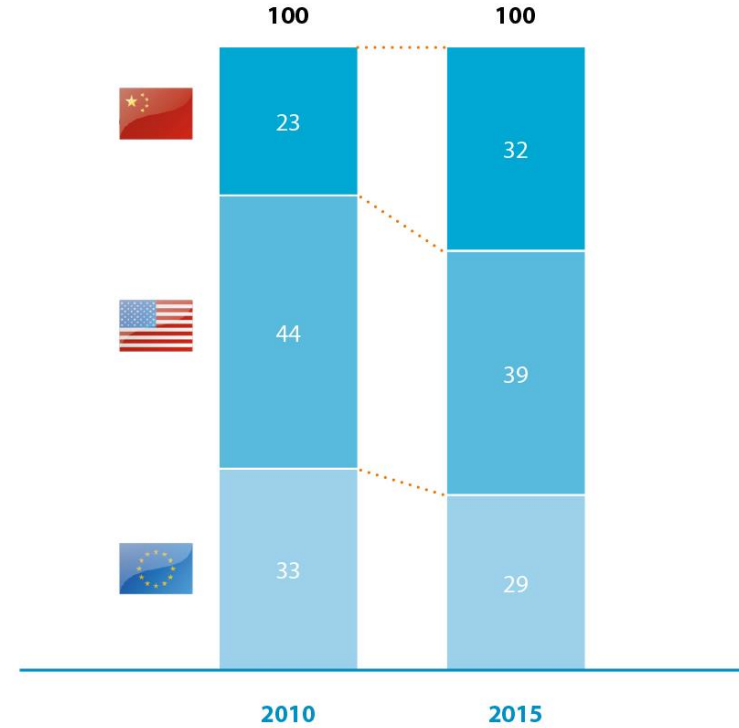
# In the meantime, value is shifting geographically (1/3)

China has significantly increased its economic weight and its investment in R&D&I

RELATIVE WEIGHT OF THE EU, CHINA AND THE US GDP  
COUNTRY GDP AS A % AGGREGATED GDP IN USD, 2007-23F



RELATIVE WEIGHT OF THE EU, CHINA AND THE US GERD  
COUNTRY GERD AS A % AGGREGATED GERD IN PPP, 2010-15

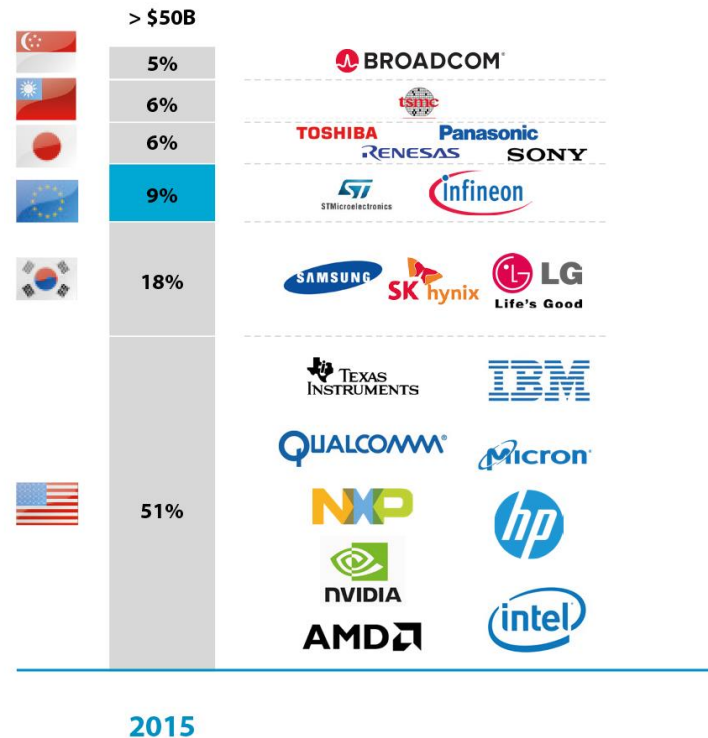


Source: IMF, UN, Advancy analysis

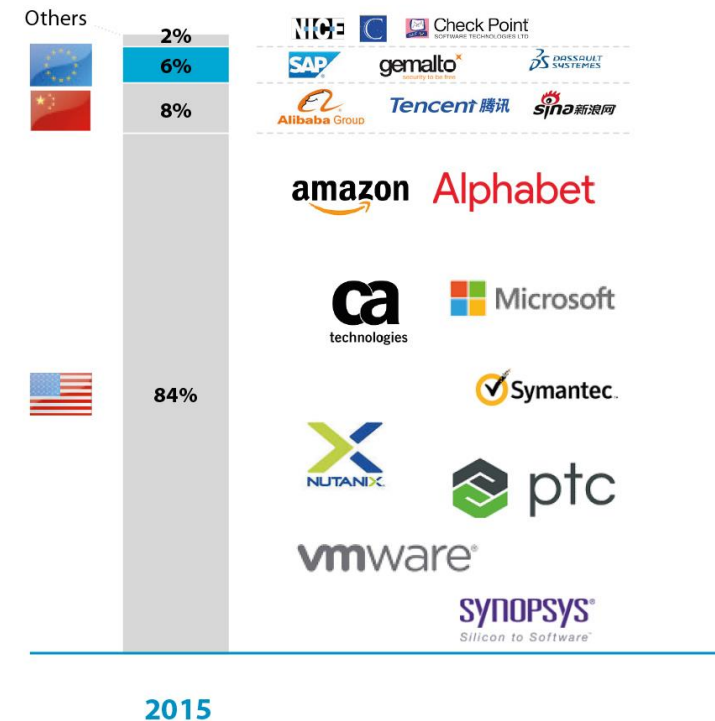
# In the meantime, value is shifting geographically (2/3)

## European private sector research investment seems to be lagging behind...

TOP SEMICONDUCTOR PLAYERS RESEARCH AND DEVELOPMENT 2015, % OF TOP PLAYERS TOTAL R&D SPEND



TOP SOFTWARE PLAYERS RESEARCH AND DEVELOPMENT 2015, % OF R%D SPEND IN TOP 1000 PLAYERS IN APPLICATION & SYSTEMS



# In the meantime, value is shifting geographically (3/3) ... and the EU is being outspent in terms of public support to R&D&I

## KEY PUBLIC R&D SUPPORT PROGRAMS TO ECS

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▶ **Leadership in Enabling and Industrial Technologies (LEIT) component of H2020 (incl. ECSEL): c.€1.9Bn annual budget (€13.5Bn over 7 years)**

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▶ **Networking and Information Technology Research and Development (NITRD): \$4.5Bn annual budget**

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▶ **Made in China 2025 plan: \$75Bn over 10 years, excl. bank supports and the National Integrated Circuit Fund dedicated to M&A**

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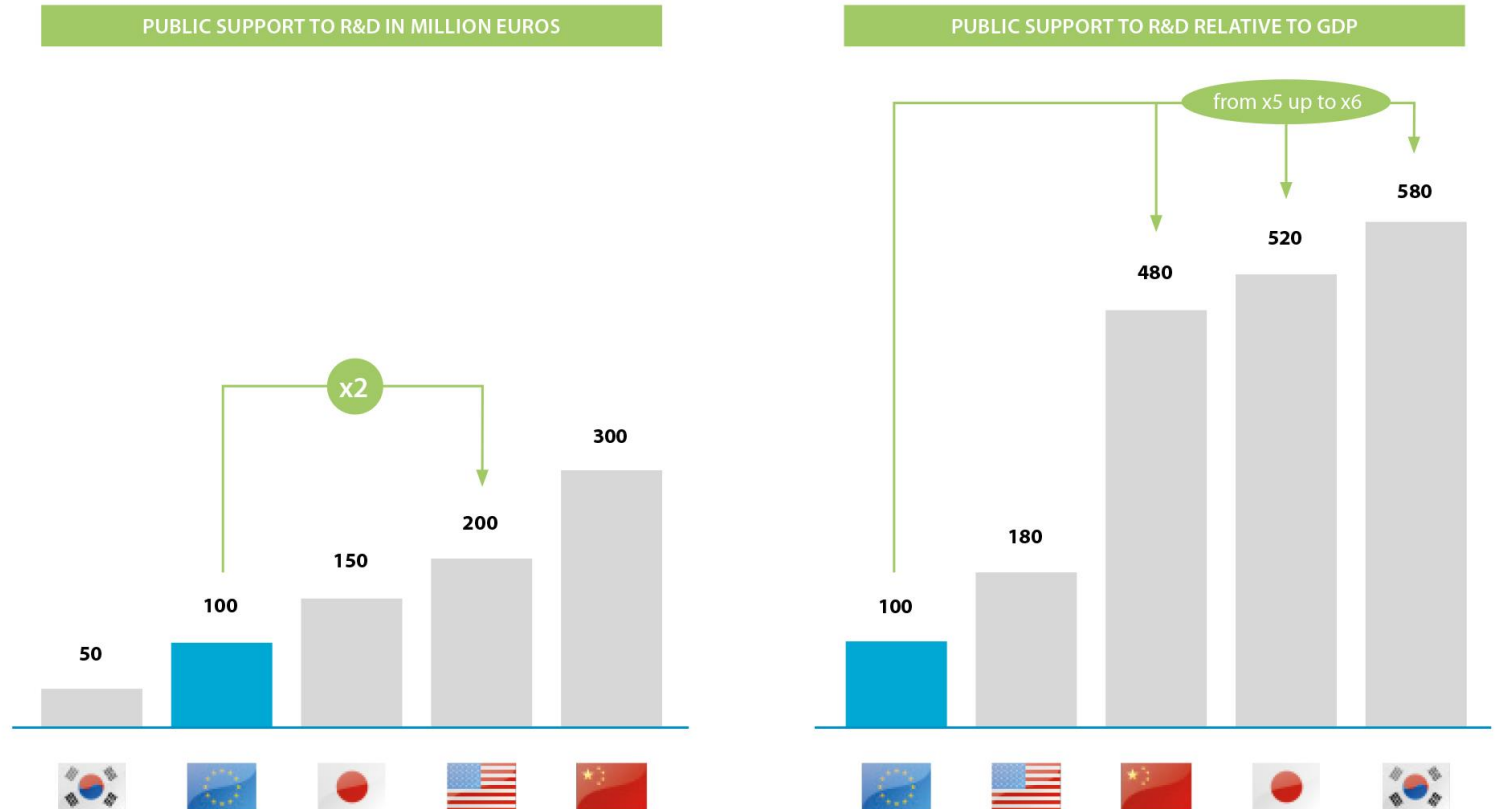
▶ **Super smart society plan included in the 5<sup>th</sup> S&T plan 5 year plan – relevant funding agencies: \$3.6Bn annual budget**

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▶ **Manufacturing 3.0, I-Korea 4.0,... with government support to reach \$7Bn over the next ~5 years**








## ANNUAL PUBLIC R&D SUPPORT INDEX 100 = EU 2016 ANNUAL AVERAGE


























Source: World Bank, Advancy Analysis

# EU strengths & weaknesses per application

advancy

					
	<p>Historically leading but being challenged on electrification, V2X infrastructure</p>	<p>Strong IT giants increasingly investing the transport space, speech recognition, V2X regulation progressing</p>	<p>Leading in powertrain electrification &amp; speech recognition, #1 potential market globally</p>	<p>Leading on powertrain electrification &amp; good V2X infrastructure already set up for full scale testing</p>	<p>Good positioning on powertrain electrification &amp; good positioning on speech recognition</p>
	<p>Strong historical players in medical, some players in new segments but EU not expected to lead</p>	<p>Leading on AIMD, expected to retain the highest market share in the digital health market</p>	<p>Strong emerging players in diagnostic imaging and digital health</p>	<p>Some historical players, current surveys show low adoption potential for connected health devices in Japan</p>	<p>Samsung emerging in diagnostic imaging and digital health</p>

					
	 Strong position across value chain, particularly upstream, leading role in standardisation	 Currently very limited political will on this topic	 Weak today but strong political will and investments to make China a leader in alternative energies	 Leading in smart grid / smart communities	 Good positions on smart grids
	 Strong on digital monitoring, edge but lagging behind on AI, IoT platform & cloud	 Strong on AI, cloud, digital twins, condition monitoring	 Ambitious targets (Made in China 2025) & investments in AI & smart manufacturing	 Already among the most advanced manufacturing sector in the world	 Smart manufacturing pushed by the private large groups and the government
	 NoG segment dominated by the EU: no IT giant, limited on cloud and speech recognition, limited VC culture	 Strong on smartphones, home automation	 IoT considered a strategic industry for China	 Leveraging its strength in robots, ambitious ongoing projects for smart cities	 IoT pushed by electronic manufacturers (Samsung, LG) and telcos

Positioning  Very strong  Strong  Average  Weak



# In this context, we see 5 objectives for Europe to successfully tackle the challenges ahead



## CREATE JOBS

- ▶ Create the jobs of tomorrow with new high-value added skills



## BUILD LEADERS

- ▶ Support European companies in building a successful ecosystem of applications and solutions: become global market leaders in Transportation, Health Energy, Digital Life, Digital Industry,...



## PROTECT SOVEREIGNTY

- ▶ Protect the European Electronics components value chain players by making sure that European sovereignty is developed / maintained on strategic technologies / components



## PREPARE FOR CONVERGENCE

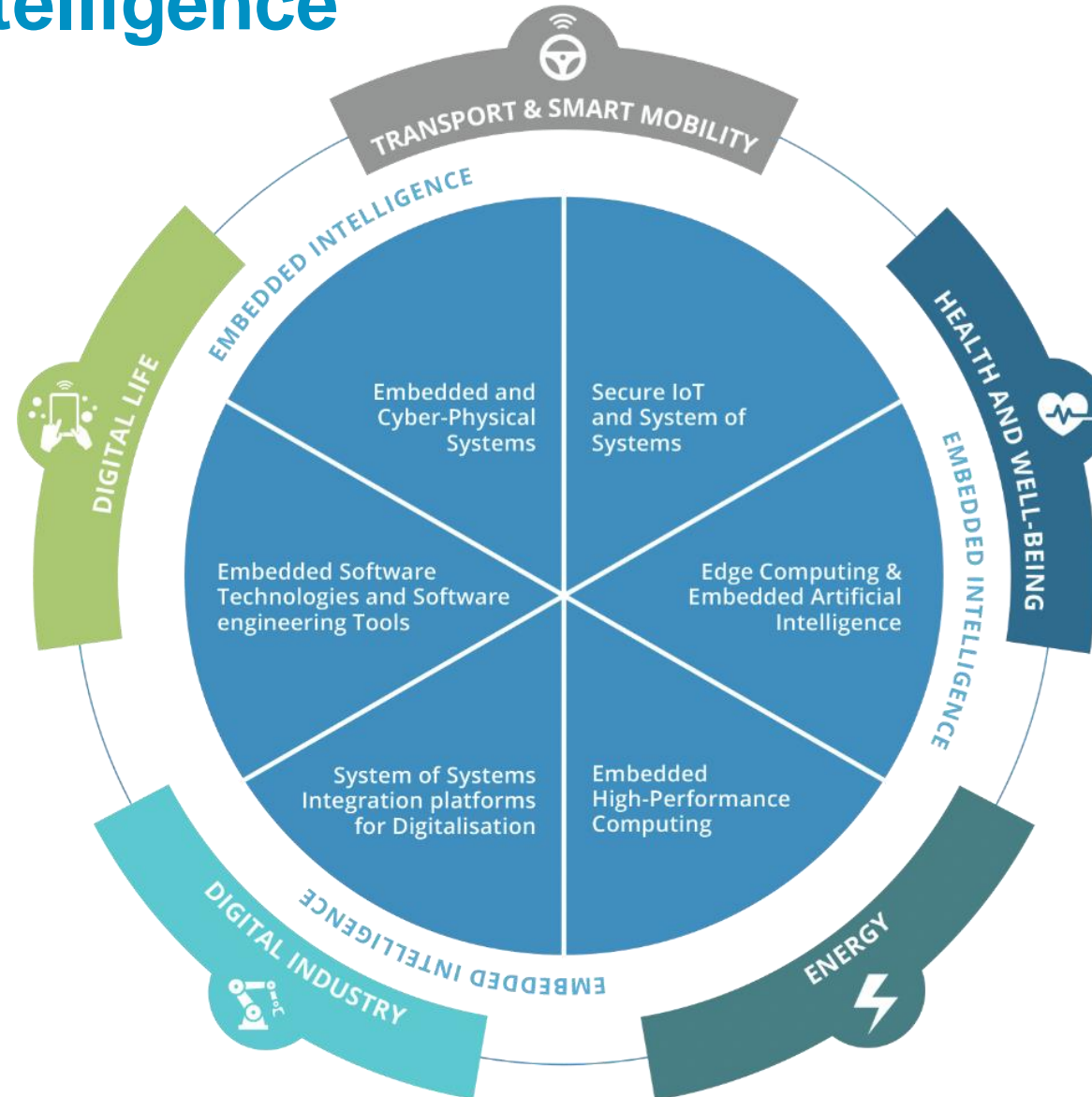
- ▶ Prepare to drive the convergence between the applications to help materialize the vision of the 4th industrial revolution (e.g. Energy / Transportation, Health...)



## INCREASE RESEARCH EFFICIENCY & PROXIMITY TO INDUSTRY

- ▶ Build closer links between research and applications to support European industry in remaining competitive, increase efficiency, attract volumes and protect distinguished innovations and Intellectual Property, especially for strategic applications

# The ARTEMIS Technology Domains for Embedded Intelligence



# Conclusions of the Advancy Report



- **Embedded & Cyber-Physical Systems are at the center of Europe's future competitiveness and will have long-lasting positive both societal & economic impacts**
- **Europe needs to gear up investments** in this strategic area to consolidate its competitive advantage (e.g. in Mobility) or catch-up with China, the U.S., South Korea and Japan.
- **The investments in software technologies should be on at least equal footing with hardware technologies, considering the expected growth of higher level of the value chain (Systems of Systems, Applications and Solutions).**
- **The embedded software community has a key role to play** as a tool for European R&D&I environment to capture the upcoming opportunity in a structured way

**within the collaborative and inter-operable framework of the content perimeter from the other 2 associations stakeholders AENEAS+EPOSS**

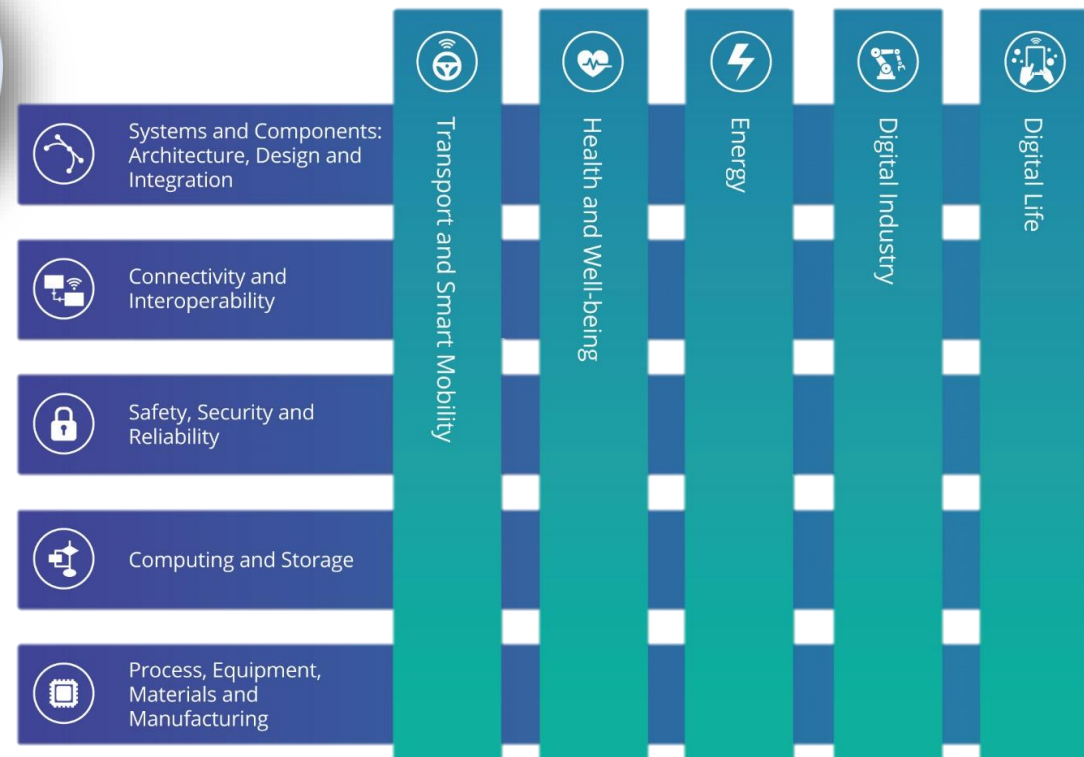
# ECSEL tri-partite JU structure

Key digital technologies



Members

- ✓ PPP JU: EU Comm., **participating States**, Private Members
- ✓ Budget 1,2 Bn€ + 1,2 Bn€ + 2,4 Bn€ (**model 1+1+2**)
- ✓ Annual Call for proposals as Horizon 2020
- ✓ Perimeter= Electronic Components and Systems (ECS)



# Prepare for KDT, to be started in 2021

Key digital technologies

For the KDT partnership, the three industry associations, collaborating closely as agreed in their Memorandum of Understanding of November 20, 2018, are proposing a number of improvements.

The most important are the following:

- An **extension of the scope** to related aspects of photonics, software beyond embedded, advanced computing technologies, biosensors and flexible electronics;
- Claiming for **doubling of R&I efforts (more >5 bn €)**, we would need roughly twice the volume of ECSEL;
- Dedicated measures to **increase SME participation**;
- **Synergies** with the European Structural and Investment Funds and the Digital Europe Programme;
- **Enhanced collaboration with adjacent partnerships**, programmes and projects,
- An **improved co-funding mechanism** that simplifies participation for beneficiaries;

With these improvements we expect to achieve a step change with respect to ECSEL.

Currently the three associations are in discussion with the EC and Member States on this new approach



## Green Deal for Europe/ applicative example= Mobility

(preparation of cPP from Green Vehicles to “2 ZERO”)

Key digital *technologies*  
*for mobility*

=> Supplying clean, affordability and secured energy

=> Mobilising industry for a clean and circular economy

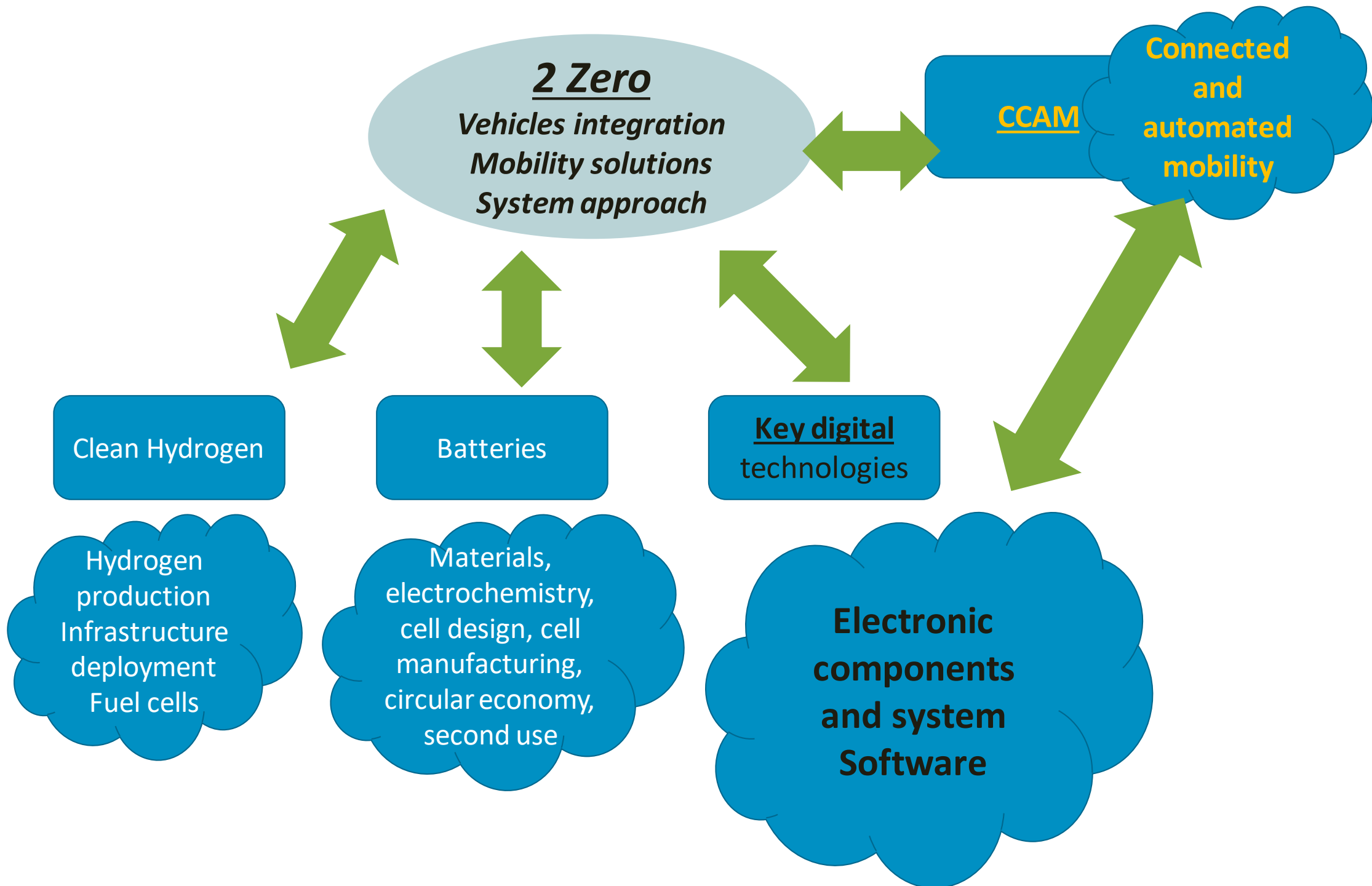
=> Accelerating the shift to sustainable and smart mobility

90% reduction in transport emissions needed by 2050

End to fossil fuel subsidies

Ramp-up production and deployment of sustainable alternative transport fuels (by 2025, 1 million public recharging and refuelling stations needed for 13 million zero and low emission vehicles)

More stringent air pollutant emission standards for combustion engine vehicles.



# TAKE AWAY: PREPARE, RENEW and OPEN UP for NEW OPPORTUNITIES

❖ **LESSONS** FROM the **Private Members Board** tenure (1 YEAR) =

SIMPLIFY THE SYSTEM.

MORE EFFICIENCY REQUIRED.

Complicated when non alignment of countries on project funding.

Funding efficiency is paramount = global digital competition is a timely race, different from national and european alignment.

## NEW KEY TECHNOLOGY COLLABORATIONS

- EUROPEAN LEVEL = future KDT, but also IPCEI (nano...)

... but also BI/TRI-LATERAL when relevant

- SEMI-CONDUCTORS + TIER 1 SUPPLIERS +SMEs

- On new unavoidable technologies to enhance electrification/progressive automation and connectivity

- France + ITALY= in iGBT from semi-conductors for electrification for systems suppliers, for instance



**Electronic  
components and  
system  
Software**