

Machines and Power Electronics

7th and 8th July 2022 in Milan, Italy

CEMEP sustainable products, systems & services





Francesco Meroni KEB AUTOMATION ITALIA

Perspective for power electronic as a key driver in mobility domain sustainability













- Title:
 - Perspective for power electronic as a key driver in mobility domain sustainability
- Abstract:
 - Power electronic is a key technology for electrification in mobility domain.
 - Different volume of mobility application could have a huge impact on industrial electronics.
 - Might both domain converge in terms of Standard, protocols and interfaces?



7th and 8th July 2022 in Milan, Italy

• Climate change

• International instability



Context







- Decarbonization
 - ONU global goals
 - Paris Agreement
 - European Climate Act
 - Fit for 55
 - European Union announced a zero-emissions target for new cars by 2035.







Electrification



7th and 8th July 2022 in Milan, Italy

- mobility electrification is a key technology in achieving sustainability
- regulation and positive consumer demand trends will make Europe the market with the strongest electrification growth
- demand of power electronic for electric mobility drives will increase in the coming years faster than demand for automation

By 2035, the largest automotive markets (the EU, US, and China) will be fully electric EV (BEV, FCEV, PHEV) sales in percent of new passenger vehicle sales



1. Most likely scenario under which consumer adoption will exceed regulatory targets

scenario under which currently expected regulatory targets will be met

Source: McKinsey Center for Future Mobility; McKinsey Electrification Model; literature search; ICCT; EV-volumes.com; IHS Markit



Mobility electrification is not only about passenger cars.

- commercial vehicles
- trucks
- busses for local public transport
- agricultural machines
- trains
- ships
- aircraft













- Automation
 - Ethernet based communication
 - Functional Safety
 - IEC 61508
 - ISO 13849
 - IEC 61800-5-2
 - Cybersecurity
 - IEC 62443
 - ISA 99/IEC 62443

- Automotive
 - CAN based communication
 - Functional Safety
 - ISO 26262
 - Cybersecurity
 - UN ECE R155 Regulation
 - ISO/SAE 21434 standard, "Road vehicles - cybersecurity engineering".





- How will the automation market be affected by the increased production volumes generated by the e-mobility and electrification market?
- Which regulations will be adopted for?
 - functional safety
 - Cybersecurity
 - Circular Economy / Sustainability
- Which standards?
- Which communication protocols?





AGRICULTURAL INDUSTRY ELECTRONICS FOUNDATION





Thanks for the attention!

(marco.sala@keb.it)