THE CAR RUNS ON CODE

150 MILLION LINES TODAY

Increasing in complexity as higher levels
of safety and security are required

SHIFT TO AUTOMATED DRIVING

Understands, predicts environment
Mix of AI and deterministic computing
Very low latency
Safety-first, always reliable
Testing in virtual and real world

LEVELS OF ELECTRIFICATION

CO_2 neutrality
Energy reductions
Route planning
Mechanical replacemen
Fast charging

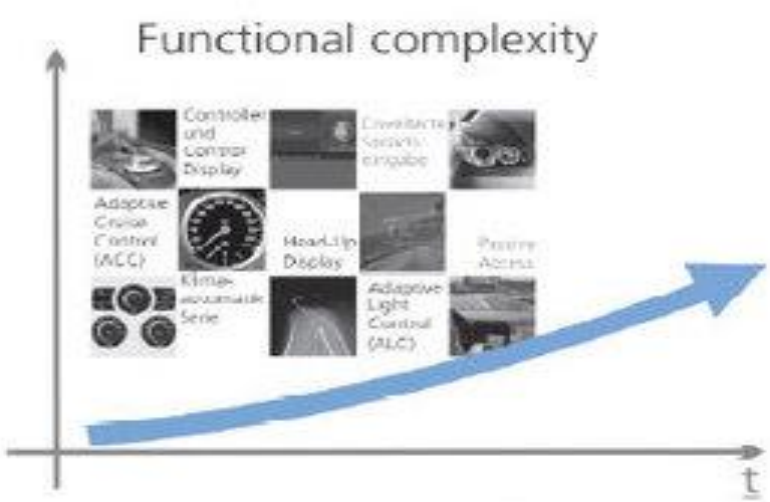
THE CONNECTED, UPGRADEABLE CAR

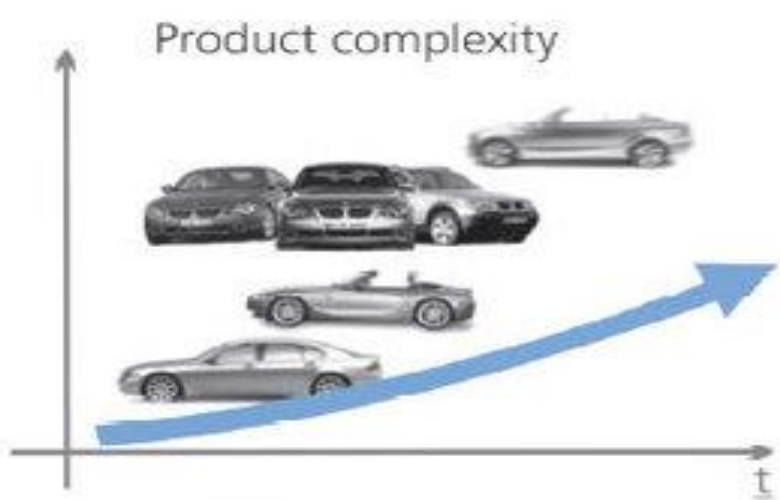
Over-the-air upgrades
New cloud services
Feature enhancements

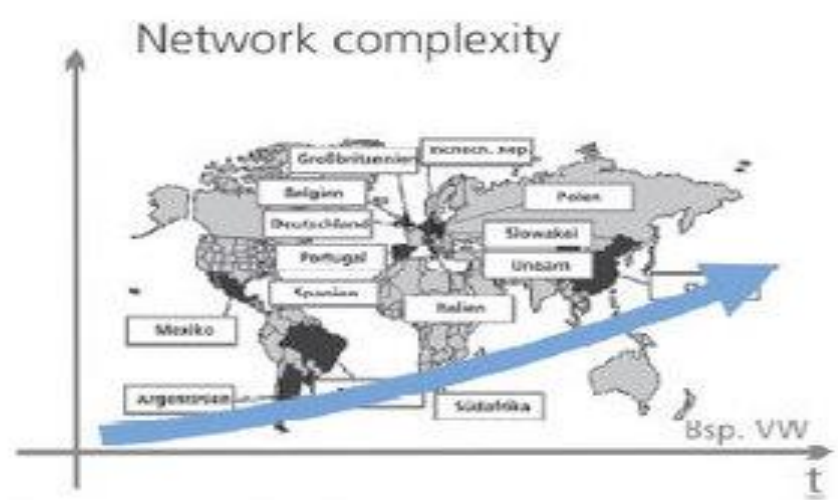
IMMERSIVE EXPERIENCES

Interactive, graphically rich
Voice and gesture control
Customizable and oriented to personal preferences

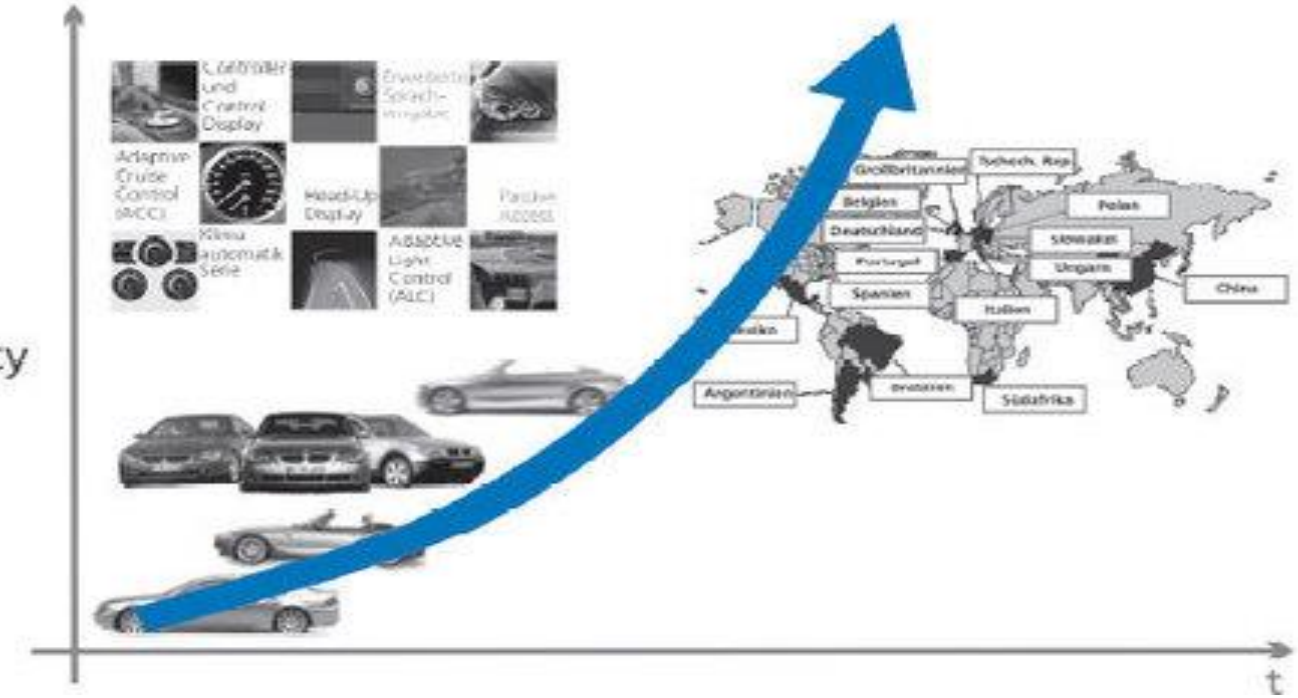
Source: McKinsey 2018







Overall complexity



WHEN YOU HEAR THIS:

YOU KNOW YOU'RE IN A SOFTWARE PROJECT

HOW TO INTERACT DURING THE WORKSHOP

- **FOCUS**
  - Please focus on the scope of the workshop : IDENTIFY PRIORITIES !
- **QUESTIONS**
  - Please add your question in the chat
- **COMMENTS**
  - Please write in the chat that you would like to give a comment + indicate briefly on what topic
  - When you are given the floor to speak, please limit your intervention to 2 minutes !
- **PRIORITY SETTINGS**
  - If you want a certain topic (which e.g. is shown in one of the presentations or discussed during the speakers discussion) to have a high or low priority, you can write this down in the chat

PROPOSALS FOR PRIORITY

Horizontal Priorities

- Embedded Intelligence – IoT & intelligent edge, HW/SW co-design for reconfigurable IoT, system-of-systems approach
- Integration & Orchestration platforms for systems-of-systems
- Dependability, Interoperability, Virtualization, Scalability, Standardisation & Certification (more a generic characteristic)
- Open-source Software (more a generic characteristic)
- End-to-end Trustworthiness (supported by engineering tools incl. frameworks, methods and tools for analysing, testing and V&V for ECS, especially for those ECS that (a) have high level of automation - up to autonomy, (b) are supposed to network resp. cooperate with humans and/or other ECS within a network/cloud/..., and (c) those ECS that employ Artificial Intelligence) – incl. automation and low code / no code, non-functional properties
- Engineering & lifecycle support – SW/HW hybrid modelling
- Managing complexity, dynamics & uncertainty of KDT applications & systems-of-systems
- SW upgrades (over-the-air)
- Swarm computing & neuromorphic solutions
- Autonomous SW for verification, validation & testing for IoT and edge computing
- How to cope with legacy software ?

Vertical Priorities

- Application-specific priorities (mobility, health, industry, energy, agrifood, society), including application-specific engineering tools, environmental aspects, energy efficiency, etc.

Synergistic program across domains – European ecosystem & infrastructure

- Integrating a large number of elements above
- From “Cognitive CPS” to “Orchestrated, distributed & embedded intelligence”