

Chapter 2.4

Quality Reliability Safety and Cybersecurity

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Sven Rzepka – Fraunhofer ENAS

Luigi Montinaro - Leonardo

Michael Karner - Virtual Vehicle Research GmbH

Peter Moerti – Virtual Vehicle Research GmbH



*Strategic Research and
Innovation Agenda 2025*

Aeneas



Scope

- Ensuring the reliability, safety and security of ECS
 - increased functionality and continuous miniaturisation of ECS
 - A degraded behaviour in any of these 4 dimensions or an incorrect integration among them, would affect vital properties and could cause serious damage
- Rethink many “traditional” approaches and expected performances towards safety and security, exploiting AI and ML (machine learning)

Key new trends




- Chiplet-based approach
- AI innovation & safety and cybersecurity issues
 - Alignment with AI act and the ISO/IEC JTC 1 works

STILL ONGOING TRENDS

- Quantum computing technology & cyber
- Open-source hardware and open-source software
- Sustainability of the solutions

Major challenges

- **MC1**
 - ensuring HW quality and reliability (leader Sven Rzepka – Fraunhofer ENAS)
- **MC2**
 - ensuring dependability in connected software (leader Michael Karner - Virtual Vehicle Research GmbH)
- **MC3**
 - ensuring cyber-security and privacy (leader Luigi Montinaro – Leonardo)
- **MC4**
 - ensuring of safety and resilience (leader Daniela Cancila – CEA)
- **MC5**
 - human systems integration (leader Peter Moerti – Virtual Vehicle Research GmbH)



New trends
taken into
account

R&I focus areas



New

- Reliability Assessment Methods for Advanced Package Technologies
 - Chiplet-based HPC, Smart Power Systems in Package
- Credibility Assessment Criteria for the Simulation-based Approaches to the Design for Reliability along the value chain
 - including the sharing of models – IP-protected and trustworthy
- Ensuring cybersecurity, privacy and safety properties
 - Including a continuous chain-of-trust from the hardware level up to the (AI-based) applications and (AI) systems
- Ensuring safety and resilience
 - Including ensuring resilience under degraded (AI) system behavior



Still
need