

# ROAD VEHICLE CYBERSECURITY „AS AN OPPORTUNITY“

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# About me

- Orhun Suezer, 1988, Izmir
- Canakkale Fen Lisesi
- Istanbul Technical University (B.Sc. Electronics Engineering)
- Stuttgart University (M.Sc. Embedded Systems)
- 10+ years in Germany, 5 years Independent Consultant in Automotive
- Career stops at aviation, fintech and banking and >8 years automotive
- Holds number of soft and technical skill certifications including ISO/SAE 21434.
- Fluent in written and spoken German, English and Turkish



# ACES – Trends shaping future of automotive



- Autonomous driving
  - ABS → ACC, Crash avoidance, lane-keeping-assist, traffic-assist, automated parking



- Electrification
  - Combustion → PHEV → BEV



- Connectivity
  - Infotainment, telematics, SW-OTA, Keyless Entry and Go, Car2X
  - OBD → Bluetooth, LTE, GPS/GNSS, NFC, HF, UWB etc.



- Smart New Mobility
  - Robo-Taxis, Car-Sharing
  - Single user → multiple users

**New functionality brings new communication channels (interfaces) which shall be protected.**

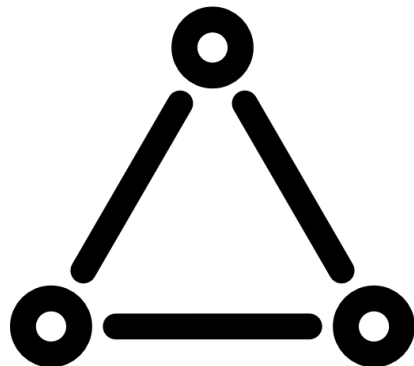
**Increased need for Cybersecurity!**

# Cybersecurity basics

- Definition of Road Vehicles Cybersecurity (ISO/SAE 21434):  
*„Condition in which the assets are sufficiently protected against threat scenarios against the road vehicles, their functions and their electrical or electronic components.“*

- Cybersecurity Triad (Properties)

Confidentiality  
(Gizlilik)



Integrity  
(Bütünlük)

Availability  
(Erisilebilirlik)

- Attacker tries through

Abuse, misuse, confuse  
(istismar, kötüye kullanma, karistirma)



# Cybersecurity enables

Cybersecurity is a

- prerequisite for safety and for the intended functionality
- enabler and protector for new business models (e.g. Function on Demand)
- critical factor for the publicity, company image and recognition by customer (B2B and B2C)

For this reason already 2 main legislative documents (regulation and standard) are published:

- United Nations Regulation No: 155 Cyber security and cyber security management system
- ISO/SAE 21434 Road Vehicles Cybersecurity
- More are on the way (India, China etc.)

Background information:

- Regulations are mandatory documents to be able to sell product/services. Non-compliance = Sales ban!
- Standards are state of the art references. Non-compliance may lead to liability!

# Excuses vs. Reality

- Excuse: CySec is a new field and we do not have any expertise
- Reality: CySec is a new field for almost every organization. Even the best ones are lacking expertise, resources and experience
  
- Excuse: Our customers do not demand it, our E/E products do not require it
- Reality: CySec is relevant for almost every electronic unit which is interconnected within M, N and O type of vehicles. (also L6 and L7 partially)
  
- Excuse: We can't get into that world class markets, these are already occupied by „you-name-it-land“ people or companies
- Reality: Every nation, every organization have their own strengths and weaknesses.

# Status Summary and Chances for New-Comers

- All of the OEMs that are bringing the vehicle on the roads in UNECE region must proof the compliance w/ UNR-155 on organizational level and on product level
- All of these OEMs are currently pushing most of the compliance requirements towards suppliers for the critical components. This is followed by
  - compliance w/ ISO/SAE 21434
  - compliance w/ OEMs own CySec Processes
  - support for the witnessing and auditing activities by technical services
- No project w/o certain security requirements soon for E/E systems
- In that landscape the suppliers shall develop organizational and project specific CySec capabilities and demonstrate required expertise towards customers & auditing parties

**CySec is a great chance for organizations who wants to shape the future of automotive!**



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# Q&A

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