



AV safety : Commission view FRVA



facebook.com/EU.Growth
facebook.com/MrSmeForEurope



[@EU_Growth](https://twitter.com/EU_Growth)

Follow us on:

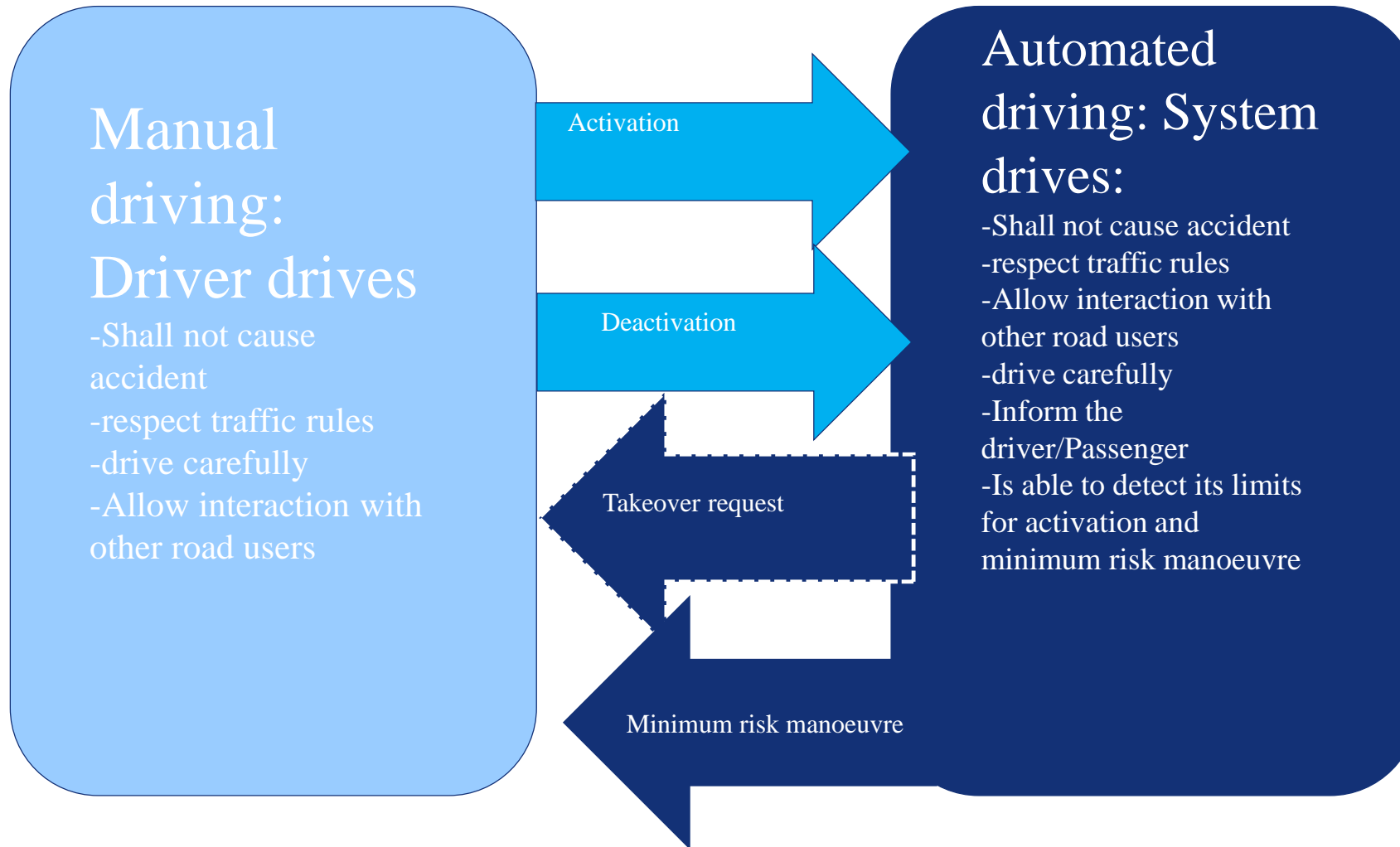


youtube.com/c/EUGrowth

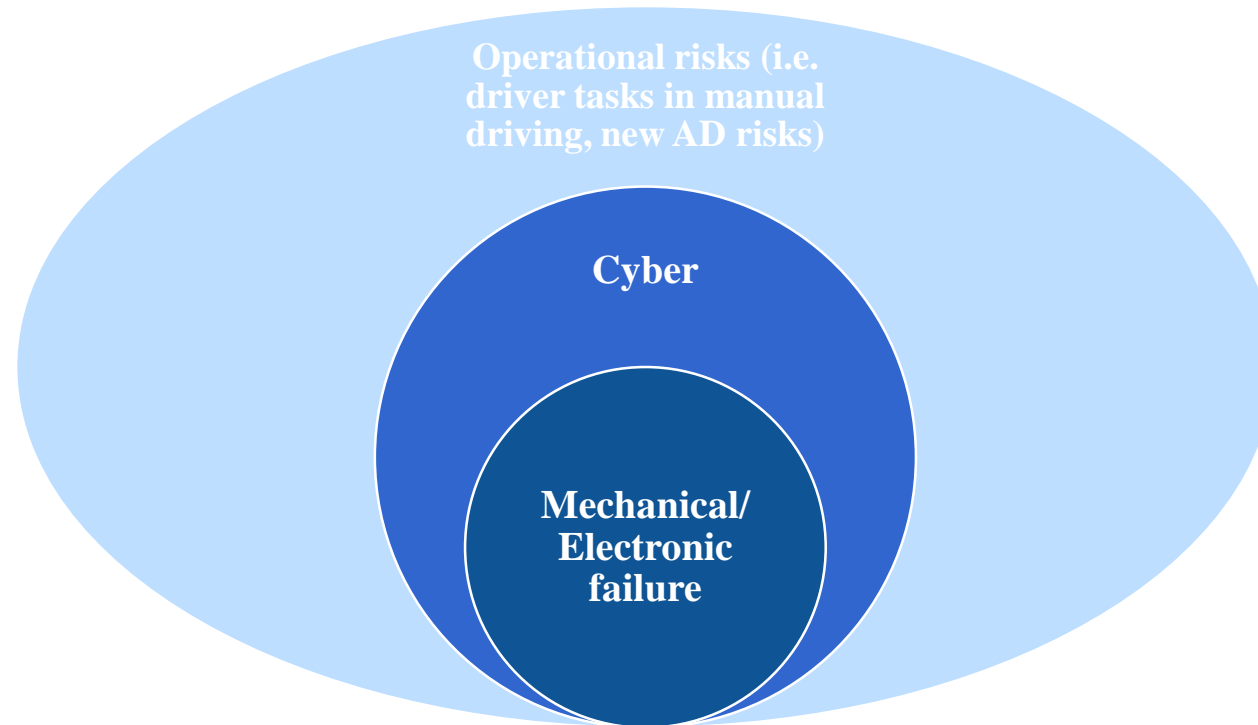
Web sites:

ec.europa.eu/growth
ec.europa.eu/commission_2010-2014/teroci

Automated driving: concepts

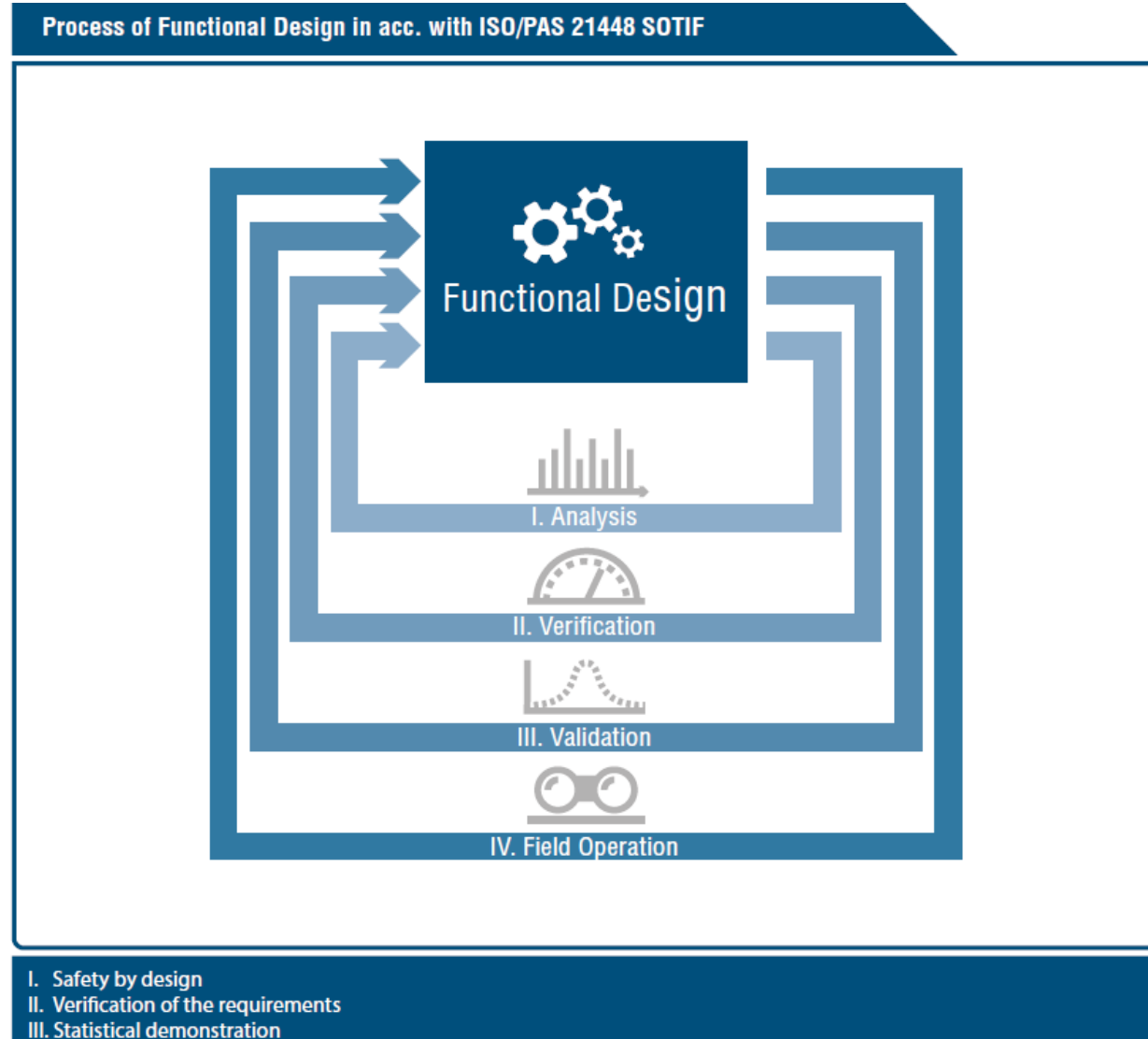


Automated vehicles: New risks to be tackled



Design/Verification/validation by manufacturers

- Need to clarify concepts first : Same words are used with very different meaning
- We should distinguish how these instruments are used by manufacturers and authorities



Safety level

- Overall goal: At least equivalent to human driving
- Not a single criteria but a combination of qualitative criteria (all known unsafe scenarios and most unknown unsafe scenarios shall be managed) and quantitative target for residual risk (equivalent to humans or better)
- Constraints: Balance between safety (focus of authorities) and drivability (also important for manufacturers).
- This implies safety principles and safety capabilities in nominal and degraded conditions as well as a relevant architecture to provide these capabilities.

Safety level: References

- National/regional guidelines
- Safety principles used by manufacturers: ISO 26262 and SOTIF (ISO PAS 21448), FMEA, STPA, etc.
- Safety principles used in other sectors: producer/user is responsible, equivalent level of safety, performance as intended, best effort to avoid accidents, assess/inform about residual risks
- Safety principles can be applied for L3 ALKS similar to general approach but limited number of scenarios: at least equivalent to human driver, risk of misperception, reaction of the system at the edge of the OD/complex situations, risks for driver confusion/disengagement.

EU guidelines on automated vehicles

- **Goal: Approval under an EU exemption procedure**
- **Main safety principles:**
 - 1. SYSTEM PERFORMANCE IN THE AUTOMATED DRIVING MODE (Including Duty Of Care Principles)
 - 2. DRIVER/OPERATOR/PASSENGER INTERACTION
 - 3. TRANSITION OF THE DRIVING TASKS
 - 4. MINIMUM RISK MANOEUVRE
 - 5. INSTALLATION OF EVENT DATA RECORDERS
 - 6. CYBERSECURITY
 - 7. SAFETY ASSESMENT AND TESTS
 - 8. INFORMATION PROVISION TO AUTOMATED VEHICLE USERS
 - ANNEX : INFORMATION TO BE PROVIDED FOR TYPE APPROVAL
- **Supported by Member States on 12 February 2019**
- **Publicly available:** https://ec.europa.eu/growth/content/guidelines-exemption-procedure-eu-approval-automated-vehicles_en

•Thank you!

