VERIFICATION
VALIDATION
METHODS

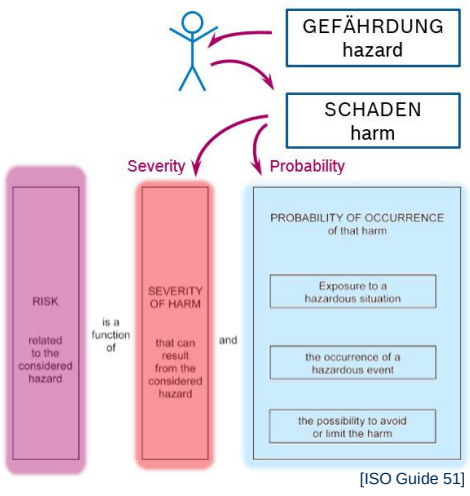
PROJECT of the PEGASUS FAMILY

RISK MODELLING

From societal expectations to safe products

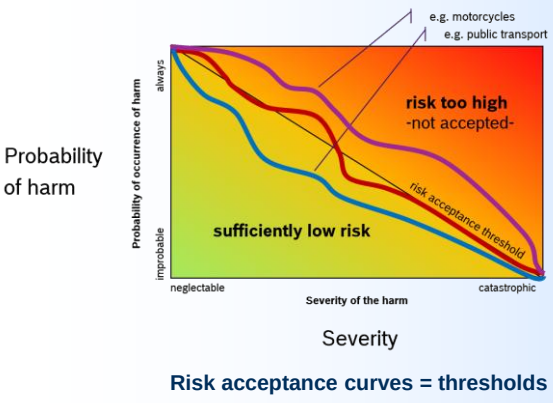
Thomas Kirschbaum, Bosch

Individuals want to be safe i.e. protected from harm, freedom from hazards.
"Risk" combines increments of harm (severity) with increments of the hazard (probability) for more granular evaluation.



[ISO Guide 51]

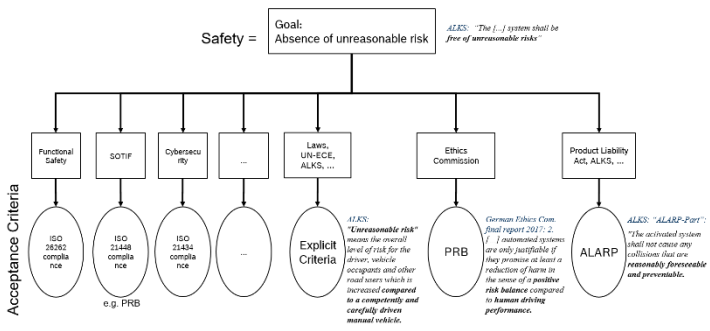
Risk = **Severity** of harm **x Probability** of occurrence



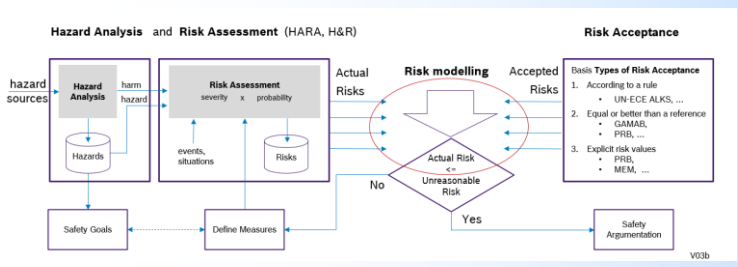
Risk acceptance curves = thresholds

Society accepts a certain amount of risk. It considers sufficiently low risk as safe. The risk acceptance threshold is not linear. It depends on context and differs between culture groups.

For safe products automotive industry shows the "absence of unreasonable risk" which is considered to represent sufficiently low risk. It is necessary to argue evidence for an appropriate set of Risk Acceptance Criteria (RAC).



Safety = Absence of unreasonable risk | Need evidence for RACs



Risk Management Core: align actual risk with accepted risk

The "Risk Management Core" allows to derive the appropriate amount of risk reduction measures based on the evaluated risk and the applying risk acceptance criteria

Outlook Risk Modelling

- Collect Hazards in a "Hazard Log"
- Align risks with different RACs
- Risk Modelling with more than one hazard at a time

www.vvm-projekt.de Twitter @vvm-project LinkedIn VVM Project

Projektpartner

A project developed by the VDA Leitinitiative autonomous and connected driving

Supported by:
Federal Ministry for Economic Affairs and Climate Action
on the basis of a decision by the German Bundestag