

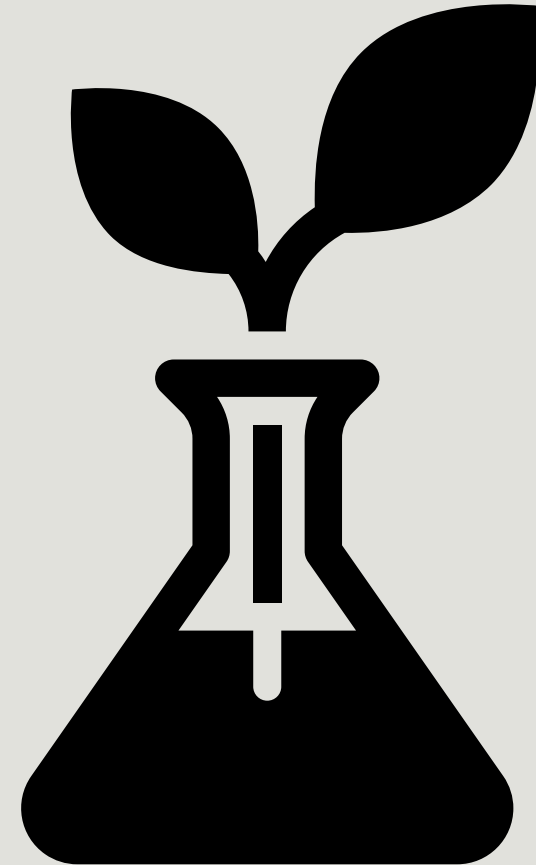
EMC discussion subjects

IEEE meeting 2021-10-21

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How do we assure EMC competence in Sweden?



Content

- Brief introduction
- Discussion and input from the meeting
- What do we want to do for the future?
- Summarizing

Aim with the discussion

- Raise the question
- Create better contact between industry and universities
- Motivation:
 - Industry – recruit EMC educated engineers
 - University – valuable feedback, increase education quality (to meet expectations)
- X?

Swedish university situation

- Very different position depending on university
- Financing
- Where are the Ph.D students?

Swedish corporate situation

- Very different position depending on company
- Based on engineers educated at universities
- Bigger companies: internal EMC education
 - Examples
 - Volvo Car
 - Combitech

Finding new people to the field

- Our attitude
 - EMC-hot → EMC:hot!
- Awareness of existence
- Responsibilities
 - University ↔ Cooperation
 - Industry ↔

**How are new EMC requirements created?
What is the Swedish influence?**



Content

- Brief introduction on different examples
- Discussion and input from the meeting
- Summarizing

Aim with the discussion

- Information on how things are working
- Information on the Swedish influence
- Discussion about conflicts of interest

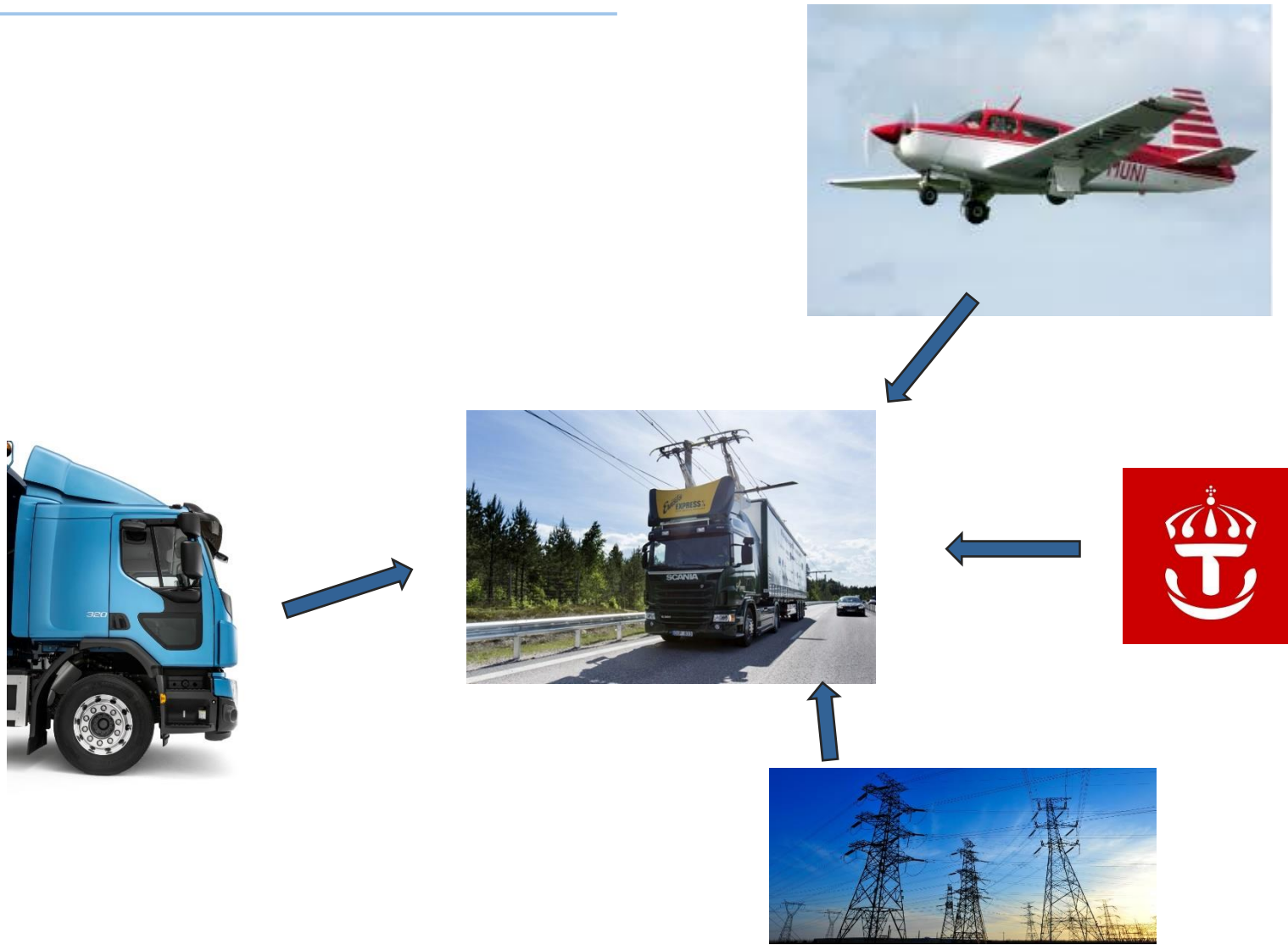
Ways of generating requirements

- From authorities
- From companies
- Corporate internal margins
- From users?
 - Who is protecting the radio spectrum?
 - CISPR needs active support

Different complexity

- “Simple” changes
 - Updating IEC or ISO standards
- Standard for new technology
 - Electrical roads: new concept for power/energy transfer to vehicles
 - Solar panels: new large antenna
 - Wireless charging: health and radio aspects
 - Robotic mowers: domestic appliance -> radio device

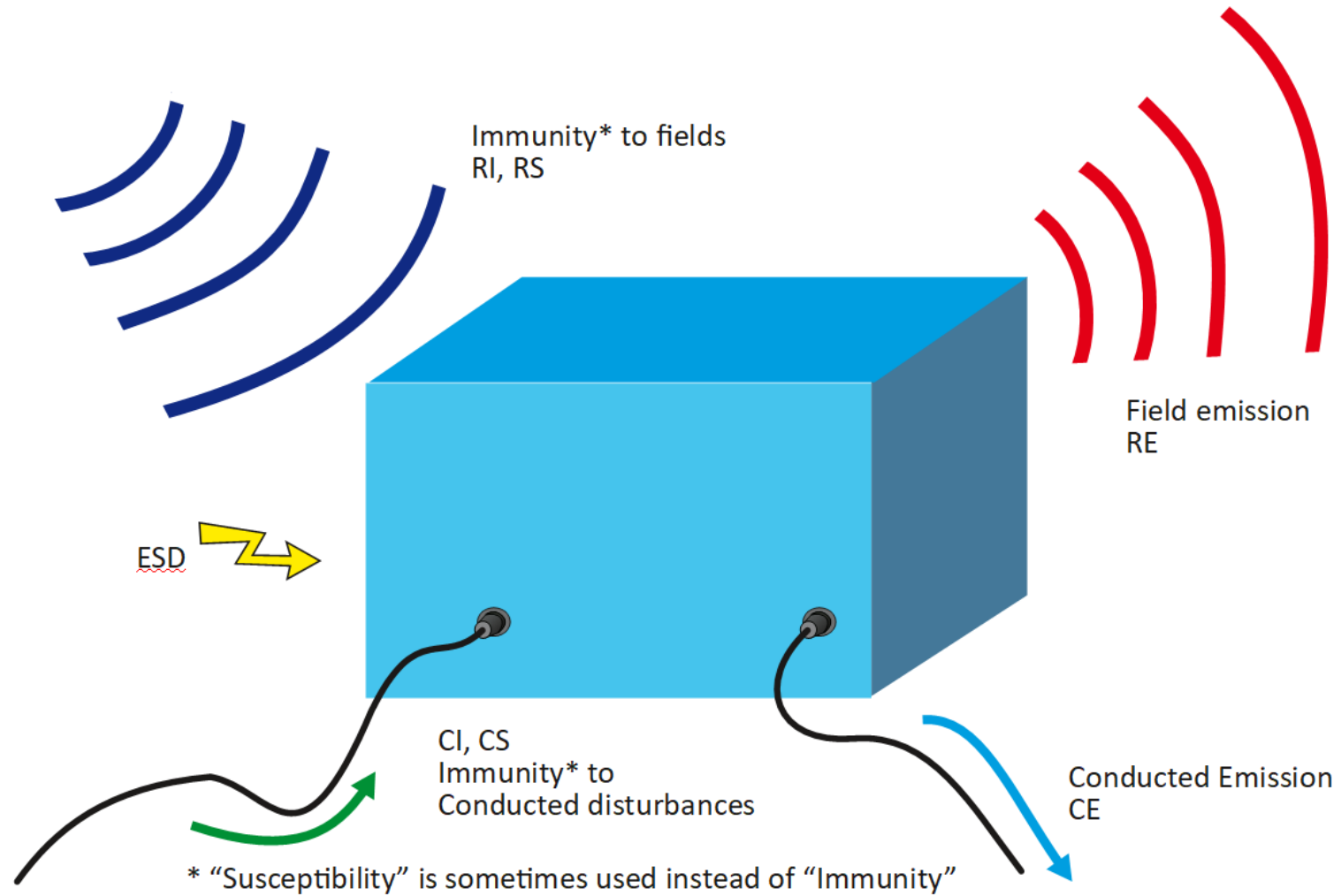
Example: electrical road



Corporate requirements

- Allocating requirements on sub-components
 - Copy-paste previous requirements = risk!
 - Checking valid preconditions
- Margins to reality - examples
 - Ericsson: lightning strike in mast
 - Volvo:
 - vehicle radio performance
 - LF H-field immunity
 - ABB HVDC installation: resulting in CIGRE standard
 - General: ESD on keypad panels

EMI risks in reality



Swedish influence on EMC Requirements

- Vehicles
 - UN ECE R10
 - CISPR
- Marine
 - IEC/EN standards
 - ABYC
 - IACS (ships classification)
- IEC/CENELEC
- Other?
- Who are sitting in committees?

From the audience
