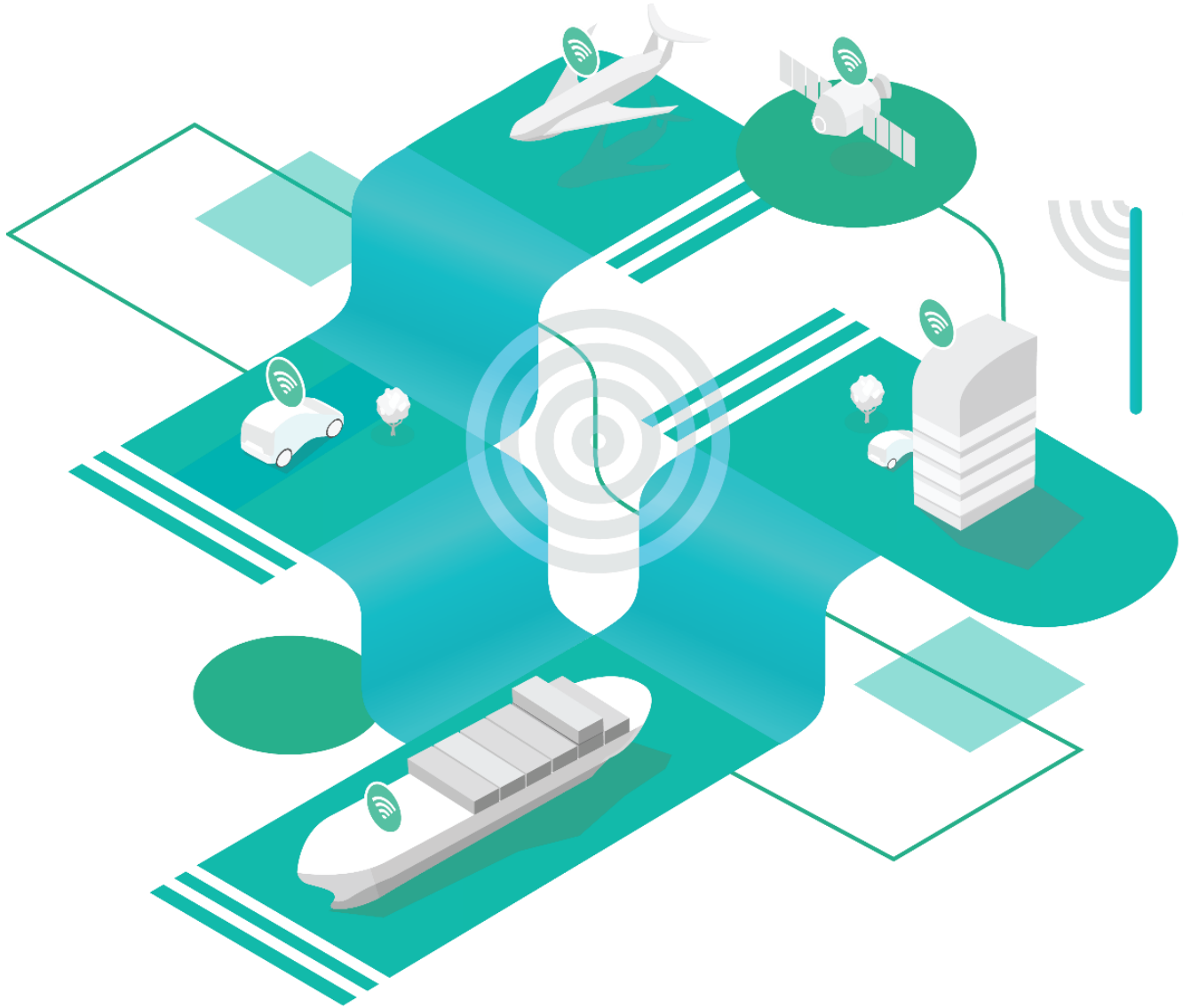


IWASS

First International Workshop on Autonomous Systems Safety

Trondheim, Norway
March 11th to 13th

NTNU
Norwegian University of Science and Technology

The B. John Garrick Institute for the Risk Sciences
UCLA ENGINEERING

DNV·GL

The Research Council of Norway

ROLLS ROYCE

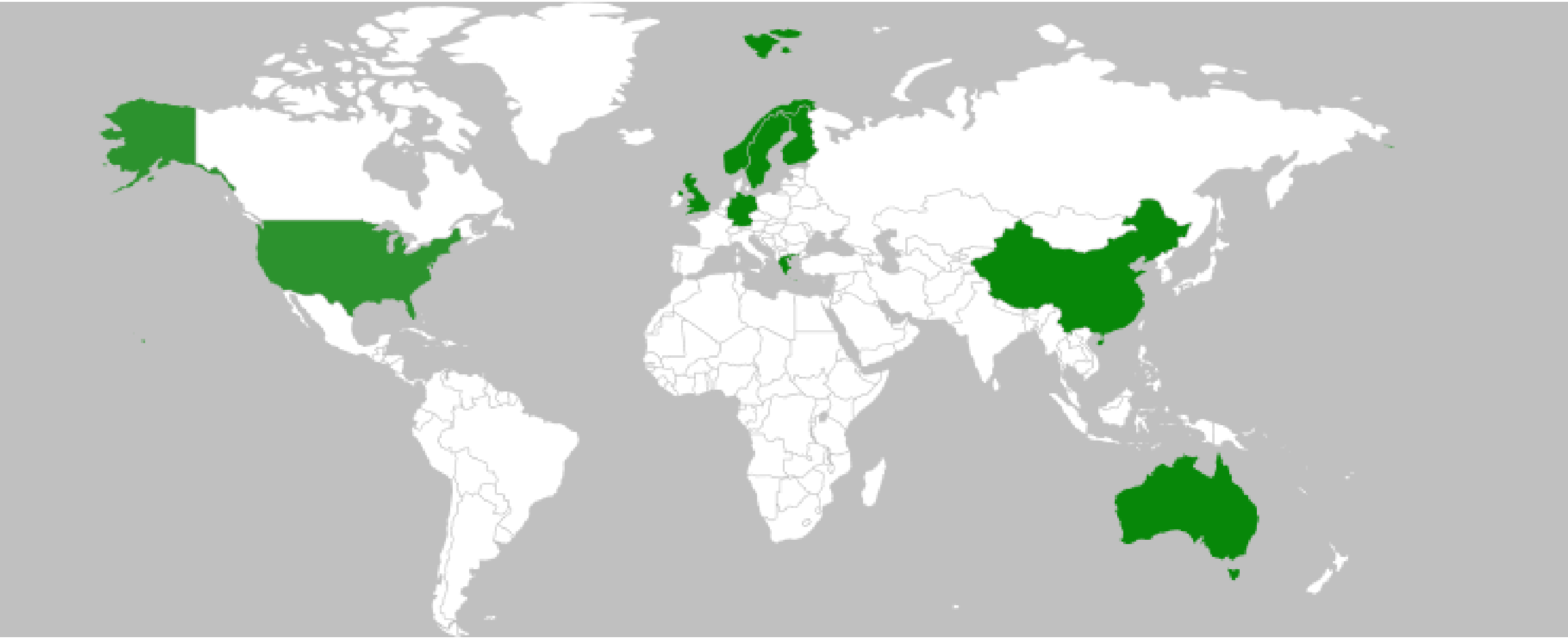




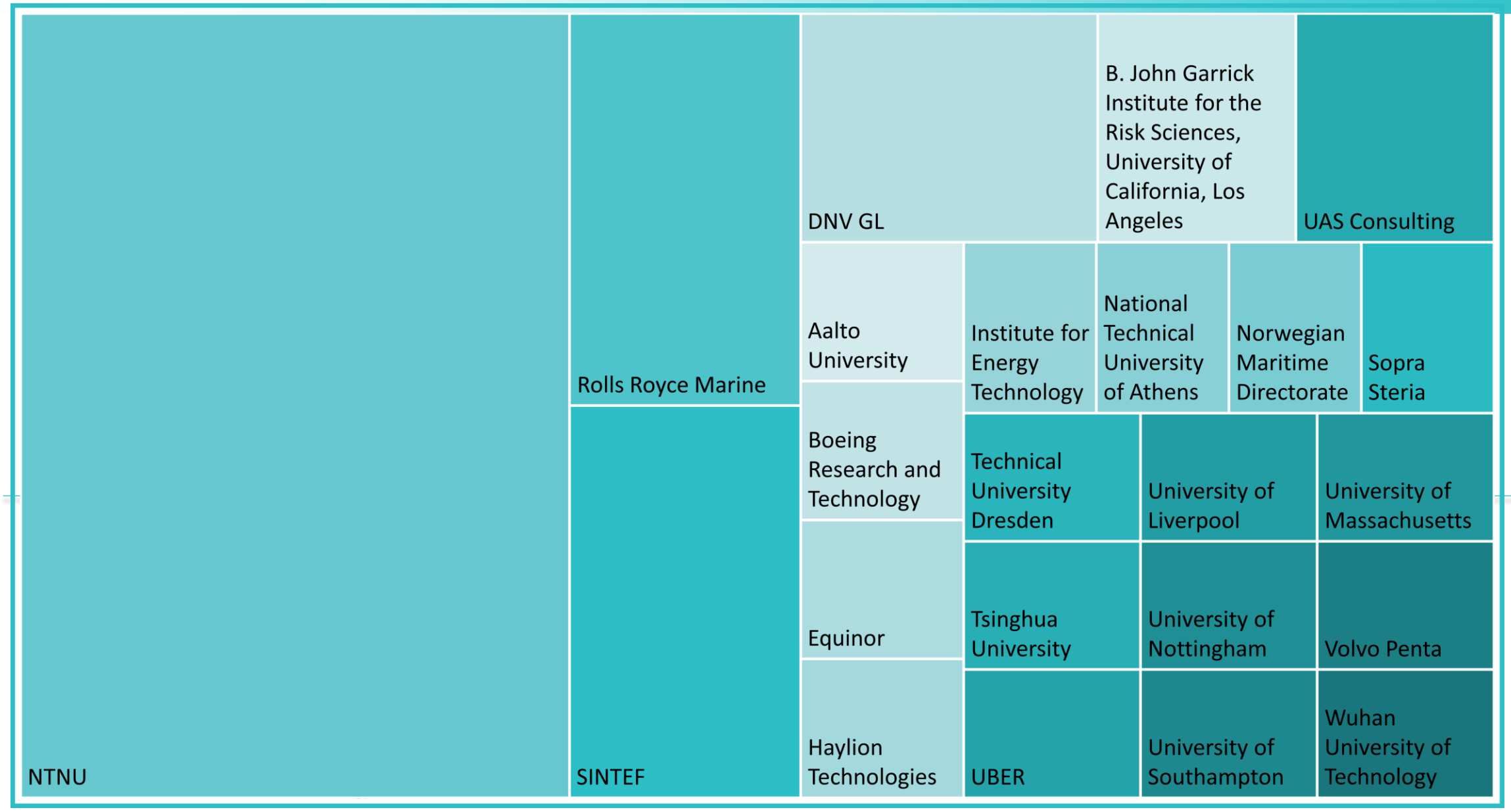
Key topics

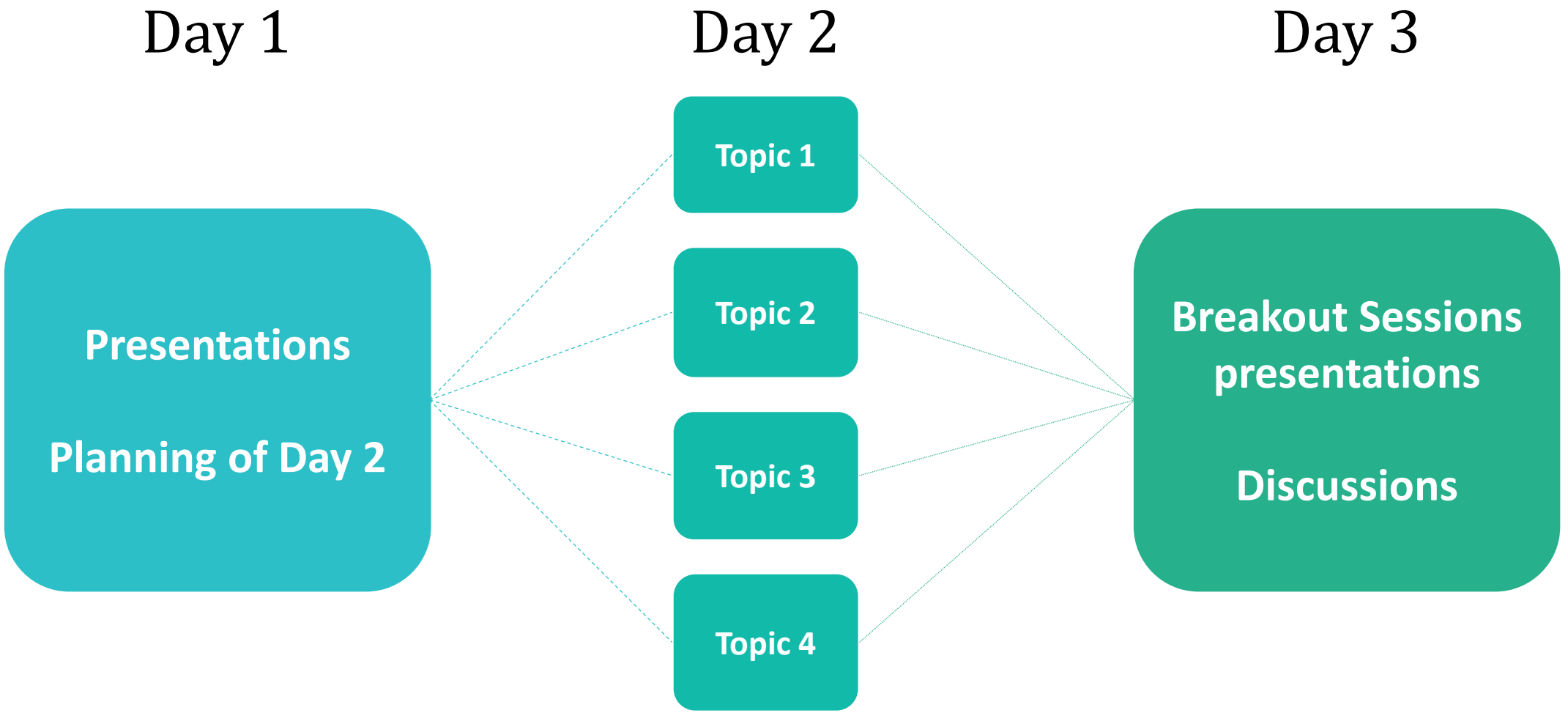
- Making the case for autonomous system Safety, Reliability and Security (SRS)
- Modeling and analysis methods for assessing autonomous system
- Human in the loop – benefits and risks
- Dealing with complexity of integrated systems of Software–Hardware–Human
- Safety standards, oversight, regulations, ethics and liability

Origin of participants



Affiliations




Day 1
Day 2
Day 3
Presentations
Planning of Day 2
Topic 1
Topic 2
Topic 3
Topic 4
Breakout Sessions presentations
Discussions

Expected outcome

Whitepaper → Engaging discussions

Proceedings

- Abstracts of the presentations
- Summary of discussions
- Breakout groups conclusions

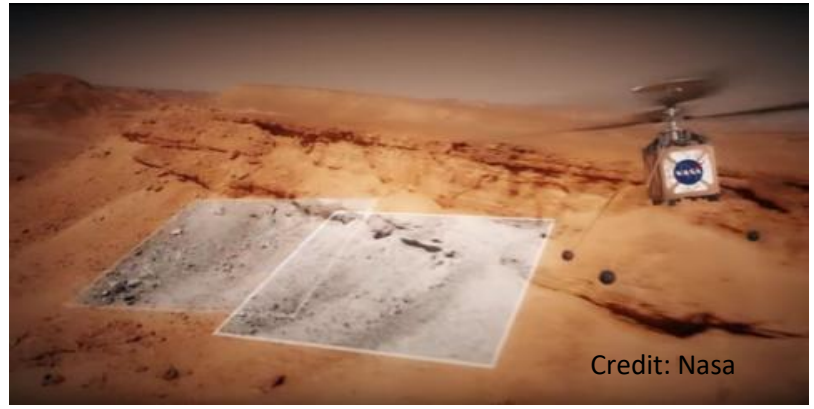

Credit: Marin Teknikk
Zero Emission
Yara Birkeland


Credit: Google


Credit: Tokyo Times


Credit: DNV GL
ReVolt


Credit: Ford
Ford
INVESTIGACIÓN


Credit: Nasa


Adaptive autonomy
Level of Autonomy

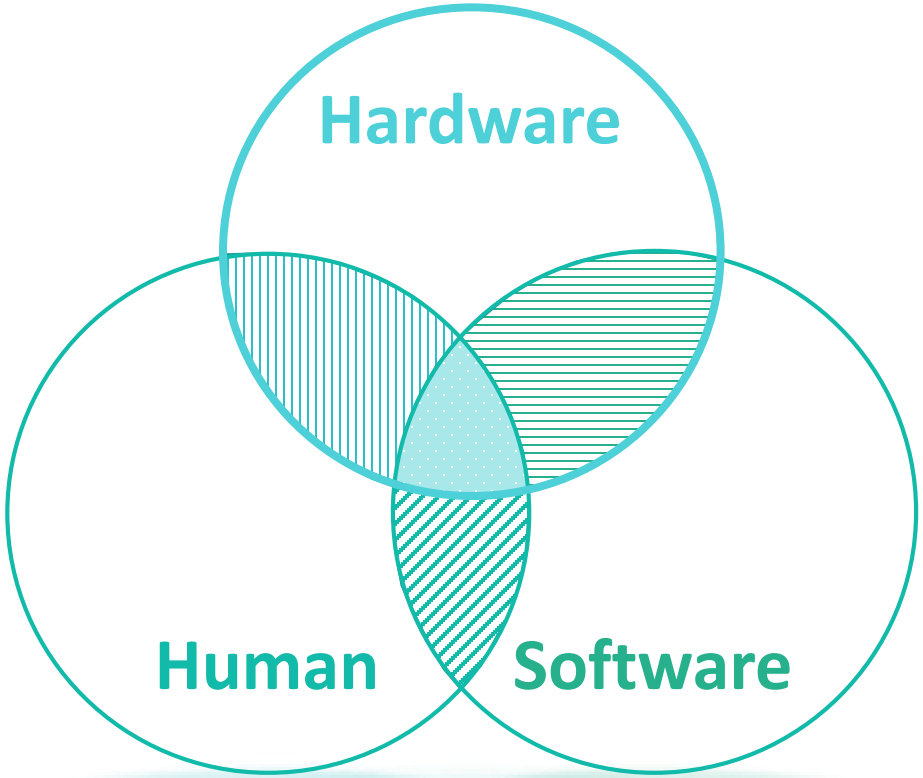
Safety Challenges


Credit: Times of Indfia


Credit: BGR


Credit: techthelead

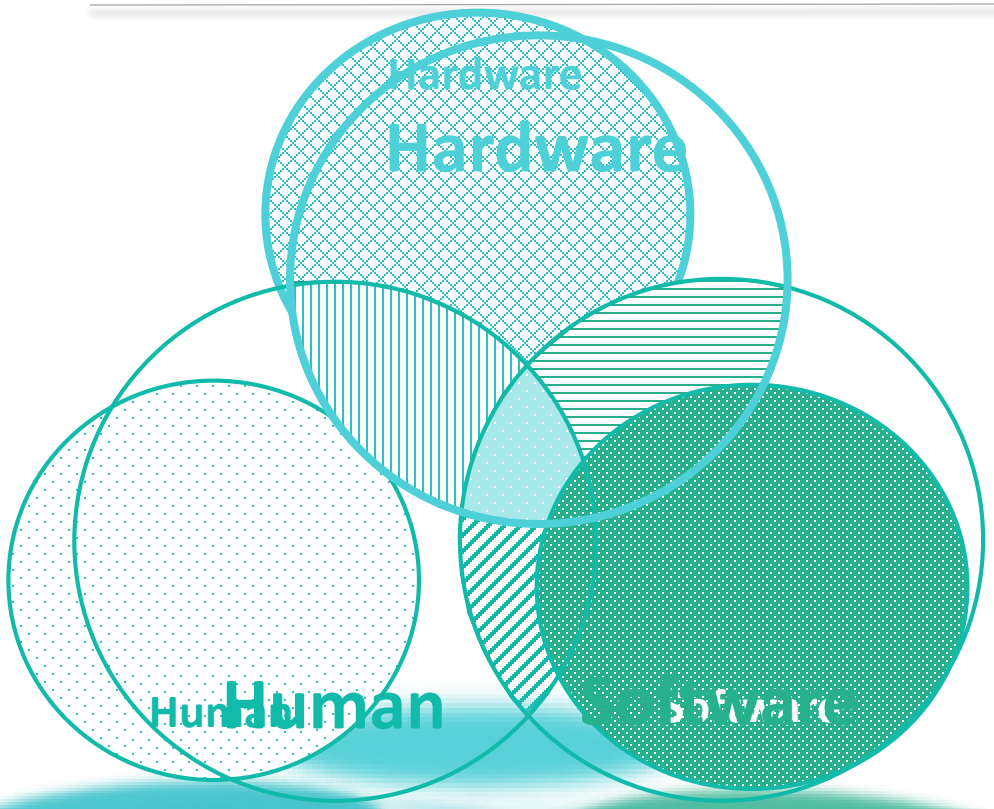
Interaction of software, hardware, and human operator



Misleading Information

Failure Propagation

Assessment methods for safety, reliability and security



Separation Principle

Complex systems may not be sufficiently represented

Software Reliability

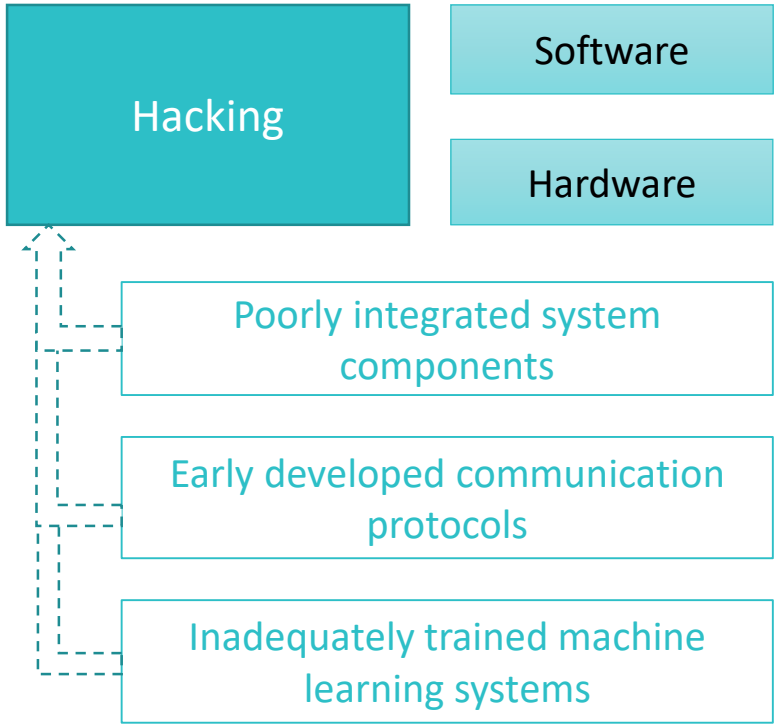
Interaction between different components

How the software can fail

Security

New threats

Cyber security

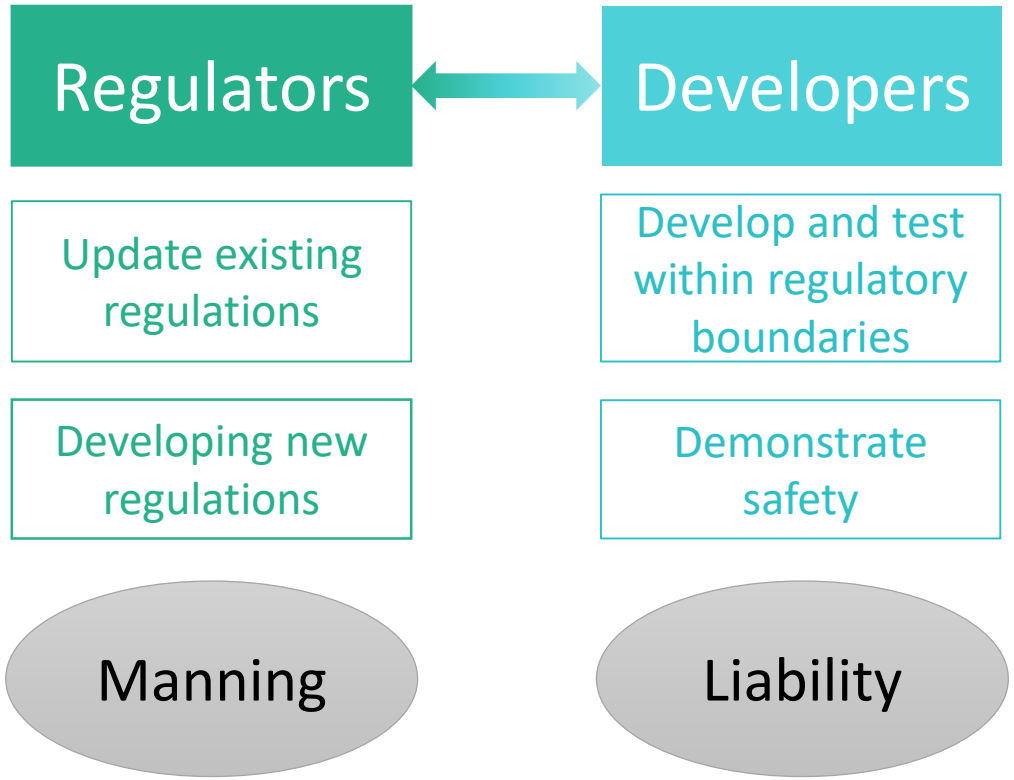


Jamming

Spoofing

Ransomware
"Robot-napping"

Legal and regulatory aspects



Catch-22:

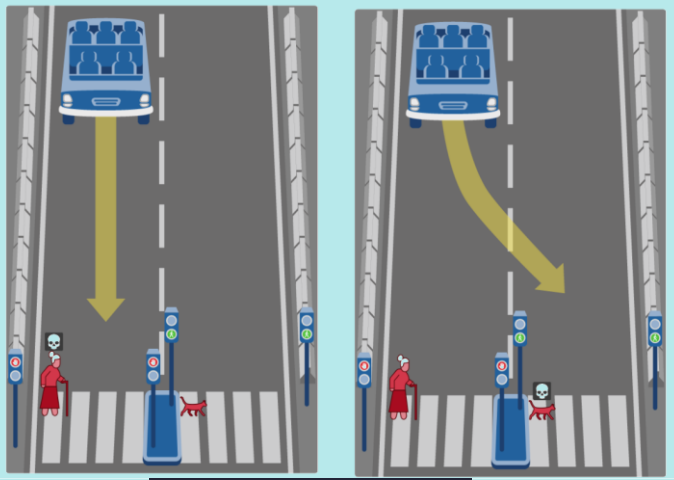
need to test and use
AVs to assess their safety

we do not want them until
we know that they are safe

Ethical and social aspects

Trolley problem

What should the self-driving car do?



MORAL MACHINE

http://moralmachine.mit.edu

Fixed and embedded in the algorithms?

"Replicate" human-alike decisions?

Mundane traffic situations

- approaching a crosswalk with limited visibility
- turn taking
- traffic-heavy intersections
- liability factors