RAAS – Rethinking Autonomy and Safety
Examples of Domains where Autonomous Systems are Proliferating

- Marine transport and port operations
- Urban transport
- Inter-Urban transport
- Mobile machinery
- Rural transport
- Unmanned air and space systems

"Quick and easy-to-use door-to-door mobility enabled by highly automated chains of different means of transport"

"Safe and fluent traffic with autonomous highway, air and rail solutions"

"Fluent supply chain enabled by autonomous operations"

"Novel solutions for efficient asset, logistics and safety & security management"

"Sustainable productivity in harvesting of natural resources through remote-controlled and autonomous systems"

"Automated and combined people and goods transport service solutions"

"Novel solutions for efficient asset, logistics and safety & security management"
RAAS – Rethinking Autonomy And Safety

- Interdisciplinary innovation ecosystem for autonomous systems research and development
- One-Stop-Shop access to world-class research talent
- Focus domains: 1) Maritime, 2) Land transport, 3) Mobile work machines, and 4) Drone systems
- More information: www.autonomous.fi
- Contact: Hannu Karvonen (Ecosystem Lead, VTT) hannu.karvonen@vtt.fi, +358 40 021 6396
Basic Facts About RAAS

Funding in 2018–2020
Partly funded by the Ministry of Economic Affairs and Employment of Finland (TEM)

Our vision
One-Stop-Shop access to top research and development in autonomous systems

Our mission
Solving of systemic and holistic challenges

Educational aim
Securing the availability of skilled professionals
## RAAS Research Task Force Main Contacts and Deputies

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<th>Research Task Force</th>
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<td>Legal</td>
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<td>Kari Tammi / Aalto</td>
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RAAS Activities (1/2)

- **Round table sessions**
  - One day “think tank” especially for SMEs on development challenges, finding partners, etc.

- **Project accelerator service**
  - Short-term effort to define basic concept and consortium for multilateral R&D project entity

- **Innovation challenges**
  - “Hackathon” competition leading to piloting of winner solution
  - Startup/SME teams + researcher teams
RAAS Activities (2/2)

✓ Securing the availability of skilled professionals
  • Doctoral school of Industrial Innovations for autonomous systems
    • Organized on national level with special role for each university
    • Re-education of adults, life-long learning possibilities

✓ Building strong links to business-relevant testbeds
  • Company, ecosystem, city and research testbeds

✓ High-profile seminars and workshops

✓ Keeping up-to-date, via e.g., newsletters,
  • Possibilities for cross-domain benchmarking

✓ Recruitment, course work and education/training possibilities from the involved universities
Key on-going RAAS ecosystem preparations

• Finnish drone accelerator
  • Piloting of drone concepts and business models
• Smart forestry
  • Data, automation & situation awareness in forestry
• SYSTEKO
  • Autonomy-driven systemic change in port and logistics chain ecosystems
• + Many project preparations for the EU Horizon 2020’s Security, ICT and SESAR calls
• Interested in joining these ecosystem-type project preparations? Contact hannu.karvonen@vtt.fi
Future RAAS activities

• Special attention will be paid to:

1. Coordination of the education and training of autonomy professionals
   • Digital teaching methods/platforms, online education, and micro-credentials
   • A big challenge: sufficiency of experts and keeping up to date with knowledge in the rapidly developing area

2. Expertise and services to help companies certify and demonstrate the safety of autonomous AI solutions to authorities
   • Special focus area: simulation-based verification, validation, and qualification
Building trust in autonomous mobility AI
Systematic way to build evidence-based trust

Commission’s strategies for data and Artificial Intelligence (Feb 19, 2020):

“The EU’s approach to artificial intelligence (AI), based on trust and excellence, will give citizens the confidence to embrace these technologies while encouraging businesses to develop them…. authorities must be able to check AI systems as they check cosmetics, cars or toys…”

Citizens’ acceptance and appropriate trust (& desire) in autonomous mobility solutions

Public authorities’ capability to boost citizens’ trust & positive regulatory guidance

Regulatory compliance process: Evidence through virtual & physical testing

RAAS as a booster of citizen–authority–industry trust building

Human-centric systems engineering process for development & validation

Industry’s need to develop safe, attractive and efficient autonomous mobility solutions

Trust building process

Case 1: Mobile work machines & urban mobility
E.g., autonomous machines meet other vehicles on public roads

Case 2: Marine industry
E.g., safe port-to-port autonomy or autonomy-ready VTMS

Source: Shutterstock/Adobe.com
Legal Governance Theme in detail:

- Value chain governance arrangements and their concomitant insurance and liability patterns are currently built on manual and manned operation models.
- Deployment of autonomous technologies will disrupt the underlying patterns and force changes to governance arrangements.
- Legal governance instruments will need adjustments.
- Increasing network governance will create demand for legal innovation.

Current situation:

- A preliminary understanding of existing governance instruments and patterns.
- A preliminary understanding of potential directions in governance development.

Future vision (year 2025):

- Detailed understanding of governance implications of autonomous systems.
- Innovative legal instruments developed and tested.

Do you want to join or have comments/questions?

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