Metropolia University of Applied Sciences
UNIVERSITY OF TURKU
BUSINESS FINLAND

Tactical Eye -project

AHK Finnland – Drones & Critical Infrastructure
5.11.2026
Oscar Nissin, Metropolia UAS

TACTICAL EYE

Project Background

- Tactical Eye (originally a working title)
- Co-Research project – Funded by Business Finland
- Total budget: 1 513 717 €
- Duration of the project: 1.4.2026 – 31.3.2028
- Research partner: University of Turku
- Company partners: ALD Trade Oy, Anderoidi Oy, DNA Oyj, Gridence Oy, Pro Team Innovations Oy
  - Company partners are mostly small, specialized companies in the field of mobile robotics (DNA being the exception)
- Co-Research means research partners are funded

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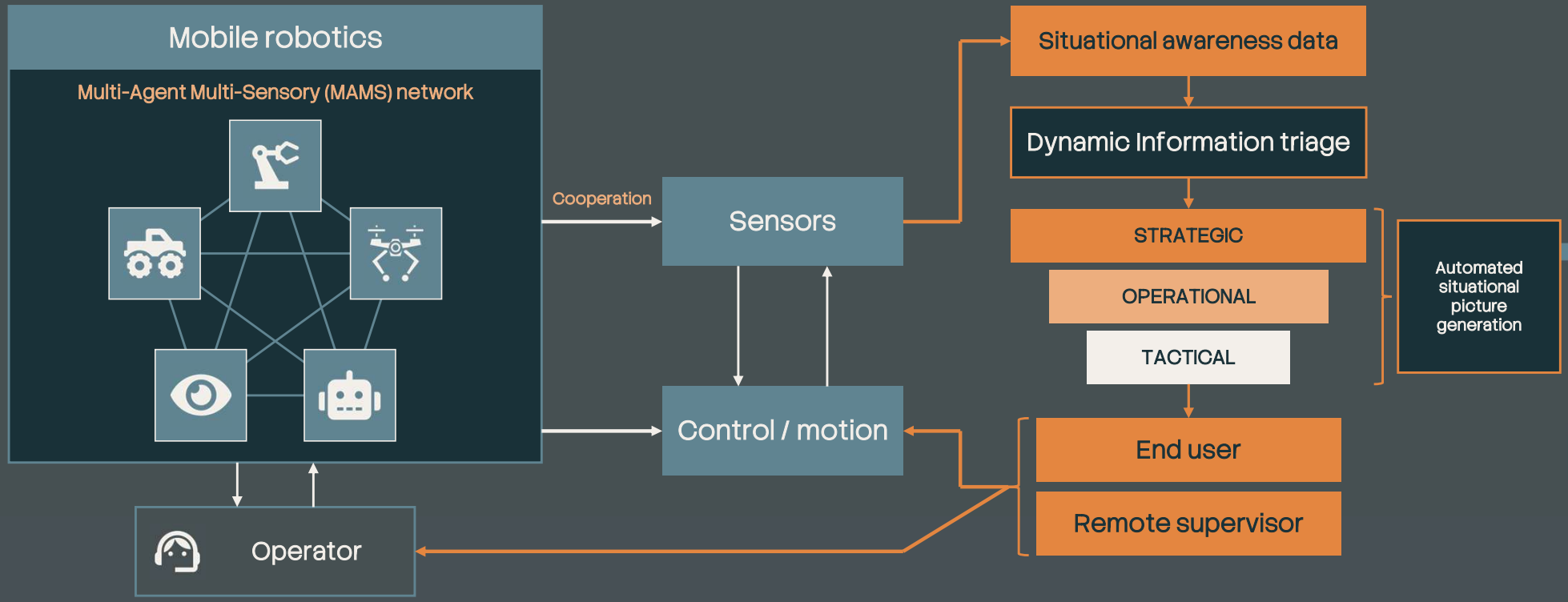
Overview of some concepts

- ”Mode” or “modality” = how a mobile robot moves (UAV, UGV, USV etc.). “Domain” is used in some context to convey similar idea.
- Heterogeneous = consisting of multiple different types / sourced from multiple different vendors / operating in multiple different operating systems
- Dynamic Information Triage = an idea proposed by the project where synthesized presentation of information is presented to a user based on the user needs, as opposed to stream of raw situational awareness data.
- Multi-agent, multi-sensory network = a network of sensors and actors/agents, which operate as one entity as far as possible. Ie. robotic platform does not need to know in which physical platform a sensor / effector is located in real life in order to use it.

Project idea

- Idea has two main themes:
  - Multi-agent, multi-sensory mobile robotic network
  - Enhanced situational awareness
- Research questions:
  - How can a multi-modal, heterogeneous group of mobile robots interoperate and share sensor data agnostically, avoiding vendor lock?
  - How can sensor data be synthesized automatically so, that autonomous agents, especially multi-modal, heterogeneous mobile robotics can increase their operational capability and action autonomy?
  - How can heterogeneous sensor data be automatically used to create a situational awareness product with high level of confidence?
  - How can automatically created situational awareness product answer user needs in strategic, tactical and operative levels, based on dynamic information triage?

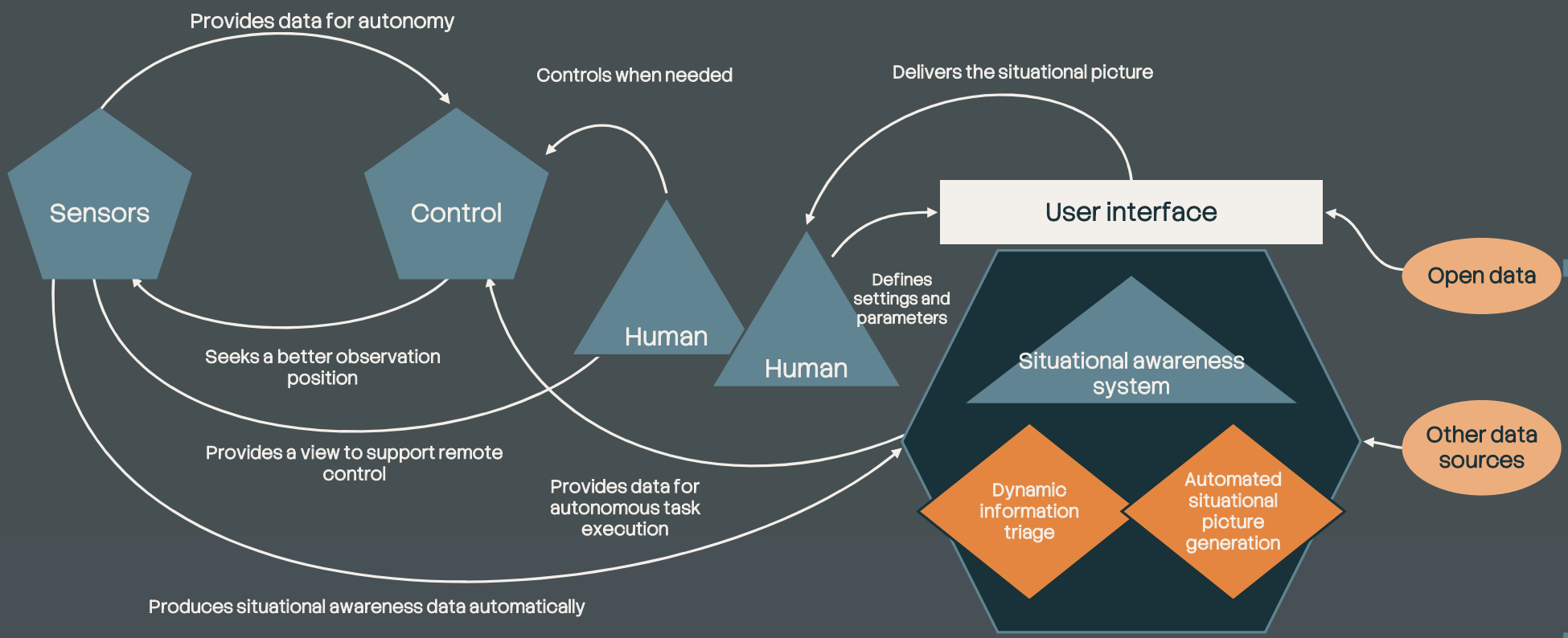
Robotics to situational awareness



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From sensing to situational awareness



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Mobile Robotics in Tactical Eye

- I talk a lot about heterogeneous and multi-modal mobile robotics.
- In Tactical Eye this means:
  - Tracked UGVs (two different platforms)
  - Wheeled UGVs
  - Multiple UAVs (commercial and open-source platforms)
  - Quadrupedal robot (ie. “dog”)
  - Possibly: bipedal robot and robot arm
- In addition to mobile robot platforms, multiple types of sensors will be added to the network, either on robotic platforms or as static or virtual sensors.

Background of project idea

- Ideas for the project come from research group's previous experience with heterogeneous mobile robots
  - Some of the robots built by us, some sourced outside. Some with more open APIs, some very walled garden
  - Similarities and differences in different modalities of robots have become clear – a good understanding of mobile robot capabilities
  - Strong background in field testing and operational use of robots
- Multi-agent-multi-sensory network idea comes from previous project proposal with automated convoy-close-air-support effector-sensor-network
- Dynamic Information Triage idea comes from experiencing and utilizing a lot of different situational awareness systems, and from background research.

Project in motion

- Project is started fairly recently
- Beginning of work has been creating state-of-the-art study, aligning research partners' work, creating the scenarios for future demonstrations, aligning work with company partners etc.
- First "Demo 0" will be conducted in 23rd of November in Lappeenranta airport
- Demonstration days will work as intermittent check points for development work
- Demonstrations are created around scenarios which are created to showcase all of the ideas proposed in the project
- Scenarios vary from protecting critical infrastructure to rescue operations in challenging terrain.

Oscar Nissin

Principal Investigator

Metropolia University of Applied Sciences

Find me from LinkedIn!

oscar.nissin@metropolia.fi

+358406748224

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