

EDIH

European Digital Innovation Hubs Network

Driving the EU's digital transformation



Estonia

1

Member

1/1 *EDIHs



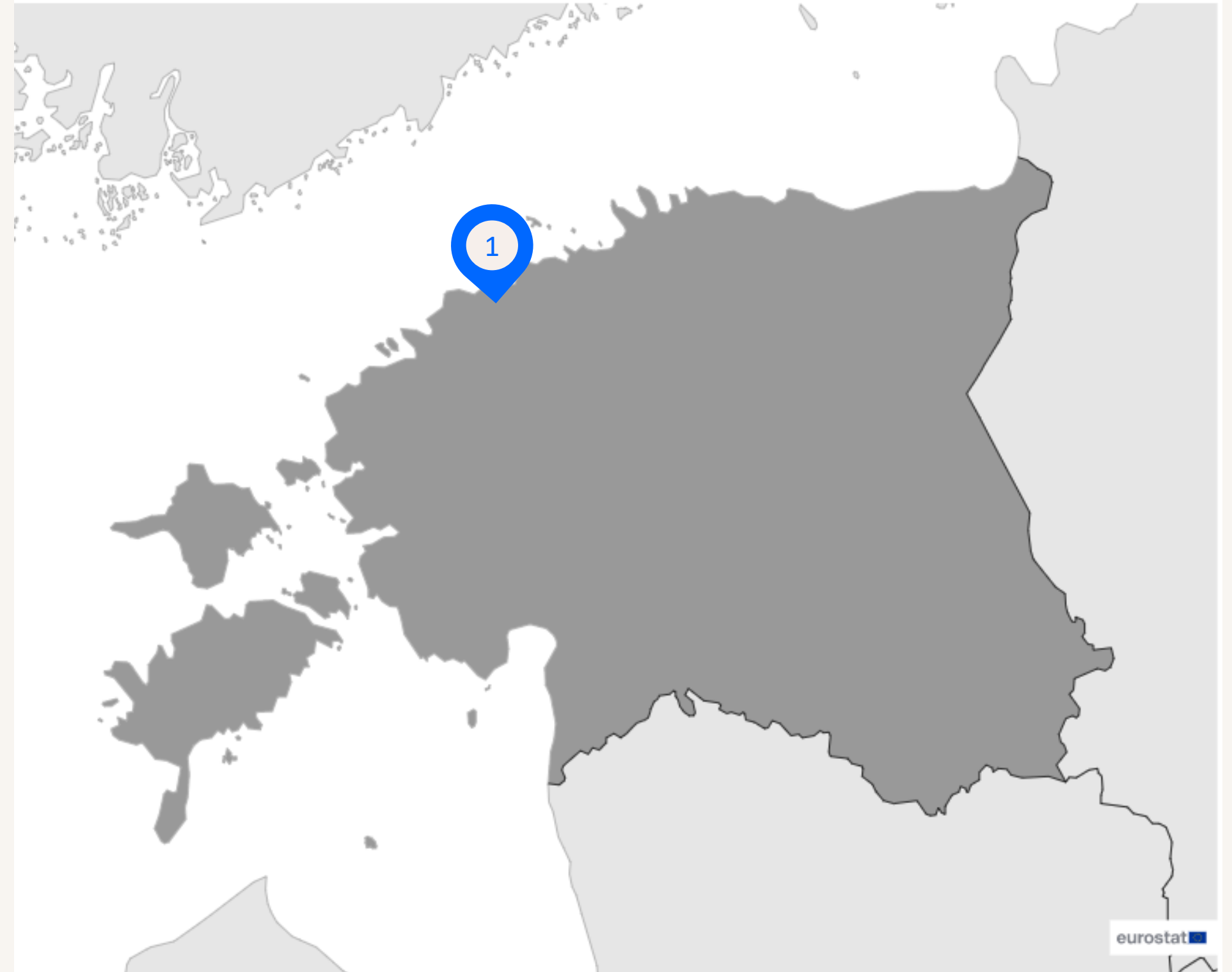
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Sectors

EDIHs in Estonia

Plays a key role in driving innovation, particularly in sectors such as manufacturing, healthcare and tourism.

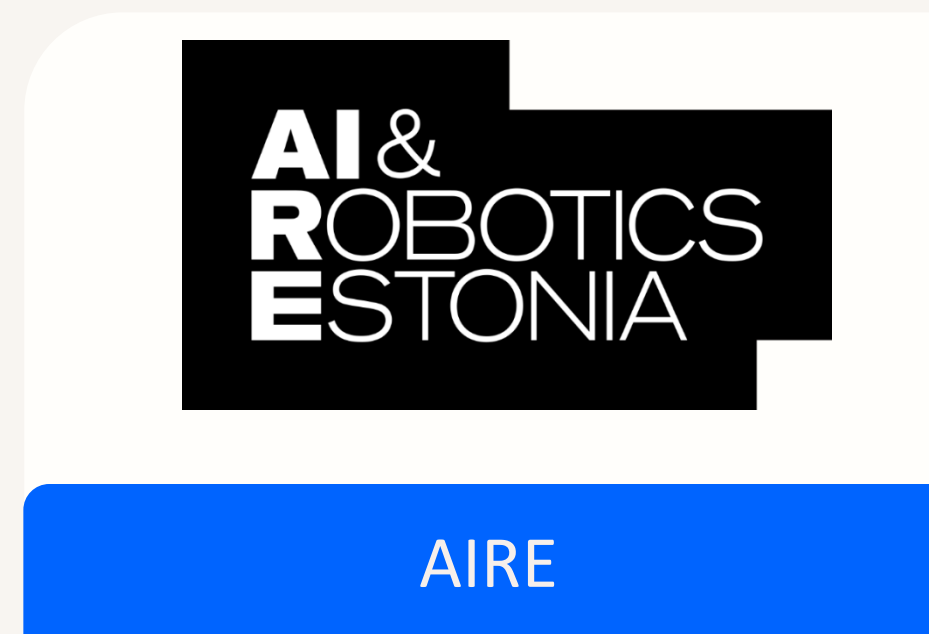
EDIH



*European Digital Innovation Hubs

*Funded under Digital Europe Programme

Network overview: 1 member – 1 EDIH





2 Technologies

Prioritises technologies such as AI and robotics.



Services

Focuses on SME support to facilitate the adoption of digital solutions.

Works on financial services with the aim of increasing investments in industrial digitalisation.

Success stories

AI algorithms and sensor integration for robotic vessels

EDIH

AI & ROBOTICS ESTONIA

CUSTOMER

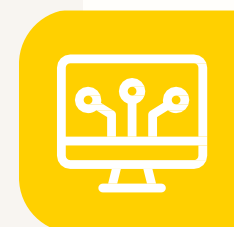
- MindChip
- [Website](#)
- Micro-sized enterprise (1-9 employees).

MindChip



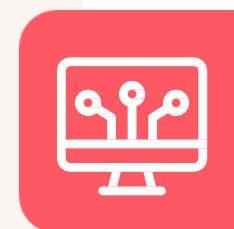
Service type

Test before invest



Technologies

Artificial intelligence and decision support



Sectors

Maritime



Challenges

MindChip OÜ faced the challenge of **developing an autonomous navigation system for maritime vessels**. The main obstacle was ensuring the AI machine vision system could accurately detect and identify ships and local buoys, despite limited time and the need to rely on publicly available data, which impacted the system's reliability in real-world maritime conditions.



Solutions

- **AI-based vision system:** integrated four high-resolution cameras into the robot operating system (ROS) using the YOLOv5m algorithm for efficient detection of ships and buoys;
- **Custom dataset development:** created a tailored dataset to improve the system's ability to accurately detect local buoys;
- **Extensive sea testing:** validated the system's performance through rigorous testing at sea, ensuring detection accuracy and operational efficiency.

Success stories

AI algorithms and sensor integration for robotic vessels



Thanks to EDIH AIRE the SME achieved:

- **access to resources:**

MindChip assembled a team of engineers that would have otherwise been financially out of reach;

- **market expansion:**

successfully demonstrated and deployed the AI system, attracting more clients;

- **collaboration:**

fostered cooperation with other EDIHs, enhancing the development of the autonomous vessel project.



Results and benefits

Enhanced detection capabilities

Small boats detected at distances of 100-150 metres, improving navigational safety.

Cost efficiency

Autonomous vessels achieved 6-10 times cost savings compared to manned ships.

Environmental impact

The system reduced the environmental footprint by five times through optimised operations.



Lessons learnt

- ✓ Prioritise system reliability: focus on ensuring the core components are dependable.
- ✓ Conduct thorough testing: test the system under various conditions to ensure robustness.
- ✓ Allocate time and resources: prepare for tasks to take more time and resources than initially expected.