



AI
SWEDEN



**Driving AI
innovation**

The power of collaboration

AI Labs empowers researchers, organizations, and companies to explore cutting-edge technology and accelerate the adoption of AI in Sweden.

Through collaborative, hands-on projects, we create a neutral and open environment that fosters knowledge sharing, experimentation, and networking across organizations – an approach that is fundamental to AI Sweden.

At the core of our mission is the promotion of collaboration, capacity building, and knowledge transfer between individuals from diverse organizations, driving AI innovation at the forefront. By strengthening AI expertise and infrastructure, we equip partners with the tools and competencies needed to scale AI solutions effectively.

As part of AI Sweden, our partners gain unique opportunities to leverage synergies between academia, industry, and the public sector.

AI Labs and the Edge Learning Consortium are funded by Sweden's innovation agency Vinnova as well as AI Sweden partners.





Letter from the director

Dear reader,

I am excited to present this overview, which highlights the progress we have made at AI Labs – the research and innovation platform of AI Sweden. The success of the Edge Learning Consortium is a testament to our unique approach. By combining speed, boldness, talent, and timing, we help our partners drive cutting-edge AI innovation and build AI capacity. These elements are essential in securing a competitive edge in the global race for technological and economic leadership.

We provide a neutral platform where experts from industry, academia, and the public sector come together to experiment, prototype, and deploy next-generation AI solutions. Consortia – such as the Edge Learning Consortium – set us apart. They enable us to act, mobilize talent, resources, and infrastructure almost instantly. This approach lets us tackle complex challenges

at the moment they emerge. As initiatives gain traction, they can evolve into full-scale projects, driving even greater impact.

The Edge Learning Consortium stands as a leading example of this model in action. It has demonstrated how organizations can collaborate to push the boundaries of privacy-preserving AI, federated learning, and decentralized AI architectures.

Continue reading to learn how we work, how partners engage, and how you can join us in shaping the future of AI—through new consortia, talent programs, and pioneering projects.

— 

Mats Nordlund, PhD
Director of AI Labs,
AI Sweden

Pioneering the future of AI: The Edge Learning Consortium

The Edge Learning Consortium was established within AI Labs in 2020 with a clear mission: to build Sweden's capacity in AI innovation by accelerating research, development, and real-world applications of decentralized learning. Training AI models across multiple nodes without a central server, then merging them into one model helps enhance privacy, reduce data transfers, and leverage distributed computing power. This federated approach enables collaboration while preserving data security, driving AI innovation across industries.

At the core of our success is our unique way of working. By co-locating top experts from industry, academia, and the public sector in a unique test and experimentation facility, we have created a one-of-a-kind collaborative ecosystem.

This allows partners to rapidly prototype, validate, and deploy next-generation AI solutions. Our approach has made us a benchmark in AI innovation – attracting world leaders, industry pioneers, and policymakers eager to understand how we achieve such transformative results.



Our way of working is a formula for success

Technology is evolving at an ever-increasing pace, partly because we develop technology to, in turn, develop other technologies. This rapid advancement shortens product lifecycles, making rapid, continuous innovation a necessity in many areas.

The organizations and countries that will lead the AI-driven economy are those that build and sustain their capacity for rapid innovation.

It follows that capacity-building is not just a goal at AI Labs, it is our core competitive advantage. The consortium model we use is the key instrument for capacity-building and makes it possible for us to achieve:

- **Speed:** The ability to bring together the right talent at the right time (often immediately) to address new challenges or seize opportunities that continuously arise,
- **Boldness:** By leveraging the combination of capabilities of AI Sweden's partners, we collaborate to pursue high risk – high reward solutions with minimal individual levels of risk.

With these ingredients – a neutral platform for collaboration equipped with a unique tailor-made test-and-experimentation-facility, our partners can develop competitive strengths and address challenges faster than elsewhere. Thus, reducing time to market, mitigating quality risks, and setting ambitious yet realistic expectations of what is possible.

Central to our way of working are two key principles:

- Co-locating people maximizes innovation.
- The fastest way to transfer knowledge and skills is by moving people between organizations.

What our partners say

“Working with AI Labs was a catalyst – not only for advancing my research, but for making real impact. The collaborative environment and cutting-edge infrastructure enabled us to deploy edge AI models in the ocean, revealing insights into marine ecosystems that were previously out of reach. This experience has been pivotal in shaping me into a leader in applied AI for environmental science

– Jonas Hentati Sundberg (PhD) Associate Professor, at the Swedish University of Agricultural Sciences

People moving between organizations carry challenges, insights, and expertise directly to AI Labs where collaboration and the collective capability enable participants to invent and innovate at a pace that is not possible within a single organization. Participants bring back insights, results, and know-how to their home organizations to more rapidly implement innovation and build capacity.

To enable this dynamic, we have reimagined the traditional triple-helix model, introducing the consortium approach focused on human-centered capacity building. This model unites industry, the public sector, and academia at our evolving test and experimentation facility, allowing partners to embed talent within a dynamic environment where they collaborate on challenges, both large and small. By circulating participants between this platform and their home organizations, we shorten development cycles and ensure a seamless transition of new technologies, knowledge, and expertise from concept to implementation.

Capacity-building through unconventional collaboration

The rapid progress of decentralized learning solutions at AI Sweden is a result of visionary industry leaders who dared to move fast, trying unconventional ways to collaborate.

The automotive industry challenge:

The automotive industry faced an urgent challenge: how to train AI models on sensitive data across global locations while complying with strict privacy, and transfer regulations. AI Sweden partners HPE, Volvo Cars, and Zenseact acted fast—identifying federated learning as a breakthrough technology. Within just two months, they formed the Edge Learning Consortium, built critical infrastructure, and launched the Edge Learning Lab to test and experiment in a realistic, production-like environment.

Scaling impact: More partners quickly joined, and the initiative secured a Vinnova grant, allowing for accelerated capacity development in privacy-preserving AI technologies. This attracted partners from other sectors, e.g. health, space, and regulatory authorities, to participate in exploring the potential of this technology.

Consortiums enable rapid progress: The Edge Learning Lab and consortium has attracted top talent and industry pioneers, as well as start-ups, demonstrating the power of co-location, speed, and bold execution.

Key impact

**Accelerated
AI innovation in
mobility, healthcare,
infrastructure,
security, and space**

**Strengthened
Sweden's AI
Ecosystem**

**Advanced
AI Research in
federated learning
and decentralized AI
architectures**

**Launched new
talent programs
to build human
capacity while
solving partner
problems**

**Positioned
AI Sweden
as a leader in
decentralized
learning and AI
security**

The Edge Learning Consortium has enabled partners to tackle some of the most pressing AI challenges across multiple sectors, demonstrating the power of our consortium model.

Read more about the results from the Edge Learning Consortium [here](#).

Case studies:
The real-world impact of decentralized learning



LeakPro

AstraZeneca, Sahlgrenska University Hospital, Region Halland, RISE, and others are collaborating in the development of a state-of-the-art platform to evaluate the risk of information leakage in machine learning applications.

The project has attracted increasing international attention and has the potential to set global standards.

Federated Fleet Learning

Zenseact and Volvo Cars conducted experiments proving that decentralized learning allows AI models to be trained on data from different continents without moving the data across national borders. This breakthrough is setting the foundation for privacy-compliant autonomous vehicle training.

The Federated Fleet Learning project develops the technology needed for decentralized learning in autonomous vehicles, creating sustainable global solutions in autonomous transportation.

“We see this as a game changer in developing autonomous driving software in the future.” – Paul Hastings CFO, Zenseact.



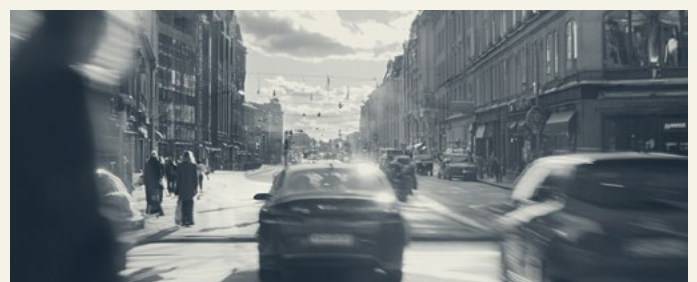
Edge in space

RISE, Unibap, and the European Space Agency explored the feasibility of using satellites as a decentralized learning network. Their work addresses the increasing need to transfer data efficiently for AI model training while dealing with limited bandwidth.

“We are developing AI models on board of satellites in a federated fashion, where we aim to create alerts for natural disasters such as forest fires.” – Chiara Ceccobello (PhD), Project Manager, Data Scientist, (formerly with) AI Labs.

Next Generation Infrastructure

Aixia, AstraZeneca, Intel, NetApp, Proact, and Zenseact develops a decentralized training solution for large language models, overcoming the limitations of centralized AI training. Their work is paving the way for next-generation AI-driven industries.



Talent programs

Shaping the next generation of AI innovators

The Edge Learning Consortium has played a key role in shaping hands-on, high-impact learning opportunities for students, researchers, and professionals that bridge academia, industry, and the public sector.

We offer talent programs designed to equip participants with the skills and experience needed to be a part of the capacity we and our partners are building to address important AI challenges. The talent programs also serve as a pathway to impactful AI careers, while solving pressing problems for our partners.

Master's Thesis Program: AI Research with industry impact

Each year, up to 40 masters students collaborate with our partners to conduct research as part of their final thesis projects. Participants gain access to AI Sweden's experts, infrastructure, and datasets—enabling them to work on high-impact challenges in areas like federated learning, AI and security, healthcare, and autonomous systems.

Several projects have been recognized as top theses at their respective universities, underscoring the program's excellence.



Industrial Immersion Program: Solving global AI challenges

In partnership with Dakota State University's (DSU) Madison Cyber Labs, this intensive summer program brings together Swedish and US students to collaborate on cybersecurity and AI-related challenges posed by industry and government partners. The program has expanded rapidly, doubling in size each year since its inception in 2022, and now also includes Chalmers University, allowing Swedish students to earn academic credits.

"The students are able to really dig into a single problem to make a meaningful contribution. In 2023, one of the teams created an intrusion detection system that was 95% effective for Case New Holland."

– Prof. Mark Spanier, DSU, Co-director of the Program

Our talent initiatives extend beyond these programs. We continuously develop new ways to accelerate AI competence development.

"AI Labs' talent program was the launch vehicle for my career in AI. It all started when I was accepted into the Cyber and AI Security Program in 2022. I was able to continue at AI Labs in the master thesis program where I was working with Zenseact. This led to my first job as an engineer at AI Labs, a position preparing me well for the workforce. I am now working at one of AI Sweden's partners, Scaleout, developing solutions for federated learning."

– Viktor Valadi, Machine Learning Engineer,
Scaleout Systems AB



AI research collaboration

An international benchmark

The impact of the Edge Learning Consortium extends far beyond Sweden. Heads of state, prime ministers, and industry leaders visit our facilities to understand how we achieve what we do. Our success story has become a model for scalable, high-impact AI ecosystems, offering insights into:

- How to work in consortiums to build capacity and drive innovation.
- How to establish AI testbeds that attract global investment and collaboration.
- How to accelerate AI talent development through hands-on, ambitious projects.

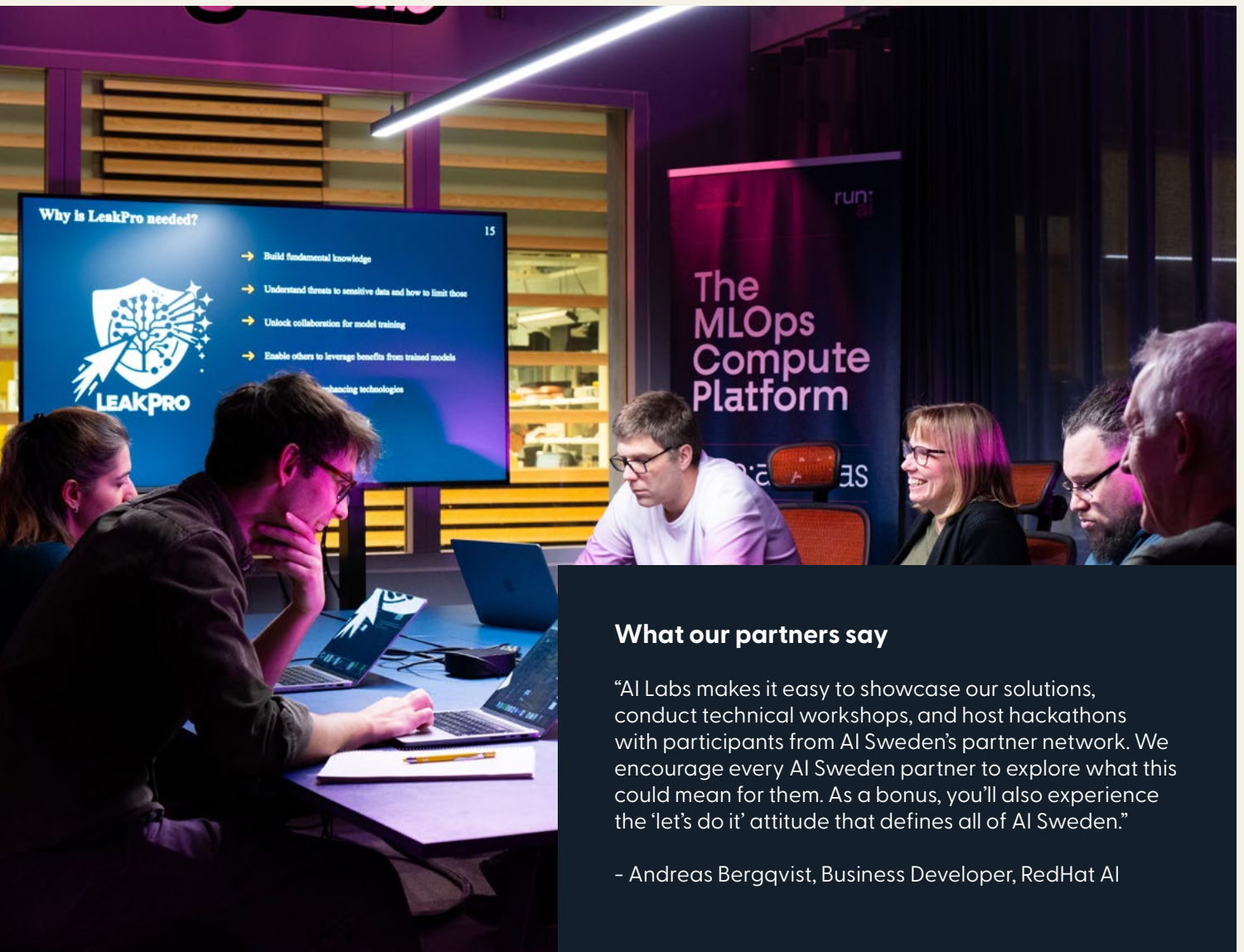
Our reputation as an international benchmark is the result of execution, strategic partnerships, and a commitment to impact.



Representatives from AI Sweden with Kaja Kallas, former Prime Minister of Estonia.



King Willem-Alexander and Queen Máxima of the Netherlands.



What our partners say

“AI Labs makes it easy to showcase our solutions, conduct technical workshops, and host hackathons with participants from AI Sweden’s partner network. We encourage every AI Sweden partner to explore what this could mean for them. As a bonus, you’ll also experience the ‘let’s do it’ attitude that defines all of AI Sweden.”

– Andreas Bergqvist, Business Developer, RedHat AI



King Carl Gustaf and Queen Silvia of Sweden.



Erna Solberg, Party Leader of Høyre in Norway, with representatives from AI Sweden



Strategic leadership: Our advisory board

A key driver of our success is our highly competent advisory board, composed of world-renowned experts in AI research, cybersecurity, space technology, defense, policy-making, and corporate innovation. Their expertise helps guide AI Sweden's strategic direction, ensuring we stay at the forefront of AI development.

In 2024, the board comprised (from left to right):

José-Marie Griffiths, PhD, President of Dakota State University, former member of the U.S. National Security Commission on AI

Stefan Jäschke, Senior VP & Head of Enterprise IT Security at Volvo Group

Bryan Reimer, PhD, founder and co-director of the Advanced Vehicle Consortium at MIT

Mats Nordlund, PhD, Director of AI Labs, AI Sweden

Mats Moberg, Former Senior VP of R&D at Volvo Cars, now advising on future mobility and sustainable tech

Giuseppe Borghi, PhD, Head of Phi-lab Division, European Space Agency (ESA)

Ewa Skoog Haslum, Rear Admiral, Chief of the Royal Swedish Navy

Daniel Gillblad, PhD, Chief of AI at Recorded Future

Darja Isaksson, Director General of Vinnova, Swedish Innovation Agency (inset portrait)



What our partners say

“As a startup developing tools for edge learning, having an infrastructure like the Edge Lab is invaluable. It allows us to test in production-like environments and collaborate with some of Sweden’s top enterprises.”

– Andreas Hellander, CEO & Co-Founder, Scaleout Systems AB

“This is a unique environment where we can collaborate with other partners, share knowledge, and collectively drive AI development forward. By being physically present, we can more quickly identify common challenges, test solutions in practice, and build relationships that strengthen us and the entire Swedish AI ecosystem”

– Ellen Reinhardt, Head of Project at Aixia

The background features a dark blue, almost black, perspective view of a road or tunnel. Numerous bright, diagonal light trails in shades of blue and yellow streak across the scene, creating a sense of rapid motion and depth. The lines converge towards a vanishing point on the right side of the image.

**Join the
journey
into the
future
of AI**

The Edge Learning Consortium marks the starting point in AI Labs' progression. The proven model will expand to new and critical areas of AI development – a journey we invite all AI Sweden partners looking to stay at the forefront of AI research and innovation.

We will continue to address new challenges in the development of effective and secure algorithms, better training methods, and new infrastructure solutions. And strengthen our global partnerships, leveraging our brand and influence to attract even more world-class collaborations and experts.

In addition to AI Security and infrastructure, language models and privacy preserving solutions are other technologies that are important focus areas for our work and AI Sweden's partners, currently explored primarily for applications in automotive, healthcare, and crime prevention and detection.

Our model allows us to act, mobilize talent, resources, and infrastructure almost instantly. We are in constant discussions with our partners on what areas to work on, so for an up-to-date list of present and planned work, visit our website.

As we move forward with new consortiums, AI Security and Automotive is next, we will continue to push the limits of AI, contribute to shaping the global AI agenda, and inspire the next generation of innovators.

Explore ways to get involved!

Visit our website for more information about the work we do in AI Labs and how to engage in our projects and consortiums.

Visit ai.se/en/ai-labs/get-involved

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the Swedish AI Ecosystem.

