ALIGNING EFFORTS:

ARTIFICIAL INTELLIGENCE IN THE NORTH ATLANTIC REGION

48-hour North Atlantic AI think tank

TÓRSHAVN 1.–3. MAY 2024

INTRODUCTION

Technology can divide us or unite us. With the rapid technological changes in the field, the region needs to catch up. We need immediate action to ensure that languages are accessible and that our citizens understand the possibilities that AI presents.

Characterised by shared geography, climate, small populations, and economic structures, the region still exhibits diverse AI engagement and development levels.

This vision document, crafted by experts from Greenland, Iceland, the Faroe Islands, and Norway, explores AI's potential to address regional challenges and drive sustainable growth.

It pinpoints four critical collaboration areas:

1. Strengthening Language and Culture in AI
2. Improving AI literacy
3. Building a sustainable digital infrastructure
4. Introducing new industrial policy for AI and Robotics

With a strategic focus on these areas, the document envisions the region as a pioneering force for social innovation in AI.

This region can take the lead in artificial intelligence.

Our region has been leading in digital innovation for citizens, and in that sense, we are not behind – we are at the forefront. AI can improve public service delivery, and we must take advantage of that opportunity.

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12 RECOMMENDATIONS FOR AI IN THE NORTH ATLANTIC REGION

STRENGTHENING LANGUAGE AND CULTURE IN AI

1. Make an actionable language data strategy for the region to increase investment in AI capacity – with national archives and other relevant entities.
2. Establish a collaboration between governments to integrate language accessibility tools by 2030 – with the Norwegian universal accessibility supervision authority.
3. Deliver robust benchmarks for regional languages and culture to ensure linguistic autonomy by 2027 – inspired by the Icelandic Language Technology Programme.

EXPANDING AI LITERACY

4. Integrate technology skills and AI literacy throughout the education system, build capacity from primary school and create AI courses at university levels.
5. Develop and share awareness material regarding AI, deep fakes and misinformation and their effects on democracy.
6. Prioritise continuous AI skill development in the workforce.

BUILDING SUSTAINABLE DIGITAL INFRASTRUCTURE

7. Invest in shared, sustainable computing to facilitate access by local companies, research institutions, and other actors.
8. Develop policies on construction and local ownership of digital and energy infrastructures, cyber security and privacy.
9. Share expertise and successful AI projects to enhance innovation and operational efficiency, bolster the region's technological capacity, and contribute to a more cohesive and robust digital region.

INTRODUCING NEW INDUSTRIAL POLICY FOR AI AND ROBOTICS

10. Dedicate 100 million NOK to create the North Atlantic Investment fund for industrial-scale AI and robotics. Half to ensure industrial investments and half to support industrial PhDs.
11. Make a joint plan for maritime AI and robotics in the region for 2025-2030.
12. Establish the Nordic Atlantic Regulatory AI Sandbox for Maritime Artificial Intelligence and Robotics in the region to address the new EU AI Act.

STRENGTHENING LANGUAGE AND CULTURE THROUGH AI

Developing language technology and AI is crucial for language vitality and preservation in the digital age. This development is essential to ensure that languages of the North Atlantic continue to thrive and function in all aspects and language domains and that users can access information and services in their native language.

In this way, AI contributes to digital language equality. This contribution is evident in developing machine translation systems and language models that can understand and generate text in multiple languages. By increasing the number of languages technology can support, AI helps ensure that speakers of more minor languages are not excluded from digital content and services. For the languages of the North Atlantic, however, the development has limitations; data resources are scarce, which impedes the development of quality applications and integration into larger platforms – thus losing competitiveness and accessibility. To address this, we need to implement strategic and substantial efforts to reach a digitally equal situation for all speakers in our region.

Ultimately, the role of AI in supporting linguistic diversity in the North Atlantic is not just about facilitating communication; it's about respecting and preserving the cultural richness of our communities. And together with a stable digital infrastructure and heightened AI literacy, it creates the ground for further exploration of AI in business and innovation. Investing in and prioritising AI for the North Atlantic languages supports linguistic autonomy and promotes the cultural diversity of the North Atlantic.

In the following, we elaborate on the first three recommendations.

RECOMMENDATION 1: WE NEED DATA TO BE COMPETITIVE WITH LARGE TECH COMPANIES

We need to map and collect data for a broad range of application scenarios and to develop open language models (LMs). Funding must follow as this is labour-intensive, and entities won't do it voluntarily. This should be a regional group effort, as the LMs can learn standard grammar and vocabulary from the other languages. Proactive processes should be implemented wherever data is produced, and the government is responsible for implementing such methods. One example is an opt-out checkbox when you publish text. Experience shows sending in data needs to be as easy as possible. Not all data is equal. Bad machine translations can harm an LM's grammar

knowledge. We need high-quality, well-processed data to train AI models (and for other uses). Data should have clear licences and adhere to open-source principles to ensure that the development of LMs isn't limited to large tech companies. Large infrastructures (cf. CLARIN) can store and share the data securely.

RECOMMENDATION 2: LEADERS IN INTEGRATION AND ACCESSIBILITY

The governing bodies and digitalisation institutes should lead the way in using software and AI solutions that support languages and accessibility for different groups, such as people with vision and hearing disabilities and immigrants. This adds pressure on companies to develop such solutions and support those groups, thus increasing equality and pressure on other entities to integrate solutions with that support. In such small markets, companies will only service smaller groups with such a push, and the governments are responsible for supporting those groups.

RECOMMENDATION 3: BENCHMARKING TO GUARD OUR INTERESTS

Large tech companies currently have the best models, infrastructure, and users. We need to put our eggs in other baskets and support open-source development, but we must also accept the situation and pressure them to support our languages. One approach is to make robust evaluation sets to measure model performance for each language and culture and add them to international (open) benchmarks. This forces the tech giants to consider our interests to demonstrate good performance, and we facilitate this process. This also enables quick assessment of new models.

EXPANDING AI LITERACY

As a frontrunner within AI, the North Atlantic region would require the region's population and workforce to be AI literate.

In a world with rapid technological development phenomena like deepfakes and misinformation that can threaten democracy, the capability to assess and use technology critically is pivotal to ensure an empowered population in strong Nordic societies. One of the means is to develop comprehensive learning materials that enable citizens to understand new technologies and their effects on democracy, privacy and work. Also, guidelines on using AI tools are needed to protect companies and institutions from the threats posed by AI. These should follow currently accepted trends in AI security and include all aspects of a given AI tool or technology.

Integrating a critical understanding of technology into any stage of the educational system can enhance AI literacy among younger generations. This requires investment in teachers' training from primary schools to universities.

Furthermore, given AI's anticipated impact on the job market, it is essential to prioritise relevant training for the existing workforce. This strategic focus will help mitigate the risk of job displacement, ensuring that workers are prepared for the evolving demands of the labour market.

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BUILDING SUSTAINABLE DIGITAL INFRASTRUCTURE

With its high potential for green energy production, the North Atlantic region has the potential to become a frontrunner in sustainable and secure AI.

Infrastructures must be strengthened: green energy infrastructures, such as hydro power plants and energy lines; digital infrastructures, such as submarine cables to ensure resilient communication connections; and computing facilities, such as data centres, that meet the highest security standards.

For the region not to be just an exporter of green computing power or export green energy to computing facilities in other areas, local ownership of and human capacity within artificial intelligence is pivotal. Therefore, strong and enforced policies on cyber security, privacy, construction and local ownership of digital infrastructures in the region are essential. As the tech communities in the North Atlantic region are small, other measures could be initiated by public and private actors to own and share computing resources with local actors.

In today's digital age, strategically sharing data on work policies and public guidelines across governmental departments can improve public sector efficiency. This integration enables AI tools that quickly respond to public inquiries and streamline new employee training by providing consistent, personalised guidance.

7. Invest in shared, sustainable computing to facilitate access by local companies, research institutions, and other actors.
8. Develop policies on construction and local ownership of digital and energy infrastructures, cyber security and privacy.
9. Share expertise and successful AI projects to enhance innovation and operational efficiency, bolster the region's technological capacity, and contribute to a more cohesive and robust digital region.

INTRODUCING NEW INDUSTRIAL POLICY FOR AI AND ROBOTICS

Example: The New Maritime Industry With AI, Autonomy and Robotics

The Nordic Atlantic region is already a significant actor on the international stage within the maritime sector. To remain in this position, we must consider AI, autonomy and robotics as driving technological factors that will ensure continued leadership on the global stage.

RECOMMENDATIONS

10. **Dedicate 100 million NOK to create the North Atlantic Investment fund for industrial-scale AI and robotics.** Half to ensure industrial investments and half to support industrial PhDs.
11. **Make a joint plan for maritime AI and robotics in the region for 2025-2030.** Arrange a process organised by NORA to create a joint action plan for the entire area and future assessment, and establish a precise contact point for AI and robotics in each trade department.
12. **Establish the Nordic Atlantic Regulatory AI Sandbox for Maritime Artificial Intelligence and Robotics in the region to address the new EU AI Act.** The Maritime Supervision Authorities must collaborate and upscale their AI activities.

The introductions of autonomous vessels and machinery will change the known industries in the coming years, as AI will enable robotics to enter new markets, not only transport, but construction, maintenance and other maritime functions as well.

We must make new renewable energy and ocean agriculture more efficient. Going forward, we also need increased industrial cooperation and opportunities for testing to ensure safe operations across the region.

We can secure our position and develop new technologies with suitable investment and engagement across the region.

WORLD'S FIRST ELECTRICAL AUTONOMOUS FERRY

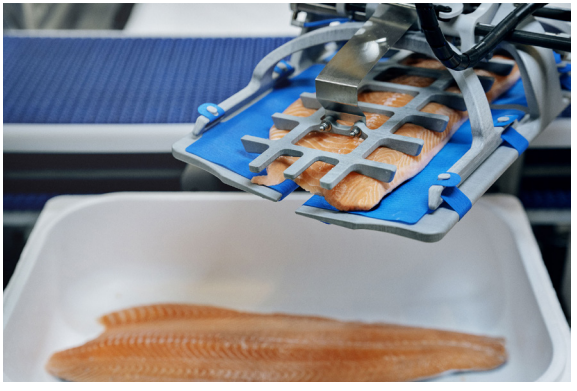
In 2023, Norway built the world's first electrical autonomous ferry with Zeabuz and Torghatten. It now operates under the brand Zeam (Zero Emission Autonomous Mobility).

AUTONOMOUS UNDERWATER VEHICLES

Eelume, founded in 2015, is a spin-off from the Norwegian University of Science and Technology (NTNU). It uses snake robotics to help map the ocean floor and perform underwater operations.

NEW OPPORTUNITIES FOR OCEAN AGRICULTURE?

Ocean Rainforest, founded in the Faroe Islands, is among Europe's largest commercial seaweed cultivators. With AI and robotics, they can optimise harvesting.



OPTIMISING FISH PACKING

In Iceland, the company Marel introduced the RoboBatcher Box, which packs fish using an unparalleled combination of batching software and innovative robotic technology.

CONCLUSION

In this vision document, we have covered recommended actions in these four critical collaboration areas:

1. Strengthening Language and Culture in AI
2. Expanding AI literacy
3. Building a sustainable digital infrastructure
4. Introducing new industrial policy for AI and Robotics

We have proposed 12 recommendations within these areas to address the challenges highlighted in this document. We suggest some initiatives and actions that can be readily implemented and others requiring more long-term planning. Through these recommended actions, the region can continue to preserve its languages and culture and stay competitive in an ever-evolving digital environment.

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