Nordic
Innovation

The Benefits of Ethical and Responsible AI for Nordic Businesses

Foreword

In 2019, the Nordic Prime Ministers agreed on a new vision for the Nordic cooperation, Vision2030, which holds that the Nordics is to become the most sustainable and integrated region in the world by 2030. Following this, the Nordic Ministers for Trade, Business and Industry launched eight programs for the period 2021-2024, whereof AI & Data is one. The vision is for the Nordics to be a leading region in digitalization, ethical AI and responsible data use by 2030.

Picture a world where technology not only possesses intelligence but also ensures responsible decision-making in the realms of AI. In this vision, trust, equality, and human rights form the bedrock of our digital future.

The Nordics holds unique strengths that position it to lead in digitalization, ethical AI, and responsible data use. With a rich history of data collection and the world's oldest statistical databases, we have the opportunity to set precedence for the world on how we envision data protection, privacy and human-wellbeing at the core of any AI development and thereby shaping a more integrated, liveable, and green society.

The urgency of ethical AI extends beyond the tech community to society at large. Policymakers globally seek guidance on governing AI. This report aims to explore the value proposition in prioritizing ethical AI development for Nordic businesses, delving into arguments for and against this focus and why mere 'functional' AI isn't sufficient.

Ethical and responsible AI can be described as principles, guidelines and practices that steer and inform the design, development, deployment and operation of AI, and the field of questions that accompany how AI impacts its surroundings (e.g. humans, society, flora, fauna, and the planet).

Accenture, commissioned by Nordic Innovation, has gathered insights from the Nordic business community to inform this report. But why focus on the Nordics instead of adopting global or EU-level approaches? The answer lies in our Nordic identity and values, our robust tech ecosystem, leadership in ethical AI, and a spirit of collaboration.

We extend our gratitude to Accenture and all interviewees who contributed with insight into the field of ethical AI and responsible data use. This report, part of the AI & Data program by Nordic Innovation, aims to serve Nordic businesses, public actors, decision-makers, and other stakeholders in the data value chain, providing valuable information for all involved.

Nordic Innovation, Oslo March 2024

—Svein Berg
Managing Director

Background

The vision of the AI & Data program is to establish the Nordic region as world leading in digitalisation, ethical AI, and responsible use of data. In more specific terms, the aim is to support the development and deployment of ethical AI and responsible data solutions in Nordic companies through encouraging collaboration, knowledge transfer, competence building and data sharing in the Nordic region.

This report is part of a larger project, *Nordic Ethical AI & Data Ecosystem Building*, led by Accenture and Silo AI under the AI & Data program at Nordic Innovation. The goal of the project is to explore how Nordic datasets and capabilities in ethical AI and responsible use of data can contribute to the development of new innovative solutions in Nordic businesses.

The report has been written by Accenture on behalf of Nordic Innovation, and has been commissioned to evaluate the benefits of Nordic companies taking an ethical and responsible approach to AI and data. The main target groups of this report are Nordic businesses and decision-makers. More specifically, this report aims to answer the following questions:

What are the benefits of adopting an ethical and responsible approach to AI?

What does the regulatory landscape currently look like for AI?

What is the status of ethical and responsible AI in the Nordics today?

What is needed from businesses and decision-makers to accelerate adoption of ethical and responsible AI in the Nordics?

Definitions

This report uses the phrases "ethical and responsible AI" as well as "ethical and responsible AI practices" to describe an approach that organizations developing, deploying, and using AI technologies and applications can take. Nordic Innovation and this report defined these terms as:

- **AI:** This report references the updated OECD definition[1] that holds a broad and flexible description of AI. Since the AI field is moving at an extremely fast pace, the definition of what constitutes AI moves with the technological development over time.

- **Ethical and responsible AI:** Refers to design, development, deployment and operation of AI aligned with ethical principles and requirements, and the field of questions that accompany how AI impacts its surroundings (e.g. humans, society, flora, fauna, and the planet). In practical terms, ethical and responsible AI can as an example be realized by upholding the seven key requirements for trustworthy AI, set forth by the European Commission and its High-level Expert Group on AI in 2019[2]:

    - Human agency and oversight
    - Technical robustness and safety
    - Privacy and data governance
    - Transparency
    - Diversity, non-discrimination and fairness
    - Societal and environmental well-being
    - Accountability

- **Ethical and responsible AI practices:** Refers to the organizational structures and steering mechanisms, processes, activities, tools, and methods that organizations apply to achieve ethical and responsible AI, exemplified by the seven key requirements of trustworthy AI defined above. These practices can be multi-disciplinary and cover for example data science, governance, legal, risk management, data security, learning, and development, and company culture.

Executive Summary

The capabilities of Artificial Intelligence (AI) are on the rise, and 78% of global executives see scaling AI to create business value as a top priority for their company's data strategy[3]. Simultaneously, increasing awareness of potential negative implications of AI[4] in combination with an evolving regulatory landscape[5] means that businesses need to balance rapid AI innovation with managing the risks of AI.

These dual priorities of realizing value from AI while addressing the risks, can be reconciled through the adoption of ethical and responsible AI, which has potential to bring many benefits to the organization adopting these practices, as well as society at large*. This is also supported by qualitative data collected from interviews with selected Nordic businesses** conducted by Accenture for the purpose of this report. These collective findings point to five categories that describe the potential benefits companies can see realized. Ethical and responsible AI practices can:

- **Enable faster adoption** of new technologies and help realize the full business value of AI by preventing potential risks from materializing, which could halt or stop the development of AI solutions and use-cases

- **Help ensure compliance** with regulation and industry standards for AI, so that organizations can avoid costs of non-compliance and gain easier access to global markets

- **Contribute to building trust** with key stakeholders such as customers and employees, which could support with increasing use or adoption of AI-products and services, as well as attracting and retaining top talent

- **Support industrialization of AI** by creating standardized processes and practices that can be scaled across the organization, contributing to operational efficiency

- **Facilitate positive impact** on the environment, people and society from the use of AI

In a global study on AI maturity, it was found that companies who managed to generate the most growth from AI applied a *responsible-by-design* approach. These companies recognized the importance of incorporating ethical and responsible considerations into their data and AI strategies and across the full lifecycle of AI models.[6] As Nordic businesses mature their AI capabilities; ethical and responsible AI practices can be assumed to increase as well. The rise of generative AI also supports this trend, as 68% of surveyed leaders from businesses in Denmark, Finland, Sweden, and Norway stated that the availability and development of generative AI has increased their interest in ethical and responsible AI[7].

Despite AI-influenced revenue of companies in Denmark, Finland, Sweden, and Norway doubling between 2019 and 2022, most are still only experimenting with AI (81%)[8]. In 2023, some surveyed companies

*See section 2 "The benefits of ethical and responsible AI"

**See Methodology section

in Denmark, Finland, Sweden, and Norway had also started piloting generative AI (22%). 28% of survey respondents said that they had developed formal ethical guidelines for AI, but only 22% had operationalized them across their organization. Half of surveyed participants stated that their organization had not taken any action at all to develop ethical guidelines for AI.[9]

Based on the collective findings presented in this report, five recommendations are proposed to increase adoption of ethical and responsible AI and capture the above benefits. These are primarily aimed at businesses developing and using AI, as well as Nordic decision-makers with ability to help enable these outcomes:

- **Implement Responsible AI by Design:** Move from focusing on reactive compliance to proactive development of capabilities that enable ethical and responsible development and use of AI

- **Foster Board and C-Suite Buy-in:** Increase board and c-suite awareness of AI opportunities and risks to obtain their sponsorship of ethical and responsible AI initiatives

- **Invest in Training and Education:** Upskill and educate teams on the risks of AI and the benefits of ensuring ethical and responsible use of AI

- **Identify and Apply Best Practice:** Develop industry guidelines and methodologies how to incorporate ethical and responsible AI requirements in AI development and deployment, and share successful examples

- **Enable Ecosystem Collaboration:** Foster collaboration along the AI value chain to mitigate AI risks, prioritize transparency and enable cross-industry and cross-national capability transfer

In conclusion, AI presents both immense opportunities and formidable challenges for businesses. As executives prioritize scaling AI to drive business value, it is imperative to simultaneously address the ethical and regulatory dimensions inherent in AI development and deployment. By adopting ethical and responsible AI practices, Nordic businesses can harness the transformative potential of AI while safeguarding against its risks. Fostering collaboration within the Nordic AI ecosystem can help accelerate this journey as many organizations will face similar challenges. Enabling organizations to build on the experiences and learnings of others within and beyond their industries can potentially cultivate a more unified and effective approach to ethical and responsible AI. This will enable them to not only navigate the evolving regulatory landscape but also foster sustainable growth and societal advancement in an increasingly AI-driven world.

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Global State of Ethical and Responsible AI, Emerging Regulation, and Their Implication on Businesses

Accelerating AI Capabilities and Increasing Stakeholder Demands

The last decade has seen exponential growth in AI capabilities. In a few areas, the capabilities of AI systems are now comparable to those of humans in some cases, for example in language and image recognition[10]. 2022 was the breakthrough year for generative AI, with the explosive growth of generative AI tools. Generative AI can increase efficiency in a wide variety of processes, as well as support creation of innovative new products and services, for example virtual assistants. It is estimated that generative AI could add the equivalent of 2.6 to 4.4 trillion US dollars annually to the global economy[11], which is comparable to the size of Germany's gross domestic product (GDP) in 2023[12]. Businesses recognize the potential benefits AI can bring for them. For example, 78% of global executives see scaling AI as a top priority for their data strategy[13]. Simultaneously, in 2022 only 6% of global businesses stated that they had implemented responsible AI.[14]

In parallel to the increasing capabilities of AI, is the growing awareness about potential negative implications from the use of the technology. The Ipsos Global Views on AI 2023 report found that people are becoming more nervous of products and services that utilize AI (from 40% in 2021 to 52% in 2023). 36% also stated that they are worried about AI replacing their jobs.[4] Even AI professionals themselves are raising questions around the accelerating capabilities of AI. In March 2023, more than 1000 technology leaders and researchers signed a moratorium urging AI labs to pause the development of the most advanced systems for six months, warning that AI tools could present "profound risks to society and humanity"[15]. The increase in citizen awareness of AI risks is putting pressure on governments and industry to steer the development and use of AI in a responsible way.

Global Approaches to AI Regulation

For Nordic businesses operating globally, or using AI models developed by a third-party, it will be important to understand potential divergences and alignments in global approaches to AI and AI governance. Governments across the globe are fiercely debating the positive and negative implications of regulating AI[16]. Approaches range from flexible and voluntary, to comprehensive legally binding. Many of the approaches being developed are structured around a risk-based approach that assesses the risk of an AI product or service, with a context-specific use-case as a key consideration. In parallel, different regulatory approaches are also being explored for foundation models and Generative AI due to their broad application in society.

Below follows a summary of selected national and intergovernmental approaches to AI governance. Note that what is listed in this report is only a short extract of all global regulatory initiatives on AI, last updated in early January 2024, and should not be interpreted as an exhaustive list of all regulations on data and AI.

European Union

The EU's approach to AI "centers on excellence and trust, aiming to boost research and industrial capacity, while ensuring safety and fundamental rights".[17] The European Commission has created three inter-related legal initiatives that aims to contribute to building trustworthy AI; a legal framework for AI[18], a civil liability framework[19], and a revision of sectoral safety legislation (*e.g. Machine Regulation*[20] *and General Products Safety Directive*[21])[22]. The legal framework for AI, the *EU Artificial Intelligence (AI) Act*, takes a risk-based approach, and places requirements on developers and deployers of AI based on the level of risk. There are four risk levels; Low or Minimal risk systems; Limited Risk systems; High-risk systems, and Unacceptable risks[23]. The *EU AI Act* is viewed to become the first comprehensive regulatory scheme on AI globally. In early December 2023, the European Parliament and the Council reached a provisional agreement on the *EU AI Act*. The agreement stipulates that specific guardrails are to be included for general-purpose AI systems, with a two-tiered approach that places stringent obligations for providers of models that are categorized as having systemic risk under certain criteria. The provisional agreement provides that the EU AI Act will follow a staggered application calendar (6-12-24-36 months depending on the use-cases) after its entry into force upon voting of the Council and European Parliament on the final text.[24] In January 2024, the Council of the EU's Committee of Permanent Representatives voted to advance the Act, to be followed by voting in the Parliament in spring 2024. The technical standards following the AI Act will be developed by the European Committee for Standardization (CEN) and European Electrotechnical Committee for Standardization (CENELEC).[25]

Germany

In addition to Germany's role in contributing to the EU AI Act, the German government has established initiatives that focus on upholding Germany's role as a research hub, to enhance the competitiveness of the German industry and enable application of AI across all sectors of society. The primary aim is to generate tangible societal advancements that maximize benefits for individuals and the environment[26]. Germany has for example created a data ethics commission for building ethical guidelines, and regulatory sandboxes to enable innovation and advancement of regulation[27].

France

France's approach to AI is similar to Germany's. In addition to France's role in contributing to the EU AI Act, France focuses on improving the country's AI education and training to develop and attract top AI talent, to become world leading in AI innovation and research[28]. The French Data Protection Agency (CNIL) and the French government are collaborating on several initiatives to advance the development of ethical AI. Examples of initiatives include a personal data sandbox program for digital health-related projects[29], a National Committee for Ethical AI[30] and the *Digital Republic Bil*[31] covering data protection rights and right to privacy for French citizens.

United States of America

In 2023, President Joe Biden signed the *Executive Order on Safe*, *Secure and Trustworthy Development and Use of AI*, which establishes a direction for federal AI regulation going forward[32]. The goal of the executive order is to improve AI safety and security, promote transparency and fairness, and foster innovation and competitiveness[33]. Additionally, in December 2023, U.S. Representatives introduced the *AI Foundational Model Transparency Act*. Specifically, the Act calls on the Federal Trade Commission (FTC), in consultation with the National Institute of Standards and Technology (NIST), the Copyright Office, and the Office of Science and Technology Policy (OSTP) to set transparency standards for foundation model providers. Information identified for increased transparency include for example training data, model training mechanisms, and whether user data is observed or estimated through predications from a sample (collected in inference).[34]
The US government has already developed a voluntary standard on AI Risk Management, published by the National Institute of Standards and Technology (NIST).[35] At state level, domain-specific AI regulations have been introduced. In the 2023 legislative session, at least 25 states introduced AI bills, and 15 states adopted resolutions or enacted legislation[36].

United Kingdom

The UK government has suggested to create a principles-based framework for regulators with domain expertise to interpret and apply to AI within their remits. This approach makes use of regulators' domain-specific expertise to tailor the implementation of the principles to the specific context in which AI is used.[37] The UK is also actively driving the conversation about the standard for global AI governance. In November 2023, 29 countries met during the UK AI Safety Summit and signed the Bletchley Declaration, which promotes the development of human-centric AI and encourages international collaboration[38]. Simultaneously, the UK launched the *AI Safety Institute for advancing ethical AI research* to advance ethical AI testing and research[39].

Canada

Canada has taken a similar approach as the EU, by adopting a risk-based approach to AI. In 2022, the *Artificial Intelligence and Data Act* (AIDA) was proposed. The draft regulation puts requirements on private sector organizations to ensure safety and fairness of high-impact AI systems[40]. The Canadian government has also introduced a voluntary code of conduct for generative AI systems, until formal regulation is in place.[41]

China

China has introduced several regulations on algorithms and AI. For example, regulation on recommendation algorithms in 2021; rules for deep synthesis (synthetically generated content) in 2022; and in 2023, China drafted Measures for the management of generative AI. Information control is a central goal in all three regulations, but

they also put other requirements on users or providers of AI systems. All three regulations require developers of AI to register the solution in an algorithmic registry, a government repository that gathers information on how algorithms are trained, as well as requiring them to pass a security self-assessment.[42] More specifically, the *Interim Measures for the Management of Generative AI Services*, which came into effect in August 2023, aims to ensure protection of national interests, social values, user rights, prevention of the dissemination of false or harmful content, and safeguarding personal information. The regulation also states that AI-generated content must be in accordance with Chinese law. Providers of generative AI services are responsible for ensuring the legality of such content, and violations thereof are subject to penalties.[43]

Singapore

Singapore's approach to AI focuses on creating a collaborative industry ecosystem, through frameworks and guidance on how industry actors can make use of AI and uphold ethical principles and ensure trustworthy innovation. In 2023, Singapore launched their second National AI Strategy (NAIS 2.0), outlining an ambition to build a trusted and responsible AI ecosystem[44]. As part of Singapore's strategy to increase the use of AI and strengthening the AI ecosystem, the Monetary Authority of Singapore (MAS) began partnering with industry actors in 2018 to develop guiding principles to promote responsible use of AI in the financial services sector[45]. Since then, the collaboration has resulted in frameworks, methodologies and tools supporting industry actors with adopting the guiding principles[46][47]. In 2023, MAS launched the project MindForge, an initiative aimed at creating a risk framework for the use of generative AI in the financial sector[48].

India

India's approach to AI focuses on strengthening the country's AI research, with special attention on sectors that are of local significance such as the agriculture sector[49]. The NITI Aayog, the Indian government's public policy think tank agency, has put forward two approach documents to support with operationalizing responsible AI[50] and principles for responsible AI[51], based on the nation's AI strategy. In 2022, the Indian government also introduced the *Digital India Act* (DIA) to establish a legal framework for the country's digital ecosystem, and is expected to roll out after the 2024 Lok Sabha elections[52]. The key elements of the Act include ensuring online safety, building trust and accountability, maintaining an open internet, and regulating new-age technologies such as AI. The Act proposes to safeguard innovation by defining and regulating high-risk AI systems.[53]

Japan

Japan has taken a flexible approach to regulating AI. In the country's AI strategy, Japan aims to become a digitalized AI society that contributes to solving global challenges[54]. There is currently no hard restriction on AI models, however there are several guidelines for how organizations should develop and adopt AI in regards to governance[55],

research[56], and utilization of AI[57]. The Japanese Liberal Democratic Party which has been the ruling party in Japan for the last 50 years,[58] released a white paper in April 2023 on a new, suggested AI regulatory approach for Japan to stay competitive. The white paper primarily focuses on legal measures around violation of human rights, national security measures, and the democratic process.[59]

Brazil

Brazil has also introduced risk-based AI regulation. In 2023, Bill No. 2338/2023 was introduced, with obligations varying depending on the level of risk with the AI system. The bill also focuses on right given to individuals. For example, the right to information about prior interaction with AI systems; right to an explanation about the outputs of AI systems; and right to non-discrimination and correction of discrimination biases.[60]

Global AI Governance

Governments are also collaborating on global AI governance. In November 2023, the G7 leaders announced an agreement on a set of international guiding principles for AI, and a voluntary code of conduct for AI developers[61]. Moreover, in the New Delhi leaders' Declaration from 2023, the G20 countries have decided to pursue a pro-innovation regulatory/governance approach that maximizes benefits and considers the risks associated with the use of AI[62]. Similarly in 2023, the UN formed an AI advisory board of 38 experts across the globe that will collaborate to analyze technological developments and advance recommendation on AI governance[63].
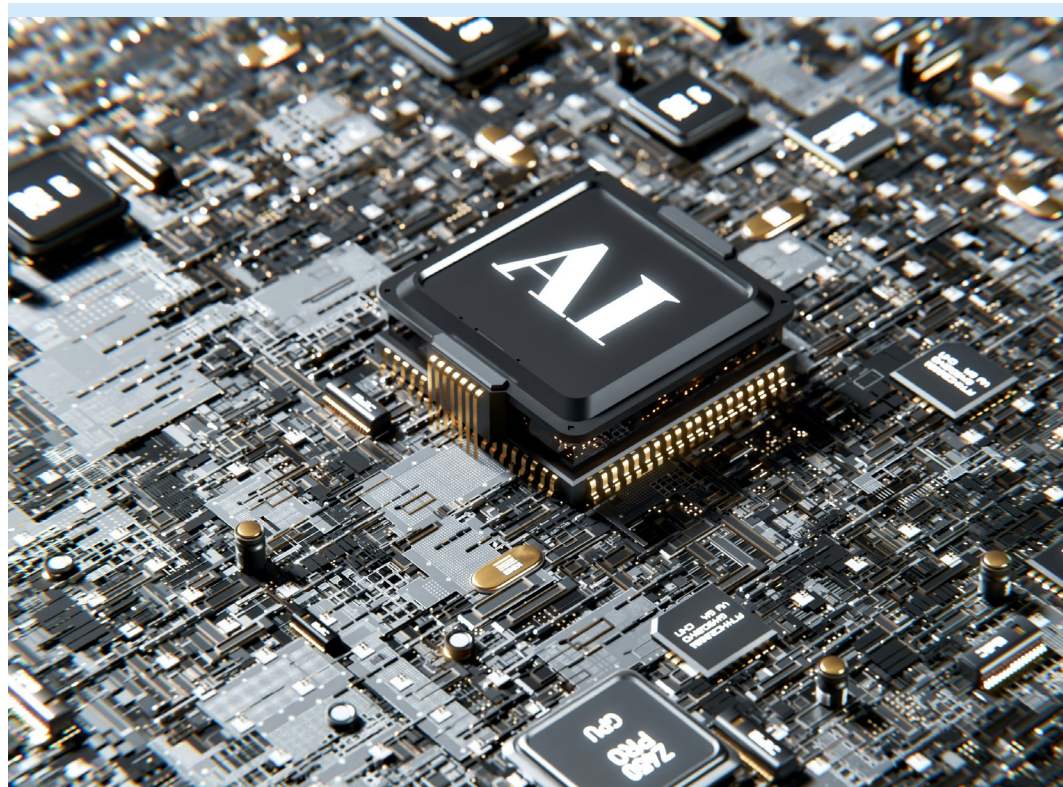
Non-governmental Organizations and Standardization

Non-governmental organizations are involved in shaping global standards and best practices for AI as well. The OECD has for example created a platform for tracking developments and encouraging international collaboration on AI governance. Furthermore, the OECD has developed tools, frameworks, recommendations, and principles to support governments with integrating responsible AI in their countries.[64] In 2021, United Nations Educational Scientific and Cultural Organization's (UNESCO) produced the first global standard on the ethics of AI, which was adopted by all 193 member states[65]. The World Economic Forum (WEF) has also established an AI Governance Alliance, an initiative that unites industry leaders, governments, academic institutions, and civil society organizations to champion responsible global design and release of transparent and inclusive AI systems[66]. The aim of the initiative is to promote the adoption of safe AI systems, sustainable applications, resilient governance and regulation. This also includes accelerating the development of ethical guidelines and governance frameworks for regulating generative AI.[67]

In parallel to legal developments on AI, standardization of AI is maturing. The International Organization for Standardization (ISO) released *ISO/IEC 42001* in December 2023, that specifies requirements for responsible use and development of AI systems. It is an international standard that specifies requirements for establishing, implementing, maintaining, and continually improving an Artificial Intelligence Management System (AIMS) within organizations.[68] Another example is the certification program offered by the Institute of Electrical and Electronics Engineers (IEEE), *CertifAIEd*. This is a certification program for assessing ethics of Autonomous Intelligent Systems (AIS) to help protect, differentiate, and grow product adoption.[69]

Nordic AI Regulation

In a survey with businesses from Denmark, Finland, Sweden, and Norway, 90% of respondents believed that AI regulations will have an impact on them in the future. 41% believed regulations will have a great impact on how their operations are shaped[70].

Nordic businesses are impacted by regulations imposed by national governments, as well as EU law for the Nordic countries that are members of the EU and in the case of Iceland and Norway, European Economic Area (EEA). Denmark, Finland, Sweden, Norway, and Iceland have developed national strategies for AI, and initiated activities to operationalize these[71]. Currently, there exists some regulations on AI in the Nordic countries. Most are sector-specific, but in Denmark there is an industry-agnostic AI regulation focused on disclosure of data ethics policies for large enterprises, which was introduced in 2020[72]. In Finland, the government enacted the *Act on Automated Decision-making in Public Administration* in 2023[73]. However, this regulation does not apply to AI, which is instead expected to primarily be regulated by the upcoming EU AI Act[74]. Another example of national, sector-specific regulation is Norway's

regulation on testing self-driving vehicles, to safeguard road safety and privacy considerations[75]. Denmark, Finland, Sweden, Norway, and Iceland have also introduced several policy and soft law initiatives on AI. Selected examples of these include the Norwegian Artificial Intelligence Research Consortium (NORA) promoting the topic of ethical AI in the country[76]. AI Sweden has piloted an AI ethical lab that provide guidance and support on implementing ethical AI development.[77] In Denmark, the Data Ethics Council provides national guidance on ethical dilemmas associated with data and AI developments.[78] Both Norway's and Iceland's Data Protection Authorities have also launched consultative AI sandboxes to stimulate compliance and innovation in AI, helping to bridge the gap between regulators and innovators.[79]

Norway and Iceland, both being outside of the EU jurisdiction, have implemented the version of GDPR incorporated into the Agreement on the EEA shortly after GDPR entered into force in 2018[80][81]. For an EU act to apply to the EEA EFTA states Iceland, Norway and Liechtenstein, the EEA Joint Committee must adopt a decision to incorporate the act into the EEA agreement. The aim is to incorporate EU acts as closely as possible to their date of entering into force in the EU, to ensure that the same rules apply throughout the EEA[82]. If the EU AI Act is accepted into the EEA agreement, it is likely that the Act will impact Icelandic and Norwegian companies similarly as other EU-based businesses.

The Faroe Islands are also not part of the EU, instead the formal relationship between the EU and the Faroe Islands is based on three separate bilateral agreements dealing with fisheries, trade in goods and scientific and technological cooperation.[83] The Faroe Islands have implemented data protection regulation with similarities to the principles, rights and obligations defined in the GDPR.[84] Greenland, an autonomous territory of the Kingdom of Denmark, is part of The Overseas Countries and Territories (OCTs), which are not directly

subject to EU law.[85] Greenland has implemented their own data protection regulation, but shares the same regulator as Denmark (Datatilsynet)[86]. Finally, Åland, a self-governing province between Finland and Sweden, is part of the EU but its relationship with the EU is regulated by special protocol[87]. Åland has also implemented the GDPR[88].

There has been an increase in global regulatory activity for AI, where many of the approaches being developed are structured around a risk-based approach that assesses the risk of an AI product or service with a context specific use case as a key consideration. There are also different measurement approaches being explored for foundation models and generative AI due to their broad application with safety-oriented evaluation to support mitigating associated risks. Countries, institutions, and organizations are trying to determine how foundation model governance might integrate with other forms of risk-oriented AI governance; however, these efforts have not resolved some of the worries and issues that come with applying generative AI in practice.

The Benefits of Adopting Ethical and Responsible AI
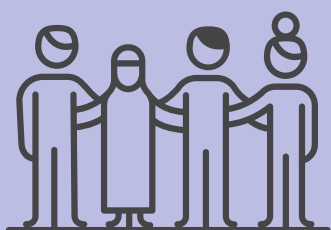
Nordic Views on the Benefits of Ethical and Responsible AI

In a survey developed by Accenture and Rehumanize Institute in 2023, 204 businesses leaders from Denmark, Finland, Sweden, and Norway were asked about their company's most important reasons for adopting ethical and responsible AI practices.
The top three reasons were:

1.	2.	3.
To enable adoption of new technology	To be more commercially successful	To meet customer expectations[89]

Interviews held with different actors from the Nordic AI ecosystem for this report confirms this view. Many organizations are actively preparing for implementing the requirements of the EU AI Act, even though their current use of AI would most likely be classified as low risk. Companies think that looking beyond short-term regulatory compliance will benefit them, by staying prepared for other emerging regulations on data, AI, or sector-specific laws. Additionally, many interviewed businesses state that they see other benefits from adopting ethical and responsible AI practices, such as meeting the expectations from their customers, having a positive impact on society, and building better, more in-demand AI-products for their customers.

Companies interviewed for this report state that they typically take a cautious approach when implementing AI, starting with low-risk areas and internal applications to test the technology, before scaling and making it customer-facing. This holds especially true for those companies exploring generative AI use-cases.

"We have implemented guardrails for putting AI in production. As a company operating and using critical infrastructure, we are by definition a high-risk category company. We want to ensure trust in our business internally and in society when we apply AI."

—Patrick Blomquist
Head of Responsible AI at Equinor

In the same survey from 2023 mentioned above, companies across Denmark, Finland, Sweden, and Norway also expressed a need for more responsible AI practices with increased adoption of generative AI[90]. The interviews conducted for this report highlighted the need for robust AI governance, to have humans-in-the-loop and upskilling their employees on the correct usage of generative AI solutions. Many also mentioned that the impact on the workforce concerns them. Both in terms of the workforce displacement effects, and the health aspects of the rapid introduction of new internal AI-tools, which can cause stress for employees.

"We have a model committee that assesses and gives approval of generative AI tools, as well as provide company-wide trainings on AI, re-skilling staff in generative AI best practices and risks. Being one of the largest banks in Iceland and a major employer, we need to consider the broader effects our business practices have on our culture and country."

—Riaan Dreyer
Chief Digital Officer at Islandsbanki
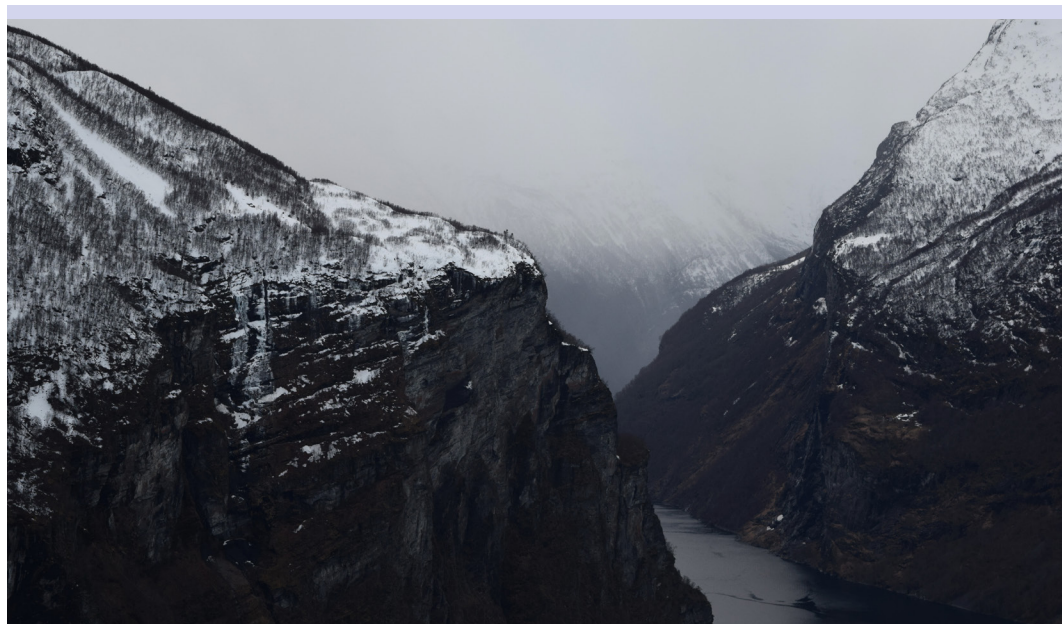
"Trust is fundamental to how we leverage AI in our business. Journalists will not reference our news and media unless they can trust that it comes from a reliable source. We include clear communication to the users of our platform when AI has been used to generate content. There are also guardrails built into the platform for those publishing AI-generated press releases or other content, to ensure that there has been a human review of the output."

—Louise Barnekow
CEO at Mynewsdesk

"We need to ensure that our use of AI serves the intended purpose. As a recruitment company, we are tasked with finding and recommending the best suitable candidate. We often get asked by customers how we ensure diversity and inclusion in our processes, and the same will apply for our use of AI. Over time, our customers will likely put more pressure on us to use AI responsibly."

—Johannes Setänen
Director of Services Sector and Marketing at Bolt.works

Interviewed companies also consider how their use of AI can have broader societal impact, especially those whose business operations play a major role in society. These companies recognize that adopting ethical and responsible AI practices – for example by ensuring that AI outputs are accurate and fair, and that users are informed about the use of AI – is fundamental for them to succeed with AI investments.

Benefits of Ethical and Responsible AI

Combining the findings from the interviews conducted for this report with global research on ethical and responsible AI, the following benefits have been identified. It should be noted that the benefits listed below do not necessarily apply for all organizations equally. Different organizations will experience varying outcomes from adopting ethical and responsible AI practices, depending on factors such as industry, product, customer segment, business model(s), country of origin, size etc.

Enable faster adoption of new technologies

Help ensure compliance

Contribute to building trust

Support industrialization of AI

Facilitate positive impact

Ethical and responsible AI practices can enable faster adoption of new technology and help realize the full business value of AI by avoiding potential risks from materializing, which could halt or stop development of AI solutions and use-cases

Responsible-by-design: The use of AI can help businesses save costs and generate growth, improving their financial performance and competitive advantage. To capture this value, businesses need to deploy AI at scale. In a study performed by Accenture, companies that had successfully generated business growth and positive outcomes from deploying AI were examined. The purpose was to investigate their behaviors and define the key performance indicators for generating value from AI. Among several factors, these businesses are responsible-by-design. It means that they recognize the importance of incorporating ethical and responsible considerations into their data and AI strategies and across the full lifecycle of AI models.[91] A similar study conducted by McKinsey in 2021 concluded that organization's seeing highest return from AI engage in risk mitigation practices when developing AI, for example through AI governance, measuring data and model bias, and having robust technical documentation[92]. A responsible-by-design approach integrates ethical considerations into the inception of technology innovation. This proactive strategy can help avoid potential risks from materializing, which could otherwise have a negative effect on the business. Historically, there have been instances where businesses have launched AI-enabled products or services that have later been pulled off the market due to risks materializing; as with the example a recruitment tool that showed bias against women[93] or a media website that paused the use of an AI tool after finding that more than half of the AI generated articles contained errors[94]. By not considering a responsible approach from the start, companies are at risk of financial, reputational or operational damage and because of that may potentially lose out on value creation from AI. With a responsible-by-design approach to AI, there is a potential for businesses to generate more business value from their AI investments at a faster pace.

Ethical and responsible AI practices can help ensure compliance with regulatory and industry standards on AI, so that organizations can avoid costs of non-compliance and gain access to global markets

Avoid Cost of Non-Compliance: Adopting ethical and responsible AI practices when developing and deploying AI can help ensure proactive compliance with legal requirements on data and AI. This involves a comprehensive understanding of relevant legal frameworks, including for example data protection regulation, AI regulation, and sector-specific regulation. Regular legal reviews, conducted in collaboration with legal experts, serve as essential checkpoints to ensure that AI initiatives align with legal standards. By integrating legal considerations into the development process, businesses can enable robust legal safeguards, reducing the risk of non-compliance which can have costly effects (e.g. as per latest version of the EU AI Act, non-compliance can result in fines of up to 7% of global annual turnover[95]).

Global Market Access: The legal landscape for AI is evolving, many countries and regions are developing their own AI regulations and guidelines (see section about Global Approaches to AI Regulation). Adopting ethical and responsible AI, through for example robust AI governance, risk management and incorporating controls along the AI lifecycle, can not only help contribute to compliance with existing regulations, but also positions a business to adapt swiftly to new regulations as they emerge. This can be crucial for businesses seeking to expand globally. Looking at the direction of regulatory developments on AI, taking a risk-based approach would help prepare for the larger regulatory initiatives such as the EU AI Act, and make adapting to specific needs of new jurisdictions easier.

Ethical and responsible AI practices can contribute to building trust with key stakeholders such as customers and employees, which could support with increasing use or adoption of AI-products and services, as well as attracting and retaining top talent

Customer Trust: People globally are becoming more nervous of products and services that utilize AI. In a global survey on the view of AI, the percentage of respondents that expressed nervousness in AI grew from 40% in 2021 to 52% in 2023[96]. This could partly be explained by the proliferation of AI-tools and the media attention on AI during 2022 and 2023. However, this attitude towards AI-enabled products and services could create a risk to user adoption, which could have potential negative implications on businesses developing these products and services. In a global survey from 2023 covering over 11 000 consumers, 68% of customers said that advances in AI make it more important for companies to be trustworthy, while just over half currently trust companies to use AI ethically[97]. With an ethical and responsible approach to AI, businesses are better equipped to address the risks with AI that concern their customers. Having robust governance and processes in place to mitigate risks with AI can help generate trust from customers, especially if claims about risk mitigations can be supported by evidence. When asked about what would deepen customer trust in AI, the top three factors mentioned by global consumers were greater visibility into the use of AI by business, human validation of AI outputs, and more customer control[98].

Talent Attraction & Retention: Similarly to how ethical and responsible AI can have potential positive effects on customer trust in AI, it could also help build trust with employees and attract top talent. In the 2023 version of *McKinsey's State of AI report*, survey respondents predicted that the adoption of AI will reshape many roles in the workforce over the next three years, and 43% predicted that the total number of employees will decrease by at least 3%[99]. 8% of survey respondents said that they think their workforce will decrease by more than 20% in the next three years[100]. Adopting an ethical and responsible approach to AI used in the workplace, that takes into

consideration potential concerns expressed by employees, could be a way to preserve employee trust and as a result both attract and retain talent. This could for example be done by adopting Responsible AI Governance underpinned by principles that employees have contributed to defining, and engaging the workforce in shaping the plan for how AI should be leveraged across the organization.

Ethical and responsible AI practices can support industrialization of AI by creating standardized processes and practices that can be scaled across the organization, contributing to operational efficiency

Standardized Processes and Practices: Ethical and responsible AI involves establishing governance, processes, and best practice for the development of AI solutions, actions that often accompany industrializing AI development to create economies of scale[101]. Standardizing processes and procedures can help bring consistency in how AI is applied across different projects and departments, how risks are identified and assessed, what tests should be performed and what mitigation strategies to apply. This could help bring transparency and efficiency to the development process of AI, and the process of identifying and managing AI risks, potentially shortening time-to-market for new AI solutions. Interviewed Nordic businesses also expressed the potential for ethical and responsible AI to support with rapid development and scaling of AI initiatives.

By having standardized processes, frameworks and methodologies, development teams can save time by not having to identify or create their own versions. This approach also enables comparison across different AI projects, which could contribute to better understanding about what strategies are most effective and help identify process improvements.

Ethical and responsible AI practices can contribute to creation of positive impact on the environment, people and society from the use of AI

Environmental Sustainability: An ethical and responsible approach to AI can contribute positive impact on environmental sustainability through two mechanisms. Firstly, AI can be used as a tool to achieve positive impact on the environment. In a review of evidence from 2020, it was indicated that AI may act as an enabler for 25 (93%) of the Environmental Sustainable Development (SDG) targets[102].

Secondly, training AI models involves significant computational power, requiring vast amounts of energy. There are many factors that determine the amount of carbon emissions emitted by AI systems, for example the number of parameters in a model, the power usage effectiveness of a data center and the grid carbon intensity[103]. Having a responsible approach to AI that also involves assessing the environmental effect of different design choices, enables organizations to move funding to more environmentally friendly options. For example regarding model choice, fine-tuning and re-training.

Social Sustainability: There is also potential to use AI for the benefit of people and societies. 67 targets (82%) within the Society group of SDG targets are estimated to potentially benefit from use of AI[104]. There are many definitions of ethical and responsible AI, but in most definitions from larger governance bodies or institutions, AI's impact on people and planet is central to the concept of ethical and responsible AI. The OECD AI Principles stipulates for example that AI should among all have "(..) beneficial outcomes for people and the planet"[105]. The EU High-level Expert Group's Guidelines for Trustworthy AI Systems states that one of the key requirements is that AI systems should address societal and environmental wellbeing[106]. AI can for example be leveraged as a tool to improve equality in communication and media coverage. Swiss media company Ringier uses AI to measure how men and women are represented in the companies' media coverage. This helps them bring awareness to any imbalances and enables them to make informed decisions that improve representation.[107] This is one example of how AI can serve as an enabler for creating positive impact on people's lives and society at large, if used for the right purposes.

Adoption of Ethical and Responsible AI in the Nordics

Nordic Innovation

State of AI in the Nordics

In 2022, over 100 senior executives of major enterprises from Denmark, Finland, Sweden, and Norway were surveyed on their AI maturity. This research showed that companies in this region are actively investing in AI and has seen growth in AI-influenced revenue over the past years. From 2019 to 2022, the AI-influenced revenue of surveyed companies doubled, increasing from 8% to 19%. There is a strong prediction that this trend will continue, with AI-influenced revenue expected to increase significantly, reaching 26% by 2025. However, Nordic companies have yet to take full advantage of what AI can do for their business. 81% of surveyed organizations in 2022 were still experimenting with AI. Only 6% were considered AI achievers, meaning they have differentiated AI strategies and ability to scale value from AI.[108]

There is less available data on the AI maturity of Icelandic companies, but looking at closely related data points can provide some indication. In international comparison, Iceland ranks 20th on the Global Innovation Index 2023 ranking. This means that Iceland outranks many large European countries such as Spain, Portugal, and Italy. However, both Denmark, Finland, Sweden, and Norway rank higher.[109] Additionally, when looking at the Tortoise Media Global AI Index 2023, which benchmarks nations on their level of investment, innovation, and implementation of AI, Iceland is ranked the lowest among the Nordic countries at number 40. There is a gap of 16 rankings to the next Nordic country, Norway.[110] Based on this, it is assumed that Icelandic companies on average have less mature AI capabilities than companies from Denmark, Finland, Sweden, or Norway.

Adoption of Ethical and Responsible AI in the Nordics

Businesses in the Nordics are taking important steps to develop an ethical and responsible approach to AI, but few have operationalized it. In a study from 2023, 28% of surveyed business leaders of major enterprises in Denmark, Finland, Sweden, and Norway had developed formal ethical guidelines, but only 22% had operationalized them across their organization. 49% stated that they had not taken any action at all to develop ethical guidelines for AI.[111]

Looking ahead, the maturity of AI adoption in the Nordics is expected to increase[112], and during 2023, businesses started to pilot generative AI initiatives as well. In a survey from October 2023, 22% of surveyed businesses in Denmark, Finland, Sweden, and Norway stated they were piloting generative AI, whereas 25% had hired experts to systematically use generative AI.[113] The growing focus on generative AI is likely to increase the focus on building capabilities to develop and deploy AI solutions ethically and responsibly. 68% of surveyed leaders from businesses in Denmark, Finland, Sweden, and Norway stated that the availability and development of generative AI has increased

their interest in ethical and responsible AI[114]. Given this trend, if Icelandic companies have less mature AI capabilities, it can also be assumed that they are less mature in ethical and responsible AI than companies in Denmark, Finland, Sweden, and Norway.

Nordic Businesses' Preparedness for Emerging AI Regulation and Ethical Requirements

There is an increase in new C-suite roles with a focus on AI strategy such as Chief Analytics Officer, Chief Data Officer, and Chief Digital Officer, that are working closely with the CEO and board members to among all prepare to meet emerging legal requirements[115]. In addition, Nordic businesses see attracting and upskilling AI talent as an important factor for operationalizing ethical and responsible AI and ensuring compliance with relevant regulations. They also recognize that they need to consider the full AI value chain and work with third-party AI model providers to fully mitigate AI risks.[116]

What Nordic organizations consider as the top three greatest internal challenges in meeting future regulations of AI:

| **1.**	**2.**	**3.**
Lack of talent and expertise	Lack of appropriate technical approaches	Lack of clearly defined roles and responsibilities[117]

For generative AI, Nordic businesses are likely to build downstream applications based on foundation models, which means that they may need to consider their AI providers as part of their ethical and responsible AI approach. Simultaneously, developers of foundation models struggle with living up to transparency requirements.
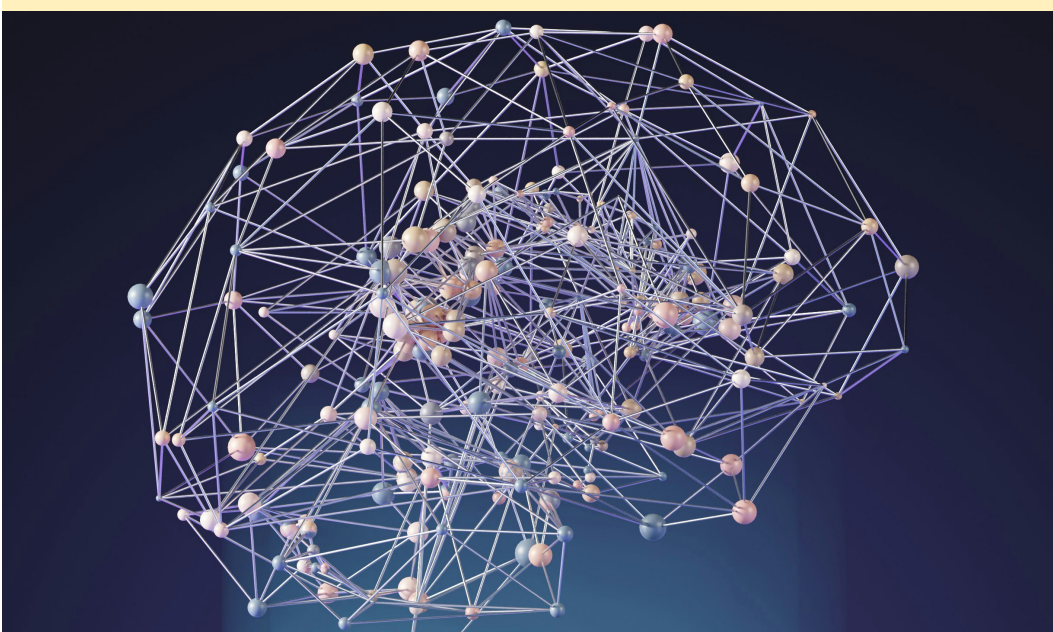
In October 2023, no major foundation model developer was close to providing adequate transparency. Across 100 transparency indicators, the top-scoring model scored only 54[118]. For Nordic businesses building generative AI solutions and use-cases, the current lack of transparency into foundation models could potentially hinder their ability to prepare for legal and ethical requirements posed on them by various stakeholders.

Ecosystem Collaborations for Ethical and Responsible AI

When asked about how to increase adoption of ethical and responsible AI among businesses in the Nordics, interviewed companies for this report stress among all the importance of complementing regulations with standards, guidelines, and methodologies. Sharing successful examples of how others have gone about to operationalize ethics and responsibility in AI solutions should be encouraged.

There are several national ecosystem initiatives in the Nordics focused on increasing collaboration on AI, many of these focus on technology development. For example, Iceland has created Almannarómur, an Icelandic language technology center tasked with protecting the Icelandic language in the digital world and providing access to language technology. Almannarómur is funded by the Icelandic government, and founding members include academic institutions and industry actors.[119] The Icelandic government is also collaborating with OpenAI, the company behind ChatGPT and the developer of the GPT-models, to use the GPT-4 model in preservation efforts of the Icelandic language[120]. There are more ongoing initiatives to offer large language models (LLMs) for the different Nordic languages. In Sweden, AI Sweden and the Swedish AI ecosystem has collaborated on creating a LLM for the Swedish language[121]. Linköping University, a public research university in Sweden, is also working on developing a trustworthy open LLM for Nordic and Germanic languages[122]. The Finnish private AI lab Silo AI launched a consortium together with TurkuNLP, aimed at developing a family of open LLMs, including the world's largest open source LLM[123]. In November 2023, the consortium released the first model checkpoint for the model named Poro 34B, which is a 34 billion parameter LLM for English, Finnish and coding languages[124]. In Norway, the start-up Bineric AI has developed a LLM for Norwegian, NorskGPT[125]. Note that these are only selected examples as of January 2024. Given the pace of technology development, this list should not be considered exhaustive.

However, as identified in the Nordic AI and Data Ecosystem report from 2022 by Nordic Innovation, there is a lack of cross-Nordic ecosystem collaboration focused on helping industry actors understand how to adopt AI ethically and responsibly. It was recommended that the Nordics should focus on creating frameworks, guidelines, and networks to share best practices, use-cases, and knowledge between each other.[126] Nordic Innovation later launched the project that this report is part of, as an initiative to start mobilizing the Nordic AI ecosystem around the topic of ethical and responsible AI.[127] Looking at global examples, mobilizing ecosystem actors to collaborate on defining guidelines and methodologies has been important enablers of increased adoption of ethical and responsible AI.

One global example of broad ecosystem collaboration is the Monetary Authority of Singapore (MAS), that established the Fairness, Ethics, Accountability and Transparency (FEAT) principles in 2018 together with members from the financial sector. These were introduced to accelerate the adoption of responsible AI to enable public trust in AI used in financial institutions.[128] Subsequently, MAS initiated the Veritas Consortium in 2019, comprising of 27 industry actors. The Veritas Consortium has since developed several assessment methodologies and tools for implementing the FEAT principles. For example, assessment methodologies have been developed for each of the FEAT principles - fairness[129], ethics and accountability[130], and transparency[131], as well as an open-source software[132]. These methodologies empower businesses to apply the principles in their AI operations, define their own targets, identify specific attributes, and provide quantifiable measurements. This example highlights the benefits of broad industry collaboration on common challenges and is one example where industry collaboration for AI standardization has proven successful.

As Nordic companies mature their AI capabilities, the emphasis on ensuring ethical and responsible use of the technology is expected to intensify. Enabling collaboration and capability transfer can help make sure that companies leverage learnings from others, both within and outside of their industry.

Conclusion and Recommendations

In 2023, only 22% of surveyed representatives from businesses in Denmark, Finland, Sweden, and Norway said that they had operationalized formal ethical guidelines for AI. 49% had not even started developing guidelines.[133] In a global study on AI maturity it was found that companies who succeed with AI investments, are among all designing solutions responsibly from the start[134]. As Nordic businesses mature their AI capabilities and as the regulatory landscape evolves, ethical and responsible AI practices can therefore be assumed to increase as well. The rise of generative AI has also increased the interest in ensuring ethical and responsible practices[135].[3]

Based on the collective findings in this report, the below activities have been identified to help increase adoption of ethical and responsible AI in the Nordic region. These are primarily aimed at businesses developing and using AI, as well as Nordic decision-makers with ability to help enable these outcomes:

- **Move from focusing on reactive compliance to proactive development of capabilities that enables ethical and responsible development and use of AI:** There is greater value to be captured from ensuring that there are capabilities in place to develop, deploy and use AI responsibly than only avoiding non-compliance. Additionally, as the regulatory landscape is still evolving, companies will be better equipped to meet new requirements with governance, policies, risk management, tools, and training already in place that help align AI solutions with different regulatory frameworks.

- **Increase board and c-suite awareness of AI opportunities and risks to obtain their sponsorship of ethical and responsible AI initiatives:** Ethical and responsible AI is a highly strategic question since it is centered around balancing value from AI innovation with risks. The board and c-suite plays an important role to successfully create and operationalize a strategy for ethical and responsible AI across the entire organization. However, they may lack sufficient understanding about AI and AI risks, and can therefore be dependent on upskilling and support from relevant subject matter experts.

- **Upskill and educate teams on the risks of AI and the benefits of ensuring ethical and responsible use of AI:** Operationalizing ethical and responsible AI will involve teams across the organization, including for example IT, legal, risk, marketing, procurement, HR, and product teams. These teams need to be upskilled and educated in what value will be generated from ensuring that AI risks are properly mitigated, and what their responsibilities are in this process.

- **Develop industry guidelines and methodologies on ethical and responsible AI, and share successful examples:** Establishing standardized practices could help increase the adoption rate of ethical and responsible AI across

the Nordics, also equipping organizations with the necessary capabilities to comply with evolving regulatory frameworks. Sharing successful examples can promote collaboration among industries and foster a collective effort to address challenges and learn from others' experiences, ultimately advancing ethical and responsible AI practices across sectors.

- **Enable ecosystem collaboration along the AI value chain and incorporate ethical and responsible AI requirements:** Each organization needs to consider their role in the AI value chain and collaborate with their upstream and downstream partners to help ensure AI risks are properly mitigated. Transparency is critical to show partners robust evidence that their AI solution is compliant with regulations and aligned with ethical and responsible frameworks. There is also value in collaborating within and between nations and industries in the Nordics on initiatives that aims at increasing adoption of ethical and responsible AI, as this can contribute to increased visibility, capability transfer and overall, more effectively increase adoption.

Nations collaborating on regulatory frameworks for AI necessitates a parallel need for organizational collaboration. As Nordic companies become more AI mature, it is likely that there will be an increased focus on ensuring ethical and responsible AI. Broader societal concerns, such as fostering innovation, security, workforce impact, and environmental considerations, cut across industries and company sizes and therefore require broad ecosystem collaboration.

The insights presented in this report also shows that companies in the Nordics are still in the early stages of fully implementing ethical and responsible AI practices. Consequently, numerous organizations in the Nordics are likely to encounter common challenges as they strive to establish guidelines for AI and put them into operation. Facilitating collaboration within the Nordic AI ecosystem can enable organizations to leverage the experience of their peers, both within and beyond their respective industries. This could for example be achieved through creating incentives to share knowledge, data, best practice, learnings, and failures. By fostering collaboration between and within nations and industries, organizations in the Nordic region can build on the many common values, and potentially develop a more cohesive and effective approach to ethical and responsible AI.
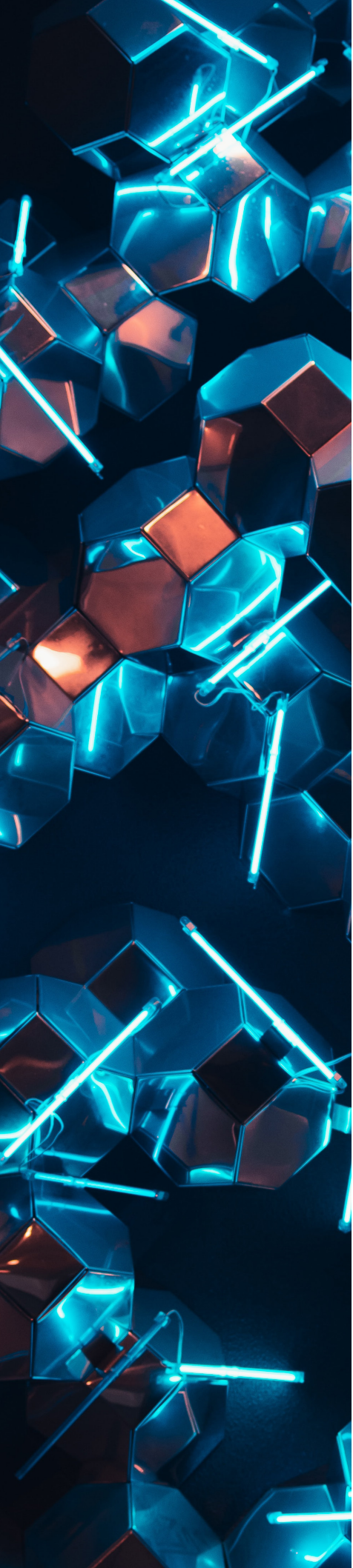
About the Report

This publication is a part the Nordic Ethical AI and Data Ecosystem project, in the AI and Data program by Nordic Innovation, a project led by Accenture and Silo AI.

Acknowledgements

Nordic Innovation
Nordic Innovation is an organization under the Nordic Council of Ministers. Nordic Innovation aims to make the Nordics a pioneering region for sustainable growth and works to promote entrepreneurship, innovation and competitiveness in Nordic businesses. We support the Nordic Prime Ministers' vision that the Nordic region will become the most sustainable and integrated region in the world in 2030.

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Disclaimer

Methodology

Literature review
A literature review has been performed to gather qualitative information for the report. The literature review was conducted during September-November 2023 with minor updates in until January 2024.

Survey data
From AI Compliance to Competitive Advantage
Nordic specific-data has been extracted from the global survey results of the Accenture report [From AI Compliance to Competitive Advantage.](#) The survey was carried out across 61 organizations in 17 industries in Denmark, Finland, Sweden and Norway.

Impact leadership in the age of generative AI
During August, 2023, Accenture and Rehumanize Institute conducted surveyed 204 business leaders in Denmark, Finland, Norway and Sweden who work for companies with more than 250 employees and are familiar with their companies' Responsible Business initiatives.

Other
Information about the data gathering methodology for other quantitative data points can be found in the referenced sources.

Interviews
Interviews were carried out during October-November 2023 with selected Nordic companies. These have different roles in the AI ecosystem, including users of AI, developers of technology solutions that help with deploying ethical and responsible AI, and investors in AI companies. The interviews had a semi-structured format, meaning all interviews were based on the same interview questions from the start but new ideas and themes were allowed to be brought up during the interview.

Interviewed organizations:

- Equinor (Norway)
- Mynewsdesk (Sweden)
- Islandsbanki (Iceland)
- Bolt.works (Finland)
- Katapult VC (Norway)
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The Benefits of Ethical and Responsible AI for Nordic Businesses

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