



NOTE FOR NATIONAL DEFENCE:

Public and Defense Policy Challenges and Innovations on Artificial Intelligence, Autonomous Systems, and Cybersecurity, Part 8: Ethical AI in Defence

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Summary

- ✚ As a moral principle, ethics governs how people act or what they do in professional and personal matters.
- ✚ A significant component of AI ethics is considering how human developers, manufacturers, and operators should behave to minimize the ethical harms of using AI in society, whether due to unethical design, improper use, or misuse.
- ✚ The different effects of AI in various contexts are social impacts, psychological impacts, financial system impacts, legal system impacts, environmental impacts, and impacts on trust.
- ✚ AI ethics cover a wide range of topics, including here-and-now concerns, near-and medium-term concerns, and longer-term concerns. Therefore:
 - ❖ Here-and-now concerns are about data privacy and bias in current AI systems;
 - ❖ Near-and medium-term concerns are about the impact of AI and robotics on jobs and the workplace;
 - ❖ Longer-term concerns are about the possibility of AI systems reaching or exceeding human-equivalent capabilities that are termed super intelligence.

CONTEXT

National and International Strategies on AI:

Various obligations for trustworthy AI that have been raised by the European Commission's Communication on Artificial Intelligence (European Commission, 2018a) are:

- ✚ **Human agency and oversight**
- ✚ **Technical robustness and safety**

- ✚ **Privacy and data governance**
- ✚ **Transparency**
- ✚ **Diversity, non-discrimination and fairness**
- ✚ **Societal and environmental wellbeing**
- ✚ **Accountability**

CONSIDERATIONS

AI development in Europe is governed by a framework defined by the European Commission, but each Member State is expected to develop its national approach. The national strategies of different European countries are:

- ✚ **Finland:** The Ministry of Economic Affairs and Employment of Finland developed the first national program on artificial intelligence in April 2018. Two records were used in making the program: Finland's Age of Artificial Intelligence and Work in the Age of Artificial Intelligence. Investment in business competitiveness and public services are at the heart of Finland's policy objectives [1], [2], [3].
- ✚ **Denmark:** The Danish Government published its National Strategy for Artificial Intelligence in March 2019 after announcing its Digital Growth Strategy in 2018. Building a responsible foundation for AI, presenting high-quality data, and overall growing investment in AI, especially in the agriculture, energy, healthcare, and transport sectors, are at the core of Denmark's policy objectives. The field of data ethics has become increasingly important, including responsibilities, security, transparency, and acknowledging a requirement for an ethical framework. In Denmark, the government has drafted six principles for AI ethics, as well as a Data Ethics Council to monitor technological developments. Self-determination, dignity, responsibility, explain-ability, equality and justice, and development are six of these principles, which are the solutions that support the ethically responsible development and use of AI in order to accomplish societal progress [1], [4].
- ✚ **France:** As of March 2018, a French program called "AI for Humanity" had been launched, which committed to fostering French talent, making more efficient use of data, and developing ethical guidelines for the use of AI. This program is organized based on AI-made recommendations across economic policy, research infrastructure, employment, and ethics. Ensure transparency and fair use of AI, which will be incorporated into the education system, is critical [1].
- ✚ **Germany:** Key objectives of the German's AI Strategy are: to establish Germany as a global leader in the development and use of AI, to protect the responsible development and use of AI, to combine AI in society in ethical, legal, cultural, and institutional phases. Moreover, creating "Centers of Excellence" for research, developing 100 additional professorships for AI, generating a German AI observatory, funding 50 flagship applications of AI to benefit the environment, developing guidelines for AI that are fitted with data protection laws, and finally establishing a "Digital Work and Society Future Fund", are various individual objectives of Germany [1].
- ✚ **Sweden:** Sweden's AI policy released by the Government Offices of Sweden in 2018 outlines general recommendations on research, education, innovation, and infrastructure related to AI. There are several recommendations, including developing a robust research base, a collaboration between sectors and other countries, growing risk prevention efforts, and originating standards to guide the ethical use of AI. A Swedish AI council is also being formed to design a 'Swedish model' for AI, promoting long-term economic growth while being sustainable and profitable to society [1], [5].
- ✚ **UK:** the UK government in April 2019 published a general "AI Sector Deal". This publication has the purpose of raising productivity by financing infrastructure, skills, and business. The mentioned

investments should be made in the context of people, ideas, business environment and places, and finally, infrastructure. Regarding developing AI, the UK has several vital policies. These policies are: to increase in research and development investment for various fields of AI, to invest in math, technology, and digital education, to provide a national retraining program that fills the skills gap, to invest in electric vehicles and fiber networks for digital infrastructure [1].

- ✚ **Austria:** There is “Robot Council” in Austria to assist with the development of a national AI strategy. This national AI strategy is outlined in the council's white paper. The Austrian AI strategy is a socially based document that provides goals to increase AI responsibly, improve safety measures, create a legal structure for preserving data, and foster a public dialogue around AI [1].
- ✚ **Estonia:** AI is one of the technologies that Estonia has traditionally adopted promptly. Marten Kaevat, Estonia's Adviser for Digital Innovation believes that AI is the following level for Estonia's e-governance. In addition to practical economic purposes and pilot programs, the plan will reportedly consider the ethical meanings of AI [1].
- ✚ **Italy:** To assess the impact of AI and enhance the quality of public services, the government of Italy has launched an AI task force (Agency for Digital Italy, 2019). In the white paper issued in March 2018, the Agency for Digital Italy Task Force on Artificial Intelligence notes that ethics are vital to the success of AI, stating that it must serve the citizens and provide universal requirements while maintaining a spirit of equality. Further challenges were drafted by the task force pertaining to technology development, the skills gap, data accessibility and quality, as well as a legal structure [1].
- ✚ **Malta:** It has been previously reported that Malta, a country that has used block-chain technology to great effect, intends to develop a national AI strategy. This development puts Malta in the topmost ten countries that have originated a national AI strategy. Several industry professionals, academics, and other experts have been put together to produce a policy that will ensure that AI in Malta is ethical, transparent, and socially responsible while developing patterns that encourage foreign investment, containing developing skillsets and foundations for AI in Malta [1], [6].
- ✚ **Poland:** The National AI strategy is being developed in Poland as well. The Digital Poland Foundation (2019) published a report about Poland's AI ecosystem, which pioneered the nation's AI strategy. The issued report presents a complete overview of AI in Poland, but it lacks specific recommendations and guidance for governments and is silent on ethical concerns [1], [7].
- ✚ **Russia:** Although Russia is reported to be developing artificial intelligence for military purposes, it does not yet have an AI strategy. A list of policy recommendations and suggestions was released by the Russian Ministry of Defence after the 2018 conference 'Artificial Intelligences: Problems and Solutions. These recommendations comprise generating a state-level AI education and AI research center. Putin's government is reportedly to finalize its national strategy for AI by June 15th, 2019 [1], [8].

NEXT STEPS

More policy implications and decision-making recommendations, observations, and guidelines by the defense policymakers and defense decision-makers will be examined in the subsequent report. In addition, the mentioned cases will be studied and researched in the field of superpower countries.

References

- [1] Bird, Eleanor, Jasmin Fox-Skelly, Nicola Jenner, Ruth Larbey, Emma Weitkamp, and Alan Winfield. "The ethics of artificial intelligence: Issues and initiatives." *European Parliamentary Research Service, Technical Report PE 634* (2020).
- [2] Ministry of Economic Affairs and Employment of Finland (2017). Finland's Age of Artificial Intelligence. Available from: https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/160391/TEMrap_47_2017_verkkojulkaisu.pdf Ministry of Economic Affairs and Employment of Finland (2018a). Artificial intelligence programme. [online] Available from: <https://tem.fi/en/artificial-intelligence-programme> [Accessed 26 Apr. 2019].
- [3] Ministry of Economic Affairs and Employment of Finland (2018b). Work in the Age of Artificial Intelligence. Available from: <https://www.google.com/search?client=safari&rls=en&q=work+in+the+age+of+artificial+intelligence+&ie=UTF-8&oe=UTF-8>
- [4] The Danish Government (2018). Strategy for Denmark's Digital Growth. Ministry of Industry, Business and Financial Affairs. Available from: https://eng.em.dk/media/10566/digital-growth-strategyreport_uk_web-2.pdf
- [5] Government Offices of Sweden (2018). National approach to artificial intelligence. Ministry of Enterprise and Innovation.
- [6] Malta AI (2019). Malta AI: Towards a National AI Strategy [online] Available at: <https://malta.ai> [Accessed 10 May 2019].
- [7] Digital Poland Foundation (2019). Map of the Polish AI. Digital Poland Foundation.
- [8] O'Connor, T. (2017). Russia is building a missile that can makes its own decisions. [online] Newsweek. Available from: <https://www.newsweek.com/russia-military-challenge-us-china-missile-own-decisions639926> [Accessed 26 Apr. 2019].