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Strong business focus, welcoming towards foreign investment

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Summary

As AI systems continue to impact society and citizens, national AI strategies are attempting to capture economic prosperity and remain competitive in the 21st century. In the world of AI, keywords such as algorithms, automation and big data are increasingly becoming commonplace. They are primarily driven by an AI resurgence in the private sector that has seeped into all aspects of society.

This chapter analyses the Czech Republic’s National Artificial Intelligence Strategy (NAIS), published in May 2019, and how or to what extent the strategy is influenced by the European Union’s approach on “trustworthy AI”. This notion is emanating from the appointment of the High-Level Expert Group on AI (AI HLEG) and its key publications, primarily the Ethics Guidelines for Trustworthy AI. Specifically, the seven key requirements for the realisation of trustworthy AI, found in the Ethics guideline, as well as other documents including similar notions, from the OECD AI Policy Observatory¹ and European Commission’s AI Watch², are here part of the analytical foundation.

As concluded in this chapter, the NAIS – being published in the month after the Ethics guidelines – has not explicitly linked the seven key requirements but can be seen in light of the preceding European AI strategy (April 2018) that is echoed in the Communication from April 2019. The Communication puts forward a human-centric approach to AI, whereby “AI is not an end in itself, but a tool that has to serve people with the ultimate aim of increasing human well-being”.³ The NAIS encompasses nearly all aspects indirectly with the aim of improving the country’s economic growth and competitiveness in AI by creating favourable policy conditions.

The NAIS provides a list of tools and tasks and the main coordinating role is assigned to the Ministry of Industry and Trade with the aim that the strategy is to be continually reviewed, on a yearly basis, with reports on the fulfilment of objectives and proposals to revise objectives and instruments.

As the strategy takes shape, an AI Committee has been established to supervise its implementation. The strategy is compatible with previous industry policy documents such as Industry 4.0 (Průmysl 4.0), a national initiative that aimed at maintaining and enhancing the competitiveness of the Czech Republic in the wake of the so-called Fourth Industrial Revolution.⁴ More importantly, the NAIS is explicitly referring to the official EU strategies, while significant salience is also given to the national Innovation Strategy of the Czech Republic 2019–2030, as the stated intent is to complement and expand upon it, alongside the similarly important government strategy Digital Economy and Society.

¹ OECD (2020).

² AI Watch (2020).

³ European Commission (2019).

⁴ Digital Transformation Monitor (2017).

1. Analysis

Advances in the application of artificial intelligence (AI) systems have gained momentum in the past decade, bringing forth national initiatives and strategies to capture competitive advantages of economic growth and beneficial societal impacts. Member States were “encouraged to develop their national AI strategy by mid-2019, building on the work done at the European level”, as called for in the Coordinated Plan on Artificial Intelligence from December 2018.

The European Strategy on Artificial Intelligence is led by the AI HLEG – composed of appointed experts by the European Commission – to present recommendations on future-related policy developments and on ethical, legal and societal issues related to AI, including socio-economic challenges.⁵ The Ethics Guidelines for Trustworthy AI were published by the AI HLEG in April 2019, along with 33 proposed Policy and Investment recommendations for Trustworthy AI. These documents were addressed to EU institutions and Member States and were published in June 2019; additional emphasis on building an “ecosystem of trust” appeared in the Commission’s White Paper on Artificial Intelligence published in February 2020.

Although the Czech Republic’s NAIS was released in May 2019,⁶ only a month after The Ethics Guidelines for Trustworthy AI, the NAIS draws reference to guidelines and publications that align with the pan-European approach and is inspired by similar foreign strategic documents.

The NAIS was created in collaboration with a diverse team of experts from academia, as well as the private sector. Among them are representatives of ministries, institutions and experts from the Academy of Sciences of the Czech Republic.⁷ The stated goal is for the government, public and private sectors to coordinate closely as AI systems improve, while meeting the objectives of the Government Innovative Strategy 2019-2030 and the Digital Czech Republic programme.⁸

The AI Committee that is assigned through the NAIS is intended to be a subcommittee of the Steering Committee of the Digital Czech Republic strategy, chaired by the Deputy Minister of Industry and Trade for Digitisation and Innovation, with interim reports to be submitted yearly to the Steering Committee and to the government, to inform about progress of strategy implementation. For some of the seven different strands of AI policy that the report outlines (see below), other government departments are recruited to act as coordinating members: the Ministry of Education, Youth and Sports; the Ministry of Labour and Social Affairs; the Office of the Government of the Czech Republic. It is through this newly established AI Committee that the responsible ministers (the Deputy Prime Minister and the Minister of Industry and Trade) are implementing and coordinating the strategy as a whole. The operational management of the AI Committee will be continuously ensured by its Executive Committee.⁹

1.1. Composition of the NAIS

The NAIS is divided into seven chapters, and its key areas are Research and Development (R&D), financing, industry, human capital, education, regulation, and international

⁵ AI HLEG (2019).

⁶ European Commission (2020).

⁷ NAIS (2019).

⁸ Government of the Czech Republic (2019).

⁹ European Commission (2020).

cooperation. For each chapter, the NAIS stipulates a responsible Ministry as Coordinator, a baseline providing the current state, the policy initiatives that will be developed, the cooperating entities, tools and methodology, and the key objectives that are targeted at short-term (until 2021), medium-term (until 2027) and long-term (until 2035).¹⁰

The NAIS also presents results from an empirical mapping of the industrial landscape, intended to ground the report in actual data and knowledge from practice. Hence, the annex includes results from a survey that was conducted among organisations and companies engaged in AI activities, in both academia and the private sector. This survey was led by the Confederation of Industry of the Czech Republic, who are responsible for making the initial evaluations of the corporate AI environment. “The members of the Confederation of Industry of the Czech Republic, all other member associations and organisations and the general public were approached for the purpose of mapping – in total thousands of entities were approached, of which 50 companies decided to become involved at this stage.”¹¹ This quantitative mapping gives indicative data on the applications and development areas of AI, methods used in AI, the sectors of integration of AI, and the distribution across various industries in the Czech Republic. The “application development areas of AI” that were most often mentioned were “information and communication activities” and “business process support,” and the sectors that were most often mentioned were corporate AI and software development. 44 percent of participants highlighted the importance of education and retraining of workers, which the NAIS also covers in its fourth chapter, which addresses human capital and the education system and lifelong learning, and also its fifth chapter, which addresses the impacts of AI on the labour market and social systems.

1.2. Focus areas of the NAIS

One of the primary focuses stated in the report is supporting R&D in AI, where the transnational ambition to build European Centres of Excellence in AI research, Test Centres, and Digital Innovation Hubs are given clear prominence in the report.¹² The prospective establishment of a European Centre of Excellence in AI, based on a consortium of academic research institutes, is outlined to be based in the capital (Prague) and to reach throughout the Czech Republic. This is concordant with the AI HLEG’s recommendations on Policy and Investment Recommendations which highlights the aim of ensuring world class research capabilities in AI within the EU. The NAIS plans integrated systems of transfer of academic know-how into the EU well into 2035, with the goal of making the Czech Republic an attractive AI research destination that would be connected with other centres throughout the EU further expanding academic research on an international stage. This is fulfilled by deepening cooperation with global AI centres, as well as maintaining top research and experts in the Czech Republic.

The keywords of the report seem to be competitiveness, R&D, digital infrastructure, skills and training, and commercially viable innovation. The main objective appears to be the concentration of excellent R&D in AI, in particular by supporting the creation of the European Centre of Excellence, Test Centre and Digital Innovation Hubs. The report thus outlines seven strands that are co-constitutive of such an agenda:

- conditions for attracting top foreign talent (1)

¹⁰ European Commission (2020).

¹¹ NAIS (2019), p. 43.

¹² NAIS (2019).

- funding for research, the development of start-ups, SMEs (2)
- provision of digital infrastructure (3)
- education and lifelong learning; both technical and humanities-oriented (4)
- adaptable social welfare system (5)
- legislation; ensuring the protection of fundamental rights and security as well as legal certainty for investors (6)
- international cooperation and involvement, especially at the EU level (7)

For each of these seven strands, the report outlines a set of tools, partners, and short-, medium-, and long-term objectives.

In the listed strategic documents, the publications and guidelines of the AI HLEG are not present, but reference to communications from the European Commission on “Coordinated Plan on Artificial Intelligence in Europe”,¹³ “Artificial Intelligence for Europe”,¹⁴ and “A Digital Single Market Strategy for Europe”.¹⁵

The NAIS is well-structured and clear objectives are laid out through the seven vertically divided chapters. The overall aim of the strategy is to improve the country’s economic growth and competitiveness in AI by creating favorable policy conditions, “all while maintaining a high level of protection of fundamental and other rights and in the line with the European approach of human-centric AI.”¹⁶

1.3. Law and ethics

The Ethics Guidelines for Trustworthy Artificial Intelligence by the AI HLEG states that AI systems need to be human-centric on the basis of a “commitment to their use in the service of humanity and the common good” towards a Trustworthy AI.¹⁷ The guidelines in creating Trustworthy AI include three components of lawful, ethical and robust systems all intended to ensure a Trustworthy AI framework.

Among many of the NAIS’s short-term objectives, up until 2021, is the establishment of an Expert Platform and Forum (modelled on the “Observatory and Forum” set up by the EU Commission) in cooperation with the Institute of State and Law of the Academy of Sciences of the Czech Republic, for the continuous monitoring of legal and ethical rules at both a national and international level, adhering to the human centric AI.

The NAIS has taken measures in assuring national and internal laws as well as ethical guidelines, when it comes to either creating legislation, ensuring lawful development and implementation of AI systems, or by removing legal barriers to AI development, including public law, also cited public procurement.

Consequently, the report’s sixth strand, *Legal and societal aspects of AI, ethical rules, consumer protection and security issues*, provides a pathway and a commitment to following European Union Law. What is requested is clear legislation, ensuring the protection of fundamental rights and security as well as legal certainty for investors and citizens alike, as

¹³ European Commission (2018a).

¹⁴ European Commission (2018b).

¹⁵ European Commission (2015).

¹⁶ NAIS (2019).

¹⁷ AI HLEG (2019).

well as means to safeguard a democratic development. What is sought is therefore “the creation of an administrative and legislative framework for AI that avoids any form of discrimination or disadvantage, with a strong emphasis on rights and privacy”.¹⁸ In the stated measures to address the impacts of the AI on the labour market and the social system (the fifth strand, seen to be coordinated by the Ministry of Labour and Social Affairs), potential threats are identified, include:

*[Deepening] problems in socially excluded regions, temporarily increasing structural and frictional unemployment, or [...] various forms of inequality and discrimination. The effects of automation are likely to be different for different population groups, with the middle class being among the most affected groups. The impacts can thus be not only purely economic, but also social and political.*¹⁹

1.4. AI, data and digitisation

Although unclear as to the adherence to the Trustworthy AI guidelines, the NAIS implements a European approach, and aims to fulfil the strategy of Digital Czech Republic. At a national level, this includes a myriad of major government strategies for digitalisation and innovation, most comprehensively outlined in the Innovation Strategy of the Czech Republic 2019-2030. The Digital Czech Republic international conference is held annually, since 2015, and brings together speakers across diverse panels geared towards discussion and debate around policy programmes such as AI Citizens Safety, the future of jobs, the future of education, data rights and digitalisation amongst a few other areas and topics.

The four ethical principles forming a foundation for Trustworthy AI, such as the respect for human autonomy, prevention of harm, fairness and explicability are taken into consideration in the implementation of the NAIS. However, these four objectives are not stated explicitly, meaning that there is more room for further expansion of the AI HLEG guidelines. Areas such as Privacy and Data Governance (addressing the opportunities for individuals to trust the data processing, ensuring adequate civic control over data, and that data not be used to harm or discriminate against) could be further expanded in future iterations of the AI policy of the Czech Republic.

1.5. Timeline

The NAIS lists both medium-term (timeframe 2027) and long-term (timeframe 2035) objectives. The medium term objectives propose plans on implementing AI development and usage tools in accordance with ethical and legal rules (including Ethical Guidelines for Artificial Intelligence Development and Use) and human centric AI.²⁰ Additionally, the sixth strand of the NAIS explicitly states that the most important influence is that of the European Union legal framework, through which strategic goals in the field of AI (including the creation of Ethical Guidelines for the Development and Use of AI) are already under way. Also in this legal framing of AI, the NAIS makes particular reference to “innovation-friendly” aspects of regulation. Other international organisations, notably the OECD, the WTO, the UN and the Council of Europe, are noted to have significant activity in this field as well.

While the NAIS appears to lack concrete arguments regarding things like civic accountability of AI Systems, as per *The Guidelines for Trustworthy AI*, the strategy stipulates the need for “clear and timely AI regulation to ensure legal certainty for citizens, entrepreneurs and

¹⁸ NAIS (2019), p.8.

¹⁹ Ibid., p.30.

²⁰ Ibid.

investors”.²¹ Moreover, the NAIS touches upon the support of certified methodology of implementation and specialised courses, including the proposal of a certified methodology for system audits in co-operation of the public and private sectors.²²

2. Conclusion

The NAIS is part of the implementation of the Innovation Strategy of the Czech Republic 2019-2030 and lays out the foundation for building a comprehensive ecosystem intended to answer to the stated aims within the EU to create European Centres of Excellence. In this framework, the design, creation, implementation and successful promotion – coupled with favourably investing opportunities and innovative management – of Digital Innovation Hubs (DIH) provide one of the links between the public and digitalisation. Highlighted in the executive summary of the NAIS:

*It is the cooperation of all the entities involved that is crucial for the real fulfillment of the National AI Strategy and successful handling of fundamental changes for the Czech economy and society. Ensuring equal opportunities and the economic development for the entire society within Europe and internationally.*²³

However, when analysed in line with the EU Commission approach on “trustworthy AI”, the NAIS has not explicitly linked the seven key requirements with the AI HLEG delivered Ethics Guidelines on Artificial Intelligence, putting forward a human-centric approach to AI, whereby “AI is not an end in itself, but a tool that has to serve people with the ultimate aim of increasing human well-being”.²⁴

3. Recommendations

With the anticipated yearly reports on the fulfilment of the strategy of the NAIS objectives, which is to be submitted to the Steering Committee of the Digital Czech Republic Strategy and the Government of the Czech Republic, proposals are likely to be presented by the committee so as to revise objectives and instruments continually.

A worthy expansion of such an endeavour would be to emphasise *human agency and oversight*, which helps ensure that AI systems do not undermine human autonomy or cause other adverse effects. Depending on the specific AI-based system and its application area, the appropriate degrees of control measures, including the adaptability, accuracy and explainability of AI-based systems, should be explained further in a series of supporting documents.

The NAIS could further elaborate also on the *technical robustness and safety* of AI systems, as regards their intended reliability. AI systems ought to be secure enough to be resilient against both overt attacks and more subtle attempts to manipulate data or algorithms themselves and ensure fall-back plans in case of problems. The decisions delivered by such systems are to be accurate, or at least correctly reflect their level of accuracy, and their outcomes should be reproducible.

The *traceability* of AI systems should be ensured, as it is important to log and document both the decisions made by the systems, as well as the entire process that yielded the decisions. In addition, future iterations of the NAIS could provide more thorough explanations of the degree

²¹ Ibid., p.36.

²² NAIS (2019).

²³ Ibid.

²⁴ European Commission (2019).

to which AI systems are thought to influence and shape organisational decision-making processes.

In a ranking presented by Oxford Insights and the International Research Development Centre (IDRC), drawing upon 33 indicators, the Czech Republic scored 61.5 (out of 100) in the Government AI Readiness Index 2020, ranking 32/172 internationally and 4/20 in regional rank.²⁵ Ambitiously, the Czech Republic aims to be “the model country for the whole of Europe in automation before the Czech Republic’s presidency of the EU Council in 2022,” as highlighted in prime minister Andrej Babiš’s “Vision – Czech Republic, the country of robots,” in the opening pages of the strategy,²⁶ and the intent seems to be that the objectives and timelines set forth in the NAIS will be accommodating to this.

Importantly, the value from the linking of the NAIS, in its current form (released in May 2019), to the AI HLEG and other publications past this date, would help accommodating objectives for future review and amendment of the Czech strategy, helping to ensure that the Czech Republic follows guidelines set forth at the European level as highlighted in the sixth chapter of the NAIS.



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²⁵ Oxford Insights (2020).

²⁶ NAIS (2019), p.4.

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