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AI and Europe – Aspiration and Reality

Results of the Study: Analysis of Current Global AI Developments with a Focus on Europe

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Europe has Joined the Competition

In 2017, Finland was the first European country to present its own artificial intelligence (AI) strategy. Since then, a total of 22 countries and the EU itself have done so.[1] The direction of travel is clear: Europe wants to use the economic and societal potential of AI, and to become an AI-leader internationally. To achieve this, Europe is focussing on the creation of a competitive AI-innovation ecosystem that, through a human-centred approach, should advance trusted AI solutions. Excellence and trust are the guiding principles.

Lots of Potential, Limited Strengths?

In terms of the prerequisites to becoming an AI-leader, Europe is well positioned. It has a strong industrial and automated economy, a large reservoir of data in the industrial and consumer fields, and a strong research and development environment. At the same time, as an AI soft power, Europe is leading the way in terms of a human-centred approach to data and trustworthy AI. However, a closer look reveals that this potential is not being used.

Key deficits in Europe's AI field are: 1) a lack of large and high-quality data pools; 2) a low density of AI-talent and cutting-edge research based on an international comparison; 3) a lack of supercomputers and own semiconductor capacity; 4) weaknesses in relation to the commercialisation of AI (AI start-ups, venture capital, etc.); 5) asymmetries in the performance of national AI-innovation ecosystems; 6) an incomplete internal market. All of this is paired with a legal framework that in many aspects sets the standards globally, but also partly inhibits innovation.

As a result, there is both a risk that Europe will fall behind at the international level and that economic disparities within Europe will increase in the course of the digital transformation.

Shaping the Future

Like many other key technologies of the digital age, AI is undergoing constant change. Today, there are already innovative forms of AI computing power emerging from supercomputers to quantum computers as well as new business models (B2B2B and P2P), ideas for financing concepts (smart upgrading), and even advances in AI itself (contextual and explainable AI)[2]. In light of these developments, Europe should adopt a future-oriented approach in the following fields: AI governance, AI partnerships, commercialisation, and AI talent and research.

Recommendations for Action

AI partnerships: Europe is not on its own. An intelligent choice of international partners and cooperation agreements is essential, particularly if Europe is to strengthen its digital sovereignty. This includes research and innovation special zones with the UK, and cooperation agreements with reliable partners in the area of semiconductors. In light of China's rise, transatlantic relations – despite certain tensions – remain immensely important, and new partnership models should be discussed (sequential bridging model).

AI governance: The current legal framework needs to evolve if Europe is to retain its soft power as norm-setting authority in the digital age. It must be shown that trust, innovation and economic competitiveness are compatible with each other. In addition to applying future-oriented approaches in the areas of data (e.g. data custodians) or competition law (ex-ante regulation), Europe should further develop its General Data Protection Regulation (GDPR), and, above all, complete the digital single market.

Commercialisation: Europe must strengthen the commercialisation of AI, but do so without compromising its values. To achieve this, firstly, the permeability between the security, public and private sectors should be increased. Authorities and ministries should be more active as smart procurers in innovation ecosystems. Secondly, there needs to be more room to experiment in relation to data marketplaces, on which a European data infrastructure can be built. This would enable the development of new, trustworthy business models and their scaling to upgrade existing economic sectors.

AI talent and research: While the emigration of AI-talent from Europe reveals the economic weaknesses of the AI-innovation ecosystems, virtual research networks create the possibility of connecting with the global AI-talent diaspora. Nevertheless, these networks cannot replace a European research centre for the next AI-generation. Furthermore, tax incentives can provide an incentive for firms to invest more in the digital further education of their employees. This would not only make an important contribution to the digital transformation of the European economy and the adaption of the labour market to the future, it would also fundamentally strengthen the competence of European citizens in relation to AI, data, and other digital technologies.

1 OECD 2020: AI Observatory. https://www.oecd.ai/dashboards?selectedTab=countries

2 O. / Straube, T. 2020: Analysis of current global AI developments with a focus on Europe, chapter 3–5

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