European Commission Guidelines on the Regulation of Artificial Intelligence: Lithuanian Ecosystem Impact Analysis

Assessment of the EC White Paper On Artificial Intelligence
- A European approach to excellence and trust

Introduction

The importance of Artificial Intelligence (AI) technologies in the digitization of public sector and business processes is constantly growing in the context of the Fourth Industrial Revolution, and they became particularly relevant during the COVID-19 crisis. Their relevance will not diminish at the end of the crisis but will rather grow as states and companies move to the more automated processes.

It is estimated that Artificial Intelligence technologies would generate an additional 3.6 trillion for the European Union economy by 2030. However, the EU lags far behind the U.S. and China in terms of its investment in AI: the U.S. invests four times and China twice the EU (Innovation in Europe: Changing the game to regain a competitive edge, McKinsey, 2019).

Europe also falls significantly behind the U.S. and China in terms of data platforms. The combined capitalization of the U.S. and Chinese digital platforms is 90 percent. Europe's share is 4 percent. Open, reliable and orderly digital data is one of the main enablers of Artificial Intelligence.

From the perspective of Lithuania, our country lags behind the EU here as well. Investment in R&D in Lithuania is one of the lowest among the EU countries: 0.88% of GDP in 2018 compared to the EU average of 2.01%. One of the reasons for this is the significant barriers to the supporting investment in innovation (return-on-investment requirements) and the administrative burden. As a result, almost no innovative products are developed and the competition with other countries is rather in the area of lower value-added services.

In Lithuania work efficiency is twice lower than in the European digitization leaders: 32 euros vs. EUR 64 GDP per hour (Lithuania as a Digital Challenger, McKinsey, 2017). Notably, Lithuania is also continuously facing labour shortages in various sectors, which hinders economic development (AI Talent in the European Labour Market, 2019).

Due to the prevalence of “manual work", which is less efficient, about 40 percent of jobs in Lithuania face a very high risk of automation (CEDC Employment Outlook 2019: The Future of Work).

The development and deployment of Artificial Intelligence systems significantly increases the efficiency of industry, services and the public sector. Digitization leaders are estimated to grow twice as fast as the rest. For countries such as Lithuania the development of Artificial Intelligence systems is one of several ways to increase efficiency and international competitiveness, while improving the socio-economic situation of the whole state and providing better services such as more efficient healthcare and other public and private services.

It is therefore essential that the development and use of Artificial Intelligence systems be encouraged, both by increasing funding for scientists and researchers in this field and by supporting investment in innovation and its application in businesses, as well as by reducing bureaucratic barriers so that regulation does not hinder the creation and development of AI technologies.

The promotion of external measures (EU-funded) must also be a priority, as the European Commission clearly identifies the development of Artificial Intelligence as one of the most important tasks of this term. Measures such as the establishment of an AI digital innovation centre in Lithuania would externally promote the development of AI research and innovation in Lithuania without additional funding.

Assessing the importance of this growing sector, INFOBALTassociation of information and communication technology companies, together with experts from the Artificial Intelligence Association of Lithuanian, Justas Vilys Law Firm, TGS Baltic, Google, Vilnius University and Vytautas Magnus University, conducted analysis of the guidelines on the promotion and regulation of Artificial Intelligence set out in the European Commission White Paper ‘On Artificial Intelligence - A European approach to excellence and trust’.

Promoting a Breakthrough in AI

The measures set out in the European Commission White Paper on Artificial Intelligence to support and promote the development of AI technologies and systems would have a positive impact on the AI ecosystem in the European Union, but their extent will depend on their implementation (regulation, administration, etc.) and investment.

To achieve a significant breakthrough, investment levels should shortly reach the levels those

of the U.S. or at least China. There is also a need to change funding models for the AI research. On the one hand, there should be a significant increase in the number and amount of funding for fundamental and scientific research in this area. On the other hand, it is essential to make more accessible the promotion of applied innovation in companies.

There is a need to increase the risk tolerance level for stimulating investment in innovations in the companies by changing the support criteria and recognizing that only a small proportion of innovative projects can be successful, which is inevitable in the development of new technologies and their application.

In order to promote the use of AI in small and medium-sized companies with very limited and non-specialized administrative resources, it is necessary to reduce the administrative burden of managing support and to provide comprehensive support measures for such businesses, including cooperation with scientific institutions (via vouchers) and consultation regarding implementation and compliance to legal regulation.

It makes sense to focus on the development of specialized AI competence and testing centres in Lithuania, which would help strengthen the international competitiveness of the country's leading and most important industries.

The development and education of societal skills is necessary to better understand the potential of AI, reduce resistance, and at the same time develop both skills and interest in using AI systems. Without the necessary skills, the opportunities for AI development in the public sector and businesses will be extremely limited.

Threats and Opportunities of Regulation

The EC's initiative to harmonize AI regulation and standards across the EU, including the opening and use of public data, is to be welcomed.

However, the global context must first be taken into account when assessing the specific regulatory guidelines outlined in the EC White Paper.

At present, there are no specific regulatory restrictions on Artificial Intelligence technologies and their application in the U.S. and China, which are ahead of the EU in terms of investment and attention, so any EC regulation should also be assessed through the cost of regulation (i.e. what socio-economic damage can be caused by different regulations restricting the development of AI technologies and products).

Regulation of technology

However, in order to prevent the abuse, misuse of AI for unfit purposes, and to build confidence

in AI systems, some legal regulation of AI use is, still, necessary.

However, to be noted, the guidelines do not carry a clear distinction between these two phases:

- AI technology research and development,
- Application of AI technology (final products in the market).

Regulation of AI, like that of any technology in the phase of development, would be pointless and even flawed, hampering its development. AI, like any other technology - robotics, genetic engineering, encryption technologies - can be used for various purposes. Also, the same technology can be applied in different areas with significantly different risk sensitivities.

In addition to that, most areas of technology application currently have specific regulations in place to ensure consumer rights and their protection, guarantee product safety and establish liability for supplying unsafe products to the market. For example, in aviation, and in the systems used in it, software is subject to much stricter requirements than the one used for the office, mobile phone or television applications.

There are also horizontal, cross-sectoral regulatory mechanisms for non-discrimination, security of information systems (NIS Directive) and protection of personal data (General Data Protection Regulation).

Therefore, when planning regulation it is necessary to: 1) separate the development of AI technologies from their application (products) and focus regulation only on the use of technology, 2) assess the adequacy of already existing sector-specific regulation, and 3) take into account not only the potential damage but also the probability of its occurrence (i.e. by assessing the degree of risk).

Requirement of Human Interference/Mediation

The White Paper's regulatory guidelines for AI, defining the requirement for the involvement of a person who should approve decisions or provide additional opinion in certain areas, may reduce the effectiveness of the whole AI-based system, both in terms of speed and quality.

For example, AI has already demonstrated that it can be more accurate in making diagnoses from radiograms. Requirement for additional examination by a medical professional may lead to less accurate diagnoses. Another example is airport security systems that are already in place, where human intervention would reduce the efficiency of the systems and could lead to higher error rates. In order to ensure and increase trust, it is possible to provide for the possibility of human assessment and approval according to individual choice in certain areas, however, in many areas this would mean de-automatization of automated systems.

The EU already has an AI Testing Centres initiative that can help build confidence in AI systems and address many pressing issues, such as ensuring the projected accuracy of AI systems, algorithms and products based on AI technologies, thus ensuring their suitability for different applications and under different real-life conditions.

Definition of High Risk

The current definition of AI is too broad and the scope of high risk application covers virtually all EU industries. AI regulation and high-risk areas should be more specific, with essential public and business interests and their protection in mind, and should not be defined in a hurry.

Another important aspect is that the definition of high risk should not be limited to a potential damage (in all its extent), but should assess the degree of risk, i.e. including the likelihood of damage. Regulation should also take into account the risk of untapped potential from restrictions and economic and social costs of restricting the use of AI in certain areas, such as health care and protection.

Accuracy and Quality of Data

Due to a particularly large amount of data required to train AI algorithms, assessing the accuracy and quality of these AI algorithms is essentially an impossible task. At the same time, it cannot be guaranteed that the details provided by an entity regarding their data, and their impartiality, are in fact substantiated.

In addition, implementation of the AI product traceability requirement would require the collection of all user data throughout the use of the AI product, which would significantly complicate the application of AI, reduce convenience and efficiency, and be contrary to GDPR as well human rights and European values.

The process of training artificial neural networks is a complex process that requires evaluation of many different model parameters and use of different data and different software versions, which makes control and recording using conventional methods difficult.

It is necessary to mention that the collection and processing of personal data is already regulated by the GDPR, and the exchange of non-personal data is accordingly regulated by the EU Regulation on the free movement of non-personal data.

Liability

The modelling of legal liability for the consequences of the use of AI should be based in particular on a review of the current liability for product safety and introduction to the market, identification of problem areas and appropriate corrections.

The existing regulation, which establishes liability of the relevant actors for the introduction to the market and safety of products, can and must in principle also apply to the products with AI solutions. Such technology-neutral interpretation and application of the concept of "product" would create conditions for the smooth and sustainable development and marketing of products based on AI solutions.

Thus, under the specific product safety rules in question (i.e. Council Directive 85/374 / EEC of 25 July 1985 on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products and European parliament and Council Directive 85/374/EEC of 3 December 2001/95/EC on general product safety) the liability would rest with the manufacturer who introduced the final product to the market, thus maintaining technological neutrality and avoiding unduly restrictions to the process of technological development.

The emergence of new, overlapping regulatory requirements could hamper the development and research of AI in the EU, thus giving an advantage to the U.S., Chinese, and Indian companies and platforms.

Preliminary (ex-ante) Regulation

Ex-ante regulation of AI can have a significant negative impact on the use of AI in key EU sectors. In many areas of research where AI can be applied it is complex and often impossible to assess the effectiveness of an AI model in advance, also this can only be done after it has been developed and tested.

Ensuring Trust

Decision making by AI algorithms is often not transparent due to its specificity and complexity, but this alone does not mean that these decisions are unreliable or incorrect. The tested algorithms used in the market are tens and hundreds of times ahead of humans in the accuracy of their decisions. Therefore, AI-based biometric identification systems are used in such high-risk areas as passenger screening at airports, voter registration, payment systems, and law enforcement.

Confidence in AI algorithms and the accuracy of systems based on them can be ensured by using transparent and clear test methodologies and procedures for both the AI and classical software algorithms. One such example is the U.S. National Institute of Standards and Technology (NIST), which provides public close to real-life conditions test reports of algorithms that allow even black box-type algorithms to be evaluated for reliability and speed, and test their accuracy regarding race, age, gender and other criteria. These independent tests and their public reports are used as a basis for formulating requirements for the systems with different levels of risk.

Such a function could be performed by AI testing centres proposed by the EC. Such model would be acceptable because it would:

(a) not restrict the development and research of AI technologies by separating these processes/stages from the products themselves;

(b) contribute to ethics and trust;

(c) encourage competition between AI algorithm developers to develop higher quality algorithms;

(d) enable smart, granular and targeted regulation based on anticipation and management of costs, risks and potential consequences, i.e. on the basis on algorithm ratings provided by AI test centres sector regulators could set appropriate criteria and requirements for different technology applications and sectors (e.g. biometric identification products used for airport security controls should have a rating of at least X, yet a lower rating (e.g. X-2, etc.) would be sufficient to control access to business centres).

Summary

EC initiatives to promote the development of AI in business and public sector would contribute to increasing the EU's technological and business competitiveness, but this would also require smooth implementation: promotion and support measures should minimize administrative burdens on business and **reduce barriers in funding innovation.**

Lithuania is one of the fastest aging countries, which leads to an increasing problem of working age and employees. In addition, Lithuania can no longer compete on labour costs and seeks to shift to a high value-added economy.

The digitization and automation of the economy would help the country increase its currently poor economic efficiency, thereby increasing competitiveness and building a welfare state. The development of artificial intelligence technologies and the use of products based on them could make a significant contribution to achieving these goals.

Still, regulation of AI, as it is set out in the EC White paper, is:

(a) too wide and undifferentiated;
(b) not separating **technology development**, testing and trial from the final product **entering the market**;
(c) not separating **technologies** from their **applications, methods and products**;
(d) not based on the assessment of costs, risks, possible consequences and probabilities, and therefore not taking into account the real degrees of risk;
(e) based on assumptions.

The regulation of AI proposed by the EC would be **a more restrictive factor** and would do more harm than it would help to achieve the stated goals of European leadership in the field of AI and increasing the competitiveness of the economy.

This would have a **significant negative impact on the development of AI technology**, create problems for the compliance of products and technologies already on the market, and further widen the gap between the EU players and the U.S. and China.

The negative effects would not be limited to the AI sector. This would affect the whole economy, the public sector (health and social care, public security, etc.), and their efficiency.

In the long run, restrictive regulation could lead to the brain-drain and exit of capital as well as reduction in economic efficiency, decrease in consumer service diversity, a less efficient public sector and poorer quality of services. In the case of Lithuania, limiting and restrictive regulation of AI development would lead to inhibitions to the development and competitiveness of ICT, especially to the growing AI sector, as most companies in this sector are small or medium-sized, with limited administrative and legal resources. Compliance and regulation would be too burdensome for them.

Conclusions

- It is necessary to ensure **uniform, consistent and coherent regulation of AI across the EU** in order to avoid diverging requirements at the national level (EU regulatory fragmentation on AI issues).

- Clearly separate the development phase of AI technologies from the use of AI in products. There should be no restrictive regulation during **development, testing and trial** phases of AI technologies.

- It is necessary to define precisely what is a high-risk area, taking into account not only the extent of possible damage but also the likelihood of its occurrence due to the use of products with AI.

- Evaluate existing sectoral and horizontal regulation, assess its adequacy and sufficiency for products based on and using AI technologies.

- Regulate the **application of high-risk AI technology products** only after the identification of an unavoidable need and the identification of areas not covered by the existing regulation.

- Assess potential regulation through the prism of socio-economic costs and consequences, i.e. what would be lost if the use of AI were restricted in different

areas, assessing the impact on the global competitiveness of the European AI ecosystem as well as industry and services.

- Increase business and public confidence in AI technologies, solutions, products and their applications through education and skills development, as well as through the development of AI algorithm testing and digital innovation centres.

- Competitive Artificial Intelligence technologies and their widest possible application can become one of the essential pillars of ensuring the competitiveness of the Lithuanian economy and the welfare state, therefore, from the Lithuanian perspective, regulation should be as **liberal, clear and simple as possible**.