

# ARTIFICIAL INTELLIGENCE FIT FOR EUROPE

## Building Trust in Times of Emergency

Tuesday 7th April, 9:00 – 10:15  
Zoom

### 1. The AI global landscape: EU vs. US and China

Comparing the EU to other world regions, a pattern of a clear competitive disadvantage seems to emerge.

In terms of patents, according to the European Commission's Joint Research Center (2018), between 2009 and 2018, Chinese AI players filled 57% of requests, versus 13% from the US and 7% from South Korea and the European Union.

In 2018, over 51% of published AI patents were attributed to North America, with the share of Europe and Central Asia declining to 23%, less than two percentage points above East Asia and the Pacific (in 2002 the gap between Europe and East Asia was approximately 20 percentage points) (Source: Artificial Intelligence Index Report 2019, Stanford University).

Out of 41 AI unicorns in March 2019, 18 were based in the US, 17 in China and only 1 in the EU (Source: Global Artificial Intelligence Industry Data Report, China Academy of Information and Communications Technology).

In 2018, a wider look at the start-up environment allowed Roland Berger and Asgard to survey 769 EU startups specialized in AI, much less than in the US (1,393) but significantly more than in China (383). However, close to one-third of the EU startups were based in the UK, now no longer a EU Member State. Moreover, in a world ranking of hosting cities, the first EU hub (Paris) is only in 10<sup>th</sup> position, due to the extreme fragmentation in Europe.

Fragmentation is definitely one factor at play, reducing EU chances to become an AI world leader, frustrating the high potential to be found in the number of top EU scientists (by far the highest in the world, according to a recent study by Tsinghua University).

However, the gap in the overall amount of investments appears to be the most startling reason for Europe lagging behind the US and China.

In 2018, according to Stanford University estimates, US companies invested \$18.7 billion in AI, compared to China's \$14.35 billion. The largest 5 EU Member States were not even able to attain together the level of UK investment (\$1.255 bn vs. \$1.27 bn), and only slightly surpassing the much less populated Israel (\$ 1.044 bn).

However, also in terms of public investments, the US is allocating large resources, projected to amount to approximately \$5 billion (\$ 4 bn from the Department of Defense) (Source: Artificial Intelligence Index Report 2019, Stanford University). The same holds true for China.

## **2. Europe's reaction takes shape: from the 2018 AI Strategy to the 2019 AI HLEG Documents**

The EU started delivering a pro-active AI strategy with the European Commission communication published on 25 April 2018, called "*AI for Europe*".

Before this, on 16 February 2017, the European Parliament had adopted a resolution with *recommendations to the Commission on Civil Law Rules on Robotics*, describing the benefits related to the increasing use of AI in terms, for example, of safeguarding workers in the more difficult or dangerous professions, but also, in general, the impact on the job market and the worker skills required.

In May 2017, the Commission published its mid-term review of the Digital Single Market Strategy underlining the importance of building on Europe's scientific and industrial strengths, as well as on its innovative startups, to be in a leading position in the development of AI technologies, platforms and applications.

The April 2018 communication presented a European approach to AI based on three pillars: 1) being at the cutting-edge of technological developments and encouraging uptake by the public and private sectors with the Commission increasing its annual investments in AI by 70% under the Horizon 2020 Research and Innovation Programme, reaching €1.5 bn for the period 2018-2020, to connect and strengthen AI research centers across Europe and support the development of AI applications in key sectors and an "AI-on-demand platform" that will provide access to relevant AI resources in the EU for all users; 2) preparing for socio-economic changes brought about by AI, supporting business-education partnerships to attract and keep more AI talent in Europe and training and retraining schemes for professionals, also encouraging the modernization of Member State education and training systems and foreseeing changes in the labor market and skills mismatching; and 3) ensuring an appropriate ethical and legal framework.

The European Commission has also tried to strike a balance between the investment and the ethical and regulatory priority in subsequent documents.

For instance, the *Coordinated Plan on AI*, published on 7 December 2018, required Member States to adopt AI strategies, including budget figures, to be possibly and significantly increased in the following years.

At the same time, the Plan identified developing ethics guidelines with a global perspective and ensuring an innovation-friendly legal framework, amongst its several goals and actions.

On 9 April 2019, the High-Level Expert Group on AI presented the "*Ethics Guidelines for Trustworthy AI*", following the publication of the guidelines' first draft in December 2018, on which more than 500

comments were received through an open consultation. The document sets out a framework for achieving trustworthy AI aiming to offer guidance to all stakeholders identifying a list of ethical principles, by providing guidance on how such principles can be operationalized in socio-technical systems. Guidance is provided in three layers of abstraction, from the most abstract in Chapter I to the most concrete in Chapter III, closing with examples of opportunities and critical concerns raised by AI systems.

It underlines that trustworthy AI should be: 1) lawful, complying with all applicable laws and regulations; 2) ethical, ensuring adherence to ethical principles and values; and 3) robust, both from a technical and social perspective, since, even with good intentions, AI systems can cause unintentional harm.

On 26 June 2019 the High-Level Expert Group on AI (AI HLEG) presented its second deliverable, the report *“Policy and investment recommendations for trustworthy Artificial Intelligence”*.

It underlines the importance of encouraging investments and research and development on the impact of AI on individuals and society.

With regard to the private sector, the document highlights the need for: 1) boosting the uptake of AI technology and services across sectors in Europe, allocating for instance significant resources in the InvestEU program to support the transformation of European enterprises to AI-enabled solutions; 2) fostering and scaling AI solutions by enabling innovation and promoting technology transfer; 3) setting up public-private partnerships to foster sectoral AI ecosystems.

Concerning research and academia, the document underlines the necessity to develop and maintain a European strategic research roadmap for AI, focusing on areas of strategic value and opportunities, ensuring AI solutions that meet the Trustworthy AI principles and requirements. This involves providing dedicated, significant and long-term research funding, creating incentives and support for interdisciplinary and multi-stakeholder research, simplifying and streamlining the structure of research funding instruments, creating the conditions for talents to find Europe attractive as a research environment, creating, strengthening and supporting additional Centres of Excellence (CoEs) that address strategic research topics and become a European level multiplier for a specific AI topic and, finally, encouraging cooperation at all levels.

### **3. Towards an AI Law**

The first Von der Leyen Commission digital proposals were published on 19 February 2020, including two Communications (*Shaping Europe’s digital future & A European Strategy for data*), a white paper (*Artificial Intelligence: a European Approach to excellence and trust*) and two reports (B2G Expert Group Report: *Towards a European Strategy on business-to-government datasharing for the public interest* and the Commission Report on *Safety and liability implications of AI, the Internet of Things and Robotics*).

The current EC updated and upgraded the DSM strategy, with its priorities and proposals. In the Communication *“Shaping Europe’s digital future”*, published on February 20, the Commission

establishes three key objectives to ensure digital transformation complies with European values: 1) a technology that works for people; 2) a fair and competitive economy and 3) an open, democratic and sustainable society.

The AI White Paper aims at setting a framework for trustworthy Artificial Intelligence, based on excellence and trust.

In the so called “ecosystem of excellence”, among several planned actions, the Commission aims at proposing to the Member States a revision of the 2018 Coordination Plan, facilitating the creation of excellence and testing centers that can combine European, national and private investments. This involves working with MSs to ensure that at least one digital innovation hub per MS has a high degree of specialization in AI, setting up a new public-private partnership in AI, data and robotics in the context of the Horizon Europe Programme.

For the other ecosystem (“ecosystem of trust”), the Commission assesses the main risks associated with AI in order to ensure a European regulatory framework for a trustworthy AI.

The risk-based approach allows for a proportionate regulatory intervention, heavier for high-risk AI applications than for other lower-risk applications.

According to the white paper, an AI application should be considered high-risk when it meets the following two cumulative criteria: 1) it is employed in a sector where, given the characteristics of the activities typically undertaken, significant risks can be expected to occur (for instance, healthcare, transport, energy and parts of the public sector); 2) the AI application in the sensitive sector is used in such a manner that significant risks are likely to arise (based on the kind of impact on presumably affected parties). Moreover, the use of AI applications for employment processes, biometric identification and other intrusive surveillance purposes would always be considered as high-risk.

Mandatory requirements for high-risk applications would cover the following areas: 1) training data; 2) data and record-keeping; 3) information to be provided 4) robustness and accuracy; 5) human oversight; 6) specific requirements for certain specific applications, such as biometric identification.

These requirements would be at least in part verified under prior conformity assessments, in line with already existing mechanisms for a large number of products being placed on the EU’s internal market. Of course, ex post controls could be still enforced by competent national authorities.

For non-high risk applications, the Commission envisages a voluntary labelling scheme, allowing the economic operators to signal the trustworthiness of their products or services.

As data is the essential enabler for AI, the *European Data Strategy* aims at Europe emerging as a leader in the data economy, providing for a single market for data and a larger role for European companies.

The Commission starts from acknowledging that the EU has the potential to be successful in the data-agile economy, thanks to its technology, its know-how and its highly-skilled workforce. However, several issues are holding the EU back from realising its potential in the data economy, mainly due to the fragmentation between Member States (compared to the small number of US and China-based Big Tech

firms). Among the most important issues, the strategy lists: 1) availability of data; 2) imbalances of market power; 3) data interoperability and quality; 4) data governance; 5) data infrastructures and technologies; 6) empowering individuals to exercise their rights; 7) skills and data literacy; 8) cybersecurity.

Included in the actions envisaged by the strategy, the Commission aims at supporting business-to-business data sharing, investing in a High Impact Project on European data spaces and federated cloud infrastructures, by the establishment of EU-wide common, interoperable data spaces (in manufacturing, environment, mobility, health, finance, energy, agriculture, public administration and skills) and the setting up of a cloud service marketplace, empowering individuals regarding their data and investing in skills and general data literacy.

Both documents (the AI White Paper and the European Strategy for Data) provide specific policies for SMEs and elements for a proactive international approach.

#### **4. Key questions**

- a. *How will the COVID-19 emergency affect the digital roadmap, including the AI and data strategy implementation?*
- b. *According to some observers, the AI regulatory heavy-handed approach, envisaged by the white paper, would further diminish the chance for the EU to bridge the investment gap with the US and China. What is your opinion? As well, could the reliance on European data paradoxically set a limit on the global reach of EU AI players?*
- c. *How realistic is the perspective of wide data sharing agreements across European industry? When could mandatory data access be envisaged and under which circumstances?*
- d. *Should US and China digital companies be seen more as potential partners that could help European digitalization, or as competitors to defeat or at least hold back the EU market?*
- e. *Are provisions catered to SMEs' needs in the white paper and is the data strategy adequate?*
- f. *What should we expect from the budget allocated to AI and data strategy and, more in general, digital technologies in the next MFF, now currently under revision?*

## 5. VideoTalk Main Highlights

### COVID-19 – The importance of digital infrastructures and services and the impact on the EU Agenda

The role of digital in everyday life is constantly growing in these times of emergency. Overall, digital is emerging in this drama as, probably, the only winner. People are now experiencing the potential of digital technologies, from key daily activities such as communication and online learning to the development of solutions to combat the virus or to track and monitor its spread. Although the potential of the use of data and AI in various sectors had already been evident before, the crisis has further highlighted how such technologies, if required, can be put at the service of society and economy, while, at the same time, maintaining citizen inclusiveness and respect at the very core of the entire framework. Although MSs are dealing with the emergency in different ways, cooperation and transparency are needed to ensure a coordinated European response. It is essential that the development and use of digital solutions to counter the emergency is carried out in line with EU fundamental rights and values. Tools like the GDPR, the e-Privacy Directive or the future Digital Services Act are crucial to reinforce a framework where a secure environment to further develop technologies, foster research and protect citizens' rights can be provided.

In terms of the EU agenda, the COVID-19 emergency will surely have an impact on the legislative roadmap outlined in February by the Commission. For example, policy preparation activities will be slowed down to focus on more urgent priorities (for instance, the AI White Paper public consultation period will most likely be extended to after 31 May).

### Regulation vs Innovation: the European way

The digital strategy published by the EC in February takes stock of the previous sectoral legislation, trying to fill the gaps and ensure a more harmonised approach to data and AI at the European level to foster competitiveness and innovation.

Europe is globally recognised for its potential to identify standards that are then taken up as models. The tools provided by the digital strategy aim to set a regulatory framework built to guarantee, improve and enhance innovation and, at the same time, based on EU core values. In this respect, the "European way" is a guarantee of safety. On the other hand, the value of citizen protection can also be a way to attract investment and talents.

Therefore, the policy options proposed in the AI White Paper aim at identifying the legal structure and requirements so that they are as homogeneous as possible and applicable to all the relevant actors.

### The internal market and the global race

It is widely accepted that in the global race Europe is lagging behind when it comes to AI and data. The US and China are undoubtedly leading the way, especially in terms of investments. Nevertheless, the EU is establishing a mechanism which will enable Europe to be outwardly competitive and inwardly create a fair level playing field.

The European strategy is not designed based on competing with an external adversary. Indeed, the main goal is to build a fair and inclusive framework to develop digital technologies and strengthen the internal

market, where European citizens could feel comfortable as individual users, and where EU companies wishing to become involved in the digital market can grow and compete.

Surely, this approach does not exclude that Europe is ready to compete at a global level. AI regulation and data strategy have precisely the objective of creating a stronger and more structured EU internal environment, so that Europe can be more competitive at an international level.

#### **Enabling SMEs: data sharing and DIHs**

Small and medium enterprises (SMEs) have always been the most vulnerable players in terms of access to the internal market. Moreover, the resources needed to access AI technologies are often out of reach for these enterprises. This is one reason why data sharing is essential to enable research and development of digital technologies at SME level.

In this regard, an important role can be played by Digital Innovation Hubs, acting as bridges between companies and local institutions, as well as channels for sharing resources and best practices. However, data sharing at industrial levels is still not backed by a common strategy. Data space is also an extremely flexible concept, which could vary depending on the nature of the space, the type of data, who can access the data, and the purpose, terms and conditions underlying that use.

#### **The funding challenge in view of the next EU long-term budget**

Investments certainly play a key role in a sector undergoing a significant momentum. Compared with the well-known competitors on the global stage, the level of investment in Europe still remains modest. More investments are undoubtedly needed, though the preliminary requirement is to allocate resources in a more targeted and strategic way (i.e. to first identify existing gaps).

This issue will certainly be addressed throughout the MFF negotiations. Where this is concerned efforts on the EU budgetary level that are currently being made to identify instruments and solutions to combat the current crisis should also be considered. Furthermore, it is important to link up different sources of investment, resources and capabilities. National investments are also key to providing an extra boost to research and innovation locally.