

# AIDA Working Paper

## on Artificial Intelligence and Health

following the AIDA public hearing on 2 December 2020



## Background:



Artificial intelligence (AI) can unlock solutions in the health sector that could save millions of lives. From combatting pandemics and disease outbreaks, to enhancing research, to the development of new medical devices and new drugs and treatments, to increasing public authorities' decision-making capabilities in matters of public health - the benefits are clear. However, especially in high-risk applications and where human lives are at stake, there is a need to tread carefully and deploy AI under the strictest conditions for guaranteeing safety, preventing discrimination and biases, assigning liability, and ensuring the protection of personal data.

In one of the first AIDA Committee meetings, **Executive Vice President Margrethe Vestager urged AIDA and its members to look to a future digital society and envision where AI should be by 2030, highlighting the role of AIDA in providing a long-term vision on this strategic topic.** In line with this message, the panel topics proposed by AIDA members for the hearing on AI and health followed two complementary directions.

The first set of topics revolved around the status quo: **what is the state of play of AI in health, what are the challenges we need to overcome for deploying it, and what are examples of current applications of AI in the field?** Where has AI been successfully used across the globe to improve health, what can we learn from such applications, and how can we increase funding and research in these areas? **What did we learn from the current pandemic, and how could AI**

**have helped prevent, combat, or mitigate the pandemic's effects?** Can AI be used to help Europe cope with its current and future shortage of healthcare workers?

The second set of topics set out by AIDA in preparation for the hearing revolved around **the potential of AI in health and how to reach that potential within a 2030 time horizon, while ensuring AI is developed in a human-centric, European way:** How can we use AI to better predict, prepare for, and combat future pandemics? What will the health profession look like in 2030, and how do we prepare our doctors and health workers to make effective use of AI? What are promising research avenues for diagnosing and treating chronic diseases with AI-enabled research and technology? What patients' rights will AI technology unlock? How will AI inform Member States' decisions in matters of public health, and what will states' responsibilities towards citizens be with regards to using AI in public health? How will we collect, manage, and use health data in order to unlock better AI-assisted healthcare?

**AIDA Chair Dragos Tudorache** opened the hearing setting out his vision for Europe's approach to AI and health. He stated: **"Over the next decades, AI will help us predict, prepare for, and manage future pandemics; discover new drugs and treatments; and provide personalized medicine like never before.** The AI rules that we are about to set up need to both protect our rights and European values and, at the same time, enable European research and innovation in AI that brings these tremendous benefits to our citizens and societies. **If we get it right, the EU can set the global tone on cutting edge healthcare and wellbeing.** This is what is at stake."

The event was divided into two panels, with the first focusing on AI governance in the health sector with a view from mainly institutional speakers. The second panel welcomed stakeholders and experts from industry, civil society, and academia. The text below provides a summary overview of key takeaways, as well as the different perspectives of the political groups in response to the event.

### The participants in the first panel were:

- **Kyriakos Pierrakakis**, Minister of Digital Governance in Greece
- **Vicky Lefevre**, Head of Unit Public Health Functions, European Centre for Disease Prevention and Control;
- **Claire Bury**, Deputy Director-General of the European Commission, Food and feed safety - innovation, Health and food audits;
- **Professor Laura Palazzini**, Professor of the Philosophy of Law at the LUMSA University in Rome



### The participants in the second panel were:

- **Professor Frank Noe**, Professor for Artificial Intelligence in the Sciences, Freie Universität Berlin;
- **Doctor Markus Lingman**, Senior consulting cardiologist and Chief Strategy Officer, Board member at Halland Hospital Group;
- **Professor Andrew Hopkins**, Chief executive officer of EXSCIENTIA, Chair of Medicinal Informatics and SULSA Research Professor of Translational Biology;
- **Jelena Malinina**, Digital Health Policy Officer at the European Consumer Organisation (BEUC)





## Key takeaways:

### Panel 1:

The first panel insisted on the **need to harmonize governing rules for data sharing and for AI processing across the EU** as well as on the need to **integrate ethical rules at a very early stage in the development and design of AI applications**.

The strategic vision of the European Centre for Disease Control (ECDC) on the future of EU/EEA infectious disease surveillance, was presented during the first panel as being founded **on strong harmonised national surveillance systems, an optimal combination of data sources and state-of-the-art technology to generate automated, integrated and, where required, real-time digital data streams that provide the right information where and when it is needed to most timely and effectively fight cross border threats to public health**.

The **importance of data, data sharing and data accessibility** to deploy the full potential of AI and health was also highlighted by the European Commission Deputy Director General for Health and Food Safety/ DG SANTE Claire Bury. In this light, the Commission is working towards the creation of a European Health Data Space. The Commission envisages the adoption of **a legislative proposal to this end in 2021**.

At national level, the Greek government, represented by the Greek Minister of Digital Governance Kyriakos Pierrakakis, has put forward a

strategy of a gradual introduction of AI into the systems of the public administration, starting with pilot applications in specific policy areas such as health. Greece encourages the **introduction of systems that are trained in open public datasets, rule-based AI systems or systems that require human supervision as a last step in automated decision-making**.

Besides the governance framework for data sharing, **ethical requirements need to be anticipated for the future regulation of AI on a European level**, as noted by Professor Laura Palazzani of Lumsa University (Rome). Her presentation notably emphasized the following aspects: **meaningful human control (by a physician); reliability of AI; safety and validation of software applied to health; transparency and explainability (problem of opacity); equality, fairness and non-discrimination (problem of bias); data quality and data sharing (problem of privacy); shared responsibility (problem of human responsibility); and medical, technological and social information/education i.e. ethics by design**.



## Panel 2:

The second panel focused on uses of AI in the health sector and on current challenges and opportunities. Invited experts pointed out the **low level of private investment in the EU** and the **challenges faced by European entrepreneurs to scale-up their operation**. They made the case for a **genuine European AI investment strategy positioned between the US and Chinese strategies relying on a mix of public and private investments**. They also cited the **need for an adequate supporting ICT infrastructure, attracting and retaining talent, and ensuring consumer trust with legislation that includes consumer protection mechanisms**.

According to Professor Frank Noe of Freie Universität (Berlin), in order to compete with China and the US, **Europe needs globally successful businesses that turn these scientific results into large-scale applications**. One option to address the shortage of private investments and venture capital would be an **EU-backed vision-fund (in the range of 100 BN EUR), managed by leading investors and overseen by a multidisciplinary advisory board comprised of both scientists and business leaders**.

This was also echoed by Professor Andrew Hopkins, Chief Executive Officer of Exscientia, who noted that EU companies are good at launching ideas and starting up operations but their **global competitiveness is affected by the low level of private (risk) capital funding compared to China and the US**. Creating EU technology leaders is also contingent on having people with the

right skills and talent. The US has an advantage in its ability to attract and retain talent from the rest of the world. Most AI-driven companies in the US have international teams of European and Asian nationals.

Both Doctor Markus Lingmann from Halland Hospital Group (Sweden) and Jelena Malinina of the European Consumer Organisation (BEUC) agreed that **clear guidance on requirements and on enabling data access for justified purposes is necessary; patients and consumers need legally defined rights to ensure strong data protection, transparency, trustworthiness of algorithm-powered diagnoses, non-discrimination, as well as a right to redress**.



# Views of the European Parliament political groups:



## The European People's Party Group (EPP)

The Covid-19 pandemic accelerated public awareness of deploying AI in tackling health challenges. In merely a one year period, we have witnessed a major acceleration of medical care powered by AI:

- applications that track and trace possible risk contacts
- wearables and apps measuring oxygen saturation in blood
- apps and software that help doctors monitor patients remotely
- big data analytics and forecasts to help measure and monitor the spread of the pandemic

All of the above did its fair share to help Europe and the world understand and be able to mitigate the impact of this healthcare crisis. All of the above is here to stay and evolve.

In the EPP we believe that AI has a net positive effect on our society, our industry and SMEs, and that addressing the concerns of citizens is essential for creating trust in this technology. We shall not let the fear speak louder than the science and empirical evidence. The EPP Group is committed to knowledge-based, balanced conversation and action. We stand for establishing ethical principles around the engineering, deployment and research of AI solutions, while at the same time not stifling innovation through uncertainty and bureaucracy.



## The Progressive Alliance of Socialists and Democrats Group (S&D)

AI can enhance personalised patient care, accelerate diagnosis, speed up delivery of care, and help manage public health proactively. AI smart devices can empower citizens by promoting healthy habits and healthier choices. AI can address the need for better and more cost-efficient care and help fill some of the shortages in medical staff. AI in healthcare cannot replace medical practitioners; it can only support them. AI decisions should always be subject to human control. Algorithms must avoid any type of bias, discrimination or violation of human rights, and there must be fair and impartial checks.

There are numerous legal and socio-ethical concerns relating to the integration of Big Data and AI technologies into health systems, such as equitable access to healthcare, privacy, liability, transparency, explainability, reliability, inclusiveness and representability in the data sets.. The patients' confidence is at stake, and ultimately their lives. The highest ethical standards should apply for all healthcare applications. Cybersecurity, data governance, interoperability and adequate infrastructure are essential to achieve real-time solutions.



## The Renew Europe Group

The AI-powered digital transformation in healthcare has the potential to improve our health systems remarkably. AI is about to enhance research and diagnosis of diseases as well as the finding of new cures. There are, however, certain assessments and steps to be undertaken in order to enjoy the advantages of new technologies while respecting citizens' fundamental rights. There is clear need to find and apply secure methods for anonymisation and pseudonimisation of patients' personal data. National health authorities and privacy regulators should enhance collaboration at European level. Only through a common European approach will we be able to tap the full potential of AI and to build a genuine Digital Single Market for health data. While overregulation should be avoided, high-risk AI uses in the health sector need to be subject to strong ethical and cyber security standards.

## The Identity and Democracy Group (ID)

AI in healthcare will transform today's health treatments. Although innovation is vital to our lives, some challenges need to be addressed when applying AI to healthcare.

First, the risk of building doctor-patient relationships solely based on technological instruments. Considering that each patient is "unique" and that the machine can ignore certain factors that may influence the outcome of an examination, we believe that there should always be a human supervision of the diagnostic result.

Secondly, the use of these technologies can indeed lead to improved healthcare quality but it cannot exclude cases of inappropriate behaviours, errors in the use of these technologies or incorrect programming or design of the algorithm used to process data. It is therefore essential that a clear chain of liability is established among the involved parties, i.e. software developers, medical device manufacturers, doctors and other healthcare professionals and users.

Thus, we believe it is crucial to provide a solid but flexible legislative framework that can quickly adapt to technological innovations and that guarantees full respect for patients and their right to treatment.



## The Greens/European Free Alliance Group (EFA)

AI in Europe should assess whether selected projects are based on European values, and respect the Charter of Fundamental Rights, with an emphasis on the right to privacy and GDPR rules. AI is making revolutionary changes in the fundamental sciences, such as quantum mechanics or the study of protein structure, prediction and design. The development of tailored treatments based on patterns of patient health is now possible and makes therapy faster, more predictable and mindful of side effects. Considering, however, that AI technology relies on stored data to train machine algorithms to make decisions, we have to be mindful of the fact that data might be inherently biased when it does not contain a diverse representation of target groups. Often, there is less data on women and patients of colour are underrepresented. Therefore, we need safeguards to ensure the use and development of unbiased, fair and safe AI with representatively diverse data. Furthermore, data used in healthcare is often sensitive, fragmented and stored locally in silos. Therefore, to preserve patient trust, the non-consensual sharing of health data must be limited to non-personal or anonymized data.



## The European United Left/Nordic Green Left Group (GUE/NGL)

AI in healthcare will massively impact worker health and processing of patient data. AI should be deployed under strict conditions and respect fundamental rights, non-discrimination and worker health. AI should serve to increase and reinforce public and universal health services, benefit the conditions of patients, regardless of their economic and social condition.

The use of AI and robotics is an opportunity to reduce human exposure to hazardous conditions and to help create quality jobs. Whenever there is an increase in productivity, it should be reflected in the reduction of working hours without loss of salary or worker dismissals.

The processing of patient data is extremely sensitive and must be protected. Personal health data is the property of the patient and should not be communicated or processed without full consent. AI should not replace the human factor in health, as it is critical in healing. The boundaries between the role of physicians and machines should be defined by the principle of supervised autonomy of robots. Digital health must not pave the way for the dehumanisation of care.



