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**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN  
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL  
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

**Fostering a European approach to Artificial Intelligence**

# Communication: Fostering a European approach to artificial intelligence

## 1. Introduction

Artificial intelligence (AI) will have an enormous impact on the way people live and work in the coming decades. This reasoning is the basis of the European strategy on AI, which was launched in April 2018 and has been confirmed since. The potential benefits of AI for our societies are manifold, from less pollution to fewer traffic deaths, from improved medical care and enhanced opportunities for persons with disabilities and older persons to better education and more ways to engage citizens in democratic processes, from swifter adjudication to a more effective fight against terrorism and crime, online and offline, as well as enhancing cybersecurity. **AI has demonstrated its potential by contributing to the fight against COVID-19**, helping to predict the geographical spread of the disease, diagnose the infection through computed tomography scans and develop the first vaccines and drugs against the virus. Above all, AI has displayed a versatility few other technologies can match. At the same time, the use of AI also carries certain risks, such as potentially exposing people including children,<sup>1</sup> to significant mistakes that may undermine fundamental rights and safety, as well as to our democratic processes.

Faced with the rapid technological development of AI and a global policy context where more and more countries are investing heavily in AI, the EU must act as one to harness the many opportunities and address challenges of AI in a future-proof manner. Starting with the launch of the European AI strategy in April 2018<sup>2</sup>, the Commission's two-pronged policy has been to make the EU **a world-class hub for AI**, while ensuring that AI is human-centric and **trustworthy**. Published in February 2020, the Commission's White Paper on AI<sup>3</sup> set out a clear vision for AI in Europe: an ecosystem of excellence and an ecosystem of trust for AI.

Today's AI package represents a key milestone in both policy dimensions. To promote the development of AI and address the potential high risks it poses to safety and fundamental rights equally, the Commission is presenting both a **proposal for a regulatory framework on AI and a revised coordinated plan on AI**.

## 2. The two sides of artificial intelligence: opportunities and risks

Given AI's potential, the European Union is promoting its development and deployment. Through the Digital Europe and Horizon Europe programmes, the Commission plans to invest

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<sup>1</sup> See also UNCRC General Comment 25 of February 2021

<sup>2</sup> European Commission communication on the [Strategy for Artificial Intelligence in Europe](#) COM (2018) 237

<sup>3</sup> European Commission [White Paper on AI](#), February 2020, COM (2020) 65

EUR 1 billion per year in AI and mobilise additional investments from the private sector and the Member States to reach EUR 20 billion investment per year over the course of this decade.

Strengthening Europe's AI capabilities is a key element of the wider strategy of making Europe fit for the digital age and turning the next 10 years into the **Digital Decade**, as set out in the Digital Compass<sup>4</sup>. In particular, the promotion of AI-driven innovation is closely linked to implementation of the European Data Strategy, including the recent proposal for a the Data Governance Act<sup>5</sup>, since AI can only thrive when there is smooth access to data. Especially small and medium-sized enterprises will need fair access to data to make a broad uptake of AI in the EU economy possible. The proposed regulatory framework on AI will also work in tandem with applicable product safety legislation and in particular the revision of the Machinery Directive<sup>6</sup>, which addresses - among others – the safety risks of new technologies, including the risks emerging from human-robot collaboration, cyber risks with safety implications, and autonomous machines. Equally, the framework is an addition to the EU Security Union strategy, the new cybersecurity strategy<sup>7</sup>, the digital education action plan 2021-2027<sup>8</sup> and the recently proposed Digital Services Act and Digital Markets Act<sup>9</sup> as well as the European Democracy Action Plan.<sup>10</sup> Finally, the proposed framework will be complemented by legislation to adapt the EU liability framework, such as revising the Product Liability Directive, in order to address liability issues related to new technologies, including AI, and by a revision of the General Product Safety Directive.

The newly adopted **Recovery and Resilience Facility** (RRF) will enable Europe to raise its ambitions and become a first mover in adopting AI. The RRF, which will be the centerpiece of the EU recovery plan, will make an unprecedented EUR 672.5 billion in loans and grants available to support reforms and investments by Member States for the crucial first years of the recovery. At least 20% of the available funding will be allocated to measures fostering the digital transition, amounting to up to **EUR 134 billion** in the life cycle of the RRF<sup>11</sup>.

The RRF can be used to expected to boost Member States' investments in AI and support leading research, innovation and testing capacities, so that the accelerated development and use of AI can contribute to economic and social recovery and improve competitiveness in the longer term. The opportunity is all the greater, since the RRF funding comes on top of the **Digital Europe and Horizon Europe programmes**, as well as substantial innovation funding under the **Cohesion Policy programmes**.

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<sup>4</sup> [2030 Digital Compass: the European way for the Digital Decade, COM \(2021\) 118](#)

<sup>5</sup> [COM \(2020\) 767](#)

<sup>6</sup> COM (2021) 202

<sup>7</sup> [The EU Cybersecurity Strategy](#), published on 16 December 2020, JOIN (2020) 18

<sup>8</sup> Digital Education Action Plan 2021-2027, COM (2020) 624

<sup>9</sup> [Press release on the new rules for digital platforms](#), published on 15 December 2020, IP /20/2347

<sup>10</sup> COM(2020) 790

<sup>11</sup> The European Commission has set out strategic guidance for the implementation of the Recovery and Resilience Facility in its 2021 Annual Sustainable Growth Strategy (ASGS), COM (2020) 575

AI and other digital technologies can contribute to a sustained post COVID-19 recovery due to their potential for **increasing productivity** across all economic sectors, creating new markets and bringing tremendous opportunities for Europe's economic growth. AI technologies help optimise industrial processes, make them more resilient, efficient and greener, and enable innovative self-learning and real-time solutions, from predictive maintenance to collaborative robots, from digital twins to augmented reality. New business opportunities and increased economic dynamism are expected to create new employment opportunities and outweigh the potential job losses. AI can contribute to enhance opportunities for persons with disabilities and older persons to live independently by providing assistive and supportive solutions.<sup>12</sup> In addition, AI has the potential to play a major role in informing citizens and enhancing citizens' engagement initiatives.

Strengthening capabilities in AI will help build up **greater resilience** to future shocks, since European companies will dispose of sufficient expertise to rapidly apply AI to new challenges. Moreover, AI can significantly contribute to the European Green Deal objectives, helping industry, companies, public authorities and citizens make more sustainable choices to integrate renewables in the energy system through smarter grid management, or to reduce greenhouse gas emissions through smart mobility, an optimised use of resources, precision farming, to name but a few.

AI can significantly contribute to the objectives of the EU Security Union strategy. It can be a strategic tool to counter current threats and to anticipate both future risks – including hybrid threats – and opportunities. AI can help to fight crime and terrorism, and enable law enforcement to keep pace with the fast developing technologies used by criminals and their cross-border activities..

To harness the benefits of AI, **Europe can build upon its existing strengths**. Europe has a world-leading position in robotics and competitive industrial ecosystems. These assets, together with an increasingly performant computing infrastructure (e.g. high-performance computers) and large volumes of public and industrial data, put Europe in a position of being able to create world-leading AI capabilities on the back of its excellent research centres and an increasing number of innovative start-ups. To leverage these strengths with available funding, EU Member States and the Commission will pool expertise, coordinate actions and jointly mobilise additional resources. For this purpose, building on the cooperation it has developed with the Member States since 2018, the Commission is today presenting a **revised coordinated plan on AI**.

At the same time, the use of AI also creates risks that need to be addressed. Certain characteristics of AI, such as the opacity of many algorithms that makes investigating causal relationships difficult, pose specific and potentially **high risks to the safety and fundamental rights** that existing legislation is unable to address or in view of which it is challenging to enforce existing legislation. For example, it is often not possible to determine why an AI system

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<sup>12</sup> Strategy for the Rights of Persons with Disabilities, COM (2021) 101

has arrived at a specific result. As a consequence, it may become difficult to assess and prove whether someone has been unfairly disadvantaged by the use of AI systems, for example in a recruitment or promotion decision or an application for a public benefit scheme. The use of AI systems may leave affected people with significant difficulties to correct erroneous decisions. Facial recognition in public spaces can have a very intrusive effect on privacy unless properly regulated. In addition, poor training and design of AI systems can result in significant errors that may undermine privacy and non-discrimination<sup>13</sup>. AI-enabled robots and intelligent systems must be engineered and designed to meet the same high standards of safety and protection of fundamental rights for traditional technologies provided for by European law.

Reacting to these challenges in AI, the European Parliament and the European Council have repeatedly called for legislative action to ensure a well-functioning internal market for AI systems where both the benefits and the risks of AI are appropriately addressed in a manner that will stand the test of time. The Commission's **proposal for a regulatory framework**<sup>14</sup> on AI represents a key juncture in the journey towards protecting safety and fundamental rights and hence ensuring trust in the development and uptake of AI.

The coordinated plan and the proposal for a regulatory framework are part of the European Union's efforts to be an active player in international and multilateral fora in the field of digital technologies and a global leader in the promotion of trustworthy AI, and to ensure consistency between the EU's external actions and its internal policies. On the global stage, AI has become an area of strategic importance at the crossroads of geopolitics, commercial stakes and security concerns. Countries around the world are choosing to use AI as a means of technical advancement due to its utility and potential. AI regulation is in its infancy and the stakes are high for the **EU to spearhead the development of new ambitious global norms**, AI-related international standardisation initiatives<sup>15</sup> and cooperation frameworks, in line with the rules-based multilateral system and the values it upholds. In line with the Joint Communication on strengthening the EU's contribution to rules-based multilateralism,<sup>16</sup> the EU intends to deepen partnerships, coalitions and alliances with third countries – notably likeminded partners – as well

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<sup>13</sup> See also the EU gender equality strategy, COM(2020) 152 (March 2020), the EU anti-racism action plan, COM(2020)565 (September 2020), the EU LGBTIQ equality strategy, COM(2020) 698 (November 2020) and the strategy for the rights of persons with disabilities, COM(2021) 101 (March 2021)

<sup>14</sup> COM(2021) 206; The scope of the regulatory framework will not include the development and use of artificial intelligence for military purposes

<sup>15</sup> Initiatives such as the OECD Principles on Artificial Intelligence adopted in the OECD Council Recommendation on Artificial Intelligence (OECD/LEGAL/0449) in May 2019 by OECD member countries; the Saudi G20 Presidency AI Dialogue (the Dialogue) under the Digital Economy Task Force (DETF), as part of its efforts to advance the G20 AI Principles, 2019; UNESCO's draft Recommendation on the Ethics of Artificial Intelligence; or the ITU's AI for Good Global Summit, the leading action-oriented, global & inclusive United Nations platform on AI. International standardisation organisations such as ISO and IEEE are also engaged in AI standardisation activities (e.g. ISO/IEC JTC 1/SC 42 and the IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems)

<sup>16</sup> This multi-stakeholder approach will also include civil society organisations

as multilateral and regional organisations.<sup>17</sup> It also intends to engage in issue-based cooperation with other countries, and to push back where those values are threatened.

### 3. A milestone on the way to a European approach to AI

The package published today is the outcome of **3 years of intense policymaking on AI** at European level. Following the publication by the European Commission of the European strategy on AI in April 2018 and after extensive stakeholder consultation, the High-Level Expert Group on Artificial Intelligence (HLEG) developed Guidelines for Trustworthy AI<sup>18</sup> in April 2019, and an Assessment List for Trustworthy AI (ALTAI) in July 2020. In addition, the AI Alliance<sup>19</sup> was formed as a platform for approximately 4 000 stakeholders to debate the technological and societal implications of AI, culminating in a yearly AI Assembly. In parallel, the first coordinated plan on AI<sup>20</sup> published in December 2018 represents a joint commitment with Member States to foster the development and use of AI in Europe and to coordinate European and national efforts on AI.

Combining the two work strands, the Commission's **White Paper on AI** was published together with a report on the safety and liability aspects of AI, the Internet of Things (IoT) and robotics<sup>21</sup>. The White Paper proposes a number of measures to foster an ecosystem of excellence, leading up to today's revision of the coordinated plan. Likewise, the White paper also set out policy options for a future EU regulatory framework to safeguard an ecosystem of trust in Europe, setting the scene for today's proposal for a regulatory framework for AI. The **public consultation** on the White Paper on AI<sup>22</sup>, which ran from February to June 2020, received widespread participation, enabling European citizens, Member States and stakeholders to provide their inputs and help to shape the EU's approach and policy options for AI.

### 4. Towards trustworthiness: the proposal for a regulatory framework for AI

As set out in the White Paper on AI, and largely confirmed by the public consultation that followed, the use of AI creates a number of specific **high risks for which existing legislation is insufficient**. While there is already a solid framework of legislation in place at EU and national

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<sup>17</sup> [Joint Communication to the European Parliament and the Council on strengthening the EU's contribution to rules-based multilateralism, February 2021, JOIN \(2021\) 3](#)

<sup>18</sup> The Ethics Guidelines for Trustworthy AI, a document that puts forward a human-centric approach on AI, listing key requirements AI systems must meet to be considered trustworthy

<sup>19</sup> The AI Alliance is a multi-stakeholder forum launched in June 2018, AI Alliance <https://ec.europa.eu/digital-single-market/en/european-ai-alliance>

<sup>20</sup> European Commission [Coordinated Plan on Artificial Intelligence](#), December 2018, COM (2018) 795

<sup>21</sup> European Commission [Report on the Safety and Liability Aspects of AI the Internet of Things \(IoT\) and robotics](#), from 19 February 2020, COM (2020) 64

<sup>22</sup> European Commission [Public Consultation on the White Paper on AI](#), February-June 2020

level to protect fundamental rights<sup>23</sup> and ensure safety<sup>24</sup> and consumer rights,<sup>25</sup> including in particular the General Data Protection Regulation<sup>26</sup> and the ‘Law Enforcement Directive’<sup>27</sup>, certain specific features of AI technologies (e.g. opacity) can make the application and enforcement of such legislation more challenging and generate high risks for which a tailored regulatory response is needed. Therefore, the proposal introduces a set of harmonised rules applicable to the design, development and use of certain high-risk AI systems, as well as restrictions on certain uses of remote biometric identification systems.

By earning people’s trust, the envisaged risk-based legislation should foster the uptake of AI across Europe and boost Europe’s competitiveness. The Commission’s proposal therefore pursues the twin objectives of addressing the risks associated with specific AI applications in a proportionate manner and of promoting the uptake of AI. To be future-proof and innovation-friendly, the proposed legal framework is designed to **intervene only where this is strictly needed** and in a way that minimises the burden for economic operators, with a light governance structure.

The proposed AI regulation puts forward rules to enhance transparency and minimise risks to safety and fundamental rights before AI systems can be used in the European Union. Its architecture is based on a number of core components which, as a whole, build **a proportionate and risk-based European regulatory approach**. Firstly, it provides for a technology-neutral definition of AI systems that is future-proof, to the extent that it can cover techniques and approaches which are not yet known or developed.

Secondly, to avoid regulatory overreach, the proposal focuses on so-called ‘**high-risk**’ AI use cases, i.e. where the risks that the AI systems pose are particularly high. Whether an AI system is classified as high-risk depends on its intended purpose of the system and on the severity of the possible harm and the probability of its occurrence. High-risk systems include, for example, AI systems intended to be used to recruit people or evaluate their creditworthiness<sup>28</sup> or for judicial decision making. To ensure that the rules are future-proof and can be adjusted to emerging uses and applications of high-risk AI systems, the possibility exists to classify new AI systems as high-risk within certain predefined areas of use.

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<sup>23</sup> For example the Directive 2000/43/EC against discrimination on grounds of race and ethnic origin or Directive 2000/78/EC against discrimination at work on grounds of religion or belief, disability, age or sexual orientation

<sup>24</sup> For instance the General Product Safety Directive, 2001/95/EC, the Machinery Directive, 2006/42/EC, as well as sectoral legislation, such as the Medical Device Regulation, 2017/745/EU or the EU framework on the approval and market surveillance of motor vehicles

<sup>25</sup> For example the Unfair Commercial Practice Directive 2005/29/EC

<sup>26</sup> Regulation (EU) 2016/679

<sup>27</sup> Directive (EU) 2016/680

<sup>28</sup> The European Parliament has also proposed a distinction between high-risk and other AI applications, and included, for example, recruitment of people or evaluating their creditworthiness among the high-risk applications

Thirdly, the proposal provides that **high-risk AI systems need to respect a set of specifically designed requirements**, which include the use of high-quality datasets, the establishment of appropriate documentation to enhance traceability, the sharing of adequate information with the user, the design and implementation of appropriate human oversight measures, and the achievement of the highest standards in terms of robustness, safety, cybersecurity and accuracy. **High-risk AI systems must be assessed for conformity** with these requirements before being placed on the market or put into service. To smoothly integrate with existing legal frameworks the proposal takes account, where relevant, of the sectorial rules for safety, ensuring coherence between the legal acts and simplification for economic operators.

The proposed draft regulation lays down **a ban on a limited set of uses of AI** that contravene European Union values or violate fundamental rights. The prohibition covers AI systems that distort a person's behaviour through subliminal techniques or by exploiting specific vulnerabilities in ways that cause or are likely to cause physical or psychological harm. It also covers general purpose social scoring of AI systems by public authorities.

For the specific case of **remote biometric identification** systems (e.g. facial recognition tools to check passers-by in public spaces), the proposed regulation establishes a stricter approach. The real-time use for law enforcement purposes would in principle be prohibited in publicly accessible spaces, unless when exceptionally authorised by law<sup>29</sup>. Any authorisation is subject to specific safeguards. In addition, all AI systems intended to be used for remote biometric identification of natural persons must undergo an ex ante conformity assessment procedure by a notified body to check compliance with the requirements for high-risk AI systems, and will be subject to stricter logging and human oversight requirements.

Under the proposed regulation, **other uses of AI systems** are only subject to **minimal transparency requirements**, for example in the case of chatbots, emotion recognition systems or deep fakes. This will allow people to make informed choices or withdraw from a given situation. **Finally**, the proposed regulation will encourage the use of **regulatory sandboxes** establishing a controlled environment to test innovative technologies for a limited time, access to Digital Innovation Hubs and access to testing and experimentation facilities, which will help innovative companies, SMEs and start-ups to continue innovating in compliance with the new draft regulation. Further steps on extending the system of sandboxes may be considered as part of the review of the Regulation.

Thus, the proposed regulation on AI combines greater safety and fundamental rights protection while supporting innovation, **enabling trust without preventing innovation**.

## 5. Creating EU global leadership: the revised coordinated plan on AI

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<sup>29</sup> For other purposes, the prohibition and exceptions in Art. 9 General Data Protection Regulation, 2016/679/EU apply

AI is a set of technologies of strategic relevance and the European Union must act as one to harness the benefits of AI. To succeed, the **coordination of AI policy and investments** at the European level is essential. This will enable the latest technologies to be developed and adopted through Europe's global competitiveness and leadership. Such coordination will allow Europe to seize the benefits of AI for the economy, society and the environment and help to promote European values worldwide.

That is why in 2018 the European Commission and the Member States committed to work together and adopted the coordinated plan on AI as a first step. The coordinated plan laid the foundation for policy coordination on AI and encouraged Member States to develop national strategies. However, since the coordinated plan's adoption at the end of 2018, **the technological, economic and policy context on AI has considerably evolved**. Accordingly, to remain agile and fit for the purpose, the Commission is here presenting the 2021 review of the coordinated plan<sup>30</sup>.

The 2021 review of the coordinated plan is an opportunity to **generate further European added value** and strengthen the global role of the EU on AI. It puts forward **four key sets of suggestions** on how the European Commission, together with Member States and private actors, can accelerate, act and align to seize the opportunities AI technologies offer and to facilitate the European approach to AI. These four key sets of suggestions are described here below.

First, **set enabling conditions** for AI's development and uptake in the EU by focusing on a cooperation framework and data and computing infrastructure. The enabling conditions need to be designed in an SME-friendly way to enable small companies to play their role in developing and deploying AI on EU-wide scale. Member States, in collaboration with the EU, are encouraged to accelerate actions proposed in national AI strategies, making use of the RRF and Cohesion Funds when necessary. This includes **investing in the enabling infrastructure**, such as **data spaces and computing resources**.

Second, **make the EU the place where excellence thrives from the lab to the market**. Hence, the Commission will focus on **funding networks of AI excellence centres and set up a European Partnership** on AI, Data and Robotics under Horizon Europe to facilitate excellence in research. To ensure testing and experimentation are available for innovation and rapid uptake, Member States, in collaboration with the Commission, will co-fund through the Digital Europe programme innovative **AI testing and experimentation facilities**, as well as a **network of European Digital Innovation Hubs** that will help SMEs and public administrations to take up AI.

Third, ensure that **AI works for people and is a force for good in society**. The Commission will continue to take actions to ensure that AI developed and put on the market in the EU is

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<sup>30</sup> The Commission had committed to present to the Member States a revision of the Coordinated Plan in the 2020 [White Paper on Artificial Intelligence](#) and in the 2018 [Coordinated plan on Artificial Intelligence](#)

human-centric, sustainable, secure, inclusive, accessible and trustworthy. To achieve these goals, the regulatory framework to **ensure trust in AI systems** while promoting the EU's value-based approach to AI on the global stage is key. Member States are also strongly encouraged **to nurture talent and improve the supply of skills** necessary to enable the development of trustworthy AI.

Fourth, advance in **building strategic leadership in high-impact sectors**<sup>31</sup>, including climate change and the environment, health, the public sector, robotics, mobility, security and home affairs, and agriculture.

Building on the EU's economic and regulatory powers, joint actions, coordination and investments have an enormous potential to **provide European industry with a competitive edge** and to boost the internal market. Furthermore, EU action can facilitate the adoption of EU standards for trustworthy AI globally and ensure that the development, uptake and dissemination of AI is sustainable and based on the values, principles and rights protected in the EU to the benefit of all individuals and our environment.

## **6. Opening the window of opportunity**

An accelerated development and deployment of advanced and trustworthy AI in Europe is a pre-condition for Europe's future competitiveness and prosperity. The package presented today is a milestone along the way to achieving this ambition, **leveraging the opportunity** provided by AI while **addressing the associated risks**. Swift and decisive action by the European Union, the European Parliament and Member States will be necessary to turn ambition into reality.

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<sup>31</sup> This is in addition to the horizontal action areas that build on the action areas proposed in the 2018 coordinated plan