European Commission

#DSM

Digital Single Market

ARTIFICIAL INTELLIGENCE FOR EUROPE

1. WHAT IS ARTIFICIAL INTELLIGENCE?

Artificial intelligence (AI) refers to systems that show intelligent behaviour: by analysing their environment they can perform various tasks with some degree of autonomy to achieve specific goals.

Mobile phones, e-commerce tools, navigation systems and many other different sensors constantly gather data or images. AI, particularly machine-learning technologies, can learn from this torrent of data to make predictions and create useful insights.

2. WHY IS IT IMPORTANT?

Artificial intelligence can significantly **improve people's lives** and bring major benefits to our society and economy through **better healthcare, more efficient public administration, safer transport, a more competitive industry and sustainable farming.** AI can be used to make more accurate and faster medical diagnoses, carry out dangerous and repetitive tasks and free up valuable time. It can also help in the fight against cybercrime and minimise the use of electricity.

- Fewer traffic accidents
- Better use of energy and water resources
- Less risk of work-related injuries
- Help surgeons operate more precisely
- Smart machines that minimise their environmental impact

By 2025 the economic impact of the automation of knowledge work, robots and autonomous vehicles will reach between €6.5 and €12 trillion annually.

Europe is behind in private investments in AI: €2.4-3.2 billion in 2016, compared to €6.5-9.7 billion in Asia and €12.1-18.6 billion in North America.

3. WHAT IS THE EU'S ROLE IN ARTIFICIAL INTELLIGENCE?

The EU is facilitating and enhancing cooperation on AI across the Union to boost its competitiveness and ensure trust based on EU values. Its approach to AI and robotics deals with technological, ethical, legal and socio-economic aspects to boost the EU's research and industrial capacity and to put AI at the service of European citizens and economy.

10 April 2018 Digital Day Declaration: Member States sign up to cooperate on AI.

25 April 2018 European AI strategy: increase public and private investments to €20 billion per year over the next decade, prepare for socio-economic changes, and ensure appropriate ethical and legal framework.

1 June 2018 AI expert group appointed & AI Alliance launched.

6 June 2018 Digital Europe programme proposed: €2.5 billion for the deployment of AI.

7 June 2018 Horizon Europe programme proposed: largest EU R&I programme ever with €100 billion.

7 December 2018 Coordinated plan with Member States: boost AI made in Europe. All EU to countries to develop own AI strategies by mid-2019.

18 Dec. 2018 Consultation on draft ethics guidelines by AI expert group.

1 Jan. 2019 AI4EU project launch.

8 April 2019 Commission presents approach to build trust in human-centric AI.

9 April 2019 Digital Day - Presentation and discussions on AI ethics guidelines.

26 June 2019 Policy & investment recommendations by AI expert group. Pilot phase of AI ethics guidelines

Early 2020 Evaluation report of pilot phase.

Updated 20190702

4. HOW MUCH IS THE COMMISSION GOING TO INVEST IN AI?

The European Commission has already invested significant amounts in artificial intelligence (2014-2020), cognitive systems, robotics, big data and future and emerging technologies to help Europe be competitive.

AI-RELATED AREAS

Around **€2.6 billion** over the duration of Horizon 2020 on **AI-related areas (robotics, big data, health, transport, future and emerging technologies).**

ROBOTICS

€700 million under Horizon 2020 **+ €2.1 billion** from private investment in **one of the biggest civilian research programmes in smart robots in the world.**

SKILLS

€27 billion through European Structural and Investment Funds, on **Skills development** out of which European Social Fund invests, **€2.3 billion** specifically in digital skills.

More investment is coming **now until the end of 2020**:

RESEARCH & INNOVATION

Under Horizon 2020 **€1.5 billion** for the period 2018-2020

€20 billion of combined public and private investment for the period 2018-2020

To establish a solid base for AI in the future, more investment is needed **after 2020**:

AI

€20 billion per year of combined public and private investment

€1 billion per year through Horizon Europe and the Digital Europe Programme

PROJECT EXAMPLES

AGRICULTURE

AI can improve the process and minimise the use of fertilisers, pesticides and irrigation and provide better productivity, food and reduce environmental impact.

Trimbot2020

The project develops an intelligent gardening robot which can trim hedges, roses and bushes.

Contribution: €5.4 million

DATA & EHEALTH

AI can recognise a cardiac arrest during emergency calls faster and more frequently than the medical dispatcher.

KConnect

Multi-lingual text and search services that help people find the most relevant medical information available.

Contribution: €3 million

PUBLIC ADMINISTRATION AND SERVICES

AI can provide early warnings and prevent natural disasters; or simulate contagion in pandemic events to save human lives.

SmokeBot

Civil robots support fire brigades in search and rescue missions to perform in harsh conditions.

Contribution: €3.8 million

TRANSPORT

AI can minimise wheel friction of a suspended train against the track while maximising the speed and impact and enables autonomous driving.

VI-DAS

Automated sensors detect possible dangerous situations and accidents. The driver is alerted and road safety is improved.

Contribution: €6.2 million

MANUFACTURING

AI can predict maintenance and breakdowns in smart factories to improves work experience.

SATISFACTORY

Collaborative and augmented-reality system to increase work satisfaction in smart factories.

Contribution: €4 million

SERENA

AI techniques to predict maintenance of industrial equipment.

Contribution: €5.5 million