



European
Commission

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ARTIFICIAL INTELLIGENCE

TURBOCHARGING EUROPEAN INDUSTRY

What is Artificial Intelligence?

Artificial intelligence (AI) is a collective name for digital technologies that enable computers and machines to perform tasks that could previously only be performed by human beings. Contemporary AI techniques allow computers to discover patterns in data and to learn new skills “by example” or by reinforcement of envisaged behaviour. Applying this technology in industrial contexts can generate a multitude of benefits, including continuous and automatic optimisation of production; increased resilience, robustness and efficiency of supply chains; reduction of maintenance costs through predictive maintenance; advanced human-machine collaboration for product design and development; and a more rewarding work environment for factory workers.

How is this being developed in the political context?

In February 2020 the European Commission unveiled its [ideas and actions](#) for a digital transformation that works for all, reflecting the best of Europe: open, fair, diverse, democratic and confident. It presents a European society powered by digital solutions that put people first, opens up new opportunities for businesses, and boosts the development of trustworthy technology to foster an open and democratic society and a vibrant and sustainable economy. Digital is a key enabler to fighting climate change and achieving the green transition. The European [data strategy](#) and the policy options to ensure the human-centric development of [artificial intelligence](#) (AI) are the first steps towards achieving these goals.

How can industry benefit?

Europe is already one of the world’s major leaders in the development of AI. The European Commission has been working hard with Member States to foster a genuinely collaborative AI strategy, embodied in the 2018 Communication ‘Artificial Intelligence for Europe’, which also emphasises the importance of AI in European manufacturing. The Commission has also massively increased its funding of AI research through the Horizon 2020 programme, with EUR 1.5 billion having been pledged for the period 2018-2020, and will keep funding AI research and applications through Horizon Europe and Digital Europe programmes. In partnership with the private and the public sector, the aim is to mobilise resources along the entire value chain and to create the right incentives to accelerate deployment of AI, including by smaller and medium-sized enterprises.

Artificial intelligence applications in industry

The following 13 projects, funded under Horizon 2020, demonstrate the pioneering way forward with AI technologies geared towards industry and manufacturing. All of these projects have ended recently or will end by September 2020, therefore they provide some fresh and mature research results on AI applications in industry. They cover a wide range of innovations, starting from novel AI-powered technology inventions, to AI-based technological and organisational solutions for beneficial human-robot collaboration in the factories of the future.

Research and
Innovation



AEROARMS

AI-powered drones for difficult maintenance tasks, targeting new applications in agriculture, search and rescue, and even in logistics and transportation where supplies could be delivered directly to people.



CritCat

By replacing rare metals with earth-abundant materials in catalytic reactions we can reduce carbon footprint and cheaper production cost for the chemical industry, while at the same time increasing the viability of new energy conversion technologies.



GOOD MAN

Researchers in the EU have demonstrated that zero-defect manufacturing architecture incorporating artificial intelligence can bring real benefits across a range of different sectors.



MANUWORK

Fostering human-machine collaboration in the factories of the future. Analysis and augmented reality will smooth cooperation between man and machine in the manufacturing workplaces of the 21st century.



Phoenix

Integrated elements of software, hardware and artificial intelligence to create swarming motes – tiny robotic spheres that can travel to unknown locations, exploring, sensing and mapping as they go. Mapping pipelines could help us to find structural faults or leaks that are affecting the delivery of safe drinking water and check its quality.



SERENA

Rolling out predictive AI condition-based maintenance solutions for advanced manufacturing. A scalable and resilient Industrial Internet of Things platform enabling artificial intelligence services that aim to reduce costs and improve productivity.



Bots2ReC

Robotic extraction of asbestos fibres from buildings protecting the health of industrial workers.



COROMA

The AI-powered, autonomous and collaborative robots speed up production time and learn from experience.



Factory2Fit

Artificial intelligence can be harnessed to empower workers in smart factories of the future. EU researchers have developed tools, including evolutionary algorithms, to optimise task allocations and ensure that staff can achieve their full professional potential.



HIT2GAP

What if a building isn't as energy efficient as it should be? A novel open-source building energy management platform that utilises artificial intelligence diagnoses and fixes problems.



MONSOON

An innovative AI platform to boost resource and energy efficiency. A data-driven lab enables experts to collaborate, model, develop and evaluate novel predictive control functions in a rapid and cost-effective way.



ResiBots – Robots with animal-like resilience

New algorithms to make it possible for robots to autonomously recover quickly without having to anticipate every possible damage condition. Such algorithms allow a six-legged robot to find a new walking gait in less than 2 minutes.



THOMAS

Leveraging artificial intelligence and advanced automation, a team of EU researchers is developing a dual-arm configured robot capable of moving freely around a factory floor and performing complex tasks for factories of the future.

For more information

[CORDIS results pack](#) | [Research and innovation in AI](#)