Artificial Intelligence - Curse or Blessing? Historical Analysis of Digital Developments up to the First European Law on Artificial Intelligence (AI-Act)

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Abstract
Changes in the way people live and work, driven by digitalization and automation, have always triggered fears. Developments in the field of digitalization and automation, as well as the use of artificial intelligence, which has been the subject of much discussion recently, require people in all areas to have a certain degree of adaptability. Increasing complexity, the loss of jobs and the challenges of data protection are just a few examples of the challenges facing not only society but also legislators. The simplification of daily life and the increasing efficiency gains made possible by AI are some of the arguments in favor of using AI. The EU law on artificial intelligence aims to ensure that AI systems brought to market and deployed in the EU are safe and in line with the EU's fundamental rights and values. The groundbreaking proposal is also intended to promote investment and innovation in the field of AI in Europe.

Keywords: artificial intelligence, industrial revolution, EU Artificial Intelligence Act, digitalization.

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1. Introduction

Artificial intelligence is the ability of a machine to imitate human abilities such as reasoning, learning, planning and creativity. AI enables technical systems to perceive their environment, act on what they perceive, and solve problems to achieve a specific goal. The computer receives data, processes it and reacts. AI systems are able to adapt their actions by analysing the consequences of previous actions and working autonomously.

There is much analysis and debate about whether artificial intelligence is a blessing or a curse. To make valid predictions, it is important to understand the historical development of past industrial revolutions. Moving to the current industrial revolution (Industry 5.0), with its focus on artificial intelligence, has raised people's fears and concerns, especially when it comes to becoming replaceable in the workplace. Emotional and creative decisions are potentially challenging for AI.

On the basis of a review of the literature, the analysis describes the areas in which it will be necessary to create a legal framework in the future. Protection of fundamental and democratic values such as human rights, privacy and non-discrimination will be necessary.

In many areas of life, artificial intelligence can be seen as a positive opportunity. A balanced approach is needed: artificial intelligence must not be misused, as in almost all areas of life.

People should always be at the centre of the development of artificial intelligence. It is people who will be the deciding factor in whether artificial intelligence is a useful tool in everyday life, for example in the world of work. However, the past has also shown that inventions have not always been used for the benefit of human beings, but have often had devastating consequences for both human beings and the natural world. To make the misuse of artificial intelligence difficult or impossible, a legal framework is needed. The EU's goal is to be a democratic actor for the foreseeable future as

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well. The aim is to be a guarantor of peace and prosperity together. The EU has developed and agreed a legal framework for enabling artificial intelligence for humanity's benefit. The law, which has been approved by the European Parliament, is designed to make using artificial intelligence safe and legally compliant, uphold European values, protect fundamental rights and promote innovation and competitiveness. The aim is to make the use of artificial intelligence safe, transparent, traceable, non-discriminatory and environmentally friendly.

2. Industry in the course of time

Industry 1.0. The Industrial Revolution describes the profound and lasting change in economic and social conditions, working conditions and living circumstances that began in the second half of the 18th century. It was during this time that the first mass production by machines was developed - and thus Industry 1.0. The first machines, such as looms, were operated by human power. Mechanical production facilities were built and machines were driven by water and steam power. Water power was the first primary energy source. This was followed by steam engines. During this development phase, the first successes of early industrialization included the first railroads, coal mining, heavy industry, steam navigation, cloth production, transport and textile printing. During this transition, people recognized that the first industrial development created new jobs in the factory halls.

Industry 2.0. The introduction of electricity as a driving force at the end of the 19th century was the starting signal for the second industrial revolution. With the first automobiles from the early 20th century onwards, manufacturing work became increasingly automated. Factory halls produced in rapid time on assembly lines and engines made production increasingly easier. During this development phase, office jobs also underwent further development in terms of communication. Telephone calls and telegrams simplified communication, which accelerated work processes. These success factors in the second revolution were the first steps towards globalization. The production of automobiles, clothing, raw materials and food was automated. Transportation also developed further, with goods being transported across continents for the first time. Aviation began operations and the world's oceans could be crossed by ship.

Industry 3.0. Another 100 years later, production was automated through the use of IT and computers. Since the 1970s, it has been possible to use electronic components in the industrial environment. Production was further advanced by automation with electronics, IT and programmable logic controllers. Machine processes could be controlled more efficiently and human intervention in production processes was reduced to a minimum.

Industry 4.0. In the context of the fourth industrial revolution, there is a focus on the increasing digitalization of previously analogue technologies and the integration of cyber-physical systems. In many areas, stock production has been replaced by the manufacturing of products on demand or according to actual requirements. Just-in-time strategies have been implemented thanks to the continuous development of information processing and technology. In addition to constantly faster production, optimizations in environmental protection and work safety have also been achieved. Industry 4.0 is the term for modern technology and production in the age of the digital revolution. The term is not only a description for the industrial development of further technologies, as in the past two centuries, but also for the change in the world of production and work in the global age. "Informatization" is taking concrete shape in Industry 4.0. All branches of industry are being further digitalized and new forms of communication are emerging - even everyday objects and packaging

4 Ibid.
are being connected to the Internet via barcodes. Industry 4.0 can also react faster and more precisely to trends, tastes and the needs of the sales market. A greater variety of product models and designs are produced just as quickly as it is possible to react to rapid market developments. The new digital factories can also produce affordable one-off items on demand without suffering a significant loss.  

3. Transition to the fifth industrial revolution (Industry 5.0) – fear of structural change

The fourth industrial revolution was characterized by digital transformation, i.e. the digitalization of business processes, products, services and working methods. A new era was initiated in the relationship between man and machine: for the first time, the machine took centre stage. The use and further development of artificial intelligence continued to develop in leaps and bounds, especially in 2022. The possibility of commercial use beyond pure analysis also marks the turning point of the fifth industrial revolution.  

Artificial intelligence is the ability of a machine to imitate human abilities such as logical thinking, learning, planning and creativity. Artificial intelligence enables technical systems to perceive their environment, deal with what they perceive and solve problems in order to achieve a specific goal. The computer receives data (which has already been processed or collected via its own sensors, e.g. a camera), processes it and reacts to it. The issue of human labour in the context of increasing digitalization is a topic that has long been present in social debate.  

The fear of change and the importance of adaptability are issues that concern the general public. Negative scenarios are often emphasized in relation to mass unemployment when it comes to algorithms, artificial intelligence and robotics.  

There are several prominent examples of this: In his "History of Tomorrow", bestselling author Yuval Noah Harari predicts the emergence of a huge social class that will not only be unemployed, but even unemployable and useless. The same claims can be found in publications proclaiming the "rise of the robots". Prominent individuals from Silicon Valley, who according to popular opinion should know best, also outdo each other with horror scenarios, and not just for the human labour factor. Tesla boss Elon Musk even describes artificial intelligence as the greatest threat to humanity and argues that sooner or later a state-funded, unconditional basic income will be necessary, as robots will replace human jobs. Arguing along similar lines, Microsoft founder Bill Gates is in favour of a robot tax to compensate for income tax losses due to a lack of work.  

When analyzing such statements and claims in detail, it is not surprising that the image of job-destroying digitalization has quickly become popular. However, it should be noted that no technological revolution in the past has ever led to mass unemployment. This is underpinned by the fact that the digital revolution also involves a certain degree of evolution in the form of gradual change, which historically has by no means led to mass unemployment. Studies also show that many of the supposedly endangered professions consist to a large extent of activities that are difficult to automate. Another key adjustment mechanism is the shift in the focus of activities. The creation of completely new jobs must also be taken into account, as it is not only the gross change in employment that is decisive for the overall employment level, but also the net effect. This also depends on other influencing factors in a dynamic labour market. In particular, the expected decline in the labour force due to demographic change must be offset against the potential loss of jobs. It is also true that automation is not automatic and a purely technological assessment of potential ignores other

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7 Becker, Marco; Daube, Carl Heinz; Reinking, Ernst, *op. cit.*, p. 10.


influences such as economic considerations or social acceptance. In the service sector in particular, it is often the end user who ultimately decides on the degree of automation. More meaningful forecasts that attempt to analyse such arguments in the context of scenario analyses therefore point to considerable changes in the labour market, but overall rather positive employment effects. A look at the economic history of the last 200 years shows that the fear that human labour could become superfluous as a result of technological progress is anything but new. Long-term statistics show some drastic economic fluctuations, but by no means a permanent percentage increase in unemployment. Structural change was and is a key driver of growth and has made today's standard of living possible in the first place. Anyone who wants to prevent innovation, on the other hand, will ultimately not be able to stop it and will harm themselves. This shows that disruption and the replacement of the status quo through structural change are essential components of successful economies, even if they can sometimes be uncomfortable and threatening. There are winners and losers in this process - but without structural change, there will only be losers in the long term.10

4. Requirement for legal regulation

An analysis of the use of artificial intelligence in politics shows that artificial intelligence has become an integral part of political life. AI is often used by politicians to support their strategy. The key question is: does artificial intelligence strengthen democracy or does it harm it? Both ethical and legal aspects must be taken into account. After all, in order to protect democracy in the long term, political decision-makers must place people at the centre of their considerations when developing a digital strategy.11

The use of artificial intelligence already enables standard tasks in the creation, editing, reviewing, processing and publication of scientific texts to be successfully completed.12 As a consequence, it should be clarified how artificial intelligence can be used in schools and universities. It seems necessary to prepare a directive in EU law as a repressive measure to define which research practices are not acceptable, including artificial intelligence, which is often seen as a new form of plagiarism. In addition to training teachers and students on plagiarism, the inclusion of AI and its uses in academic research would be a preventive measure to avoid plagiarism.13

Digital technologies are an important factor that is currently driving the development of society in various areas, affecting not only traditional areas such as medicine, production and education, but also legal relations, including criminal proceedings. In this context, respect for human rights and fundamental freedoms and the application of basic legal principles such as the presumption of innocence, non-discrimination and the protection of privacy are important aspects to be taken into account when using artificial intelligence in the legal field.14

Another analysis describes it in such a way, that it is necessary to change our approach to human rights in the digital age. The circle of addressees of human rights must be expanded to include companies and organizations, and we must be prepared to recognize artificial intelligence as a matter of public policy and fundamental rights.15

The use of various software tools, including artificial intelligence, to collect, group and analyse data sets in public administration raises the question of the legal responsibility in public

10 Ibid.
administration when it uses such efficient but also vulnerable tools to invade the privacy of individuals and companies.

Despite the possibility of making administrative processes more efficient and the fact that artificial intelligence will be an integral part of the administrative sector in the near future, the use of artificial intelligence in the area of public administration requires special legal responsibility.\(^{16}\)

Another aspect is the legal regulation of the use of artificial intelligence technologies in administrative judicial proceedings. The use of artificial intelligence technologies in administrative jurisdiction should only be permitted if they are specialized intelligent systems that work under human supervision. It is stated that when considering administrative cases in an administrative court of minor complexity, it is possible to use artificial intelligence technologies, which are able to independently generalize and analyze legislation, judicial practice and, as a consequence of this, be a recommendation for a judge when making a fair and lawful decision according to the principles of the rule of law. It has been shown that the use of artificial intelligence technologies in administrative proceedings offers an opportunity for the effective implementation of the right to judicial protection, but can also be used to take actions that are contrary to the rule of law, in particular with regard to the violation of the right to a fair trial in administrative cases in administrative courts. The latter requires improved legal regulation of the use of artificial intelligence technologies in administrative proceedings, applying international principles and standards.\(^{17}\)

5. Curse or blessing?

Experts predict that artificial intelligence can potentially contribute to a 40% increase in production by the end of 2035. The benefits of artificial intelligence include data-driven decisions that make processes more efficient, increase productivity and reduce operating costs.

Constant availability (no staff shortages) and accuracy are further advantages of artificial intelligence. Artificial intelligence uses robots that are more precise, stronger and faster than human labour.

A major advantage of artificial intelligence in the operational area is the optimization of processes and the elimination of repetitive tasks. This leads to a targeted and sustainable use of resources, time savings and minimisation of waste. Systems with artificial intelligence can make decisions and carry out actions more quickly. It also facilitates the conversion of information into digital knowledge.

Artificial intelligence is also characterised by the ability to analyze collected data about customers and users to deliver customized offers, recommendations and experiences. Artificial intelligence supports companies in the development of new products and services by efficiently processing and analysing large amounts of data. This makes it possible to recognise trends that lead to new innovations.

The use of artificial intelligence can limit the relocation of production to more cost-effective foreign countries, as in certain areas production can be carried out more cheaply in industrialised countries. However, a cost-benefit analysis must be carried out in this context.

The use of artificial intelligence bears further risks and dangers for humanity. According to the World Health Organisation, artificial intelligence could lead to medical mistakes, misinformation and misuse of data.

Artificial intelligence could also pose an increasing threat to humanity in the area of warfare and weapons production - in this context, there is often talk of "modern warfare". The destructive power of weapons systems that are increasingly controlled by artificial intelligence is growing.


Another aspect is the dependence of humans on artificial intelligence. Through the use of artificial intelligence, humans are also losing some of their ability to control and fulfil themselves.

The manipulation of people and decision-makers by artificial intelligence; fake news and the ever-growing deepfake challenge are also major issue here.

The problem of a lack of emotional judgement and creativity when using technologies based on artificial intelligence is also frequently encountered. It is questionable whether artificial intelligence is capable of understanding emotional contexts. As a result, such systems have difficulties in understanding human behaviour and finding creative solutions to problems.

There are also concerns about the ethical aspects of artificial intelligence, particularly in relation to data protection and surveillance.

6. EU AI Act

The international community is faced with the choice of either enacting laws or allowing self-regulation to take its course. Both paths have their advantages and disadvantages. Given that technology can both harm and incentivise for the betterment of humanity, a cautious legislative approach seems to be the option the international community should consider. In today's world, a simple click on a technological device can be seen as a waiver of all rights.\textsuperscript{18}

Although artificial intelligence (AI) technology and its functioning are praised as a major technological breakthrough of the current century, they are repeatedly condemned because most countries have failed to regulate artificial intelligence and hold it accountable. This claim is made in light of the fact that in most cases, artificial intelligence performs functions and activities just like humans and is therefore prone to making mistakes that can even negatively impact humans and violate human rights. Mistakes therefore require accountability.\textsuperscript{19}

The European Parliament has voted in favour of stricter rules for artificial intelligence in the European Union. According to the Parliament, this is the world's first artificial intelligence law. It requires artificial intelligence systems to be categorized into different risk groups in future. The higher the potential dangers of an application, the higher the requirements should be.

Systems classified as particularly high-risk, which are used in critical infrastructures or in the education and healthcare sectors, for example, will have to fulfil strict requirements. Certain artificial intelligence applications that violate EU values are to be banned altogether. This includes, for example, the evaluation of social behaviour ("social scoring"). This involves dividing citizens into behavioural categories. Emotion recognition in the workplace and in educational institutions should also be banned in the EU. Facial recognition in public spaces - for example through video surveillance in public places - is also not to be permitted in principle. However, there are exceptions: Police and other security authorities will be allowed to use facial recognition in public spaces to prosecute very specific offences such as human trafficking or terrorism. Applications that are not expressly prohibited or categorized as high-risk will remain largely unregulated.\textsuperscript{20}

7. Conclusion

The question of the curse or blessing of artificial intelligence is the subject of numerous analyses and discussions. In order to be able to make valid statements here, it is important to know the historical developments of past industrial revolutions. In this context, the industrial revolutions were presented first. The transition to the current industrial revolution (Industry 5.0) with its focus on artificial intelligence has caused fears and concerns among people, especially when it comes to the issue of replaceability in the professional environment. In this context, the need for adaptability is


\textsuperscript{19} Ibid, p. 430.

crucial. Research has also shown that the negative scenarios of possible mass unemployment in the past have not been proven true when analyzing the historical industrial revolutions; on the contrary, additional jobs have been created in some areas. In this context, demographic change should also be included in the argument. In the service sector, the use of artificial intelligence will depend on consumers themselves, who will decide how and in what form it becomes relevant. Emotional and creative decision-making are potentially major challenges for artificial intelligence.

Based on a literature review, the analysis described areas in which it will be necessary to create a legal framework in the future. These sectors include the school and university sector, but also the political and legal environment. Basic values and democratic values such as human rights, protection of privacy and non-discrimination have to be protected.

In general, artificial intelligence can be seen as a positive opportunity in many areas of life. As in almost all areas of life, a balanced approach is also required here: artificial intelligence absolutely should not be subject to abuse.

When developing artificial intelligence, the human being should always take centre stage. People decide whether artificial intelligence becomes a useful support in everyday life, but also in the world of work. However, the past has also shown that inventions have not always been used solely for the benefit of humans, but have often had devastating consequences for people and nature. Artificial intelligence is also used for manipulative and negative purposes. New forms of warfare and deepfakes are negative examples created by artificial intelligence. The possibility of manipulation is becoming an explosive topic, especially in politics, but also in business. A legal framework is needed to make the misuse of artificial intelligence more difficult or to prevent it. When democracy was introduced in Greece, famous philosophers said that rules and laws are needed for democracy to function as a form of government.

Various experts and analyses have different opinions on the use of artificial intelligence. Whereas some predict the end of humanity, others believe it to be a blessing and a step forward in the organization of life and work. The EU has set itself the goal of continuing to act democratically in the near future. The aim is to ensure peace and prosperity together. In order to enable artificial intelligence for the benefit of humanity, the EU has developed and agreed on a regulation. The aim of the law agreed by the European Parliament is to make the use of artificial intelligence safe and legally compliant, uphold European values, protect fundamental rights and promote innovation and competitiveness. The aim is to make the use of artificial intelligence safe, transparent, comprehensible, non-discriminatory and environmentally friendly. This regulation affects Europe, but not the rest of the global economy. Global regulation will hardly be possible in this context. It is essential that the systems and their functioning in the field of artificial intelligence are monitored by humans in order to prevent harmful effects.

Bibliography

7. Kaplina, Oksana; Tumanyants, Anush; Krytska, Iryna; Verkhoglyad-Gerasymenko, Application of artificial intelligence systems in criminal procedure: key areas, basic legal principles and problems of correlation with


