

# The Role of Artificial Intelligence in Transforming the Reality of Modern and Contemporary Man

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**ABSTRACT:** This study looks to artificial intelligence (AI) as the most significant scientific revolution of our era. We trace the trajectory of AI from inception to implementation, and examine social, economic, and cognitive ramifications of AI's effects. The study focuses on how AI transforms human reality through examining if and how AI can be a new rationality, as both a momentum for good or as a possible momentum as a force of harm. Through a descriptive-analytical method, we review key literature, and some practical applications of AI from finance, education, health, and sustainable development. It has been established AI has the potential to outpace human intelligence through faster precision and data processing, creating new types of banking services, learning, diagnosis, and resource efficiency. But with this growth comes real concerns: displacement of work, privacy concerns, social inequity, and perhaps, and loss of creativity due to reliance on AI production systems. This study suggests necessary ethical and legal interventions are required to support AI in purpose of humanity's best interest.

**KEYWORDS:** Natural intelligence, Artificial intelligence, Social reality, Scientific research, Ethical and social violations.

**TITLU:** „Rolul inteligenței artificiale în transformarea realității omului modern și contemporan”

**REZUMAT:** Acest studiu abordează inteligența artificială (IA) ca fiind cea mai semnificativă revoluție științifică a erei noastre. Trasăm traiectoria IA de la concepție la implementare și examinăm ramificațiile sociale, economice și cognitive ale efectelor inteligenței artificiale. Studiul se concentrează pe modul în care AI transformă realitatea umană, analizând dacă și cum poate IA să reprezente o nouă raționalitate, fie ca impuls spre bine, fie ca potențial impuls al unor efecte negative. Printr-o metodă descriptiv-analitică, trecem în revistă literatura de specialitate esențială și unele aplicații practice ale IA din domenii precum finanțe, educație, sănătate și dezvoltare durabilă. S-a constatat că IA are potențialul de a depăși inteligența umană prin viteză, precizia și procesarea datelor, creând noi tipuri de servicii bancare, metode de învățare, diagnosticare și eficiență în utilizarea resurselor. Dar odată cu această creștere apar și îngrijorări reale: înlocuirea forței de muncă, probleme de confidențialitate, inechități sociale și pierderea creativității din cauza dependenței de sistemele de producție bazate pe IA. Acest studiu sugerează că sunt necesare intervenții etice și legale pentru a ghida IA în interesul umanității.

**CUVINTE-CHEIE:** inteligență naturală, inteligență artificială, realitate socială, cercetare științifică, încălcări etice și sociale.

## Introduction

In modern and contemporary times, scientific technology has witnessed remarkable progress, with machines and technical tools leaving a profound impact on various aspects of human and natural life. Among the most notable of these technological advancements is the use of artificial intelligence (AI), which has come to shape human life in its many details (Brynjolfsson and McAfee 2014). The equation of work based on physical effort has shifted to one centered on intelligence, giving rise to the popular saying: “*Work smart, not hard.*” This shift marks a turning point in the diverse forms of social reality—one that artificial intelligence has sought to achieve in recent years (Bell 2018).

The problem is understanding how artificial intelligence has changed the configuration of contemporary human reality, and what the theoretical and practical problems are on how we can utilize its at-tempts to resolve our inquiries in regard to its technological and scientific benefits vs the social and ethical risks and outcomes that it poses.

The study tries to make clear what artificial intelligence is and what conditions it has emerged under and evolved within, as well as point to some areas where it has produced very disruptive changes. We will also consider its positive and negative implications, and we will ultimately recommend that using

artificial intelligence requires regulation in regard to saying it has to be aligned with ethical and legal parameters that builds on its service to humanity and mitigates its potential risks.

### The Concept of Artificial Intelligence

The term *artificial intelligence* is composed of two words: *intelligence* and *artificiality*. *Intelligence* refers to acumen and the ability to employ skills and capacities to devise innovative and urgent solutions within a short period of time, thereby reducing effort and optimizing the execution of a given task through the use of mental mechanisms such as understanding, reasoning, perception, learning, attention, concentration, and others. As for *artificiality*, it is conceptually associated with the act of making or fabricating. It is applied to all things that come into existence as a result of human activity or action, through which objects are fabricated and shaped, in contrast to those that exist naturally and are generated without human intervention (Russell and Norvig 2021).

In discussing the notion of the technology, we came across many different definitions put forward by various thinkers. For instance, there was a definition that O'Brien shared which is: "Artificial intelligence is a science and technology that is built on several fields of knowledge, for example, computer science, mathematics, biology, philosophy and engineering, that aim to construct computer systems that simulate human intelligence." (Grewal 2014)

We also find another definition by Dan W. Patterson, who states:

"Intelligence is a branch of computer science that focuses on the study and construction of computational systems that exhibit forms of intelligence. These systems are capable of providing highly useful inferences regarding the objective problem, and they can also understand natural languages, perceive sensory input, and perform other tasks that require intelligence when carried out by humans." (Russell and Norvig 2021)

From this, we can see that artificial intelligence is considered one of the most important scientific and technological discoveries in modern and contemporary science. It has emerged from computer science and mathematical algorithms, which work to design precise and complex systems of intelligent computing. These systems can reach—and often surpass—human intelligence in terms of speed in producing solutions and results, while matching the tools and functions employed by natural human intelligence in a refined logical and computational manner.

### The Rise and Growth of Artificial Intelligence

Artificial Intelligence, as a recognized field of study and teaching, was one of the new "sciences" to appear in the 20th century, with most people agreeing that it began in the mid-1950s, but the concept of Artificial Intelligence can be traced back thousands of years. Starting in about 400 B.C., philosophers posited that Artificial Intelligence was possible, because they believed that the mind could be viewed as like a machine and that the mind operated according to knowledge that was stored in an internal and ultimately unknowable internal machine-like language which could be used to ultimately deduce correct decisions (Charniak 1985, 6-7).

In 1956 at the Dartmouth Summer School, John McCarthy spoke the term Artificial Intelligence for the first time, that same year Herbert Gelernter produced the model widget he called the Geometry Theorem Solver which contained the ability to, on the rare occasion, prove some very difficult theorems, following after that, discovery in robotics and neural networks started to multiply (McCarthy, Rochester, and Shannon 1955).

By following pre-defined algorithms, artificial intelligence achieved a qualitative leap in the 1960s in the development of multipurpose programs, especially in the linguistic field. During this period, McCarthy worked on developing linguistic programs through the use of symbolic language as an alternative to digital language. This period also witnessed other achievements that touched on various aspects of robotics.

In the 1970s, artificial intelligence technology was introduced into the field of knowledge engineering at Stanford University. Among the most prominent AI scientists of this period was Edward

Feigenbaum. Research in the field of artificial intelligence advanced significantly, but what truly distinguished this era was the emergence of specialized subfields. Due to the growing number of theories, the discipline split into specialized areas, each focusing on a particular type of solution to the problem of artificial intelligence (Feigenbaum 1977).

In the 1980s, scientists worked on programming knowledge and embedding it into machines by enabling them to acquire the ability to see or move. The revival of artificial intelligence during this period was partly due to the success of expert systems, which were designed to replicate the expertise of highly knowledgeable individuals and then encode that expertise into a form usable by AI programs. This was achieved through various methods, including decision trees (Buchanan and Shortliffe 1984).

Thus, artificial intelligence algorithms have brought about a qualitative leap and an epistemic revolution across numerous social domains. They have even become a human necessity in contemporary social reality, by transforming most ordinary machines into intelligent, pre-programmed machines that rival human intelligence—and often surpass it many times over. For this reason, this era has rightfully been regarded as the age of intelligence par excellence.

Artificial intelligence has contributed to preserving the accumulation of human achievements, and it has played a major role in diagnosing diseases, determining treatments, advancing education, and ensuring the security of public and private institutions and administrations. Digital computational processing has also helped in eliminating bias and discrimination. Moreover, intelligent machines reduce risks and relieve humans from pressures by undertaking dangerous and arduous tasks, as well as participating in rescue operations in difficult locations. AI has also facilitated the use of human language in computers instead of programmed computer languages, thereby making technology accessible to the majority of society—whereas it was once limited to experts and specialists.

### **Fields and Domains of Artificial Intelligence Applications**

Artificial intelligence technology has brought about an intellectual revolution in the life of modern and contemporary humans. It has even become a defining feature of the tools and means upon which humans rely to adapt to their natural and social world. There is hardly any field that has not been penetrated by intelligent computational techniques. Indeed, the old manual practices once used by humans have now become almost culturally obsolete in contemporary life, which is increasingly described as digital intelligent societies, in contrast to the older industrial and agricultural societies. Among the many fields and domains in which artificial intelligence techniques have emerged, we may cite, by way of example but not limitation, the following:

#### **A. The Banking and Commercial Sector**

Artificial intelligence (AI) tools have already revolutionized banking and the financial services sector - yielding fundamental advances in human interactions, and strict governance, which contributes to demonstrating integrity, visibility, as well as fulfillment in managing the finance and service obligations in complex and meticulous support operations. It has also aided in facilitating investment and insurance ventures, while also reducing costs and burden in the management of banking regulations (Arner, Barberis, and Buckley 2016).

In recent years artificial intelligence has become essential in banking operations in designing the services and systems that add value to financial and administrative practices that supply productivity, operate at lower operational costs, help improve and speed up business processes, while achieving the highest level of quality.

Artificial intelligence also evaluates creditworthiness with precision in individual financing operations, ensuring the highest levels of operational efficiency, analyzing customer and client data, completing administrative documentation electronically, processing payments for royalties, bills, telephones, and taxation systems, as well as ensuring personal financial management (Jagtiani and Lemieux 2019).

AI systems further assist in making optimal decisions regarding investments and personal financial management. Artificial intelligence technologies also help users identify opportunities for

saving, advertising, promotion, and selling their products, while suggesting appropriate methods for saving money. In addition, they provide users with guidance and advice, employ smart electronic chats and conversations similar to those conducted between humans to discuss personal financial matters, and alert users to excessive spending in order to prevent overindulgence. (Goyal and Kumar 2021)

Artificial intelligence technology also employs data and mathematical algorithms to simplify the investment process and to build investment portfolios aimed at wealth creation and risk management. It plays a crucial role in combating all forms of fraud that threaten financial service institutions, effectively reducing and detecting financial fraud risks, and identifying abnormal behaviors in financial transactions. Moreover, AI makes use of analytics and behavioral data by tracking and monitoring personal profiles and examining the details of monetary transactions.

## **B. The Field of Education and Training**

Education and training at all levels have greatly benefited from artificial intelligence technology, which has enriched university and educational libraries with digital tools, resources, and writings that help meet the needs of students and learners, enabling them to access scientific knowledge. AI has provided an immense wealth of information, thereby eliminating the problem of scarcity in scientific research sources and references. It has also fostered interactive relationships between students and their research subjects, bridging the gap between researchers and traditional paper-based libraries.

Furthermore, AI has contributed to the development of scientific competencies, facilitated research methods, and enhanced experimental approaches by providing technological tools and mechanisms pioneered by major tech companies, such as Google. Among these are instant translation across different world languages and access to a vast reservoir of knowledge across various scientific disciplines, which has created an almost open-access culture for researchers.

In addition, artificial intelligence plays an active role in the humanities and social sciences, particularly in shaping the social model, given the flexibility of concepts in the contemporary world depending on their context of use—where the same notion can carry a variety of meanings. In this respect, Levinson emphasizes that social ontology has yet to integrate the diverse contributions of fields such as anthropology, linguistics, and psychology into a comprehensive definition of human society.

In the field of social sciences, therefore, we find close collaboration between artificial intelligence and sociology, particularly in monitoring social phenomena, predicting and anticipating various social changes, and supporting social development worldwide.

Artificial intelligence algorithms have also contributed to the development of educational tools that help design curricula tailored to the interests and levels of students. This is achieved by adopting the most efficient methods to deliver course materials and by providing computers and robotic systems in the form of human-like agents through scientific electronic conversations and chats. In addition, AI offers certain mathematical applications for self-learning, supports students' cognitive processing, and generates diverse sets of questions adapted to the abilities and levels of each learner.

AI researchers have also developed electronic games that help stimulate intelligence, attention, learning, and learners themselves. (Anderson and Dill 2000)

## **C. The Field of Healthcare**

Similar to its optimal use in education and training, the global healthcare system has also benefited from artificial intelligence technology in recent decades, particularly in combating diseases and epidemics and reducing health risks. Intelligent computing has assisted in performing accurate diagnoses that human effort alone often fails to achieve due to their complexity, by extracting patient data and suggesting virtual solutions.

The use of human-like technological robots has also played a role in electronic conversations and interactions aimed at precautionary care, supporting patients through awareness, helping them avoid health risks, and mitigating memory loss as well as heart attacks (Broadbent, Stafford, and MacDonald 2009).

From all this, we find that artificial intelligence technology surpasses traditional healthcare practices through its ability to collect data and provide clear results within the health system. Computing algorithms help gather useful predictions and forecast accurate outcomes. AI applications also analyze preventive methods and their relation to patient outcomes, assist in disease diagnosis, improve treatment methods, anticipate health risks, develop medications, and monitor and care for patients (Esteva et al. 2017).

For these reasons, international systems are investing millions of dollars in developing artificial intelligence in healthcare, aiming to improve business management, create supportive conditions for patient comfort, reduce hospital stays, facilitate remote treatment between public and private hospitals, determine the optimal number of staff, retrain them technologically, and enable them to make optimal use of computing and AI technologies (Esteva et al. 2017).

#### **D. Sustainable Condition:**

AI has a privileged role in the sustainability development context to optimize those material and natural resources, namely to progress the personal and collective socio-economies and socio-cultures relative to the benefits to humankind. If, in a sustainability development context, sustainable development means optimally and sustainably balancing the variety of consumption, total exhaustion, and wasteful consumption or exploitation of contemporary human societies' full economic assumption of the immaterial natural wealth and holdings, we must think about the wealth and potential future generations for sustaining their equivalent rights, their humanity, and their right to the health and viability of the natural world. AI embeds future continuity and resilience of unacceptable resource productivity, with an appreciation the responsibilities human rights for all and nature, environmental protections for people in terms of their biological and historic contexts, and the exposure to imminent hazards for both humanity and nature, in all spheres from everyday life to the deepest abstractions.

Sustainable development seeks to achieve optimal goals and a fulfilling life that ensures human well-being on a global scale. This endeavor has long been championed by the United Nations General Assembly, which established a comprehensive plan to realize these objectives and aspirations, particularly within the short period between 2015 and 2030.

Artificial intelligence has had a profound impact in advancing these noble goals and aspirations. It is indeed one of the most complex, fascinating, and remarkable human discoveries, contributing to the eradication of poverty, the reduction of social stratification, and the provision of a dignified life for individuals and communities across different races, languages, and religions.

Among the sustainable development goals set by the United Nations—and toward which artificial intelligence has contributed—we may cite the following:

**Ending poverty**, which affects more than 850 million people worldwide at varying levels, particularly in remote areas far from urban societies, and especially in the Global South, including regions of Africa, East Asia, and Latin America. Credit for identifying the locations of these populations and impoverished areas goes to artificial intelligence and satellite imagery. In addition, AI contributes to the discovery of agricultural lands and groundwater resources, thereby boosting global production, eradicating poverty, and ending hunger worldwide (Jean et al. 2016).

**Ensuring economic growth** by providing decent jobs that safeguard the dignity of young people seeking employment. Artificial intelligence also facilitates communication among individuals and communities through the exchange of information and the sharing of scientific expertise. Moreover, new hybrid industries that integrate AI, Internet of Things (IoT) sensors, and four-dimensional printing are reshaping industries and generating immense innovation. (Lee, Bagheri, and Kao 2015)

**Contributing to the creation of smart cities**, addressing the problem of parking, improving urban services, and meeting the economic, social, and environmental needs of both present and future

generations. This is achieved through a set of indicators such as smart mobility, smart economy, smart living, and smart governance. (Albino, Berardi, and Dangelico 2015)

**Enhancing international monitoring and protection against cyber intrusions.** This requires partnerships between states and governments to manage artificial intelligence and technological tools wisely, in order to ensure the rational and optimal exploitation of natural resources, thereby guaranteeing the continuity and sustainability of present societies and future generations without racial, religious, linguistic, or gender-based discrimination.

## **The Outcomes of Artificial Intelligence: Advantages and Disadvantages**

### **A. The Advantages of Artificial Intelligence**

One of the most significant advantages of artificial intelligence for both nature in general and humanity in particular is that it represents a natural extension of individual human capacities. This has created a positive form of interaction with machines, which rely on precise mathematical algorithms.

This artificial technology is also credited with driving progress toward achieving the United Nations' sustainable development goals, especially in areas such as healthcare, democracy, education, child protection, and safeguarding the rights of populations in remote communities to ensure a better social reality in which class disparities among humans are eliminated.

AI contributes to this by ensuring the optimal and widespread use of its capabilities across human societies, thereby combating poverty, eradicating hunger, diseases, and epidemics, while harnessing smart technological capacities to detect minerals and natural resources, protect plant and animal wealth, and enhance cybersecurity to safeguard national and international assets from fraud, hacking, and criminal sabotage networks.

Artificial intelligence is also credited with performing certain complex functions similar to those of the human brain, such as acquiring complex information, analyzing it, and linking it together in order to reach conclusions through the technical skills employed by computers and smart machines.

The field of employment has also witnessed remarkable progress thanks to artificial intelligence, notably through the screening of résumés and the identification of suitable candidates for public or private sector jobs. AI has also contributed to providing excellent services in customer relations by responding to client needs across hotels, restaurants, telecommunications, transportation, as well as various banking, financial, commercial, and administrative services.

In addition, this technology has achieved outstanding results in determining the optimal times for planting and crop production, as well as assessing soil conditions to identify suitable types for cultivation, thereby increasing both the yield and quality of crops.

### **B. The Drawbacks and Disadvantages of Artificial Intelligence**

Despite the many benefits and advantages that artificial intelligence has brought in transforming the reality of modern human life, it has also produced severe consequences that cannot be ignored. Among them, we may cite:

- The domination of machines over many human jobs, which has deprived people of numerous professions and occupations that sustain their livelihood and meet their social needs. Some experts predict the loss of more than 300 million jobs worldwide in the coming years across economic enterprises.
- Other drawbacks are related to the loss of personal privacy due to the massive growth of personal data accessible to artificial intelligence concerning individuals and property. This has resulted in a form of social surveillance in which individual privacy is eroded.
- The widening of income disparities among individuals, leading to an increase in the wealth of employers while many employees lose their social professions.

- The widespread use of artificial intelligence in research programs has also diminished the scientific value of research by fostering a spirit of dependency on smart machines and on ready-made solutions to urgent and emerging problems in a short time. Even artistic and literary creativity has been overtaken by artificial intelligence, resulting in the erosion of genuine artistic and literary taste, while generating millions of artificial thoughts, drawings, and fabricated novels.

- Artificial intelligence has also turned human existence into a domain threatened by economic activities that deviate from pre-established objectives, posing risks to both individuals and societies.

- There is also the difficulty of unifying intelligent systems among major global companies; even in the simplest matters, such as the disruption of lighting systems in smart cities due to differences in energy use (Marr 2017).

## Conclusion

In conclusion, we find that human thought has gone through many stages of remarkable discoveries throughout its temporal and spatial history. Artificial intelligence represents one of the most important and advanced stages in which human scientific progress has manifested itself, as it constitutes an automated process that rivals and simulates the natural capacities of the human mind in terms of creativity, innovation, analyzing results, and providing solutions to emergent and unprecedented situations, all while harnessing the refined precision of computer technologies and mathematical algorithms.

Artificial intelligence technologies have embodied the accelerating scientific revolution across diverse fields of knowledge and science, to the extent that the relationship between humans and machines has become an inevitable alternative, surpassing even human-to-human relations. The machine itself has come to represent a metaphysical dimension, shaping a form of human existence imposed by contemporary technological reality. Furthermore, this technology contributes to resolving numerous challenges and obstacles that natural human intelligence had struggled with for decades. It has also enhanced production by ensuring abundance, precision, speed, and high quality, while enabling strict oversight to safeguard the assets and data of individuals and institutions, and significantly reducing error rates compared to natural human performance.

This technology has also contributed to laying the groundwork for foresight and strategic planning in the exploitation of natural and underground resources, with the aim of enhancing the well-being of present societies and ensuring a secure future for the sustainable development of generations to come. In this way, it has helped create a better reality for modern humanity, despite the shortcomings and risks that inevitably accompany any major scientific breakthrough. Such realities call for strict adherence to ethical, cultural, and social norms, as well as the establishment of a robust legal framework that safeguards children and adolescents from misuse of the technology. Furthermore, it requires legal protections to secure institutional and societal data against fraud and breaches, while preserving individual privacy from exploitation and blackmail.

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