

Is Ethical Artificial Intelligence Possible?

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Abstract: Ethical artificial intelligence (AI) is emerging as a widespread approach that refers to the development and use of AI technologies in a manner compatible with human values. However, the tendency of AI companies in Europe to relocate their operations to the United States is increasing debates about the applicability of this approach. One of the main reasons for this is the European Union's General Data Protection Regulation (GDPR); the costs, controls, and restrictions imposed by this regulation on data use may lead global technology firms to move outside of Europe. The high economic value-generating potential of AI creates pressure for the relaxation of these regulations, presenting a choice between ethical principles and economic interests. This study aims to provide a conceptual evaluation within the framework of the question of whether the economic gains provided by AI can outweigh human-centered ethical values. Accordingly, the research adopts a qualitative approach based on the literature and examines the current debates at a conceptual level. The assessments indicate that the European Union's desire to compete with the United States and China in the global artificial intelligence race creates a context that may make prioritizing ethical principles difficult. In this context, it is considered that the development of an ethical understanding of artificial intelligence cannot be considered independently of economic and political dynamics, and while it presents various limitations under current conditions, it offers a structure that can be improved with appropriate governance mechanisms.

Keywords: Ethical artificial intelligence, Data protection, GDPR

I. INTRODUCTION

Today, the world is 4.5 billion years old, and numerous inventions, from stone tools to gene editing, have been developed. The majority of inventions that shaped human history emerged in the last century (Wei, 2012; Yenne, 2023). Following revolutionary developments such as the wheel, printing press, electricity, and the internet, which have profoundly impacted and transformed human life, artificial intelligence is predicted to create an even greater revolution (Losey, 2024). Indeed, in an article published in March 2023, The Economic Times stated that artificial intelligence would be the biggest surprise in human life after electricity and the internet. The article emphasized that the rise of artificial intelligence would bring about a transformation many times greater than anything the world has seen before, and that humanity will be caught unprepared for this transformation (The Economic Times, 2023).

Since Alan Turing, who initiated the first attempts at artificial intelligence to determine whether machines and computers could think like humans with his Turing test (Epstein et al., 2009), artificial intelligence has been one of the most debated topics of our time and is characterized by emulating human-like intelligence as the gold standard (Korteling et al., 2021). As AI gains the ability to perform increasingly complex tasks, it potentially creates diverse impacts on individuals and societies by granting greater decision-making autonomy to many AI-enabled products and services (Brendel et al., 2021). As AI becomes more prevalent in decision-making processes, concerns about transparency and ethics also arise (Díaz et al., 2024).

With the ability of AI systems to make automated and self-learning decisions today, there is increasing pressure in academic and political circles to design and manage AI in a way that is fair and transparent (Felzmann et al., 2020). Despite the many advantages of these systems, they sometimes directly or indirectly harm users and society. Therefore, making these systems safe, reliable, and trustworthy has become essential (Kaur et al., 2022). Therefore, adhering to human values and ethical principles that underpin fundamental rights and ensuring transparency and data protection are crucial when developing and using AI systems (Mitrou, 2018).

The ethical issues surrounding artificial intelligence have recently gained increasing attention and have led to the emergence of the term "ethical artificial intelligence," a widely adopted concept that refers to the use of artificial intelligence in a manner compatible with human values. Ethical artificial intelligence is central to efforts to prevent individuals from being harmed by artificial intelligence systems and, therefore, is gaining increasing importance (Stix, 2022).

Concerns that the European Union (EU) is lagging behind the United States (US) and Asia (formerly Japan, then China) in science, technology, and innovation have led to a debate in Europe about ethical norms that address artificial intelligence while prioritizing human values. Europe is seeking a way to utilize the opportunities presented by AI in a human-centered, ethical, safe, and true to core values (Hoerber et al., 2022). In this context, one of the most frequently asked questions is whether the European Union, the cradle of global human-centered, value-based approaches and ethical guidelines as a normative force, will prioritize ethical norms or market power in its approach to AI (Ulnicane, 2022). In this context, the fact that ethical AI has become a topic of discussion even in the European Union, the last bastion of ethical AI, has brought with it uncertainties and debates about whether ethical AI will be possible in the future.

There is a direct relationship between the ontological and normative status of artificial intelligence systems; since these systems do not possess capacities such as consciousness, intention, self-awareness, and responsibility, they are not considered moral agents or responsible parties. In this framework, normative responsibility belongs not to artificial intelligence systems, but to the human agents who design, develop, and use these systems. Therefore, ethical artificial intelligence is considered not as systems themselves, but as a human-centered framework of governance and responsibility; this approach aims to integrate fundamental principles such as transparency, justice, non-maleficence, accountability, and confidentiality into the design and use processes of artificial intelligence systems (Adams et al., 2023; Hanna et al., 2025; Huang et al., 2022; Safdar et al., 2020; Zafar, 2025).

Artificial consciousness is an important element in evaluating artificial intelligence not only in terms of intelligence but also in its ethical and cognitive dimensions. It has been argued that there is a strong relationship between consciousness, ethical decision-making, responsibility, and experience, and that ethical and rights-based approaches remain limited in systems lacking consciousness. Therefore, it is necessary to support artificial intelligence systems with ethical principles in their interactions with humans and to take potential risks into account (Karaman & Eyüpoğlu, 2026; Maral, 2024; Turan et al., 2022).

This study contributes to the ethical AI literature by examining the balance between the increasing economic value generated by artificial intelligence and the preservation of human values. It explores the applicability of artificial intelligence within the framework of ethical principles and regulatory approaches, while also evaluating the key challenges associated with the implementation of ethical AI. Given that the field of ethical AI is relatively new and inherently interdisciplinary, this research aims to provide a conceptual framework rather than a comprehensive systematic review. By offering a literature-based conceptual analysis, the study seeks to contribute to ongoing discussions on ethical AI and its practical applicability.

II. MATERIAL AND METHOD

The theoretical framework of this study is based on the responsible artificial intelligence approach, which considers artificial intelligence as a socio-technical construct shaped by the interactions of humans, society, and technology (Dignum, 2019). This approach envisages the integration of the principles of transparency, accountability, and responsibility into the design and development processes of artificial intelligence systems. In this context, artificial intelligence systems are not considered as independent moral agents, but as technical tools developed under human control; normative responsibility is attributed to the human actors who design, develop, and use these systems. Therefore, the study examines artificial intelligence in the context of human values and societal impacts, conducting an ethical evaluation from a socio-technical perspective. The research was conducted using a literature review method to examine the applicability of artificial intelligence while protecting human values within the framework of the concept of ethical artificial intelligence. Peer-reviewed articles, conference proceedings, academic reports, and reliable internet sources were examined. The research utilized keywords such as “artificial intelligence,” “ethics,” “ethical artificial intelligence,” “data protection,” “AI ethical regulations,” and “ethical issues.” The study included theoretical, empirical, and critical works addressing the impact of artificial intelligence on data protection, regulatory frameworks, ethical issues, and technological advancements. Works not directly related to the topic or those in languages other than Turkish and English were excluded. This study aims to synthesize theoretical approaches to the ethical artificial intelligence literature, providing a holistic assessment of current trends, fundamental problems, and future discussions.

A. *Limits of the Research*

Possible new rules that may emerge from authoritarian regulations, possible new changes to be made regarding data protection, and the changing nature of technological innovations in the field of artificial intelligence make new research on the subject important.

III. FINDINGS

Concerns about the potential loss of control in human interactions with artificial intelligence are increasing (Holzinger et al., 2019). Artificial intelligence has entered our lives with numerous ethical issues, such as privacy intrusion, human rights ethics, information ethics, and the ethics of responsibility (G. Li et al., 2019). In recent years, the ethics of artificial

intelligence have been a frequently discussed topic among academic researchers, technology companies, society, and individuals. Today, the ethical concerns brought about by artificial intelligence are being voiced loudly in many countries (Pokhariyal et al., 2024).

A. Artificial Intelligence

The Industrial Revolution, which began with the use of machines based on steam and water power, transitioned to the Industry 2.0 era with the introduction of electricity in mass production. The effective use of computers and electronic systems in automation laid the foundation for Industry 3.0. Today, the Industry 4.0 era has begun with the integration of artificial intelligence and big data technologies into production processes and daily life (Ahmed et al., 2022).

Artificial intelligence, which is based on the use of machine learning algorithms and technologies to increase the capacity of machines to apply cognitive skills and achieve goals through various automatic or semi-automatic methods, is expected to transform all human-centered areas by affecting all sectors of economic and social life to varying degrees and to be at the center of the Industry 4.0 industrial revolution (Jiang et al., 2022; Khaleel et al., 2023).

The global AI market is estimated to be \$371.71 billion in 2025 and is projected to grow at a CAGR of 30.6% from 2025 to 2032, reaching \$2,407.02 billion in 2032 (MarketsandMarkets, 2024). According to a McKinsey Global Institute Analysis report, AI is the fundamental starting point and lifeblood of value creation. It is estimated that AI creates enormous economic value, ranging from \$3.5 trillion to \$5.8 trillion annually, across 19 sectors and nine business lines in the global economy. Privacy violations, issues of fairness and equity stemming from biases, transparency and accountability in the use of complex algorithms, societal concerns, and regulations can pose risks to AI and restrict its use. Therefore, organizational challenges related to technology, processes, and people can slow or hinder AI adoption (Chui et al., 2018).

Artificial intelligence, which is used to overcome the limits of human intelligence in solving increasingly complex decision-making problems, also brings with it ethical concerns (Berente et al., 2021; Jaboo et al., 2024). Ethical problems of artificial intelligence include many issues such as lack of transparency, privacy and accountability, bias and discrimination, security and safety, crime and malicious use potential, etc. (Huang et al., 2022).

Financial information, mobile data, comments, Dropbox or cloud services, Google/Apple Siri queries, social media platforms, games, smart home equipment usage information, digital eyewear perceptions, emails, and e-books that people leave online generate vast amounts of data (Helbing, 2018). The increasing use of AI-driven technologies in all areas of life has spurred data security regulations in the European Union (Durovic & Corno, 2024). For artificial intelligence to exist, it requires a tremendous flow of information from humans. These platforms in the online environment today already provide the environment AI needs. The human-centered use of so much information raises questions. Data collected online can be used as personal information when needed, without obtaining consent or adhering to ethical values and principles. Over time, this data stored online has perfectly provided AI with the environment it needs for its emergence. This data will direct the flow of life by making general inferences in the areas where artificial intelligence will be needed.

Facial recognition technology is being used in China through cameras. This raises privacy concerns (Fan & Wu, 2024). It has been stated that AI-based surveillance systems used within the framework of public security practices in China are being used to identify and classify individuals through facial recognition technologies, and that this situation has led to debates from a human rights perspective. We are heading towards a world where people are segregated based on their ethnicity (Liyange, 2024). Correctional Offender Management Profiling for Alternative Sanctions (COMPAS) is a written case study conducted in Northpointe (Equivant) in the United States that assesses whether a defendant is likely to reoffend in the future. Data is based on information provided by defendants or obtained from criminal records. COMPAS assesses crime risk based on racial characteristics, suggesting that Black defendants are more likely to reoffend in court than White defendants (Angwin et al., 2016). Consequently, generalizations based on color and race cannot be used to draw individual conclusions.

All these examples show us that AI will act according to someone's preferences. Whose preferences will be the most important factor in AI's use? Ultimately, AI's preferences will not be objective. Dr. Stuart Jonathan from the University of California explains: "Artificial intelligence depends on uncertain human preferences. Therefore, we must deal with uncertainty about possible outcomes. Artificial intelligence is like a lottery for humans. It will either make us happy or unhappy. This is precisely where ethical issues arise. Whose value system will you assign to the machine? From the perspective of today's ideal world, this machine should be given the values or preferences of the 8 billion people living on Earth. How will these preferences ensure justice for everyone or make everyone happy?" (World Knowledge Forum, 2024). The question of what justice is, and the question of what happiness is, is a philosophical question that has been sought for thousands of years, since Plato, and Aristotle. Today, the challenges of ethical artificial intelligence are expressed as follows: transparency, privacy, inequality, security, accountability, and achieving all of this while preserving human values.

Will the economic opportunities that will emerge with artificial intelligence change the meaning of human values? Dr. Stuart Jonathan Russell comments on this topic: "There's a debate going on globally regarding driverless autonomous cars. If car accidents are reduced tenfold by autonomous cars, this will lead to very different outcomes. Insurance companies will support policies with lucrative economic value. Dr. Stuart argues that the root of many problems we will face with artificial intelligence will be priorities rooted in economic interests rather than ethical concerns. So, who could turn their backs on the economic prosperity these economic opportunities will create?" (World Knowledge Forum, 2024).

The answer to this question is already being debated in Europe. The importance of transparency in protecting individual privacy was recognized at the 31st International Conference of Data Protection and Privacy Commissioners, held in Madrid in November 2009, regarding data security (Felzmann et al., 2019). The European Union General Data Protection Regulation (GDPR), which came into force on May 25, 2018, imposes greater accountability on organizations for viewing and controlling the personal data of European Union citizens, including obligations that include potentially severe penalties (Sirur et al., 2018). Global companies' inadequate processing of personal data has led to a number of penalties for storing and storing it (Buckley et al., 2024; Chander et al., 2021; Labadie & Legner, 2023; H. Li et al., 2019). This situation hinders both short-term and long-term investments in European Union technology innovation initiatives (Blind et al., 2023; Jian et al., 2021).

The three major powers of the digital world, the US, China, and the European Union, which have influenced the development of artificial intelligence, represent three distinct governance approaches with distinct regulatory models. The US model is a market-oriented (techno-liberal) approach based on free market principles, minimizing state intervention, and focusing on protecting freedom of expression and innovation. While this model has encouraged technological development, it has been criticized for its limited role in individual security and democratic oversight. The Chinese model, on the other hand, keeps the digital economy under strict state control and exhibits a state-centric (authoritarian) approach. China uses technology both as a tool for economic growth and as a mechanism for social surveillance and political control, thus turning private companies into instruments under state control. This accelerates technological advancement while also restricting individual freedoms. The European Union model, on the other hand, falls between these extreme approaches and adopts a rights-based (human-centered) regulatory approach. The European Union, stating that the digital economy should be based on fundamental rights, privacy, and fair competition, aims to protect individuals from both the state and technology companies through strong legal regulations (GDPR). However, this protectionist approach has also drawn criticism for slowing innovation and reducing the competitiveness of technology companies. Consequently, the US prioritizes freedom and the market, China controls the state, and the EU prioritizes human rights and ethical principles, shaping the future of ethical AI (Bradford, 2023).

Studies have shown that GDPR policies create challenges for companies regarding data management, implementation costs and time, and compliance assessments (Franke et al., 2024). The European Union imposes significant fines for non-compliance with the GDPR, up to 4% of a company's global annual revenue (Bakare et al., 2024). In Europe, billions of euros worth of fines have been imposed on technology companies such as Meta Platforms, Amazon, TikTok, LinkedIn, Uber, and WhatsApp for GDPR violations, failure to comply with general data processing principles, inadequate security measures, and failure to provide information and fulfill obligations. This has led some companies in Europe to divest their investments (Data Protection Commission, 2023; Lin, 2024). The US has avoided overly aggressively regulating technology companies for fear of hindering their ability to innovate, as such a strategy could weaken the US's horizontal competition for technological superiority against China (Bradford, 2023). After the GDPR came into force, companies operating in the European Union reported that their revenues decreased by approximately 10% (Goldberg et al., 2019).

When these findings are considered together, it becomes clear that artificial intelligence is not merely a technological advancement, but also a multidimensional field of transformation shaped by economic value generation, data usage, and governance preferences. While the widespread adoption of AI creates high economic value potential, it also makes ethical issues such as data privacy, algorithmic transparency, accountability, and fairness more visible. Therefore, the adoption of AI technologies yields different results depending not only on technical capacity but also on the ethical and regulatory frameworks within which these technologies are developed.

B. The Future of Ethical Artificial Intelligence in Europe

The announcement by US President Donald Trump in January of a \$500 billion investment in private-sector AI infrastructure has intensified concerns that Europe may fall behind in the global AI race. Bosch CEO Stefan Hartung and Apheris founder Röhm stated that Europe's strictness on unnecessary and excessive regulations is jeopardizing AI's presence in Europe (Reuters, 2025; Sifted, 2023).

Global technology companies stated at the Artificial Intelligence Summit in Paris that simpler, easier-to-implement regulations are needed for AI and data (TechCrunch, 2025). These statements indicate that Europe's strict regulations could hold the continent back in the technology arena. Experts warn that unless Europe's current regulatory system is reformed and simplified, it risks falling behind the US and China in the AI race (Ars Technica, 2025).

These comparative findings demonstrate that ethical AI is shaped by different governance approaches in line with countries' economic priorities, regulatory capacities, and policy preferences. The European Union's rights-based and

strict regulatory approach enhances ethical safeguards but may partially limit the exploitation of innovation and economic opportunities. In contrast, the United States' market-oriented growth and high-value-generating goals encourage innovation and economic growth, but create a more ambiguous structure in the areas of ethical oversight and accountability. The Chinese model, while offering the advantage of rapid scaling and implementation thanks to its state-centric control mechanism, contains significant limitations in terms of individual freedoms and transparency. These findings reveal that the applicability of ethical AI depends on the balance between ethical principles and economic and political priorities.

Table 1. Applications of Artificial Intelligence and Related Ethical Issues

Use	Artificial Intelligence Applications	Ethical Issues	Risk Type	Governance Inferences
Facial recognition systems in China	Surveillance and identification	Privacy breach, human rights concerns	Individual and societal risk	State-centric control and surveillance
COMPAS (USA)	Risk assessment in criminal justice	Prejudice and discrimination	Algorithmic justice issue	The need for transparency and accountability
EU framework	GDPR Data processing and artificial intelligence systems	Data protection, accountability	Regulatory and compliance risk	A rights-based governance approach
Data-driven artificial intelligence systems	Big data analytics	Consent, misuse	Privacy and ethical data use	The need for explicit consent and regulation
Economic artificial intelligence systems	Decision-making algorithms	Value alignment, justice	Socio-economic inequality	The need for governance that requires a balance between economic value and ethical principles

Note: Table 1. Author's own elaboration

IV. DISCUSSION AND CONCLUSION

The findings show that the development of artificial intelligence is shaped not only by technological capacity but also by regulatory preferences, economic priorities, and political orientations.

The European Union's rights-based and regulatory-intensive approach ensures the strong application of ethical principles (privacy, transparency, accountability) at the institutional level. However, this model increases compliance costs and can slow down innovation processes, particularly due to comprehensive regulations such as GDPR. This situation leads global technology firms to shift their operations to more flexible regulatory environments outside of Europe, particularly the United States, and may limit Europe's progress in the field of artificial intelligence. Therefore, Europe faces the need to strike a balance between the high economic value generated by artificial intelligence and human-centered ethical principles.

In contrast, the United States' market-growth-oriented approach significantly contributes to accelerating innovation and increasing the economic value of artificial intelligence systems. Its more flexible regulatory structure encourages entrepreneurship and supports technological development. However, the more limited ethical oversight in this model creates uncertainties in areas such as data privacy, algorithmic bias, and accountability. In this context, the US model represents an approach that prioritizes innovation and treats ethical standards more flexibly.

China's state-centric governance model, on the other hand, allows for the rapid and large-scale implementation of artificial intelligence technologies thanks to its strong centralized control and data management capacity. However, when considering individual freedoms, privacy, and transparency, ethical principles can be relegated to secondary importance when evaluated alongside state priorities.

The comparative analysis presented in Table 2 reveals that these three models have different priorities. While the European Union prioritizes individual rights and ethical regulations, the United States prioritizes innovation and market dynamics, and China prioritizes state control and scalable applications. These differences demonstrate that the applicability of ethical artificial intelligence is context-dependent.

Table 2. Comparison of Artificial Intelligence Governance Approaches.

Size	European Union	United States	China
Approach	Rights-based, human-centered	Market-oriented growth, technology-liberal	State-centric, authoritarian,
Focus	Privacy, transparency, fundamental rights	Innovation, economic growth, competition	State control, security, social stability
Management Style	Strict regulatory framework (GDPR)	More flexible and sector-based	Tight control in favor of the state and centralized
Ethics	High (ethical priority approach)	Middle level (balanced with innovation)	State priority
Data Protection	Strong legal framework	Fragmented and sectoral regulations	Data ecosystem under state surveillance
Innovation Impact	May be slowed down due to regulations	Encourages rapid innovation	Widespread implementation under control
Accountability	High (legal mechanisms)	Shared among institutions and companies	In favor of the state
Strengths	Protection of individual rights, human-centered	Technological leadership and flexibility, generating high economic value	Rapid scaling and implementation, Technological leadership and flexibility, generating high economic value
Weaknesses	Regulatory burden and slow adaptation	Lack of ethical oversight	Limited individual freedom and transparency

Note: Table 1. Author's own elaboration

In light of these findings, ethical artificial intelligence is considered not an absolute and universal state, but rather a dynamic structure shaped by the interaction between governance models, economic incentives, and societal values. Therefore, the applicability of ethical artificial intelligence depends not only on the existence of normative principles, but also on the institutional and economic context in which these principles are implemented. Consequently, the applicability of ethical artificial intelligence cannot be reduced to a single governance model; it is shaped by the balance between economic incentives, regulatory frameworks, and ethical principles. The high economic value offered by artificial intelligence on a global scale may lead countries to adopt more flexible and competitive approaches, which may lead to a reassessment of ethical approaches in conjunction with economic priorities. In this context, it is considered that the understanding of ethical artificial intelligence may be reshaped over time depending on the priorities and interests of different states. Therefore, ethical artificial intelligence should be considered not as a fixed model, but as a structure that can change and evolve according to context. Future research should examine in more detail how ethical artificial intelligence is shaped within the framework of different governance models and economic dynamics.

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REFERENCES

- Adams, C., Pente, P., Lemermeier, G., & Rockwell, G. (2023). *Ethical principles for artificial intelligence in K-12 education. Computers and Education: Artificial Intelligence*, 4, Article 100131. <https://doi.org/10.1016/j.caeai.2023.100131>
- Ahmed, I., Jeon, G., & Piccialli, F. (2022). *From artificial intelligence to explainable artificial intelligence in Industry 4.0: A survey on what, how, and where. IEEE Transactions on Industrial Informatics*, 18(8), 5031–5042. <https://doi.org/10.1109/TII.2022.3146552>
- Angwin, J., Larson, J., Mattu, S., & Kirchner, L. (2016, May 23). *Machine bias: There's software used across the country to predict future criminals. And it's biased against Blacks.* ProPublica.

- <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing>
- Ars Technica. (2025, May 15). *Meta is making users who opted out of AI training opt out again, watchdog says*. <https://arstechnica.com/tech-policy/2025/05/meta-is-making-users-who-opted-out-of-ai-training-opt-out-again-watchdog-says/>
- Bakare, S. S., Adeniyi, A. O., Akpuokwe, C. U., & Eneh, N. E. (2024). *Data privacy laws and compliance: A comparative review of the EU GDPR and USA regulations*. *Computer Science & IT Research Journal*, 5(3), 528–543. <https://doi.org/10.51594/csitrj.v5i3.859>
- Berente, N., Gu, B., Recker, J., & Santhanam, R. (2021). *Managing artificial intelligence*. *MIS Quarterly*, 45(3), 1433–1450. <https://doi.org/10.25300/MISQ/2021/16274>
- Blind, K., Niebel, C., & Rammer, C. (2023). *The impact of the EU general data protection regulation on product innovation*. *Industry and Innovation*, 31(3), 311–351. <https://doi.org/10.1080/13662716.2023.2271858>
- Bradford, A. (2023). *Digital empires: The global battle to regulate technology*. Oxford University Press.
- Brendel, A. B., Mirbabaie, M., Lembcke, T.-B., & Hofeditz, L. (2021). *Ethical management of artificial intelligence*. *Sustainability*, 13(4), Article 1974. <https://doi.org/10.3390/su13041974>
- Buckley, G., Caulfield, T., & Becker, I. (2024). *GDPR and the indefinable effectiveness of privacy regulators: Can performance assessment be improved?* *Journal of Cybersecurity*, 10(1), Article tyae017. <https://doi.org/10.1093/cybsec/tyae017>
- Chander, A., Abraham, M., Chandy, S., Fang, Y., Park, D., & Yu, I. (2021). *Achieving privacy: Costs of compliance and enforcement of data protection regulation* (Policy Research Working Paper No. 9594). World Bank. <https://doi.org/10.1596/1813-9450-9594>
- Chui, M., Manyika, J., Miremadi, M., Henke, N., Chung, R., Nel, P., & Malhotra, S. (2018). *Notes from the AI frontier: Insights from hundreds of use cases*. McKinsey Global Institute. <https://www.mckinsey.com/featured-insights/artificial-intelligence/notes-from-the-ai-frontier-applications-and-value-of-deep-learning>
- Data Protection Commission. (2023, May 22). *Data Protection Commission announces conclusion of two inquiries into Meta Ireland*. <https://dataprotection.ie/en/news-media/data-protection-commission-announces-conclusion-two-inquiries-meta-ireland>
- Díaz, G. M., Hernández, J. J. G., & Salvador, J. L. G. (2024). *Explainable artificial intelligence (XAI) and ethical decision-making in business*. In *Smart ethics in the digital world: Proceedings of the ETHICOMP 2024: 21st International Conference on the Ethical and Social Impacts of ICT* (pp. 19–22). Universidad de La Rioja.
- Dignum, V. (2019). *Responsible artificial intelligence: How to develop and use AI in a responsible way*. Springer. <https://doi.org/10.1007/978-3-030-30371-6>
- Durovic, M., & Corno, T. (2024). *The privacy of emotions: From the GDPR to the AI Act, an overview of emotional AI regulation and the protection of privacy and personal data*. In M. Corrales, M. Fenwick, & N. Forgó (Eds.), *Privacy, data protection and data-driven technologies* (pp. 368–404). Routledge. <https://doi.org/10.4324/9781003502791-18>
- Epstein, R., Roberts, G., & Beber, G. (Eds.). (2009). *Parsing the Turing test*. Springer. <https://doi.org/10.1007/978-1-4020-6710-5>
- Fan, Z., & Wu, J. (2024). *Fear of nothing to hide? How do Chinese people feel about privacy when facing facial recognition cameras?* *Asia Pacific Journal of Public Administration*, 46(4), 447–470. <https://doi.org/10.1080/23276665.2024.2400258>
- Felzmann, H., Fosch-Villaronga, E., Lutz, C., & Tamò-Larrieux, A. (2019). *Transparency you can trust: Transparency requirements for artificial intelligence between legal norms and contextual concerns*. *Big Data & Society*, 6(1), Article 2053951719860542. <https://doi.org/10.1177/2053951719860542>
- Felzmann, H., Fosch-Villaronga, E., Lutz, C., & Tamò-Larrieux, A. (2020). *Towards transparency by design for artificial intelligence*. *Science and Engineering Ethics*, 26(6), 3333–3361. <https://doi.org/10.1007/s11948-020-00276-4>
- Franke, L., Liang, H., Farzanehpour, S., Brantly, A., Davis, J. C., & Brown, C. (2024). *An exploratory mixed-methods study on general data protection regulation (GDPR) compliance in open-source software*. In *Proceedings of the 18th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement* (pp. 325–336). <https://doi.org/10.1145/3674805.3686692>
- Goldberg, S., Johnson, G., & Shriver, S. (2019). *Regulating privacy online: The early impact of the GDPR on European web traffic & e-commerce outcomes* (SSRN Scholarly Paper No. 3421731). Social Science Research Network. <https://doi.org/10.2139/ssrn.3421731>
- Hanna, M. G., Pantanowitz, L., Jackson, B., Palmer, O., Visweswaran, S., Pantanowitz, J., Deebajah, M., & Rashidi, H. H. (2025). *Ethical and bias considerations in artificial intelligence/machine learning*. *Modern Pathology*, 38(3), Article 100686. <https://doi.org/10.1016/j.modpat.2024.100686>
- Helbing, D. (2018). *Societal, economic, ethical and legal challenges of the digital revolution: From big data to deep learning, artificial intelligence, and manipulative technologies*. In D. Helbing (Ed.), *Towards digital enlightenment* (pp. 47–72). Springer. https://doi.org/10.1007/978-3-319-90869-4_6
- Hoerber, T., Weber, G., & Cabras, I. (Eds.). (2022). *The Routledge handbook of European integrations*. Routledge. <https://doi.org/10.4324/9780429262081>
- Holzinger, A., Langs, G., Denk, H., Zatloukal, K., & Müller, H. (2019). *Causability and explainability of artificial intelligence*

- in medicine. *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*, 9(4), e1312. <https://doi.org/10.1002/widm.1312>
- Huang, C., Zhang, Z., Mao, B., & Yao, X. (2022). An overview of artificial intelligence ethics. *IEEE Transactions on Artificial Intelligence*, 4(4), 799–819. <https://doi.org/10.1109/TAI.2022.3194503>
- Jaboob, A., Durrah, O., & Chakir, A. (2024). Artificial intelligence: An overview. In *Engineering applications of artificial intelligence* (pp. 3–22). Springer. https://doi.org/10.1007/978-3-031-50300-9_1
- Jian, J., Jin, G. Z., & Wagman, L. (2021). The persisting effects of the EU General Data Protection Regulation on technology venture investment. *The Antitrust Source*, 1–6.
- Jiang, Y., Li, X., Luo, H., Yin, S., & Kaynak, O. (2022). Quo vadis artificial intelligence? *Discover Artificial Intelligence*, 2(1), Article 4. <https://doi.org/10.1007/s44163-022-00022-8>
- Karaman, F., & Eyüpoğlu, C. (2026). Çeşitli alanlarda yapay zeka etiği: Bir inceleme. *İstanbul Ticaret Üniversitesi Teknoloji ve Uygulamalı Bilimler Dergisi*, 8(2), 87–104. <https://doi.org/10.56809/icujtas.1730136>
- Kaur, D., Uslu, S., Rittichier, K. J., & Duresi, A. (2022). Trustworthy artificial intelligence: A review. *ACM Computing Surveys*, 55(2), 1–38. <https://doi.org/10.1145/3491209>
- Khaleel, M., Ahmed, A. A., & Alsharif, A. (2023). Artificial intelligence in engineering. *Brilliance: Research of Artificial Intelligence*, 3(1), 32–42. <https://doi.org/10.47709/brilliance.v3i1.2170>
- Korteling, J. E., van de Boer-Visschedijk, G. C., Blankendaal, R. A., Boonekamp, R. C., & Eikelboom, A. R. (2021). Human-versus artificial intelligence. *Frontiers in Artificial Intelligence*, 4, Article 622364. <https://doi.org/10.3389/frai.2021.622364>
- Labadie, C., & Legner, C. (2023). Building data management capabilities to address data protection regulations: Learnings from EU-GDPR. *Journal of Information Technology*, 38(1), 16–44. <https://doi.org/10.1177/02683962221141456>
- Li, G., Deng, X., Gao, Z., & Chen, F. (2019). Analysis on ethical problems of artificial intelligence technology. In *Proceedings of the 2019 International Conference on Modern Educational Technology* (pp. 101–105). <https://doi.org/10.1145/3341042.3341057>
- Li, H., Yu, L., & He, W. (2019). The impact of GDPR on global technology development. *Journal of Global Information Technology Management*, 22(1), 1–6. <https://doi.org/10.1080/1097198X.2019.1569186>
- Lin, Y. (2024). More than an enforcement problem: The General Data Protection Regulation, legal fragmentation, and transnational data governance. *Columbia Journal of Transnational Law*, 62(1), 1–39.
- Liyanage, C. (2024). Tyranny of City Brain: How China implements artificial intelligence to upgrade its repressive surveillance regime. *Journal of Illiberalism Studies*, 4(3), 73–97. <https://doi.org/10.53483/XCQW3581>
- Losey, R. (2024, August 12). Artificial General Intelligence, if attained, will be the greatest invention of all time. EDRM. <https://edrm.net/2024/08/artificial-general-intelligence-if-attained-will-be-the-greatest-invention-of-all-time/>
- Maral, T. (2024). Sosyal bilimlerin kesişim noktası: Yapay zekâ ve etik. *Ankara Uluslararası Sosyal Bilimler Dergisi, Yapay Zekâ ve Sosyal Bilimler Öğretimi*, 17–33. <https://izlik.org/JA97NY72UT>
- MarketsandMarkets. (2024). Artificial intelligence market. Retrieved October 16, 2025, from <https://www.marketsandmarkets.com/Market-Reports/artificial-intelligence-market-74851580.html>
- Mitrou, L. (2018). Data protection, artificial intelligence and cognitive services: Is the General Data Protection Regulation (GDPR) “artificial intelligence-proof”? (SSRN Scholarly Paper No. 3386914). Social Science Research Network. <https://ssrn.com/abstract=3386914>
- Pokhariyal, P., Patel, A., & Pandey, S. (Eds.). (2024). *AI and emerging technologies: Automated decision-making, digital forensics, and ethical considerations*. CRC Press. <https://doi.org/10.1201/9781003501152>
- Reuters. (2025, June 25). Bosch CEO warns Europe against regulating itself to death on AI. <https://www.reuters.com/technology/bosch-ceo-warns-europe-against-regulating-itself-death-ai-2025-06-25>
- Safdar, N. M., Banja, J. D., & Meltzer, C. C. (2020). Ethical considerations in artificial intelligence. *European Journal of Radiology*, 122, 108768. <https://doi.org/10.1016/j.ejrad.2019.108768>
- Sifted. (2023, December 6). EU AI Act: What startups need to know. Retrieved October 16, 2025, from <https://sifted.eu/articles/eu-ai-act-regulation-startups>
- Sirur, S., Nurse, J. R., & Webb, H. (2018). Are we there yet? Understanding the challenges faced in complying with the General Data Protection Regulation (GDPR). In *Proceedings of the 2nd International Workshop on Multimedia Privacy and Security* (pp. 88–95). <https://doi.org/10.1145/3267357.3267368>
- Stix, C. (2022). Artificial intelligence by any other name: A brief history of the conceptualization of “trustworthy artificial intelligence.” *Discover Artificial Intelligence*, 2(1), Article 26. <https://doi.org/10.1007/s44163-022-00041-5>
- TechCrunch. (2025, February 10). Tech giants and startups join forces to call for simpler EU rules on AI, data. <https://techcrunch.com/2025/02/10/tech-giants-and-startups-join-forces-to-call-for-simpler-eu-rules-on-ai-data/>
- The Economic Times. (2023, March 19). How AI could upend the world even more than electricity or the internet. <https://economictimes.indiatimes.com/tech/technology/how-ai-could-upend-the-world-even-more-than-electricity-or-the-internet/articleshow/98767621.cms>
- Turan, T., Turan, G., & Küçüksille, E. (2022). Yapay zekâ etiği: Toplum üzerine etkisi. *Mehmet Akif Ersoy Üniversitesi Fen Bilimleri Enstitüsü Dergisi*, 13(2), 292–299. <https://doi.org/10.29048/makufebd.1058538>

- Ulnicane, I. (2022). Artificial intelligence in the European Union: Policy, ethics and regulation. In T. Hoerber, G. Weber, & I. Cabras (Eds.), *The Routledge handbook of European integrations* (pp. 250–264). Routledge. <https://doi.org/10.4324/9780429262081-19>
- Wei, J. (2012). *Great inventions that changed the world*. John Wiley & Sons.
- World Knowledge Forum. (2024). *The ethics of AI* [Video]. YouTube. <https://www.youtube.com/watch?v=KiT0T12Yyno>
- Yenne, B. (2023). *100 inventions that shaped world history*. Sourcebooks.
- Zafar, M. (2025). Normativity and AI moral agency. *AI and Ethics*, 5(3), 2605–2622.