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Implementation of artificial intelligence in civil proceedings: Experience of EU countries

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■ **Abstract.** The rapid development of artificial intelligence technologies makes legal adaptation essential, which is crucial for civil law systems where codified principles require clarity and precision. The purpose of this study was to assess the effectiveness of the current legal mechanisms that provide the basis for the application of artificial intelligence within the framework of EU civil legislation. The study was conducted using doctrinal and empirical methodology, and reviewed legislative acts, court precedents, and academic discourse on the regulation of artificial intelligence. The study critically analysed the regulatory limits of the use of artificial intelligence in civil court proceedings in EU Member States. Attention was focused on legislative initiatives such as the Artificial Intelligence Act. The study examined the principles of civil law (good faith, proportionality, and legal certainty) integrated into the regulation of artificial intelligence, which helped to determine whether current practices are consistent with fundamental rights and the rule of law. A comparative analysis of the strategies for introducing artificial intelligence in Germany, Estonia, and Spain helped to identify distinct, but complementary approaches. This demonstrated the ability of civil law systems to adapt to the latest technologies. The study also found that, despite great strides, certain problems in the field of legal regulation continue to be unresolved, including the combination of conventional liability models with autonomous decision-making by artificial intelligence and provision of uniform application of rules in different jurisdictions. The study offered practical recommendations for improving the civil law framework for the use of artificial intelligence, which may be useful for legislators, lawyers, and artificial intelligence developers

■ **Keywords:** civil law; civil proceedings; stages of civil proceedings; participants in the trial; court decisions; appeal; technology in law

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Introduction

Artificial intelligence (AI) has become a powerful transformative force affecting various aspects of society, including legal systems (Van Noordt & Misuraca, 2022). Within the European Union (EU), the integration of AI technologies into civil proceedings creates unique opportunities and challenges. Common law legal systems rely heavily on judicial precedents. In contrast, civil law systems favour codified statutes and principles, which are the main elements of judicial decision-making. This difference substantially affects the way AI is implemented and regulated in continental law systems, especially in areas such as procedural automation, evidence evaluation, and judicial reasoning. According to O. Turuta & O. Turuta (2022), the integration of AI into public life requires a thorough understanding of its implications, particularly in jurisdictions with dynamic technological developments. The global expansion of AI technologies has intensified the debate on their regulation and liability. In the absence of harmonised regulatory frameworks, individual countries are pursuing diverse strategies. The EU has taken a leading role in addressing these issues by developing the AI Act (AIA). This initiative classifies AI systems based on risk levels, creating a framework for proportionate supervision and enforcement. As J. Chamberlain (2022) noted, the AIA's risk-based approach demonstrates the EU's commitment to protecting the public interest while fostering innovation.

The issue of liability for harm caused by AI has become one of the central issues in the legal discourse. B. Schütte *et al.* (2021) emphasised that the dynamic nature of AI and its unpredictability pose challenges to conventional liability systems. These challenges are exacerbated by the cross-border nature of AI, which requires international coordination to resolve jurisdictional conflicts. In this regard, M. Poesen (2023) highlighted the significance of private international law in resolving AI-related disputes, emphasising the need for a single legal framework that transcends national borders.

Civil law emphasises the need for comprehensive and adaptive legal frameworks that provide individuals with access to justice and protection from unfair practices, especially in procedural law. V. Turkanova (2023) investigated whether the implementation of AI is consistent with the concepts of civil law. It was emphasised that the potential of AI to affect legal justice, especially in the judicial sphere, necessitates legal provisions that protect the rights of individuals and ensure the correct application of justice involving AI. The civil law framework prioritises the significance of access to justice and effective protection, prompting valuable investigations into the potential of AI to promote or impede these rights.

The liability issues of AI systems in specific industries are also attracting considerable attention. D. Rimkutė (2024) analysed the use of AI in medicine, specifically its diagnostic functions, identifying gaps in the relevant mechanisms. S. Sormunen & K. Havu (2023) investigated cases of harm caused by intelligent medical devices and called for a balanced approach that ensures user trust while addressing liability issues. U. Pagallo *et al.* (2022) addressed the high energy consumption of AI and highlighted the need to integrate sustainability principles into regulations, specifically to reduce environmental effects. These studies highlight the value of sector-specific regulations that factor in the specifics of AI. Within civil law, gaps in liability mechanisms point to the need for detailed legal provisions. They should protect individual rights and ensure that technological advances do not undermine those rights. D. Chiappini (2022) analysed civil liability in the context of AI, highlighting the persistence of gaps despite the EU's efforts to create a comprehensive legal framework.

Thus, the significance of the study lies in addressing the issues of oversight and accountability in the deployment of AI in the European Union. It is vital for the EU to consider multifaceted legal, moral, and technical factors. This will enable a thorough and flexible legal framework that respects the principles of civil law. In contrast to jurisdictions that focus on legal precedents, civil law systems emphasise strict statutes and encompass detailed rules. The European Union, acting under civil law systems, must manage these legal constructs wisely to ensure that AI rules comply with the doctrines of certainty, adequacy, and fairness.

The purpose of this study was to assess the effectiveness of current legal mechanisms and develop recommendations for their improvement. The key objectives of the study were to analyse the state of regulation and liability for the use of AI in the EU, identify its advantages and disadvantages in the context of civil law doctrines such as tort liability, contractual liability, and non-contractual obligations; to assess the effectiveness of the AIA approach[1] in addressing the problems caused by AI; to explore the practices of other jurisdictions, particularly those operating within the civil law tradition, to improve the EU legal system.

Materials and Methods

The study analysed the legal framework for the implementation of AI in strategic areas for the European Union. The methodology involved a combination

[1] Regulation of the European Parliament and of the Council No. 2024/1689 "On Harmonised Rules for Artificial Intelligence (AI Act)". (2024, July). Retrieved from https://eur-lex.europa.eu/eli/reg/2024/1689/oj.

of doctrinal and empirical approaches. The doctrinal approach included a comprehensive study of legislative acts, policy documents, and scientific literature related to AI regulation within the EU. The focus was on understanding the civil law traditions. In these traditions, legal norms are largely codified and statutory. Civil law systems typically emphasise the role of comprehensive, detailed statutes and regulations. This makes the study of these documents particularly significant in the EU context. Key legal documents, such as the proposed AI Act[1], the General Data Protection Regulation (GDPR)[2] and related directives, were examined to assess their impact on the governance of AI technologies.

The empirical part of the study included a comparative analysis of AI implementation in three EU member states: Germany, Estonia, and Spain. These countries were chosen for their distinct approaches to AI regulation and integration, reflecting the diversity of legal traditions within the EU. Germany, with its advanced industrial applications of AI, is a key example of a civil law jurisdiction. In this jurisdiction, regulation is highly structured and codified. Estonia's innovative e-government systems highlight the progressive integration of AI within civil law. Spain's focus on the ethical aspects of AI implementation provides insight into the balance between regulation and civil rights protection. The choice of these jurisdictions is particularly significant in the context of civil law, as national legal traditions often play a key role in shaping the interpretation and application of EU regulation. The criteria for selecting the countries were as follows: the existence of national AI development strategies, active participation in AI regulatory initiatives within the EU, and the availability of data on their legal boundaries. These criteria ensure that a variety of legal systems and regulatory approaches are included. They are all based on civil law principles, where legal clarity and systematic legislation are essential. The method of comparative legal analysis helped to identify both similarities and differences in the application of civil law principles in different EU countries. This approach was significant for identifying the interaction between the common European regulation and national legal frameworks.

The data collection process was conducted in two stages. The first stage involved collecting secondary data from legal databases (AI Act[3], GDPR[4], German National Strategy[5], Estonian National Strategy[6], Spanish National Strategy[7]) published between 2019 and 2024. These sources became the basis for understanding the evolution of AI regulation within the civil law tradition. At the second stage, the study analysed concrete cases from legal practice from the selected countries. This helped to identify trends and specific features of AI implementation, with a particular focus on liability, transparency, and human rights protection. This stage emphasises the role of civil law in providing legal certainty and predictable outcomes, which are critical elements of AI regulation. Qualitative content analysis was employed to analyse the data.

The assessment of AI compliance with the Principles of the Organisation for Economic Co-operation and Development (OECD, 2025) and the GDPR was based on the analysis of reports of independent audit companies that assess the level of compliance with transparency, responsibility, and data protection standards. The sources of information included official Statista (2025) report, national AI strategies, and audits conducted by relevant public and private bodies. AI compliance with GDPR requirements was assessed based on the following criteria: the obligation to obtain consent to data processing, anonymisation of personal data, the ability of users to access their data, and mechanisms to ensure transparency of algorithms.

Results

Legal framework and regulatory challenges. An analysis of EU legislation and regulations reveals a dynamic legal environment for AI regulation that is in line with the basic principles of civil law: legal certainty, fairness, and protection of rights. As of 2024, the key components of the EU legal framework in this

[1] Regulation of the European Parliament and of the Council No. 2024/1689 "On Harmonised Rules for Artificial Intelligence (AI Act)". (2024, July). Retrieved from https://eur-lex.europa.eu/eli/reg/2024/1689/oj.
[2] Regulation of the European Parliament and of the Council No. 2016/679 "On the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data (General Data Protection Regulation)". (2016, April). Retrieved from https://eur-lex.europa.eu/eli/reg/2016/679/oj.
[3] Artificial Intelligence Act of EU. (2024, June). Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1689.
[4] Regulation of the European Parliament and of the Council No. 2016/679 "On the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data (General Data Protection Regulation)". (2016, April). Retrieved from https://eur-lex.europa.eu/eli/reg/2016/679/oj.
[5] Artificial Intelligence Strategy of the Federal Government of Germany. (2018, November). Retrieved from https://www.bundesregierung.de/resource/blob/997532/1550276/3f7d3c41c6e05695741273e78b8039f2/2018-11-15-ki-strategie-data.pdf.
[6] National Artificial Intelligence Strategy 2019-2021 of Estonia. (2019, July). Retrieved from https://f98cc689-5814-47ec-86b3-db505a7c3978.filesusr.com/ugd/7df26f_27a618cb80a648c38be427194affa2f3.pdf.
[7] Artificial Intelligence Strategy of Spain. (2024, May). Retrieved from https://digital.gob.es/dam/en/portalmtdfp/DigitalizacionIA/1_DOSSIER_AI_ENGLISH_15_JULIO.pdf.

area were the AI Act[1], GDPR[2] , and various sectoral directives covering data privacy, liability and ethics. The AI Act, proposed by the European Commission in 2021, is a key piece of AI regulation within the EU. This law is based on a risk-based approach. This reflects the civil law tradition of classifying legal relations and obligations according to their nature and impact. For example, it identifies different levels of risk that AI systems may pose to fundamental rights and freedoms. AI systems classified as high-risk are subject to stricter requirements, including transparency, accountability, and human oversight. In civil law systems, this approach is consistent with the principle of proportionality, which ensures that regulation is not overly burdensome while providing the necessary protections for individuals. By establishing stricter regulatory oversight of high-risk sectors, the AI Act supports the civil law doctrine of public order and individual rights by establishing clear legal standards.

The implementation of the AI Act[3] in the three countries shows that the regulatory burden on high-risk sectors is considerably greater. This applies to areas such as healthcare, transport, and justice compared to low-risk applications. In Germany, the regulatory framework for AI has a solid foundation based on civil law principles such as certainty and foreseeability. This is evident in the comprehensive national AI strategy[4], that is in line with EU regulations. This strategy aims to balance innovation with accountability and security, ensuring that the introduction of AI does not violate individual rights. Germany's focus on industrial AI reflects the civil law emphasis on structured legal principles that guide the use of technology in commercial sectors (Schütte *et al.*, 2021).

Estonia demonstrates a different approach, as the country has a broader regulatory environment and a tradition of digital innovation and e-government. The national strategy[5] for the development of transparency in government processes and innovation in the public sector is indeed effective. However, it poses major challenges in combining digital innovation with existing legal frameworks. These challenges mirror civil law issues of legal adaptation and reform, particularly the tension between the latest technological developments and the preservation of basic legal principles.

Spain also faces analogous challenges as it focuses on the ethical aspects of AI[6]. The focus on ethics in AI governance demonstrates the significance of ensuring that the use of AI in civil proceedings follows civil law's requirements for justice and fairness. The integration of AI into the legal system should not be based on technical standards, but rather on civil law principles, including equality, confidentiality, and respect for human dignity. Spain's regulatory approach emphasises the changing role of AI in shaping civil law practice and the need for constant adjustments to overcome new ethical challenges.

AI in Germany: Regulatory impact and industrial applications. An analysis of the implementation of AI in Germany within the framework of its National AI Strategy reveals a complex regulatory structure. This framework harmonises innovation with civil law principles, specifically regarding liability, transparency, and privacy protection. From a civil law perspective, the alignment with the draft EU Artificial Intelligence Act[7] emphasises the significance of protecting the rights of individuals. Compliance with the GDPR[8] also underscores the obligation to protect these rights in AI environments. Germany's approach prioritises striking a balance between promoting technological advances and respecting fundamental rights. This ensures that the use of AI does not violate citizens' privacy or create unnecessary security risks. In the context of civil law, the regulatory compliance observed in Germany also reflects concerns about liability issues arising from the introduction of AI systems, with particular attention paid to high-risk applications such as those related to manufacturing and autonomous vehicles. This highlights the need for robust liability mechanisms to address

[1] Artificial Intelligence Act of EU. (2024, June). Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1689.

[2] Regulation of the European Parliament and of the Council No. 2016/679 "On the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data (General Data Protection Regulation)". (2016, April). Retrieved from https://eur-lex.europa.eu/eli/reg/2016/679/oj.

[3] Artificial Intelligence Act of EU. (2024, June). Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1689.

[4] Artificial Intelligence Strategy of the Federal Government of Germany. (2018, November). Retrieved from https://www.bundesregierung.de/resource/blob/997532/1550276/3f7d3c41c6e05695741273e78b8039f2/2018-11-15-ki-strategie-data.pdf.

[5] National Artificial Intelligence Strategy 2019-2021 of Estonia. (2019, July). Retrieved from https://f98cc689-5814-47ec-86b3-db505a7c3978.filesusr.com/ugd/7df26f_27a618cb80a648c38be427194affa2f3.pdf.

[6] Artificial Intelligence Strategy of Spain. (2024, May). Retrieved from https://digital.gob.es/dam/en/portalmtdfp/DigitalizacionIA/1_DOSSIER_AI_ENGLISH_15_JULIO.pdf.

[7] Artificial Intelligence Act of EU. (2024, June). Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1689.

[8] Regulation of the European Parliament and of the Council No. 2016/679 "On the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data (General Data Protection Regulation)". (2016, April). Retrieved from https://eur-lex.europa.eu/eli/reg/2016/679/oj.

potential harm caused by AI. Civil law principles on liability for damages are key, as Germany needs to ensure that its regulatory mechanisms offer a clear pathway for redress (Studzińska, 2024).

AI systems pose potential risks to society and individuals due to their ability to cause harm. AI technologies, such as autonomous vehicles and production systems, can lead to injuries or technical failures, especially in critical infrastructure. AIs that process personal data (e.g., in healthcare and finance) may breach privacy, leading to harm, including in the case of misuse of medical data or financial fraud. The integration of AI into civil proceedings in the EU has been accompanied by both significant achievements and substantial challenges. Despite AI's potential to increase efficiency and objectivity in civil decision-making, its implementation raises serious concerns about GDPR compliance (van Quathem, 2023). This is especially true for sectors that process sensitive information, such as healthcare and finance.

The use of AI systems in the healthcare sector is becoming more widespread, particularly in predictive analytics and patient profiling. However, several precedents have revealed non-compliance with GDPR requirements. Predictive medicine without explicit patient consent: In January 2023, Italy's data protection supervisory authority (Garante) fined three hospitals EUR 55,000 each for illegally using AI systems to classify patients based on their health status without obtaining specific and informed consent. According to Article 9(2)(h) of the GDPR, the processing of health data for predictive purposes requires special consent as it falls outside the scope of ordinary healthcare activities. In 2017, the collaboration between Google DeepMind and the Royal Free London NHS Foundation Trust involved the processing of personal data of about 1.6 million patients without proper transparency. The UK's Information Commissioner's Office (ICO) found that the Streams programme, designed to detect acute kidney failure, violated the 1998 Act[1] by failing to inform patients about the use of their data (Gerke *et al.*, 2020).

In the financial sector, the use of AI technologies has also attracted the attention of regulators due to potential violations of the GDPR. Face recognition and biometric data protection: Clearview AI, a company specialising in facial recognition technology, has been fined numerous times in EU countries for illegal collection of biometric data. In 2022, the French data protection authority (CNIL) fined Clearview AI EUR 20 million for failing to follow consent requirements and lack of transparency in the use of personal data (Zertia AI, 2025). In 2021, the Italian data protection authority (Garante) fined Foodinho and Deliveroo EUR 2.6 million and EUR 2.9 million, respectively. The violations were related to the use of AI algorithms to manage courier schedules and routing without properly informing employees. The lack of transparency of the algorithms and the absence of human control were found to be contrary to the GDPR (van Quathem 2023).

These cases highlight the significance of following the GDPR when implementing AI systems in civil proceedings. The key conditions are obtaining clear and informed consent, ensuring transparency of data processing processes, and implementing reliable measures to protect personal information. As the use of AI in civil proceedings continues to expand, the legal framework must adapt to the new challenges posed by technological advances. It is vital to strike a balance between innovation and the protection of fundamental rights under EU law to guarantee fairness, transparency, and legal certainty in the digital age.

The AI Act[2] requires certain security standards for high-risk systems (healthcare, transport). Autonomous vehicles do not undergo proper safety checks, which leads to accidents. In industry, AI can be vulnerable to hacking, which threatens security. The Organisation for Economic Cooperation and Development has formulated principles that promote the transparent, accountable, and non-discriminatory deployment of artificial intelligence (AI) systems. These principles stipulate that developers and users of AI should ensure transparency and responsible disclosure of information about the operation of such systems. This includes providing meaningful information to facilitate common understanding and the ability to challenge AI-driven decisions (OECD, 2025). Despite the existence of such ethical standards, there have been cases in the public sector where the use of AI has contradicted these principles, with severe social consequences.

Violations in the public sector. The Dutch government introduced the Systemic Risk Indicator (SyRI) to detect fraud in the social security sector. The system operated by integrating data from various government databases. However, it disproportionately focused on low-income areas, leading to potential discrimination against individuals based on socioeconomic and migrant status. In 2020, a Dutch court ruled that SyRI's activities violated the right to privacy and did not provide adequate transparency, which led to its suspension (Committee on Equality and Non-Discrimination, 2020; DailyAI, 2023).

In Australia, an automated debt recovery system known as Robodebt was introduced. Its purpose was

[1] Data Protection Act of United Kingdom. (1998, July). Retrieved from https://www.legislation.gov.uk/ukpga/1998/29/introduction.
[2] Artificial Intelligence Act of EU. (2024, June). Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1689.

to identify overpayments by comparing the income of welfare recipients with tax data. At the same time, the system often generated false reports of arrears, which caused major financial and psychological pressure on citizens. The lack of adequate human oversight and transparency led to a large-scale class action lawsuit, which resulted in the government paying compensation of AUD 1.8 billion in 2021 (Committee on Equality and Non-Discrimination, 2020; DailyAI, 2023; Smith & Johnson, 2023).

The above examples highlight the need for strict oversight, increased transparency, and systematic testing of artificial intelligence algorithms. Adherence to the principles established by the OECD is critical to ensure that AI is used fairly and ethically for the benefit of all of society (Zyhrii *et al.*, 2023). EU guidelines require that AI systems be comprehensible (European Commission, 2019). Disruption: AI in the public sector can violate transparency standards if users do not understand how a decision was made. In healthcare – if AI does not explain the reasons for its recommendations. The European Union's AI regulatory framework emphasises the need to ensure transparency and understandability of AI systems, especially in the public sector. Transparency is critical for users to be able to understand the decision-making processes behind the results generated by AI. This requirement is reflected in the EU Artificial Intelligence Act[1] and the GDPR[2], which both emphasise the need for explanations as a tool to increase trust in AI systems.

In the healthcare sector, AI systems used for diagnosis or treatment recommendations face substantial challenges in terms of transparency. A striking example is the use of IBM Watson in oncology. This system was created to help doctors make decisions about cancer treatment by analysing medical records and clinical trials. However, Watson's recommendations have often been criticised for their lack of transparency in substantiating their conclusions. Despite widespread adoption in leading hospitals, many clinicians have found it troublesome to interpret the system's causal explanations, which has violated expectations of transparency in the use of AI in healthcare (Dolfing, 2024).

In governmental AI applications used for decision-making in areas such as social welfare or law enforcement, there are also serious concerns about transparency. For example, cities such as Los Angeles have implemented predictive policing systems, such as PredPol, to predict likely areas of criminal activity. However, these systems have been criticised for operating as black boxes where even users, including law enforcement, do not have a full understanding of the algorithms driving the predictions. The lack of transparent explanations in such systems has undermined public trust and raised ethical doubts about the fairness and accountability of decisions (IGNESA, 2025).

Article 34 of the AI Act[3] (2024) states that AI systems used in the public sector must conform to transparency and accountability requirements, which ensures that citizens can understand the decision-making process based on AI technologies. However, this provision does not account for the rapid technological advances and complexities associated with modern AI applications, particularly in the context of machine and deep learning systems. Such systems often function as black boxes, complicating the explanation of their solutions in a simplified and accessible way. For example, the German Strategy[4] focuses on the application of AI technologies in areas such as healthcare and transport. However, this strategy does not contain clear guidelines for ensuring transparency for high-risk AI systems, as set out in the AI Act. This creates substantial gaps in how to inform the public about complex AI systems. Specifically, the lack of provisions for the dynamic nature of algorithms that change over time through learning processes is a major shortcoming. This gap in the strategy creates a gap between national regulations and EU standards. On the other hand, the AI Act stipulates that artificial intelligence systems classified as high-risk should be made clear and subject to regular inspections to ensure transparency. However, this law leaves some uncertainty as to the practical application of these requirements, particularly regarding the continuously learning models and how they can be regulated in their development. The absence of clear definitions and guidance on these technologies indicates a serious gap in current EU legislation.

Article 19 of the GDPR[5] establishes the requirement to inform individuals about the use of artificial intelligence systems for the processing of personal

[1] Artificial Intelligence Act of EU. (2024, June). Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1689.

[2] Regulation of the European Parliament and of the Council No. 2016/679 "On the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data (General Data Protection Regulation)". (2016, April). Retrieved from https://eur-lex.europa.eu/eli/reg/2016/679/oj.

[3] Artificial Intelligence Act of EU. (2024, June). Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1689.

[4] Artificial Intelligence Strategy of the Federal Government of Germany. (2018, November). Retrieved from https://www.bundesregierung.de/resource/blob/997532/1550276/3f7d3c41c6e05695741273e78b8039f2/2018-11-15-ki-strategie-data.pdf.

[5] Regulation of the European Parliament and of the Council No. 2016/679 "On the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data (General Data Protection Regulation)". (2016, April). Retrieved from https://eur-lex.europa.eu/eli/reg/2016/679/oj.

data, as well as the right to receive an explanation of decisions made by automated systems. While the GDPR ensures transparency, its provisions are somewhat unclear, particularly as to how AI systems using machine learning should explain decisions based on dynamic data sets or algorithms. The Polish Act on the Protection of Personal Data[1] contains limited transparency regulation in the context of AI decision-making. It stipulates an obligation to inform citizens about automated decisions based on personal data but does not explain how machine learning models that are constantly adapting based on new data should be explained. This uncertainty creates legal challenges to the right of individuals to understand the rationale behind decisions made by artificial intelligence systems. Article 22 of the GDPR regulates the right to an explanation in the case of automated decision-making, but its application is incomplete when it comes to systems where the decision-making process is complicated to explain due to the technical nature of artificial intelligence. As artificial intelligence systems evolve over time, the GDPR does not address the legal issues that arise when algorithmic decisions become more challenging to explain to non-specialists. This lack of clarity makes it harder for citizens to protect their rights. Such ambiguity is also evident in the President of Spain's AI Strategy[2], which sets out transparency requirements for automated systems in the public sector. However, like the GDPR, this law does not address the challenges faced by AI developers when models change over time, creating legal uncertainty regarding the determination of liability when these systems are no longer fully understood.

Article 13 of the EU Artificial Intelligence Act[3] sets out requirements to ensure that artificial intelligence systems meet transparency and accountability standards, particularly in areas such as public administration and healthcare. At the same time, the Law of Ukraine No. 2297-VI "On Personal Data Protection"[4] is not consistent with European legislation in terms of its scope and regulatory mechanisms. Ukrainian legislation focuses primarily on personal data protection and does not cover specific issues related to artificial intelligence, such as regulation of decision-making algorithms and transparency requirements. This creates a situation where Ukrainian AI programmes in the public sector may not meet EU standards, leading to inconsistencies between national and European regulations.

Furthermore, Article 11 of the GDPR[5] defines the principle of purpose limitation, stating that personal data should only be used for specific, clearly defined purposes. However, the Artificial Intelligence Strategy of the Federal Government of Germany[6] stipulates that AI systems operating in public services or industry may collect personal data for broader and unlimited purposes, such as research or predictive analytics. This contradiction between the German and EU approaches may lead to legal conflicts, specifically regarding the application of the principle of purpose limitation to AI systems. Germany's more flexible approach to the use of AI data does not fully conform to the stricter requirements of the GDPR, which creates potential enforcement issues.

As for Estonia, the Estonian government has developed one of the most advanced e-government systems in the world, which makes extensive use of artificial intelligence to deliver public services. However, the Estonian AI regulations do not cover the full range of ethical issues raised by the AI Act and GDPR. Specifically, ethical issues such as the right to human intervention in decisions made by artificial intelligence are mentioned in EU directives but are not reflected in Estonian national legislation. This discrepancy creates legal risks for individuals whose rights may be violated due to insufficient or imperfect regulation of AI-based decisions.

Estonia: A proactive approach to AI regulation and governance. The integration of AI into civil proceedings in Estonia reflects a proactive approach based on the principles of civil law. Estonia's AI strategy is in line with its codified legal system, which prioritises the rule of law, transparency, and legal certainty – fundamental principles of civil law (JustDigi, 2021). In its national strategy[7], the country focuses on fostering innovation while ensuring

[1] Act of Poland "On the Protection of Personal Data". (2018, May). Retrieved from https://ceelegalmatters.com/data-protection-2024/poland-data-protection-2024.
[2] President of Spain Strategy of AI. (2020, November). Retrieved from https://portal.mineco.gob.es/RecursosArticulo/mineco/ministerio/ficheros/National-Strategy-on-AI.pdf.
[3] Artificial Intelligence Act of EU. (2024, June). Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1689.
[4] Law of Ukraine No. 2297–VI "On Personal Data Protection". (2010, June). Retrieved from https://zakon.rada.gov.ua/laws/show/2297-17#Text.
[5] Regulation of the European Parliament and of the Council No. 2016/679 "On the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data (General Data Protection Regulation)". (2016, April). Retrieved from https://eur-lex.europa.eu/eli/reg/2016/679/oj.
[6] Artificial Intelligence Strategy of the Federal Government of Germany. (2018, November). Retrieved from https://www.bundesregierung.de/resource/blob/997532/1550276/3f7d3c41c6e05695741273e78b8039f2/2018-11-15-ki-strategie-data.pdf.
[7] National Artificial Intelligence Strategy 2019-2021 of Estonia. (2019, July). Retrieved from https://f98cc689-5814-47ec-86b3-db505a7c3978.filesusr.com/ugd/7df26f_27a618cb80a648c38be427194affa2f3.pdf.

transparency and accountability, including in decision-making processes involving AI technologies. In the context of civil law, Estonia attaches particular significance to the predictability and reliability of AI decisions[1], which is key to maintaining public trust in automated systems. Establishing mandatory human oversight, especially in sensitive areas such as social services and healthcare (social protection programmes, healthcare services, e-government services, law enforcement, and judicial applications). This approach ensures that AI technologies do not undermine the principles of due process and fairness enshrined in its legal system. The human-centred approach adopted in Estonia is in line with the civil law tradition, which prioritises the protection of individual rights and access to justice (E-Estonia, 2025).

In Estonia, artificial intelligence is not currently regulated by a separate piece of legislation specifically dedicated to this area. However, existing legislative initiatives are essential for regulating the integration of AI in the country. The Digital Agenda of Estonia (Ministry of Economic Affairs and Communications, 2024) includes general guidelines for technological development, including in the field of AI. In this context, the GDPR plays a major role, particularly in terms of the interaction of AI with personal data protection. Articles 22[2] and 13[3] of the GDPR regulate automated decision-making processes, ensuring that individuals are protected from automated actions that may substantially affect their rights and freedoms, an area where AI is increasingly being used in both the public and private sectors.

Article 34 of the AI Act[4] emphasises the need to ensure transparency in AI-assisted decision-making, particularly in sensitive areas such as criminal justice, healthcare, and social services. This requirement directly influences the national AI governance strategy in Estonia, which prioritises transparency and accountability of AI technologies. The Estonian AI Ethics Framework, although still in the draft stage, supports these same priorities by calling for clear documentation of algorithms and decision-making processes. The emphasis on explainability and transparency is critical for ensuring legal certainty in civil law, where individuals should be able to understand and challenge decisions affecting their rights. According to the GDPR[5] (Article 22) it is prohibited to make purely automated decisions that have legal consequences or substantially affect individuals without human intervention. Estonia's regulatory environment meets this requirement by providing human oversight in critical sectors such as healthcare, law enforcement, and judicial services. The Personal Data Protection Act of Estonia[6] it is prohibited to make purely automated decisions that have legal consequences or substantially affect individuals without human intervention. Estonia's regulatory environment meets this requirement by providing human oversight in critical sectors such as healthcare, law enforcement, and judicial services.

Spain: Ethical and regulatory challenges in the implementation of AI. In Spain, AI regulation is primarily focused on ensuring that ethical principles are respected in its implementation. The National Strategy on AI[7] clearly prioritises these values, ensuring that human-centred technologies conform to the requirements of codified legal norms. These principles, based on respect for human rights, fairness, and accountability, are closely aligned with civil law doctrine. It emphasises the protection of individual rights and fairness in legal processes. The focus of Spanish civil law is on structured legal control to protect public and private interests. An analysis of the use of AI in various sectors in Spain shows a strong commitment to transparency and user protection. This is especially true in civilian areas such as healthcare, public administration, and consumer rights (Marchenko *et al.*, 2024).

Despite Spain's achievements, there are major challenges, especially in liability for decisions made with AI. Civil law in Spain is codified in the Spanish Civil Code[8], and in the National Strategy for Artifi-

[1] National Artificial Intelligence Strategy 2019-2021 of Estonia. (2019, July). Retrieved from https://f98cc689-5814-47ec-86b3-db505a7c3978.filesusr.com/ugd/7df26f_27a618cb80a648c38be427194affa2f3.pdf.
[2] Regulation of the European Parliament and of the Council No. 2016/679 "On the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data (General Data Protection Regulation)". (2016, April). Retrieved from https://eur-lex.europa.eu/eli/reg/2016/679/oj.
[3] Ibidem, 2016.
[4] Artificial Intelligence Act of EU. (2024, June). Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1689.
[5] Regulation of the European Parliament and of the Council No. 2016/679 "On the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data (General Data Protection Regulation)". (2016, April). Retrieved from https://eur-lex.europa.eu/eli/reg/2016/679/oj.
[6] Personal Data Protection Act of Estonia. (2018, December). Retrieved from https://www.riigiteataja.ee/en/eli/523012019001/consolide.
[7] Artificial Intelligence Strategy of Spain. (2024, May). Retrieved from https://digital.gob.es/dam/en/portalmtdfp/DigitalizacionIA/1_DOSSIER_AI_ENGLISH_15_JULIO.pdf.
[8] Civil Code of Spain. (2017, June). Retrieved from https://www.wipo.int/wipolex/en/legislation/details/16289.

cial Intelligence (2020)[1], where liability is traditionally based on fault or negligence, as set out in legal statutes. Spain's Law on Data Protection and Digital Rights (LOPDGDD)[2], National Artificial Intelligence Strategy[3] and the Draft Law on the Regulation of Artificial Intelligence[4] aim to address these gaps by creating dedicated provisions for algorithmic accountability, thus aligning AI regulation with basic civil law principles. The compliance of Spanish legislation with EU directives further confirms its commitment to harmonise national legislation with supranational standards. This harmonisation is essential to the civil law tradition, which values the systematic application of legal principles across jurisdictions.

The need to adapt to new challenges is further emphasised by the draft legislation on artificial intelligence currently under consideration in Spain[5]. One of the key aspects of this draft law is the regulation of liability for the use of artificial intelligence. While the Spanish draft law is based on traditional civil law principles such as fault and negligence, it seeks to adapt these standards to the unique challenges posed by algorithmic decision-making and autonomous systems. These challenges are also recognised in the European Artificial Intelligence Act, which requires a differentiated approach to systems with significant risk. This approach includes transparency, accountability, human oversight, and a regulatory model based on risk assessment and in line with civil law traditions.

For example, Article 34 of the Spanish draft law on artificial intelligence[6] contains provisions aimed at ensuring transparency of artificial intelligence systems, their traceability, and human review. The European Union's Artificial Intelligence Act, specifically Article 5[7], also sets out transparency and human oversight requirements. However, the Spanish draft law goes a step further by requiring that artificial intelligence systems used in public institutions undergo periodic ethical reviews. This provision exceeds the general transparency requirements set out in the EU law, where human oversight is only mandatory for high-risk AI applications, without an explicit requirement for periodic reviews. This difference underscores the complexity of aligning national legal acts with EU law, particularly in the context of national legal traditions (White & Case LLP, 2025), which emphasise the protection of citizens' rights through clear and predictable legal rules. Article 11 of the Draft Law stipulates that decisions made based on artificial intelligence in the civil justice system should be transparent and subject to reversal. This provision is in line with the European Union's requirements for the right to an explanation, as set out in Article 22 of the GDPR[8]. However, Spanish legislation goes further, emphasising the need for periodic review of decisions made using artificial intelligence, especially in the context of civil proceedings. Such a requirement is absent in the AI Act[9], which instead imposes an obligation on high-risk AI system providers to ensure transparency and accountability pursuant to established standards.

Spain's civil law system provides a balanced approach to innovation and ethics. This is evidenced by its efforts to promote the use of industrial AI for economic growth while ensuring social welfare. Adherence to the rule of law, which is a defining feature of civil law systems, ensures that ethical principles are integrated into AI regulation, and these principles are incorporated into legislative measures and court decisions. However, challenges persist in achieving interoperability and addressing technical limitations that must be overcome to increase the effectiveness of AI in civil proceedings.

Key takeaways and comparative assessment. An analysis of the integration of AI into legal regulation in Germany, Estonia, and Spain demonstrates the strong influence of civil law aspects on the development of national strategies and approaches to the use of AI (Table 1). The experience of these countries can be evaluated through the lens of key civil law principles, such as legal certainty, protection of private property, legal capacity, and tort liability.

[1] Artificial Intelligence Strategy of Spain. (2024, May). Retrieved from https://digital.gob.es/dam/en/portalmtdfp/DigitalizacionIA/1_DOSSIER_AI_ENGLISH_15_JULIO.pdf.
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[5] Ibidem, 2025.
[6] Ibidem, 2025.
[7] Artificial Intelligence Act of EU. (2024, June). Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1689.
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[9] Artificial Intelligence Act of EU. (2024, June). Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1689.

Table 1. Comparative analysis of AI regulation in Germany, Estonia, and Spain

Country	Key civil law aspects	Key challenges	Perspectives
Germany	Liability for damage, insurance	Harmonisation of regulations across sectors	Support for industrial innovation
Estonia	Data protection, electronic contracts	Integration of AI into the legal capacity of systems	Development of digital governance
Spain	Algorithmic accountability and consumer rights	Bias of algorithms	Ethical regulation

Source: developed by the author of this study based on data from Statista (2025a; 2025b), national strategies of Germany[1], Estonia[2], Spain[3]

Germany is a leading country in the implementation of artificial intelligence (AI) in industrial sectors. German civil law focuses on regulating liability for damage caused by the use of AI and ensuring the harmonisation of cross-sectoral legal standards. In 2021, Germany adopted the Autonomous Driving Act[4], which regulates the use of AI in autonomous vehicles. This legal act defines the legal liability of operators and manufacturers, introducing the principle of strict liability. The law aims to increase safety and legal certainty in the field of autonomous vehicles. Germany is focused on transparency in the use of AI, particularly in industrial applications, and is introducing regulations for accountability in critical areas such as healthcare and autonomous driving. It is also aligning its policies with the EU, including the AI Act. Estonia is focusing on digital services and AI in the public sector, working with the EU to ensure interoperability and develop cross-border regulation. Estonia's strategy is focused on creating a reliable digital infrastructure. Spain is actively developing ethical standards for AI, including transparency and accessibility for citizens. It is also working to address potential risks from AI in various sectors, including healthcare and employment. All three countries are working closely with the EU to adapt their AI strategies to European regulatory requirements, which contributes to the effective regulation of technology at the international level (Kuteynikov *et al.*, 2021).

Artificial intelligence is also actively used in judicial practice. Specifically, the Bavarian judicial system uses AI tools to analyse legal documents and predict the outcome of court cases. These technologies help to increase the speed and accuracy of decision-making, especially in complex contractual disputes (Hösch *et al.*, 2025). Despite the positive results, concerns persist regarding the reliability and impartiality of automated decisions. Questions arise about the interpretation of AI-generated results and possible risks of bias that could affect the objectivity of court proceedings. German legal regulation continues to evolve to strike a balance between technological innovation and legal responsibility.

Estonia has taken a progressive approach to integrating artificial intelligence into its legal system, reflecting its advanced digital infrastructure. The Estonian Ministry of Justice has initiated the use of AI-based systems for small civil claims with a value of less than EUR 7,000. This system, known as a "robot judge", operates under human supervision and is aimed at expediting the consideration of court cases (JustDigi, 2025). The artificial intelligence in this system applies current civil law to resolve disputes arising from consumer contracts and property claims. Estonian civil law places particular emphasis on ensuring procedural transparency and personal data protection according to the provisions of the General Data Protection Regulation (GDPR). The introduction of artificial intelligence in civil proceedings has sparked discussions about the limits of human control and the guarantee of procedural rights of litigants. This is evidenced by a decrease in the number of pending cases after the introduction of AI systems, which indicates an increase in procedural efficiency.

Spanish courts are actively implementing AI systems to optimise case management and legal research. For example, the General Council of Justice has introduced specialised AI-based software that is used to analyse large volumes of legal texts and identify relevant case law. This software greatly simplifies legal analysis in complex civil cases, particularly in the areas of family law and property disputes (Ministry of Justice of Spain, 2023). At the same time, the absence of clear legal provisions regulating liability related

[1] Artificial Intelligence Strategy of the Federal Government of Germany. (2018, November). Retrieved from https://www.bundesregierung.de/resource/blob/997532/1550276/3f7d3c41c6e05695741273e78b8039f2/2018-11-15-ki-strategie-data.pdf.

[2] National Artificial Intelligence Strategy 2019-2021 of Estonia. (2019, July). Retrieved from https://f98cc689-5814-47ec-86b3-db505a7c3978.filesusr.com/ugd/7df26f_27a618cb80a648c38be427194affa2f3.pdf.

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[4] Ordinance on the Authorisation and Operation of Motor Vehicles with Autonomous Driving Functions in Defined Operating Areas. (2022, June). Retrieved from https://wiki.unece.org/download/attachments/188285112/EDR-DSSAD-19-07%20German_Ordinance%20on%20Autonomous%20Driving.pdf?api=v2.

to the use of AI in civil cases creates legal uncertainty regarding decisions made using such technologies.

A comparative analysis of three jurisdictions – Germany, Estonia, and Spain – reveals both similar and distinct approaches to the integration of artificial intelligence into civil proceedings. A shared feature for these countries is the application of established civil law principles to determine liability and ensure procedural fairness. At the same time, there are substantial differences in the scope and nature of AI implementation. Germany focuses on ensuring legal certainty through the development of a comprehensive liability framework, Estonia prioritises efficiency through the automation of court decisions, while Spain focuses on ethical regulation and transparency. Thus, the integration of artificial intelligence into civil proceedings in the European Union creates both new opportunities for legal innovation and challenges for preserving the fundamental principles of civil law. The study demonstrates the key role of civil law in shaping AI regulation strategies. Further research in this area should focus on harmonising approaches to legal liability and protecting the rights of entities involved in the use of AI.

Discussion

The rapid integration of AI technologies into legal systems, particularly in the European Union, presents both significant opportunities and challenges. The findings of the present study, which examined the intersection of AI, liability, and regulatory frameworks, are contributing to an active debate in European law. As AI continues to affect various areas, including healthcare, civil litigation, and environmental protection, it is crucial to assess the legal implications. This will allow for a sound legal framework to address these issues. The EU's proposed AI regulations, such as the AIA[1], introduce a risk-based approach to managing the development of this technology. J. Chamberlain (2022) emphasised that this approach, while pragmatic, requires a balance between innovation and security. The AIA aims to ensure that AI systems do not violate fundamental rights such as privacy and non-discrimination. Particular attention was paid to AI applications that carry an elevated level of risk. However, according to O. Turuta & O. Turuta (2022), there is a tension between fostering technological innovation and protecting human rights. The AIA recognises these issues, but its practical application continues to be unclear, especially in the context of AI's potential to perpetuate existing biases or create new risks.

The conclusions of this study confirm the need to develop AI regulation that accounts not only for technical characteristics, but also for social and ethical aspects. Specifically, the author of this study supports the view of V. Turkanova (2023) that machine learning algorithms can be useful for resolving civil disputes. However, their use requires careful analysis in terms of fairness, transparency, and accountability. The use of AI in litigation raises major concerns about possible algorithmic biases and their influence on access to justice. B. Schütte *et al.* (2021) agreed with this point, emphasising the significance of accountability mechanisms that can neutralise the harm caused by AI systems. One of the key challenges in the context of AI regulation is the issue of liability, especially when AI systems cause harm. B. Schütte *et al.* (2021) examined the complexities of compensation for damages in the case of AI and autonomous systems. Their findings pointed to the need for a clear liability system. It should account for both direct and indirect damage caused by AI, including errors in medical diagnosis or environmental regulation. For example, in healthcare, AI is increasingly integrated into medical practice, as demonstrated by D. Rimkutė (2024) in her analysis of AI-based diagnostic tools. However, according to S. Sormunen & K. Havu (2023), legal systems still have problems overcoming the problem of consumer trust. They also face challenges in allocating responsibilities between developers, users, and regulators of medical smart devices. The findings of this study pointed to the need to develop a detailed liability framework that would account for the specific characteristics of AI.

The findings revealed that the current liability framework, which focuses on product law and tort law, may not be sufficient to cover all aspects of harm caused by AI. This is crucial in relation to AI's ability to learn and adapt without human intervention. M.M. Casals (2023) emphasised that regulating AI liability requires an international approach. AI technologies transcend national borders, which requires a single liability mechanism at the EU level. The interplay between AI and private international law, as discussed by M. Poesen (2023), complicates the implementation of regulations on this technology. When AI systems are developed in one jurisdiction and used in another, legal conflicts may arise. The findings point to the challenges faced by EU Member States in harmonising their national legal systems with the EU's general AI regulations. This issue of private international law is critical in the case of cross-border disputes, and with the globalisation of AI systems, the risk of legal fragmentation is increasing. The findings demonstrated the need for a European system to resolve such conflicts, as AI technologies often transcend national and legal boundaries.

[1] Artificial Intelligence Act of EU. (2024, June). Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1689.

Another issue that arises in the context of AI regulation is its impact on the environment. The introduction of AI, particularly in energy-intensive areas such as data processing and autonomous systems, has major environmental implications. U. Pagallo *et al.* (2022) addressed the environmental issues arising from AI in the context of EU legislation. The present study complemented this analysis by arguing that AI can help solve environmental problems. Specifically, this applies to efficient resource management or environmental monitoring. However, AI also contributes to environmental pollution due to the extensive energy consumption required to train and maintain AI models.

The present findings support the argument of U. Pagallo *et al.* (2022) that the EU should consider the environmental footprint of AI. It is also vital to integrate environmental considerations into AI regulation. This could include setting standards for energy-efficient AI systems and incorporating environmental criteria when assessing high-risk AI applications. This study pointed to the need for a legal framework that strikes a balance between technological development and environmental sustainability. With this in mind, the legal implications of AI, especially in terms of liability, human rights, and environmental protection, must be further explored. The current regulatory landscape, as reflected in the AIA, is a significant step forward, but many issues still must be addressed. Future research should focus on improving the liability framework to better account for the complexity of AI, especially in situations where AI systems operate autonomously or unpredictably. Considering the rapid development of AI, the legal system must adapt to the emerging challenges.

Issues related to AI bias or restrictions on access to justice for certain groups of people continue to be critical for further research. O. Turuta & O. Turuta (2022) emphasised this. As the environmental impact of AI becomes more pronounced, the EU should develop regulatory strategies that support both sustainability and technological innovation. AI technologies carry immense potential, but also substantial risks. However, the necessary legal frameworks to address these issues are still under development (Roksandic *et al.*, 2022). Researchers, lawyers, and policymakers should continue to collaborate to ensure that AI technologies are deployed in a way that respects fundamental rights, promotes equity, and protects the environment.

■ Conclusions

The integration of AI into the legal framework requires an in-depth analysis from a civil law perspective. It is vital to clarify legal approaches to liability for damage caused by AI activities, as well as to protecting the rights of persons who may be directly affected by the use of these technologies. This includes the creation of clear rules for regulating the use of AI in civil law relations, especially in the context of contracts concluded with the use of autonomous systems. The study examined the key aspects of the introduction of AI into EU legal systems, including the legal challenges, opportunities, and implications of this technology. The study highlighted how the EU's regulatory approach to AI, specifically through instruments such as the AI Act (AIA), aims to address concerns about accountability and responsibility. It also addresses the role of AI in critical infrastructure. One of the key findings of this study was that the EU achieved significant progress in establishing a legal framework for AI. However, there are major problems with the practical implementation and enforcement of these laws. Although the AIA is a progressive initiative, its provisions are still unclear, particularly regarding the allocation of liability for harm caused by AI. Moreover, despite the emphasis on a risk-based approach, its application to emerging AI technologies needs further improvement. This applies to areas such as autonomous systems, medical diagnostics, and law enforcement to address the complexities of technological advancement. Particular attention should be paid to defining the legal boundaries for the protection of personal rights in civil law, such as privacy, non-discrimination, and access to justice. The legal status of AI systems is also significant, specifically, in terms of their ability to be subject to civil rights and obligations. In this context, it is necessary to clearly define how liability for harm caused by the imperfect application or errors of AI will be exercised. The study also indicated that while AI offers major opportunities to improve the efficiency and accuracy of judicial processes, it raises significant ethical and legal issues. Specifically, this concerns the requirements for transparency, fairness, and protection of fundamental rights in AI decision-making processes. To ensure these rights in a legal context, continuous monitoring and the development of robust legal boundaries that are in line with technological innovation are needed.

Another notable conclusion is the significance of interdisciplinary cooperation between lawyers, policy makers, technologists, and ethicists to create a comprehensive and adapted regulatory environment. Considering the complexity of integrating AI into the legal system, a holistic strategy is needed. It should account not only for the technical capabilities of AI, but also for its social, ethical, and economic implications. It is vital for the EU to foster such cooperation to create an effective regulatory ecosystem that minimises risks while harnessing the benefits of AI. The study suggested that to effectively address these challenges, special attention should be paid to international cooperation and harmonisation of AI

regulations across jurisdictions. Furthermore, the development of AI legislation should be dynamic and flexible to quickly adapt to the latest technologies and unpredictable consequences of AI use.

Based on the findings, several areas for further research emerge. One significant aspect is to clarify the legal definitions and classifications of AI systems within the EU, which will ensure more accurate regulation and better alignment with technological advances. Furthermore, a study of the practical aspects of implementing AI rules in different EU member states will help assess the effectiveness of existing legal instruments and identify opportunities for improvement. It is also necessary to continue researching the implications of AI for fundamental human rights in the context of privacy, non-discrimination, and access to justice. As AI technologies are increasingly integrated into judicial decision-making and law enforcement, it is vital to carefully monitor the risks of biased or unfair use of such systems. Finally, research into liability structures for AI, especially in cases of autonomous decision-making or the use of AI in critical infrastructure, is essential to ensure legal accountability. The development of civil law in the context of AI requires flexible and innovative solutions to meet the requirements of rapidly evolving technologies. Therefore, civil law must ensure effective protection of human rights. It must guarantee legal certainty in relationships where AI is one of the main decision-making tools. Thus, the ongoing development and implementation of AI technologies in the EU legal system requires constant adaptation, research, and interdisciplinary cooperation. The results of the study confirmed the need for a balanced approach that will promote innovation and technological growth, while protecting fundamental rights and ensuring transparency and accountability of AI.

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Conflict of Interest

None.

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Упровадження штучного інтелекту під час розгляду цивільних справ: досвід країн ЄС

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■ **Анотація.** Стрімкий розвиток технологій штучного інтелекту актуалізує необхідність правової адаптації, що вкрай важливо для систем цивільного права, де кодифіковані принципи потребують чіткості й точності. Метою дослідження було оцінювання ефективності поточних правових механізмів, що забезпечують основу застосування штучного інтелекту в межах цивільного права ЄС. Для проведення дослідження використано доктринальну й емпіричну методологію, розглянуто законодавчі акти, судові прецеденти та академічний дискурс щодо регламентування залучення штучного інтелекту. У дослідженні критично проаналізовано регуляторні межі використання штучного інтелекту в цивільних судових провадженнях держав – членів ЄС. Увагу зосереджено на законодавчих ініціативах, таких як Акт про штучний інтелект. У роботі досліджено принципи цивільного права (добросовісності, пропорційності та правової визначеності), інтегровані в регулювання штучного інтелекту, що дало змогу визначити, чи відповідає сучасна практика основоположним правам і принципу верховенства права. Проведений порівняльний аналіз стратегій упровадження штучного інтелекту в Німеччині, Естонії та Іспанії допоміг виявити різні, однак взаємодоповнювальні підходи. Це засвідчує здатність систем цивільного права адаптуватися до новітніх технологій. З'ясовано також, що, попри значний прогрес, нерозв'язаними залишаються певні проблеми в галузі правового регулювання, серед яких: поєднання традиційних моделей відповідальності з автономним прийняттям рішень штучним інтелектом; забезпечення однакового застосування норм у різних юрисдикціях. У дослідженні запропоновано практичні рекомендації для вдосконалення цивільно-правових меж використання штучного інтелекту, що можуть бути корисними для законодавців, правників і розробників штучного інтелекту

■ **Ключові слова:** цивільне право; цивільне судочинство; стадії цивільного процесу; учасники судового процесу; судові рішення; апеляційне оскарження; технології в праві