Contents lists available at Science-Gate

International Journal of Advanced and Applied Sciences

Journal homepage: http://www.science-gate.com/IJAAS.html

AI-driven contract law processes and the efficient breach doctrine: A systematic review of legal challenges in common law jurisdictions

Yuan Liu, Izura Masdina Mohamed Zakri *

Faculty of Law, University of Malaya, Kuala Lumpur, Malaysia

ARTICLE INFO

Article history:
Received 17 October 2024
Received in revised form
1 March 2025
Accepted 23 March 2025

Keywords:
Artificial intelligence
Contract law
Efficient breach doctrine
Legal reform
Ethical challenges

ABSTRACT

This study examines the changing role of artificial intelligence (AI) in contract law, focusing on how it interacts with the efficient breach doctrine in common law countries, including the United States, the United Kingdom, Canada, and Australia. A systematic review was conducted, analyzing 187 articles and 3 legal cases from Scopus and Google Scholar. From these, 56 articles and legal cases published over the last five years were selected for detailed analysis. The findings indicate that AI improves efficiency and accuracy in contract management and breach decisions, enhancing legal practice. However, it also raises significant legal and ethical challenges, such as issues of accountability, consent, transparency, and liability. The comparative analysis shows that courts in different countries are adopting AI at different rates, with regulatory frameworks still underdeveloped to address AI-related complexities in contract law. This study offers new insights by identifying areas for legal reform, such as creating new civil law rules, ethical guidelines, standardized documents, and stronger regulatory oversight. By contributing to the discussion on AI's impact on contract law, this research emphasizes the need for future legal frameworks that balance AI's benefits with principles of fairness and justice, promoting both innovation and ethical integrity in AI-based legal processes.

1. Introduction

Recently, artificial intelligence (AI), which catalyzes the transformation of routine practices in business and legal professions, has been introduced for contract negotiations. With businesses continuing to embrace effectiveness and mechanization, AI software has become increasingly necessary in simplifying contract creation and management from inception to completion (Thirumagal et al., 2024). Not only do these systems involve large amounts of data, but they also forecast particular results and provide recommendations, thus being helpful in complicated contracts and breach situations (Fathima et al., 2024). With the presence of legal analytic tools during the analysis of the documents, more than 40% of the time spent on categorizing and identifying certain clauses can be omitted without a loss of quality of more than 60% (Fathima et al., 2024). This type of efficiency is very important in coordinating the authorization of contracts, as liabilities of manual scrutiny are concerned with lessening (Stathis et al., 2023). The advent of artificial intelligence (AI) has provided opportunities for core reforms in most processes, although its implementation has critical legal implications, particularly in terms of a more practical view of the efficient breach doctrine, which is more common law (Walters and Novak, 2021).

The doctrine of efficient breach not only has a theoretical explanation backed by legal policy but is also suggestive of the trouble with more practical tests (González, 2024). This theory fosters a rather novel approach whereby breaching parties are encouraged to consider the financial implications of their breach instead of disregarding it entirely (Al-Kaabi, 2020). Nevertheless, it runs counter to Roman and civil law doctrines that maintain “pacta sunt servanda” or the binding nature of consented agreements. This tension is compounded by divergence with respect to the acceptance of the theory of efficient breach, whereas common law countries regard it as justifiable; civil law countries balk at it because of the individualism that such a theory postulates (Scalise, 2007). The use of AI in the contract negotiation process further complicates the

* Corresponding Author.
Email Address: izuramas@um.edu.my (I. M. M. Zakri)
https://doi.org/10.21833/ijaas.2025.03.022
Corresponding author's ORCID profile:
https://orcid.org/0000-0002-9458-1226

matter by introducing the issues of liability, fairness, and accountability concerning how AI makes decisions. Once such possibilities of AI, such as prediction and actual presence in an IT structure composed of smart contracts and AI, are admired, Oracles have also begun to affect the choice of the right moment for a breach or the very question of whether to breach (Papadouli and Papakonstantinou, 2023).

The current study analyses the role of AI in contract law, specifically examining the intersection of AI and the efficient breach rubric in the common law jurisdictions of the United States, the United Kingdom, Canada, and Australia, by conducting a systematic review of prior literature on the subject. Importantly, the methods employed in contract negotiations using AI attempt to resolve fundamental legal issues associated with fears of abuse of power through overdependence on automated decision processes and the opaque nature of AI in relation to breach decisions. It is also possible to compare relevant case law from these jurisdictions on how courts have dealt with breach-of-contract cases by considering the effect of AI systems on such judicial disputes. Through this analysis, we are able to illustrate the extent to which AI technologies are already affecting the core of contract law, the newness that raises issues to the orthodox legal norms and principles.

This study contributes to the growing discourse on AI in contract law by addressing critical research questions: 1) How does AI impact the application of the efficient breach doctrine? 2) What legal challenges arise from AI-driven contract negotiations? 3) How have common law jurisdictions, such as the United States, the United Kingdom, Canada, and Australia, adapted to AI's role in contract law through a comparative analysis of case law? 4) What opportunities exist for legal reform to accommodate the expanding role of AI in contract decisions? By investigating these questions, this paper sheds light on the complex interaction between AI technologies and the foundational principles of contract law, offering a path forward for future legal frameworks.

2. Methodology

This study used a systematic literature review to identify the changing place of artificial intelligence in contract law, especially in relation to efficient breach doctrine in common law countries such as the United States, the United Kingdom, Canada, and Australia. The method is devised such that the influence of AI on legal provisions is evaluated from a broad to a narrow perspective through a multilayered and stratified approach (Stahl et al., 2023). In this case, this stratification helps the authors to consistently structure how changing the levels of "interaction" of AI and the contract law system are situated in the conduct of this research. Therefore, this helps present how the research findings help in analyzing how, before and after the emergence of these technologies, contract law changed and what specific features of the new technologies challenge the efficient breach model. There are two observables of this stratification: the civil context, where AI can have direct or indirect effects on the law, and the progressive embedding of AI within contract law (Koos, 2021).

Continuing our approach of progressively reducing perspective, we can isolate the distinctive legal risk areas emanating from the specific use of AI in the decision-making of contracts by attempting to address the dimensions of visibility, accountability, and fairness within the efficient breach doctrine. Additionally, this multilayered perspective makes it possible to grasp both the major transformations in the legal sphere and the particularities and complexities of AI-oriented challenges to classical legal concepts, enabling the system to be more comprehensive in relation to these changes in the legal regulation of contracts.

As seen in Fig. 1, the first layer of the analysis concentrates on general overviews of the legal relevance of AI and is therefore a broader category. These reviews assist in building core structures about the use of AI technology within the law, especially in contract law, where the use of AI tools is anticipated to be helpful but in practice is not yet used. This level offers a top-down view of the evolving technological changes in contract law as it relates to gratitude, but does not provide too much detail on the question of the technology and breach of contract.

In the second layer, the study is focused on legal analysis, in which the impact of AI on contract processes is very visible. These include studies where AI technologies have been implemented in contract drafting, contract negotiation, and contract risk management, thus revealing the evolution of contracts with the introduction of AI. At this level, emphasis is placed on how AI systems assist in negotiation tasks, risk assessment and evaluation, and critical decision making. However, the literature in this regard is focused primarily on the changing faces of contract law in relation to AI rather than the application of efficient breach law.

In the last layer of this analysis, the emphasis is on how AI influences the negotiation and breach of a contract under the rubric of the efficient breach doctrine. This line of inquiry focuses on the illegality or legal issues associated with the introduction of AI systems, which makes breach termination economically beneficial to the straying party. It explains how AI systems affect the timing and circumstances of a contract breach, as well as the actions of common law courts concerning such AI-related breaches. This perspective allows a shallow understanding of the way in which AI is capable of overturning traditional legal doctrines such as 'pacta sunt servanda' and seeks to address the issues of legal accountability and clarity with respect to the AI-related breach of peace.

The value of this analysis lies in the integration of these different levels of analysis, thereby enhancing

the debate about the enhancement of AI in contract law, especially in relation to efficient breach. In doing so, the paper explores some avenues of legal reform that may enable the incorporation of AI into contract negotiations and appreciation of considering current realities while observing traditional law.

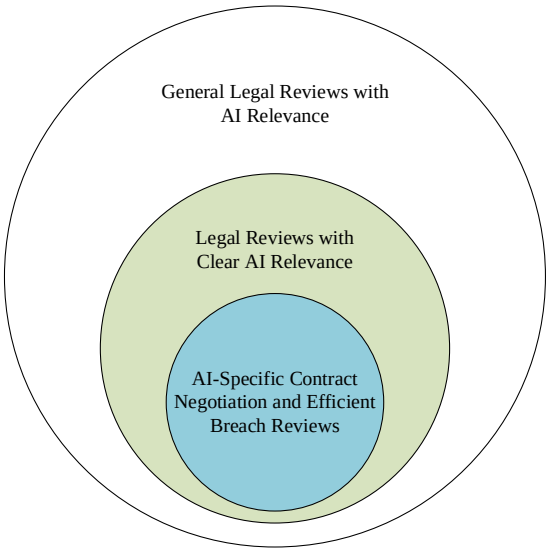

Fig. 1: Stratification of AI's relevance in contract law

For the purposes of this study, a thorough literature analysis was conducted to include only two academic databases, Scopus and Google Scholar. Scopus was chosen because of its many high-ranking, peer-reviewed, law-related, technology-oriented, and advanced AI journals. To look into more scholarly articles that could not be present in Scopus, Google Scholar was also utilized.

The process of selecting and refining the articles for this study is shown in Fig. 2, together with how many articles were identified through these two databases in the first stage: Scopus-122 and Google Scholar-68, including 3 law cases. After deleting duplicates, the number of articles included in the initial search was decreased to 108; 3 law cases remained. Another round of screening was performed, and 47 articles were excluded from the review for various reasons, including irrelevance to the study or failure to meet the criteria for selection, leaving 61 articles and 3 law cases for review. In the course of the review, 5 articles were excluded because they were irrelevant or did not match the outline of the study. 56 articles and 3 law cases were fully analyzed and incorporated into this research, where all of the information that constitutes the major literature base for the systematic review of the effects of AI on contract law and efficient breach theory was utilized.

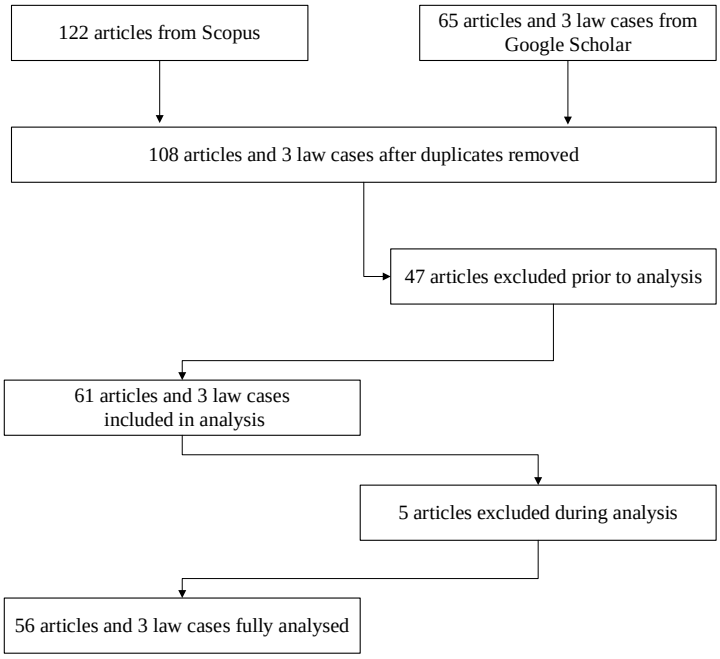

Fig. 2: Systematic literature selection process

In the next step of the process, the authors had to select articles using specific best keywords and phrases, all designed with respect to the aim of this research. To ensure thorough bibliographic retrieval of works addressing all the aspects of AI, contract negotiation, and the breach of contract doctrine, we used the following search terms in both databases: artificial intelligence, contract negotiation, efficient breach of contract, common law, AI as a decision maker, breach of contract and AI dynamics in the legal field. While the primary scope was the literature published in the last five years (2019-2024), to take into account the cutting-edge changes concerning the relationship between AI and contract law, we also paid attention to older articles depending on the context of the study. Articles dated earlier have been utilized if they contain key elements or decisive criticism of the subjects in question. The search results were also refined through the elimination of non-included articles, conference proceedings, and literature that did not focus on the relationship between AI and contract law. As indicated in Table 1, the search results from Google Scholar included a total of 6 articles, and a search on Scopus was undertaken, yielding 38 articles on the subject, which covers a great extent of the subject, including the implications of AI technology for contract drafting and efficient breach theory in common law.

Table 1: Search terms summary table

Database	Search term	Further limitations	Number of hits
Scopus	(TITLE("artificial intelligence") OR KEY("contract negotiation") AND TITLE("efficient breach")	Limit to peer-reviewed articles	38 articles
Google Scholar	("artificial intelligence" AND "contract negotiation" AND "efficient breach")	Limit to peer-reviewed, relevant works	15 articles and 3 law cases

Fig. 3 shows the distribution of the number of references used in the study from 2006 to 2024. The majority of references come from recent years, with notable increases in 2023 (18 references) and 2024 (10 references), reflecting the focus on the most recent developments in AI and contract law. Earlier years, such as 2006, 2007 and 2013, have minimal representation, indicating that the study primarily draws on newer sources from the last five years.

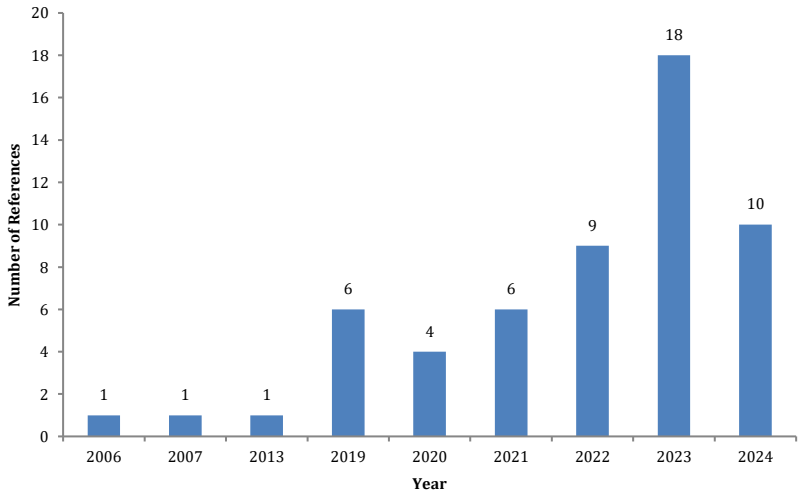

Fig. 3: Distribution of references by year

3. Findings

3.1. Impact of AI on the efficient breach doctrine

The efficient breach doctrine in contract law embraces the advancement of modern technologies, such as artificial intelligence, which results in numerous ethical, legal, economic, and practical considerations. First, with respect to ethics, there are issues related to the use of AI in negotiating contracts and in deciding whether there is a breach of contracts, such as the nurturing of controversial algorithms and data privacy breaches, as well as the presence of inadequacies in legal structures that govern the use of AI in justice systems (Rajendra and Thuraisingam, 2022). In cases like Bhole, Inc. v. Shore Investments, Inc., 67 A.3d 444 in 2013, the intent and willfulness of the parties involved are essential in assessing liability in breaches, and such factors may necessitate the development of procedures within AI systems to allow human interaction and enforcement. Automation has the potential to undermine caretakers' ethical obligations, particularly regarding an occupant's breach of contract, anti-discrimination, and human dignity, as well as transparency (Montagnani et al., 2024). The judiciary also faces other moral dilemmas when using AI to assist with the maintenance of disputes, where only appropriate systems exist to mitigate the extreme imbalance (John et al., 2023). It was recently held in In re Luebbert, 987 F. 3d 771 (Court of Appeals, 8th Circuit in 2021) where some

courts maintained that in cases of breach, malicious intent or harm suffered by the injured party as a result of the breach is controlling, and this survives, especially when no one stands to be held accountable for AI-driven decision-making. These ethical attributes are crucial in answering several questions on the position and function of AAI in the efficient breach doctrine because they determine the equity of the outcomes of decisions made by AI systems.

A smart contract could become a turning point in the modernization of contracting and transactions through the power of AI, which makes smart contracts and other automated agreements unquestionable and breach efficient from the legal standpoint. The idea of an efficient breach is a popular stance because, with the essence of smart contracts, it sidesteps the necessity for humans in the agreement altogether, in which performance is necessary in the contracts encompassing the two industries of crypt assets and property (Herian, 2021). Nonetheless, there are significant debates regarding the potential legal recognition of smart contracts, as they deviate from traditional contract law, which typically requires a combination of written terms and signatures; otherwise, contracts are violated through promises and proposed remedies. In a case where a breach would be thought of as efficient, there are many existential questions that arise. Epochs of AI now make it rather easy to assert if it's worth it for a party to violate a contract or wait out the time to pay back for the damages caused; then again, this can raise a myriad of issues such as fairness and blameworthiness (Herian, 2021). Smoothening the process of deciding whether to breach an automatic agreement through open smart contracts can have a hefty impact on the legal economy because it strips the decision-making from human intervention and replaces it with heavier reliance on the efficiency of the AI that is utilized.

In terms of law, AI is within the process of changing the whole system with respect to the formation and enforcement of contracts. Currently, the installation of AI technologies has led to the development and management of contracts, whereby there has been a shift from traditional paper contracts to automated and intelligent systems (Martinelli, 2023). These innovations raise issues in fundamental legal doctrines such as consent, autonomy, and the availability of remedies, raising issues regarding the legal status of AI systems in the formation of contracts (Ebers et al., 2022). For instance, courts, as highlighted in Luminor Consulting Corp. v. Elmessiry, No. 3:22-cv-00555 (Dist. Court, MD Tennessee in 2023), have grappled with how innovative technologies influence fiduciary duties, fairness, and ethical considerations, emphasizing the need for robust safeguards in AI-powered contract management. The United Arab Emirates is already taking steps to classify contracts made by artificial intelligence, and they do so because there are specific rules to address such legal issues (Al-Obeidi and Hussein, 2023). This development in the appreciation of contract law certainly shows that there are legal contract systems that are actively employing artificial intelligence and machine learning; however, it brings more enforcement- and liability-related issues in the case of a breach of contract, mainly due to any AI technology that may predict such behaviors.

AI tends to improve how contracts are managed, as well as decision-making processes, resulting in improved operations and minimizing legal expenses (Qasim et al., 2023). Automated technology systems are capable of interpreting contractual clauses contextualizing the circumstances of a breach as well as strategies for maximizing compliance (Fathima et al., 2024). This approach results in lower costs of addressing transactions and efficient management of breach resolutions, thus making the efficient breach principle practical in the presence of artificial intelligence (Kull, 2020). Furthermore, the introduction of AI in legal procedures can help enhance the efficiency of judicial operations and offer less expensive, precise decision-making assistance to lawyers (John et al., 2023). For example, AI-driven online dispute resolution platforms are being developed to handle small claims and property tax disputes, providing quicker resolutions for contract breaches where timely remedies are essential. Such initiatives expand access to justice by offering more efficient and scalable systems for resolving contractual conflicts (Schmitz, 2019).

However, there are insurmountable barriers and features that hinder the application of AI technology in efficient breach doctrine. The legal profession continues to be apprehensive about certain matters, including the risk of algorithmic bias and the absence of accountability in AI decision-making, which may lead to adverse or non-transparent outcomes in contractual conflict resolution (Rajendra and Thuraisingam, 2022). Furthermore, there are no legal prohibitions on the integration of AI into contract law, which results in multiple hardships as far as the application is concerned and, more so, whether breaches are treated uniformly across various regions (Kaspar et al., 2023). These challenges highlight the importance of establishing firmer legal rules and still developing an understanding of how AI should be used responsibly in contract law.

Therefore, although they may substantially improve the efficient breach doctrine in contract law, there are broad attacks on the incorporation of AI into rounds of contract law. Respect for the principles of transparency, equity, and accountability of AI applications in breach decision-making will promote the responsible use of such tools, but amendments to the existing legal frameworks will be needed to optimize the application of AI in this area. As Tzimas (2023) highlighted, the EU's focus on algorithmic transparency and the right to explanation under the GDPR ensures that AI systems used in legal contexts, including contract breaches, are accountable and transparent, providing a

safeguard against unfair or opaque AI-driven decisions.

3.2. Legal challenges in AI-driven contract negotiations

The emergence of AI systems in the context of contract negotiations raises significant legal issues that cut across the very foundations of contract law. One of the most worrying issues is the way in which AI draws boundaries in what can be considered both consent and autonomy ascribed to the parties to the contract (Mik, 2022). If a trust AI is able to negotiate or conclude a contract by acting as an intermediary, the people involved in such processes become less active, and actual consent becomes a bureaucratic procedure instead of real consent (Ebers et al., 2022). For example, Lutman (2023) discussed how AI systems can inadvertently perpetuate biases in contract negotiations, leading to discriminatory practices, such as the exclusion of certain groups in employment or loan financing. These biases introduce significant legal and ethical concerns, as they raise questions about the fairness of AI-driven contract terms, especially when parties may not fully understand the underlying algorithms or their impact. This new way of thinking regarding the management of consent is problematic, as it undermines traditional contract theory, which seeks the legitimacy of contracts in terms of human intention and agreement (Poncibò, 2023). Likewise, AI-controlled contracts may give rise to contracts being spread across various actors and thus fail to communicate; the different actors, which may include programmers and the AI system, may not comprehend the contract, leading to the contractual problem of liability (Poncibò, 2023). These and other issues not only make it practically impossible to enforce these contracts but also raise questions concerning the legal consequences if the AI commits a breach or makes an error.

The fallback on AI as a communication channel increases the complexity of the issue of consent. Consent has always been a move that is made actively by the parties to a traditional contract. However, AI introduces some written contracts that do not require the same level of active consent—consent that is more of a procedural formality and that is given by machines on the basis of the understanding of what human beings want (Poncibò, 2023). This makes it necessary to develop fresh consent models that consider the functions that artificial intelligence performs during such negotiations and that make sense in light of the growing scope of AI responsibility with respect to AI contracts. Otherwise, under existing models, the challenge will be that these AI automated contracts may not be upheld in court and therefore become obsolete.

Three significant ethical issues emerge from the use of AI in contract negotiations that need clarification. These include autonomy and domination, consent, and oligopoly of information. Power imbalances between contractors are sometimes worsened when an AI system is in use since one party may have access to advanced technologies or sensitive data that are not available to the other party (Lagioia et al., 2022). Such locational supremacy can result from asymmetric information, which can distort negotiations to outcomes that are more beneficial to the party with an AI enhancement during those negotiations. Nowik (2021) explored how AI systems used in workplace contract negotiations, particularly in crowd working, can exacerbate power imbalances. The author highlights the ethical concerns of AI managing human workers, as AI's influence may lead to unfair treatment or exploitation. Legal frameworks are being proposed to address such issues, including mechanisms like mandatory insurance schemes and compensation funds for damages caused by AI, but these frameworks are still in development. However, this just marks the beginning since the technology/product gap raises the issue of the governance of AI within firms, given the greater use of AI in organizational activities than contract laws would permit. More issues arise from the absence of continental standards for ethics and legal policies, as each country has its own adoption approaches that are not uniform with respect to AI integration. Social and ethical boundaries in business and society are critical to the functioning of AI as complex technologies that affect business practices and society.

AI tools have markedly increased contract negotiation efficiency, resulting in less time and human error. The implementation of AI systems in conducting legal document reviews and in the management of contracts has resulted in considerable time gains since studies have revealed that even with assistance, the time taken to analyse a document could be reduced by 40% and the accuracy improved by 60% (Thirumagal et al., 2024). This increase in efficiency aids in accelerating the pace of the contract negotiation phase, as well as decreasing the labor costs incurred in the examination of legal documents (Fathima et al., 2024). Additionally, AI systems have good capabilities in reducing and handling human errors, hence increasing adherence to the law and reducing costly errors in the assessment of legal documents (Thirumagal et al., 2024; Fathima et al., 2024). Similarly, the introduction of AI in mechanism design-based negotiations, especially in the procurement and purchasing sectors, where bounded rationality can constrain human capacity, has been a very successful revolution (Schulze-Horn et al., 2020). This cognitive ability of AI provides a competitive edge in the process of contract negotiation by facilitating better choices.

Meanwhile, these benefits also present many risks. One of these is the inclusion of intelligent negotiation algorithms that persuade consumers' responses to introduce new ethical and legal challenges. For example, AI negotiating systems may also consider providing image-based offers using

personal information of consumers, inappropriately changing the course of negotiations (Shen and Jin, 2024). Armbrüster and Prill (2022) addressed similar challenges in the insurance industry, where AI's involvement in claims processing has led to debates over fairness, transparency, and potential legal challenges when AI systems deny claims based on biased data. The authors stress that the fairness and transparency of AI decisions in insurance settlements need to be carefully considered, as biased algorithms could lead to unjust outcomes for consumers, raising significant legal and ethical concerns. One additional category of risk, other than legal risk, is the idea of concept-induced containment of an AI that stays outside the traditional boundaries of legal responsibility. Such systems are, however, likely to produce risks that cannot be addressed due to a lack of remedies that cannot be anticipated in the law (Kovac, 2023). Without these frameworks, liability gaps regarding AI contract negotiations remain and result in disputes concerning the tortious accountability of individuals.

In relation to these risks, there are certain jurisdictions where legal systems are developing that consider the concerns of AI-based contracts. For example, one provision of the United Arab Emirates electronic transactions and Trust Services Law clearly states that such agreements made by artificial intelligence systems are to be treated as legally binding, thus providing room for the implementation of the agreements allowing at use of AI technologies (Al-Obeidi and Hussein, 2023). Such types of legal recognition are essential for the legitimacy of any contract executed through AI systems in comparison to those enacted by a non-AI system. However, this also raises the issue of accountability—in the case of a breach or any other type of contract problem, who is responsible, and how are these political systems responsible? The legal system may accept that AI contracts that are entered into can be enforced; however, the majority of questions remain if a competent party cannot find the respondent and who the de facto respondent is.

In contract negotiations, the use of AI can also be observed in the insurance industry. This type of insurance is called medical insurance, and AI also helps with the resolution of disputes in this area. The reason is that in this context, they can achieve more effective outcomes because they analyze large amounts of data and make predictions on the basis of that data. These advantages should be counterpoised to address ethical issues related to AI decision-making, especially those related to ethics, and legal issues such as accountability (Armbrüster and Prill, 2022). It is essential to achieve the purpose and aim of negotiating contracts with AI technology in this domain without compromising the ethics and boundaries of action within which the technology aspires.

To conclude, the potential benefits of the use of AI for law firms and their practice managers, especially contract support services, such as efficiency gains and a lower margin of errors, should be compensated for the practical simplifying legal issues raised by such negotiations. Such challenges include issues of consent-making, liability, and ethical and regulatory concerns, among many others. In the future, these new trends will deepen further, and it will be possible to speak about specialist lawyers working more with AI, further redefining the technical professions practicing seventeen- or eighteen-century approaches.

3.3. Comparative analysis of AI in contract laws across common law jurisdictions

The application of AI within contract law has engendered different reactions within common law and civil law systems, with a focus on the breach and enforcement of contracts. As technology continues to grow, courts in the United States, the United Kingdom, Canada, Australia, and civil law jurisdictions, such as Germany and France, must contend with issues of accountability, liability, and fairness, among others, when considering AI in contract law.

There has been an increasing willingness to use AI systems in the United States and Canada to reach decisions in some cases, including but not limited to contracted disputes and breaches. Cohen et al. (2023) noted that AI has been utilized in the classification of an individual's employment status and has performed exceedingly well in predicting outcomes on the basis of measurable data. It follows that AI being used in the aforementioned example implies that the judicial systems in these countries are taking a step towards the acceptance of AI integration in the expansive field of law, more so contract law. Once again, this increased use of AI will only exacerbate potential issues of accountability and liability, especially where the systems are commercially marketable and serviceable. As noted by Crawford and Schultz (2019), in situations where AI systems or applications owned by government or private organizations violate laws, there is an expectation that the legal system will develop new legal principles that are specifically targeted at fixing accountability to the right parties. In this case, the courts would have to implement some form of policy, determining the extent to which each party that implemented AI systems in the process of negotiating, concluding, or breaching a contract, some of which errors were otherwise attributable to a system, would be held.

In contrast, civil law jurisdictions, such as Germany and France, offer a more codified approach to integrating AI into contract law. In these jurisdictions, the Civil Code provides clearer frameworks for contract formation and liability when AI is involved. For instance, Germany's Civil Code includes provisions for AI-related contracts, ensuring that they are legally binding and enforceable, which contrasts with the more flexible, case-based approach of common law systems (Ismayilzada, 2024). The legal certainty provided by civil law makes it easier to address disputes over AI-

driven breaches of contract, as these systems tend to have more detailed regulations governing AI's role in contractual obligations. In France, the Civil Code has been adjusted to explicitly address issues arising from the use of AI, particularly in terms of contract formation and validity. The French legal framework offers more predictability and clarity for both individuals and businesses involved in AI-driven contract negotiations and breaches.

Gandhi and Whitman (2022) reported that the United Kingdom has been quite bold in adopting AI in legal proceedings, anticipating that professionals such as lawyers will embrace the technology in litigation as well as in other legal work. This finding indicates that the British legal system is likely clearing its ground to address the challenges posed by AI in contract-related disputes, including breaches. This increasing tendency towards the approval of AI in a courtroom is expected to trickle down to contract law, where AI would be able to assist in drafting the undertakings, constructing various clauses, and assessing the probable impacts of a breach on existing contracts. By facilitating the development and integration of AI, the United Kingdom judiciary is poised to address the nuances of AI-related contract breaches in a shorter duration with more remarkable accuracy (Gandhi and Whitman, 2022).

There is, however, a distinctive feature of the United Kingdom's embracing of the new phenomenon in legal practice. This has raised a demand for the type of regulation that governs the ethical and legal aspects of the new technology. The United Kingdom and the European Union (EU) have formulated and proposed pieces of legislation that regulate various industries, including the legal industry, with respect to AI (Wilkinson, 2023). Such efforts seek to avert the deadly consequences of AI use, especially in matters that may trigger severe repercussions, such as the breach of contracts. Evidence of the development of legislation of this nature indicates that British authorities appreciate the dangers posed by legal operations that rely on digital automation. Proscription measures to assist in risk management are also being considered. They intend to ensure that the influence of AI in a given area always aims to abides by the values of justice and equity.

Australia, similar to other common law states, has begun incorporating AI into its legal order. However, this process is still in its infancy. Australian jurisprudence, while lagging behind the United Kingdom in the actual deployment of AI technology, has started to consider the moral issues arising when AI is applied to law, especially in discrimination within contractual agreements. An increasing number of people believe that AI may facilitate the processes of law by, among other things, minimizing human error or accelerating the timeframe within which decisions become finalized. On the other hand, there are ethical concerns regarding AI that cannot be overlooked. This has to do with fairness, transparency, and accountability in the case of contract breaches (Sivasankar, 2024). The challenges of ethics, as well as those covered by Australian courts, are not alien to other jurisdictions that share common law with Australia. As AI systems take on a more active role in negotiation and contract management, the risk of bias, manipulation, and opacity increases (Sivasankar, 2024).

In all four jurisdictions under review, there is a similar concern concerning the development of ethical as well as legal parameters for the use of AI in contract law. However, while maximized efficiencies are anticipated through the enhanced accuracy of contract negotiation and resolution processes through AI, there are also risks related to fairness, accountability, and transparency (Zavhorodnia et al., 2022). In comparison, civil law jurisdictions such as Germany and France have already begun to implement more specific legal structures for AI-driven contracts. The German AI Strategy is one such example, which aims to ensure AI systems used in contracts comply with strict ethical guidelines and legal standards that prevent discriminatory practices, ensuring a more uniform approach to AI accountability. In this context, the courts of common law regions face the challenge of developing common regulations on the use of AI to protect all parties of a breach of contract. This includes reinventing legal concepts, enhancing regulatory supervision, and ensuring proper governance and transparency of the operational AI systems.

Table 2 below presents a comparative outline of the common law countries of the United States of America, Canada, the United Kingdom, and Australia in relation to the incorporation of AI in contract law, especially where there is a contract breach. It emphasizes salient points, currently existing legal problems, and active regulatory processes for each country, and provides a succinct synthesis of the various ways in which these countries have begun to tackle the issues involving AI with respect to legal processes. By adding a comparison to civil law jurisdictions, this analysis highlights both the shared concerns across legal systems and the regulatory advantages that civil law systems, such as those in Germany, may have in providing clearer guidelines for AI in contract law.

3.4. Opportunities for legal reform

Concerning why there is an urge for legal reforms, one of the main reasons is that there are opportunities to integrate artificial intelligence in developing contract analysis and management solutions. AI has been shown to dramatically improve effectiveness and even efficiency in carrying out contract processes, as it reduces the period of contract review and minimizes the chances of naivety (Thirumagal et al., 2024). Such legal systems would especially benefit from machine learning, enabling them to analyze vast amounts of data and return accurate, assured outputs. By adopting changes in the legal system to make use of AI-driven technologies, courts and lawyers will conduct

contract evaluations more accurately and with less time, as the dangers of engaging in intensive physical contact will be reduced.

The error reduction capabilities of AI also make a strong business case for its expanded use in the legal profession. For example, in the case of careful cross-examination of complicated contractual relations, there is a risk of review document errors by personnel, which can be costly and warrant legal suit. Thirumagal et al. (2024) argued that AI is better at enhancing contract management because of its ability to analyze large amounts of data in a way that does not usually involve human biases or fatigue. Surely, legal changes would support the implementation of AI to increase precision and improve legal stability.

Table 2: Comparative analysis of AI in contract law across common law jurisdictions

Jurisdiction	Key points	Legal challenges	Regulatory developments
United States of America	AI used in legal decision-making, including classifying employment status with high accuracy (Cohen et al., 2023)	Accountability for private vendors using AI, particularly in government contracts (Crawford and Schultz, 2019)	Emerging discussions around liability and regulatory frameworks for AI in legal processes
Canada	Similar to the US, growing acceptance of AI in legal processes, including contract law	Concerns about human consent in AI-driven contracts and questions about contractual autonomy	Courts may need to adopt new doctrines to handle AI's influence in contract breaches
United Kingdom	Courts encourage the use of AI in litigation and legal practices (Gandhi and Whitman, 2022)	Ethical challenges of AI, including fairness and transparency in contract law	The United Kingdom is developing regulations to address AI's complexity in legal systems (Wilkinson, 2023)
Australia	Beginning to explore the ethical implications of AI in contract disputes	Balancing innovation and regulation, especially regarding transparency and fairness (Sivasankar, 2024)	Courts are in the early stages of developing frameworks for AI in contract law, but more regulation is necessary
Cross-jurisdictional	Common concerns about accountability, transparency, and liability in AI-driven contract decisions	Establishing clear liability structures and frameworks for AI to prevent evasion of responsibility by parties using AI tools	Regulatory frameworks are being discussed but are still developing across jurisdictions (Zavhorodnia et al., 2022)

The growing adoption of AI in contract law has increased the need to develop new civil law rules as well as new ethical standards. The legal systems presently in place can hardly be said to accommodate the sophisticated dimensions that AI makes into the decision-making process. In so doing, as the bridge between contract formation and breach decisions shifts from human instructors to AI systems, reforms in law should be utilized to determine how important legal concepts and principles are within the context of automated navigation centers.

It is also important to look at some ethical guidelines as well as legal reform. While AI can be effective, there is a need for it to be governed in a manner that adheres to certain values regarding human dignity and justice. Issues such as transparency, fairness, and accountability in the face of AI risks should be at the forefront, as these technologies can easily be misused to the detriment of the disadvantaged and perpetuate existing inequalities. Therefore, setting ethical restrictions for the use of AI in contract law will protect the judiciary from AI invading justice (Kudeikina and Kaija, 2024).

As the use of AI technology in modern contract law increases, the stereotypical image of a lawyer clearly changes with respect to providing services within the legal and corporate domains. According to Tung (2019), corporate legal strategists can benefit from the use of AI in the deployment of their operations and the articulation of legal plans with business goals. As routine legal activities are performed more by AI, rather than services, more attention should be given to the provision of higher-level strategic decisions and advisory services. For that reason, such legal practitioners need training and/or education on how to incorporate AI into the practice of law (Linna, 2021). Such a legal change is inevitable, and for effective performance of this function, lawyers need training programs for handling AI-driven legal services.

Furthermore, the methods that regulators and legal practitioners use to guard against the abuse of AI embeddedness in legal services will also change. Legal professionals will take a leadership role in ensuring that, as AI technologies proliferate, core legal values are integrated into the legal culture.

Addressing the issues at hand will enhance the application of AI in contract law by highlighting how important it is to standardize legal documents. Such standardization of legal documents enhances the understanding and processing capabilities of such intelligence, enabling their efficiency in engaging in the review and negotiation of contracts. This is achievable because legal innovations can foster the creation and use of standardized contracts and legal forms that are well suited to AI technologies. This would not only improve the efficiency of AI systems but also reduce the differences inherent in the interpretation of documents and thus the standardization of legal results.

Equally important, whatever might be the reason for these reforms, one issue that persists would be there. One of the issues regarding the employment of artificial intelligence in contracting is related to the opacity of the employed AI algorithms, which may cause distrust from legal practitioners and society in general (Fine and Marsh, 2024). Courts and other legal practitioners will be able to instill more confidence in AI systems as long as they do due diligence and ensure that AI-driven decisions are made within the boundaries of explainable algorithms in legal matters. Legal reforms aimed at enhancing transparency concerning the workings of artificial intelligence technologies will indeed make

it easier to use such technologies within the legal profession and assist in the realization of ethical and legal compliance in artificial intelligence-driven decision making.

Thus, regulatory support remains critical in coping with the increasing importance of AI in relation to contract law. To guarantee the safety, efficacy, and equity of AI tool deployment in legal services, rigorous evaluation frameworks for AI tools need to be formulated (Linna, 2021). This encompasses devising requirements on the appropriate and approved AI technologies applied in legal procedures that will require evaluation and enhancement on a regular basis. Moreover, as discussed in Gadlin and Welsh (2020), advocacy for legal reforms must go hand in hand with the promotion of the development of regulatory agencies that regulate the application of AI in contract law, the use of technology, and how it may affect the practice of law. Additionally, structural legal regulation reforms are necessary to respond to the excessive demands that AI imposes on contract law. This even includes examining underlying legal theories that inform this area of law to see where AI would be accommodated (Księżak and Wojtczak, 2023; Ebers et al., 2022). In this context, the potential and actual gaps and failures of legal issuance and the implementation of structural legal reform plans would, for example, contribute positively to legislative reforms regarding the issue of contract law and AI.

4. Discussion

The results presented in this work demonstrate the role of AI in the enrichment of rules of contract law in general and the fluctuation of conventional efficient breach in particular, and further address the legal, ethical, and regulatory challenges that AI brings forth.

When AI technologies are employed to conduct economic analysis, this has direct implications for the efficient breach doctrine. AI systems are also capable of performing more sophisticated calculations that can help psychologists decide with more confidence when it would be most economically feasible to breach a contract. This makes it possible to significantly enhance this system in terms of efficiency and reliability since it allows parties to arrive at decisions that correspond with the rationale of compensating the injured party as per the doctrine provisions (Thirumagal et al., 2024). Nonetheless, it is also apparent that the expanding scope of AI is likely to influence the manner in which such decisions are made with regard to ethical and human aspects of other traditional legal processes. The problem is that while the development of AI systems may help improve economic efficiency, it should still be possible to maintain equity and good faith in contracting. Given that AI is being incorporated into contract law, appropriate legislation must be developed to provide scope for the use of AI in breach decision-making, including openness, bias mitigation, and reconciliation of AI outputs with existing laws (Księżak and Wojtczak, 2023).

Furthermore, against this backdrop are legal issues related to AI-mediated contract negotiations. With the increasing role of artificial intelligence in the negotiation and finalization of contracts, the traditional ideas surrounding autonomous consent have become nebulous. It follows that human parties may have little grasp or leverage of the aspects under discussion by an AI, which leads to speculation on the validity or enforceability of such contracts (Poncibò, 2023). Other ethical concerns include information asymmetry if one party uses AI to gain undue prominence in negotiations, and the unwillingness of investors to sell their company stakes or stock to outside investors. New legal principles will be required to address these issues, particularly concerning how the notions of consent and autonomy will be treated with the growth of AI-backed contracts. Additionally, policies must be put in place to prevent misuse of AI systems in contract negotiations to avoid ethical concerns.

The study of the reactions of the courts to AI in common law contract law shows progressive stages in the evolution of the courts' approaches towards AI integration. In the United Kingdom—a legal precinct where practical usage of AI is more pronounced—courts have proactively encouraged the use of AI in litigation and contracts (Gandhi and Whitman, 2022). On the other hand, in both the United States and Canada, such concerns with respect to accountability and liability still exist, especially when the AI systems that are deployed in contract negotiations are developed by private vendors (Crawford and Schultz, 2019). However, courts in these jurisdictions are becoming aware of the fact that, in some instances, the liability may have to be clearly defined to avoid parties escaping responsibility by using the defense of fault by the AIs. Although Australia is still in the development of AI applications in legal practice, it has similar concerns with the ethical aspects of the AI application—the legal decision-making processes and outcomes where AI is concerned (Sivasankar, 2024). In these jurisdictions, there is already a pressing need for regulatory regimes seeking to address the legal and ethical aspects of AI in contract law, especially with respect to the guilt and justifiability of AI-derived outcomes.

The findings have undesirably pointed out a number of legal reforms that must be taken to facilitate the embrace of AI applications in contracting services. One such area that is in dire need of reform is the formulation of new laws that clearly incorporate the potential challenges that AI will pose to contract law and, more so, the definition or concepts of actor intention, mistakes, and good faith within the context of contracts facilitated by other machines (Księżak and Wojtczak, 2023). There are definitional and normative standards in relation to AI applications that must be met, such as standardization, for instance, the standardization of

legal documents and AI algorithms, to encourage confidence in AI systems from the legal practice fraternity. Additionally, there is a need for regulatory assistance in assessing the risks and clinical performance of AI devices in the legal domain. Such legal and attractive regulatory architectures and frameworks that evaluate AI applications in contract law promote compliance with AI-generated decisions that are legally and ethically bound (Linna, 2021).

5. Conclusion

This study has explored the evolving role of AI in contract law, focusing particularly on its impact on efficient breach doctrine and the broader legal, ethical, and regulatory challenges it introduces. The findings underscore that while AI offers substantial benefits in terms of efficiency, accuracy, and error reduction in contract analysis and decision-making, it also presents significant challenges. These challenges relate to issues of consent, accountability, liability, and fairness, particularly in AI-driven contract negotiations and breach decisions.

The analysis revealed that common law jurisdictions such as the United States, the United Kingdom, Canada, and Australia are at different stages of integrating AI into their legal systems. Each jurisdiction faces unique challenges in balancing the efficiency gains provided by AI with the need for ethical standards and transparent legal processes. While the United Kingdom has taken a proactive stance, integrating AI into legal practices and contract disputes, countries such as the United States and Canada still grapple with concerns surrounding accountability and liability in AI-driven decisions. Australia, although earlier in its AI adoption journey, shares similar ethical concerns, emphasizing the need for regulatory frameworks that address the complexities of AI in contract law.

The opportunities for legal reform discussed in this paper provide a pathway for addressing these challenges. Key areas for reform include the integration of AI into contract management processes; the establishment of new civil law rules that address intent, error, and good faith in AI-driven contracts; the development of standardized legal documents to facilitate AI-driven processes; and the implementation of rigorous regulatory oversight to ensure transparency and accountability. By adopting these reforms, legal systems can better accommodate the growing role of AI in contract law while ensuring that legal processes remain fair, transparent, and aligned with the core principles of justice.

In conclusion, as AI continues to evolve and shape the future of contract law, it is essential that legal frameworks adapt to both the opportunities and challenges it presents. Ensuring that AI-driven decisions in contract negotiations and breaches are fair, transparent, and accountable will require ongoing collaboration between legal professionals, regulators, and AI developers. The future of contract law will depend on how well legal systems can integrate AI benefits while safeguarding the ethical and legal standards that underpin justice.

Compliance with ethical standards

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

References

Al-Kaabi MH (2020). Is it possible to introduce efficient breach theory to a civil law country? The case of Qatar. Arab Law Quarterly, 36(3): 291-323. https://doi.org/10.1163/15730255-BJA10025

Al-Obeidi A and Hussein S (2023). The legal nature of contracts concluded by artificial intelligence according to the UAE electronic transactions and e-commerce law No. 46 of 2021. In the 24th International Arab Conference on Information Technology, IEEE, Ajman, United Arab Emirates: 1-8. https://doi.org/10.1109/ACIT58888.2023.10453892

Armbrüster C and Prill J (2022). Einsatz von KI im versicherungssektor–mit schwerpunkt versicherungsmedizin. Zeitschrift Für Die Gesamte Versicherungswissenschaft, 111(2): 177-189. https://doi.org/10.1007/s12297-022-00527-2 **PMCid:PMC9316861**

Cohen MC, Dahan S, Khern-Am-Nuai W, Shimao H, and Touboul J (2023). The use of AI in legal systems: Determining independent contractor vs. employee status. Artificial Intelligence and Law: 1-30. https://doi.org/10.1007/s10506-023-09353-y **PMid:37361711 PMCid:PMC10061388**

Crawford K and Schultz J (2019). AI systems as state actors. Columbia Law Review, 119(7): 1941-1972.

Ebers M, Poncibò C, and Zou M (2022). Contracting and contract law in the age of artificial intelligence. Bloomsbury Publishing, London, UK. https://doi.org/10.5040/9781509950713

Fathima M, Dhinakaran DP, Thirumalaikumari T, Devi SR, Bindu MR, and Shanthi P (2024). Effectual contract management and analysis with AI-powered technology: Reducing errors and saving time in legal document. In the 9th International Conference on Science Technology Engineering and Mathematics, IEEE, Chennai, India: 1-6. https://doi.org/10.1109/ICONSTEM60960.2024.10568733

Fine A and Marsh S (2024). Judicial leadership matters (yet again): The association between judge and public trust for artificial intelligence in courts. Discover Artificial Intelligence, 4: 44. https://doi.org/10.1007/s44163-024-00142-3

Gadlin H and Welsh NA (2020). Evolution of a field: Personal histories in conflict resolution. DRI Press, Saint Paul, USA.

Gandhi K and Whitman V (2022). Disputes and litigation. In: Kerrigan C (Ed.), Artificial intelligence: 251-265. Edward Elgar Publishing, Cheltenham, UK. https://doi.org/10.4337/9781800371729.00025

González RI (2024). The use of efficient breach of contracts in the automotive cluster of Querétaro, Mexico. Mexican Law Review, 16(2): 55-70. https://doi.org/10.22201/iij.24485306e.2024.2.18893

Herian R (2021). Smart contracts: A remedial analysis. Information and Communications Technology Law, 30(1): 17-34. https://doi.org/10.1080/13600834.2020.1807134

Ismayilzada T (2024). Technical overview of AI and its participation in the contract formation. In: Ismayilzada T

(Ed.), A framework for AI-made mistakes in German and English contract law: A legal, psychological and technical inquiry: 115-185. Volume 5, Springer, Cham, Switzerland. https://doi.org/10.1007/978-3-031-61999-1_4

John AM, Aiswarya MU, and Panachakel JT (2023). Ethical challenges of using artificial intelligence in judiciary. In the IEEE International Conference on Metrology for eXtended Reality, Artificial Intelligence and Neural Engineering, IEEE, Milano, Italy: 723-728. https://doi.org/10.1109/MetroXRAINE58569.2023.10405688

Kaspar J, Harrendorf S, Butz F, Höffler K, Sommerer L, and Christoph S (2023). Artificial intelligence and sentencing from a human rights perspective. In: Završnik A and Simončič K (Eds.), Artificial intelligence, social harms and human rights: 3-34. Springer International Publishing, Cham, Switzerland. https://doi.org/10.1007/978-3-031-19149-7_1

Koos S (2021). Machine acting and contract law–The disruptive factor of artificial intelligence for the freedom concept of the private law. UIR Law Review, 5(1): 1-18. https://doi.org/10.25299/uirlrev.2021.vol5(1).6890

Kovac M (2023). Autonomous AI torts: A comparative law and economics approach. In: Morgan P (Ed.), Tort liability and autonomous systems accidents: 188-210. Edward Elgar Publishing, Cheltenham, UK. https://doi.org/10.4337/9781802203844.00012

Księżak P and Wojtczak S (2023). Introduction: Is a new conceptual network necessary to adapt the civil (private) law to the development of AI and robotics development? In: Księżak P and Wojtczak S (Eds.), Toward a conceptual network for the private law of artificial intelligence: 1-12. Springer International Publishing, Cham, Switzerland. https://doi.org/10.1007/978-3-031-19447-4_1

Kudeikina I and Kaija S (2024). Limits of the use of artificial intelligence in law–ethical and legal aspects. In the International Scientific and Practical Conference Environment, Technologies, Resources, Rezekne, Latvia, 2: 188-191. https://doi.org/10.17770/etr2024vol2.8016

Kull A (2020). Restitution as a remedy for breach of contract. In: Smith L (Ed.), Restitution: 293-346. 1st Edition, Routledge, London, UK. https://doi.org/10.4324/9781003073321-14

Lagioia F, Jabłonowska A, Liepina R, and Drazewski K (2022). AI in search of unfairness in consumer contracts: The terms of service landscape. Journal of Consumer Policy, 45(3): 481-536. https://doi.org/10.1007/s10603-022-09520-9

Linna DW (2021). Evaluating artificial intelligence for legal services: Can "soft law" lead to enforceable standards for effectiveness? IEEE Technology and Society Magazine, 40(4): 37-51. https://doi.org/10.1109/MTS.2021.3123732

Lutman K (2023). Artificial intelligence and the prohibition of discrimination in the EU: A private law perspective. In: Završnik A and Simončič K (Eds.), Artificial intelligence, social harms and human rights: 77-97. Springer International Publishing, Cham, Switzerland. https://doi.org/10.1007/978-3-031-19149-7_4

Martinelli S (2023). AI as a tool to manage contracts consequences and challenges in applying legal tech to contracts management. European Review of Private Law, 31(2/3): 411-426. https://doi.org/10.54648/ERPL2023016

Mik E (2022). Much ado about artificial intelligence or: The automation of contract formation. International Journal of Law and Information Technology, 30(4): 484-506. https://doi.org/10.1093/ijlit/eaad004

Montagnani ML, Najjar MC, and Davola A (2024). The EU regulatory approach (ES) to AI liability, and its application to the financial services market. Computer Law and Security Review, 53: 105984. https://doi.org/10.1016/j.clsr.2024.105984

Nowik P (2021). Electronic personhood for artificial intelligence in the workplace. Computer Law and Security Review, 42: 105584. https://doi.org/10.1016/j.clsr.2021.105584

Papadouli V and Papakonstantinou V (2023). A preliminary study on artificial intelligence oracles and smart contracts: A legal approach to the interaction of two novel technological breakthroughs. Computer Law and Security Review, 51: 105869. https://doi.org/10.1016/j.clsr.2023.105869

Poncibò C (2023). Artificial intelligence as a communication tool in contract law. European Review of Private Law, 31(2/3): 239–260. https://doi.org/10.54648/ERPL2023012

Qasim A, El Refae GA, and Eletter S (2023). A proposed model to integrate drone technology in accounting for long term contracts: A cash flow management perspictive. International Arab Journal of Information Technology, 20(3 Special Issue 2023): 477-484. https://doi.org/10.34028/iajit/20/3A/5

Rajendra JB and S Thuraisingam A (2022). Artificial intelligence and its impact on the legal fraternity. UUM Journal of Legal Studies, 13(1): 129-161. https://doi.org/10.32890/uumjls2022.13.2.6

Scalise RJ (2007). Why no "efficient breach" in the civil law?: A comparative assessment of the doctrine of efficient breach of contract. The American Journal of Comparative Law, 55(4): 721-766. https://doi.org/10.1093/ajcl/55.4.721

Schmitz AJ (2019). Expanding access to remedies through e-court initiatives. Buffalo Law Review, 67(1): 89-163. https://doi.org/10.20885/PLR.vol1.iss1.art5

Schulze-Horn I, Hueren S, Scheffler P, and Schiele H (2020). Artificial intelligence in purchasing: Facilitating mechanism design-based negotiations. Applied Artificial Intelligence, 34(8): 618-642. https://doi.org/10.1080/08839514.2020.1749337

Shen Z and Jin L (2024). Bargaining with algorithms: How consumers respond to offers proposed by algorithms versus humans. Journal of Retailing, 100(3): 345-361. https://doi.org/10.1016/j.jretai.2024.05.001

Sivasankar S (2024). A comparative study on artificial intelligence and courtroom practices with India, UK, and USA. In: Dadwal S, Goyal S, Kumar P, and Verma R (Eds.), Demystifying the dark side of AI in business: 1-19. IGI Global, Pennsylvania, USA. https://doi.org/10.4018/979-8-3693-0724-3.ch001

Stahl BC, Antoniou J, Bhalla N, Brooks L, Jansen P, Lindqvist B, Kirichenko A, Marchal S, Rodrigues R, Santiago N, and Warso Z (2023). A systematic review of artificial intelligence impact assessments. Artificial Intelligence Review, 56(11): 12799-12831. https://doi.org/10.1007/s10462-023-10420-8 **PMid:37362899 PMCid:PMC10037374**

Stathis G, Trantas A, Biagioni G, van den Herik HJ, Custers B, Daniele L, and Katsigiannis T (2023). Towards a foundation for intelligent contracts. In the 15th International Conference on Agents and Artificial Intelligence, SciTePress, Lisbon, Portugal, 2: 87-98. https://doi.org/10.5220/0011628200003393

Thirumagal PG, Raj MMA, Naser SJ, Hussien NA, Abbas JK, and Vinayagam S (2024). Efficient contract analysis and management through AI-powered tool: Time savings and error reduction in legal document review. In the 9th International Conference on Science Technology Engineering and Mathematics, IEEE, Chennai, India: 1-6. https://doi.org/10.1109/ICONSTEM60960.2024.10568823

Tung K (2019). AI, the internet of legal things, and lawyers. Journal of Management Analytics, 6(4): 390-403. https://doi.org/10.1080/23270012.2019.1671242

Tzimas T (2023). Algorithmic transparency and explainability under EU law. European Public Law, 29(4): 385-411. https://doi.org/10.54648/EURO2023021

Walters R and Novak M (2021). Artificial intelligence and law. In: Walters R and Novak M (Eds.), Cyber security, artificial

intelligence, data protection and the law: 39-69. Springer, Singapore, Singapore. https://doi.org/10.1007/978-981-16-1665-5_3

Wilkinson S (2023). As interest in using artificial intelligence increases, can UK and EU compliance legislation keep pace with the rate of change? Journal of Data Protection and Privacy, 6(1): 9-23. https://doi.org/10.69554/VMRS8882

Zavhorodnia V, Slavko A, Shvaher O, Kamionka M, Cojocari I, and Polyakova L (2022). Artificial intelligence in the judiciary: Challenges and tools for achieving sustainable development goals. International Journal of Global Environmental Issues, 21(2-4): 322-342. https://doi.org/10.1504/IJGENVI.2022.126199