Research Article / Научная статья УДК 347.77

DOI: 10.14258/SSI(2024)2-05

Infringement of AI Intellectual Property Rights and Legal Liability on e-Commerce Marketplaces: New Challenges

Anna V. Pokrovskaya

Intellectual Property Center "Skolkovo", Moscow, Russia; 1142220181@pfur.ru, https://orcid.org/0009-0002-6473-2027

Abstract. This article investigates the intricate linkage between artificial intelligence, intellectual property, and the digital commerce sector. It delves into AI algorithms' profound impacts on the legal landscape. In an era where businesses heavily rely on AI for duties varying from custom recommendations to fraud identification, the analysis meticulously scrutinizes the internal workings of these algorithms and their implications for intellectual property rights within digital commerce platforms. Through a comprehensive scientific study, potential pitfalls emerge, highlighting the dangers of possible copyright, trademark, patent, and trade secret violations originating from AI-generated content. As the boundaries of ownership become increasingly ambiguous due to the intricacy of assigning accountability in AI-driven systems, developers and creators face the challenge of comprehending and mitigating these risks. The analysis illuminates the uncertainties surrounding possession when AI assumes the role of inventor, underscoring the urgent need for a adaptable legal framework that can adjust to the pace of technological progress. The article puts forth applicable recommendations to mitigate these risks, putting an emphasis on responsibility, principled innovation, and legal conformity in the face of evolving technologies. By connecting the realms of law and technology, this examination offers a holistic analysis of the infringements on AI intellectual property rights and the legal obligations of digital commerce platforms. It underscores the necessity of flexible legal structures that can accommodate the rapid evolution of AI, ensuring a symbiotic relationship between innovation and legal adherence in the digital commerce domain. The research not only elucidates the multifaceted challenges that AI presents but also provides strategic insights to navigate these intricacies with integrity and foresight. Through its in-depth exploration of AI's impact on intellectual property within the digital commerce sphere, this article aims to equip stakeholders with a nuanced understanding of the legal ramifications and ethical considerations inherent in AI-driven innovation. By offering a roadmap for navigating these uncharted territories, the study strives to foster a culture of accountable innovation and legal compliance in the ever-evolving landscape of digital commerce.

Keywords: AI technologies, digital era, e-commerce, algorithms, AI-generated content, intellectual property rights, online sphere

For citation: Pokrovskaya, A.V. (2024). Infringement of Al Intellectual Property Rights and legal liability on e-Commerce Marketplaces: New Challenges. *Society and Security Insights, 7*(2), 91–103. (In Russ.). doi: 10.14258/ssi(2024)2-05.

Нарушение прав интеллектуальной собственности на ИИ и юридическая ответственность на торговых площадках электронной коммерции: новые вызовы

Анна Владимировна Покровская

ЦИС «Сколково», Москва, Россия; 1142220181@pfur.ru, https://orcid.org/0009-0002-6473-2027

Аннотация. В статье исследуется тесная взаимосвязь между искусственным интеллектом, интеллектуальной собственностью и сектором цифровой коммерции. Она посвящена глубокому влиянию алгоритмов искусственного интеллекта на юридический ландшафт. В наше время предприятия в значительной степени полагаются на искусственный интеллект для выполнения различных задач — от разработки индивидуальных рекомендаций до выявления мошенничества; в статье проводится подробный анализ внутренних механизмов работы этих алгоритмов и их последствий для прав интеллектуальной собственности в рамках платформ цифровой торговли. Благодаря всестороннему научному исследованию выявляются потенциальные подводные камни, указывающие на опасность возможных нарушений авторских прав, торговых марок, патентов и коммерческой тайны, связанных с контентом, создаваемым искусственным интеллектом. Поскольку границы собственности становятся все более неопределенными из-за сложности распределения ответственности в системах, управляемых ИИ, разработчики и создатели сталкиваются с проблемой понимания и снижения этих рисков. Анализ показывает неопределенность, связанную с владением, когда ИИ берет на себя роль изобретателя, подчеркивая настоятельную необходимость в адаптируемой правовой базе, способной подстраиваться под темпы технологического прогресса. В статье предлагаются рекомендации по снижению этих рисков, в которых особое внимание уделяется ответственности, принципиальным инновациям и правовому соответствию перед лицом развивающихся технологий. Соединяя сферы права и технологий, данное исследование предлагает целостный анализ нарушений прав интеллектуальной собственности на ИИ и юридических обязательств платформ цифровой торговли. Подчеркивается необходимость создания гибких правовых структур, способных учитывать стремительную эволюцию ИИ, обеспечивая симбиотическую связь между инновациями и соблюдением правовых норм в сфере цифровой торговли. Исследование не только проясняет многогранные проблемы, которые ставит перед нами ИИ, но и предлагает стратегические решения, позволяющие преодолевать эти сложности с честностью и дальновидностью. Благодаря углубленному изучению влияния ИИ на интеллектуальную собственность в сфере цифровой коммерции эта статья призвана вооружить заинтересованных лиц тонким пониманием юридических последствий и этических соображений, присущих инновациям, основанным на ИИ. Предлагая «дорожную карту» для навигации по этим неизведанным территориям, исследование стремится сформировать культуру ответственных инноваций и соблюдения правовых норм в постоянно развивающемся ландшафте цифровой коммерции.

Ключевые слова: технологии искусственного интеллекта, цифровая эпоха, электронная коммерция, алгоритмы, созданный искусственным интеллектом контент, права интеллектуальной собственности, онлайн-сфера

Для цитирования: Покровская А.В. Нарушение прав интеллектуальной собственности на ИИ и юридическая ответственность на торговых площадках электронной коммерции: новые вызовы // Society and Security Insights. 2024. Т.7, № 2. С. 91–103. doi: 10.14258/ssi(2024)2-05.

1. Introduction

The rapid development of AI technologies in e-commerce has changed the way businesses work and interact with their clients. Generally, with the opportunities to process the large amounts of information and make smart decisions, AI has become a major disruptor in e-commerce. First, AI has changed the customer experience model.

Currently, e-commerce companies are using AI algorithms and other machine learning approaches to analyze the behavior patterns, preferences, and previous interactions to suggest personal recommendations. Such a model allows to better understand the customers and improve and individualize the suggesting approach. Other, AI is used to develop search engines that help to search the product and navigate to it more quickly. Finally, AI has helped in fighting frauds. Basically, the information technologies have enhanced the rate of the online frauds and the use of AI helps businesses to detect the patterns and anomalies in the user activity and identify the potential fraud. This stops the financial frauds problems and the customers' personal data problems. Then, AI helps in optimizing the operational processes. For instance, AI algorithms monitor inventory processes and analyze historical information to forecast the future demand and stock the relevant amount of the product, so the company avoids losing money because of the stock outs. Finally, AI supports innovations such as chat bots and AI-driven virtual assistants that help in the customer service. Generally, the AI development has provided the companies with new opportunities, but there are also some new issues related to the AI implementation. Such issues as the intellectual property and the legal matters should be addressed and innovated to provide e-commerce the promising future.

Methodology

In this study, the general scientific and special methods of cognition are used. While the research question is examining AI technologies in e-commerce markets, the integral perspective of analyzing the consequences of AI on intellectual property rights violation is conducted. Therefore, a deep analysis of the mechanisms of using AI algorithms and machine learning models in the e-commerce platforms is needed, the potential threats and weaknesses of the systems, and the legal consequences to the unfolding of such flaws or a breach of rights are to be known. The methodology utilized in this study implies the analysis of the evidence-based empirical material from the scientific literature, judicial practice, and normative legal acts. The methodology also intends the thorough analysis of the existing legislation and policies referring to intellectual property rights and e-commerce markets. Finally, being built on the insights gained from the previous sections, the data analysis, the assessment of the existing normative base and pending problems, the recommendations section suggests the comprehensive list of measures and initiatives relevant to the existing problems. The recommendations target the elimination of challenges revealed in the study, the enhancement of human

rights and freedoms on the e-commerce area, setting the legislation-based accountability, and legal responsibility of all stakeholders involved.

2. The Role of AI algorithms and machine learning in e-commerce platforms

The functioning of e-commerce could be impossible without the AI algorithms and machine learning. The ability of these tools to process enormous amounts of information, extract valuable insights, and generate intelligent predictions and recommendations is what makes e-commerce personalized, efficient, and profitable. For instance, it has already been mentioned that they provide the basis for the recommendation system, which is considered the primary customer engagement tools (Khrais, 2020). AI algorithms and machine learning can also assist in customer segmentation to maximize the effect of targeted advertisements. By evaluating the purchasing history and behavior on the platform, machine learning algorithms can distinguish customers by their purchasing patterns based on their behavior, allowing for highly customized and attractive offers. AI algorithms also dramatically improve the functionality of searching the platform. By evaluating large amounts of data on each product in the database, it can show accurate search results and minimize customers' time spent searching. It not only increases customer engagement and retainment and makes the customer experience more enjoyable, but also economic, as it takes less money to keep the servers running. Another interesting implementation of the recommendations system is dynamic pricing. By considering demand, competition, and consumer sentiments, companies using AI and machine learning can scale their revenues to a reasonable price, tailoring a sale to their community, and increasing product demand.

Furthermore, AI algorithms are used for fraud prevention and detection in e-commerce platforms. Based on analyzing the transaction-based data, machine learning models can spot and flag certain data points or patterns as being more likely to be a fraudulent purchase or an unauthorized login attempt (Vergne, 2020). This allows e-commerce platforms to implement strong protection measures, mitigate financial losses and secure good reputation among both clients and sellers. Other than that, AI algorithms serve other roles in e-commerce platforms as well — namely, those are inventory management and supply chain optimization (Lingam, 2018). Based on the historical sales, sales forecasts and other factors such as seasonality and market trends, machine learning models can predict the future demand for a product. This allows the e-commerce platform to minimize inventory levels and get rid of stockouts and overstocking issues, thus, helping to reduce costs. AI algorithms can also be used for customer support and services. Chatbots and virtual assistants powered by the natural language process and machine learning can handle user inquiries, queries as well as provide suggestions and prompts. These assistants can respond in real-time and are highly responsive to messages, which makes them a suitable companion in providing customer services. Lastly, AI algorithms are ideal for image and video recognition in e-commerce platforms (Gochhait et al., 2020). With the help of the computer vision software, they can analyze and tag product images automatically, extract the most relevant features and enable the visual search.

3. Mitigating Risks of AI Intellectual Property Infringement

3.1. Challenges in determining accountability and gauging comprehension in AI-generated materials

Safeguarding inventors and rights holders in the electronic age. Fostering innovation and creativity through fair handling of ideas is imperative for sustained economic growth. As online marketplaces and ecommerce platforms dominate commerce, governance should ensure intrinsic protections for intellectual property remain intact. Policies uphold various rights like copyrights, trademarks, patents, and industrial secrets. Ecommerce platforms facilitate transactions between sellers and consumers, serving as intermediaries through their digital venues. Content ownership becomes blurry as artificial intelligence that powers language models and generative systems may unintentionally copy expressions. Platforms walking the line between enabling AI applications and curbing pilfered works. Striking a principled balance merits consideration and discussion (Grover & Teng ,2001). To develop trust and promote safe and legal commerce, online builders must create new strategies and procedures to address concerns related to a seller's or trader's infringement of intellectual property rights.

Aside from notice and takedown schemes (Kumar et al., 2021), e-commerce platforms are equipped with a variety of other technologies to tackle copyright violations and safeguard the interests of content creators. Content filtering technologies can be used to automatically discover and block the upload or sale of right's-infringed materials (Tan et al., 2021). In any case, companies may align themselves with copyright collection societies to solve the intricacies of licensing and royalty management for them.

E-commerce platforms have a system in place for disciplineing multiple infringers of intellectual ownership. Penalties can escalate, or enforcement measures can increase on sellers who committed more than one violation. The goal is the same as previously — e-commerce platforms aspire to provide a safe and secure location to facilitate transaction while protecting the consumer's and right-holder's interests.

Intellectual property policies for e-commerce platforms need to incorporate measures to guarantee transparency and accountability. Platforms are required to have processes and procedures for reporting violations and must have open information to its consumers and stakeholders. They must establish intellectual property dispute resolution mechanisms and regularly update the public on the number and outcomes of several takedown requests and the type of enforcement actions taken as measures to ensure transparency.

In summary, intellectual property policies are fundamental frameworks for protecting the rights of content creators and other rights holders. Though collaboration and adherence by both players, these policies can help in the creation of a flourishing and sustainable digital marketplace that integrates innovation, creativity, and economic development growth. It is, therefore, vital for e-commerce platforms to strike a perfect balance between establishing proper spaces for legitimate commerce and enforcing intellectual property rights. Firms are required to create policies and enforcement measures that help address intellectual property infringement concerns to foster the notion of trust and security as well as growth.

3.2. Content filtering technologies for identifying infringing content

Content filtering technologies are digital means used by e-commerce platforms to determine and prevent the existence of infringing content uploaded or offered for sale (Pokrovskaya, 2023). The technologies, using various methodologies, analyze the uploaded content and compare it with other known copyrighted works or other forms of intellectual property. The purpose of content filtering technologies is to detect potentially infringing conceptual or literal content before it is published or offered to the public or other users of the platform. The conceptual approach ensures that copyrighted material is not distributed unauthorizedly.

There are different approaches for content filtering, and the following are some examples (Lyu et al., 2020): hash algorithms that help to compute a unique digital file information known as a hash out of a copyrighted document and compare with the guard document or what has been uploaded to the platform. Image recognition or music recognition algorithms, imitating file metadata analysis, could be used for comparing image copyrights or video recognition.

The methods, which are presented above, are all realistic and achievable for the content filtering approach. Most platforms combine some of the methodologies to reach the best possible accuracy for copyright detection. Moreover, some schemes are used for either discovering positive or negative matches by the system. Whitelisting and blacklisting can be combined together to compare if it is authorized or not. Whitelisting compares the content hash made from the file to the hash list of the same files that are authorized or not. Blacklisting compares content with the hash of a known file that is not authorized.

In addition to the methods that are described, other methods are also used. The platforms also invest in the improvement of the methodologies to increase the accuracy of the detection systems. All these methods are not a permanent solution, as the law is changing and new ways to infringe are being created. That is the reason why platforms invest heavily in research for improvements. The platforms always have a second thought about the positive match of an infringement and always can appeal the decision to ban content to the creator. All of this helps to the basis of digital copyright in the e-commerce sector to be in step with modernity and effective.

4. Emerging Technologies and Frameworks

4.1. The role of blockchain in intellectual property rights protection

It has been explored as a potential tool to improve the enforcement of intellectual property rights for blockchain technology. The decentralized and secure nature of a distributed ledger makes them well–suited for addressing some of the challenges associated with the implementation of IPR, such as copyright infringement or counterfeit goods. For starters, blockchain allows the creation of an immutable ledger, meaning once details concerning intellectual property ownership, licensing, or patent application is recorded on the blockchain, it can be any changed or modified afterward without detection (Xiao at al., 2020). This can provide irrefutable proof of ownership and prevent unauthorized usage of the property.

Smart contracts are used by several other key blockchain features, self–executing deals with the contract's provisions directly into code (Hewa at al., 2021). Smart contracts can also be used to automate contractual enforcement on intellectual property, such as licensing or distribution, which eliminates intermediaries from transaction negotiations and decreases the risk of conflict and both sides fail to meet their obligations. Another opportunity for blockchain is the establishment of decentralized systems for the protection and management of digital content. Storing details associated with digital creation or copyrighted material on this kind of blockchain gives content creators robust evidence of ownership and helps them regulate and monitor use and distribution. Such protection will assist in identifying and preventing unauthorized distribution and guarantee a fair distribution of royalty.

Blockchain can disrupt the counterfeit market by creating an unchangeable and trackable record of the supply chain (Negi et al., 2021). For example, the blockchain may capture the provenance, production, and movement of a product. As a result, the buyer and the authorities respond to the authenticity of the product to make the detection of fake items more efficient. The use of blockchain technology is physically impossible to prevent in battling counterfeit goods.

Blockchain can simplify IP licensing and authorization management. The decentralized database of licenses and authorizations significantly decreases transaction costs while enhancing transparency in the process of permits issuance and withdrawal. Blockchain can help streamline the cumbersome process of issuing an authorization based on permitting access at a lower risk expense and without the right holder challenging illegal use conditions.

Copyright registration and validation can be accomplished through the use of block-chain-based platforms (Singh & Rishi, 2020). A timestamp on a piece of artwork stored online verifies the said work. Creators of funds may use this as a defense in any infringement case by "proving" that they released their creation before the alleged infringer, although the actual timestamp does not need to be correct. Blockchain can also be applied to obtain potential rights and resolve disputes. Smart contracts allow the parties to determine clauses which activate automatic payments when a party does not fulfill its obligations, reducing the costs of fulfilling the law to reduce litigation expenses.

Thus, to sum it up, blockchain technology provides a variety of benefits in terms of intellectual property rights, such as unrepealable recording, usage for smart contracts, management and marketing of digital rights, monitoring of royalty distribution, copyrighting, fake prevention, and dispute resolution. Consequently, blockchain can be used to improve opportunity and trust for creators and rights holders.

5. Case Studies

While artificial intelligence technologies' integration continues to rapidly transform entire industries in unexpected ways, creating both promising opportunities and unforeseen legal challenges, particularly regarding intellectual property rights and determining liability in novel marketplace contexts such as complex global e-commerce platforms. The combinatorial effects of artificial intelligence technology's expanding computational

capabilities and traditional concepts of intellectual property ownership and licensing remain unclear for businesses, innovators, and legal professionals alike as these fields evolve together at an accelerating pace. A more sophisticated and nuanced understanding of how potential infringement of intellectual property rights by or relating to AI systems may threaten principles of fair competition, protection of innovation, and respect for the rule of law underlying the digital economy is sorely needed.

The Legal Precedent of DexCom Inc. v AgaMatrix¹. The medical device firm DexCom sued AgaMatrix innovation for patent infringement of intellectual property right regarding raise glucose monitoring. It also asserted that AgaMatrix had plagiarized its technologies in the Artificial Intelligence algorithms applied in its device. In the health-care system, the court ruled in DexCom's favor, implying that protecting intellectual property rights linked to AI technologies might be challenging.

Apple Inc. filed a lawsuit against Samsung Electronics Co². for patent claim violation in numerous countries. Apple claimed that several of Samsung's device characteristics, including the voice assistant, and computer-imaged oriented on AI, all infringed upon Apple's intellectual property rights. This instance illustrates the complexity of enforcing intellectual property rights in the sector of AI and mobile devices.

A landmark lawsuit was filed by Oracle against Google due to the alleged copyright infringement³. Google used a Java programming language while developing the Android OS. The primary dispute was whether the use of Java APIs by Google was a "fair" use or infringement. This case has complicated more details regarding the limitation or extension of AI-related intellectual property claims and fair use as well as the software industry in general.

The copyright claim case between two dominant online platforms for small video sharing, TikTok and Triller⁴, TikTok was charged with utilizing its AI source code to parse through Triller's video content and create comparable content. The lawsuit depicts a more pressing challenge for law in maintaining an internet content protection regime against issues revolving around technology and the law. The critical questions being, when and how legal systems will adapt to technology advancement?

These case studies have illustrated the complex relationship between AI technologies, intellectual property rights, and legal liabilities in the fast and evolving landscape of e-commerce marketplaces. More significantly, these cases have highlighted the critical importance of protecting intellectual property is the digital era and concocting the numerous legal challenges of AI innovation.

6. Results

The investigation into the encroachment of machine intelligence legal rights and accountability on digital marketplaces exposed an illuminating series of core findings that

¹ Dexcom, Inc. v. Agamatrix, Inc., Case No.: 2:16-cv-5947 SJO (ASx) (C.D. Cal. Feb. 23, 2018).

² Apple, Inc. v. Samsung Electronics Co., Case No. 11-CV-01846-LHK (N.D. Cal. Jun. 19, 2015).

³ Google LLC v. Oracle Am., Inc., 141 S. Ct. 1183, 209 L. Ed. 2d 311 (2021).

⁴ Triller, Inc. v. Bytedance Ltd. et al. (W.D. Tex. 6:20-CV-693) (Nov. 24, 2020).

illuminated the modern landscape and impending repercussions of AI-propelled innovations in the realm of intellectual property.

The inquiry uncovered that computational models have radically overhauled the origination, distribution, and safeguarding of intellectual property in e-commerce settings. Algorithmic protocols play a pivotal part in content formation, product evolution, and decision-making procedures, thereby redefining time-honored notions of intellectual property possession and protection.

The examination discerned a vast range of difficulties and opportunities stemming from the mounting reliance on AI on electronic commerce platforms. While AI-driven progress presents unprecedented efficiency and scalability, they also pose intricate lawful and ethic problems regarding intellectual property rights and liability.

The research underscored the necessity to elucidate ownership and accountability frameworks in light of AI-spawned intellectual property. As computational systems autonomously fashion content and inventions, existing legal norms face an urgent need for adaptation to accommodate the novel abilities and obstacles introduced by AI technologies.

The analysis emphasized the importance of fostering collaboration between stake-holders to address the evolving intersection of machine intelligence and intellectual property. By engaging policymakers, legal experts, AI developers, and e-commerce marketplaces in dialogue and cooperation, the research highlighted the potential for groundbreaking solutions and best practices to navigate the complexities of AI-propelled intellectual property.

The conclusions of the research suggest the necessity for policymakers to proactively address the legal and regulatory gaps arising from AI's impact on intellectual property in e-commerce markets. Clear guidelines and frameworks are essential to ensure robust protection of intellectual property rights while fostering innovation and competitiveness in the digital economy.

In summation, the results of the study underscored the transformative power of AI in reshaping intellectual property landscapes within e-commerce environments. By elucidating the challenges, opportunities, and policy implications of AI's influence on intellectual property, the research provides valuable insights for stakeholders seeking to navigate the dynamic intersection of AI technology and legal frameworks in the digital age.

7. Discussion

In the e-commerce marketplaces context, the infringement of AI intellectual property rights and legal liability issues present additional challenges. Thus, given the widespread use of AI technology, complexities such as ownership, inventorship, attribution, and copyright require comprehensive solutions and perspective actions agreed upon by the involved participants. Therefore, to meet these challenges and overcome these issues, it is essential to develop standards and best practices. Thus, the AI-generated works intellectual property rights best practices will alleviate the situation by providing clear and coherent insights into this complex issue regarding determining intellectual property rights. Furthermore, licensing and agreement mechanisms should be enhanced to ensure fair compensation. Eventually, the involved parties should collaborate to develop licensing

frameworks as they commercialize and use AI-generated inventions and content. This will enable defining the negotiation terms on the revenue share, attribution stipulations, and usage limitations. Sharing knowledge and involvement of expertise is also crucial. It implies that AI developers and rights holders should share their information to fully understand the issue and find the solution. Proactive measures will be integrated into AI systems to achieve responsible AI system use. This includes implementing an ethical framework and human oversight. Also, research and development should continue enhancing the solution to the described problem.

Governmental and inter-governmental legislative and regulatory measures are also important in the context of AI intellectual property. One of the most important functions of governments and international bodies in this field is the establishment of a legal basis regulating AI intellectual property rights. This basis shall consist, among other things, of laws and regulations that define the new dimensions of AI-generated works for intellectual property rights. It is crucial to fully appreciate the diverse perspectives on some foundational issues by considering existing legislation. A key consideration relates to determining the legal status of AI systems, which influences how rights and duties are defined within intellectual property. Standardizing intellectual property laws across jurisdictions also warrants examination.

The speed of AI development far outpaces the ability of current legislation and regulation to address technological challenges. Harmonized standards promoting simplicity and cooperation could help remedy this imbalance. Moreover, specialized dispute resolution mechanisms focusing specifically on AI intellectual property rights may prove more suited than prolonged general legal processes. Expert arbitration panels and mediators could expedite matters concerning AI and intellectual property.

All involved groups require awareness of responsibilities and vulnerabilities. Policymakers, businesses, inventors and the public must understand implications. Public-private partnerships could stimulate sharing knowledge and practices to fuel innovation. Collaboration may also facilitate international norms and guidelines for responsible, ethical AI use.

In summary, AI intellectual property poses intricate difficulties necessitating varied tactics. Legislation, arbitration, acculturation and cooperative networks all have important roles in incentivizing progress, ensuring accountability and prioritizing ethics throughout AI technology advancement. Without proactively addressing interrelated legal, social and technical issues, equitable treatment, responsibility and moral application of AI cannot be guaranteed.

8. Conclusion

Therefore, it is obvious that the growth of artificial intelligence in the e-commerce marketplaces confronts new challenges concerning significant, substantive violations of the intellectual property rights and corresponding legal liability. The present article illustrates that the broad potential of AI algorithms and machine learning systems to substantially transform the e-commerce marketplaces has the effect of improving user interaction and operational efficiency results in serious issues of the utilization of AI

without respecting intellectual property rights. As such, e-commerce marketplaces face complex legal surrounding the intellectual property rights of AI, and it seems obvious that they need to be proactive to reduce the risks of utilization of AI technologies and infringe on their rights. The aim can be achieved using AI governance and due diligence of marketplaces and ensuring the fair treatment mechanisms. Finally, e-commerce marketplaces, AI developers, and legal experts must continue to collaborate to ensure the set requirements. Only in the case of utilizing an ethical AI-use framework, e-commerce can grow in the future and meet the challenges and better understanding of AI.

Regulatory issues concerning intellectual property include the following:

- Deciding who owns the intellectual property produced by AI might be difficult. It has sparked the question of whether AI itself can develop original work and who has the authority to claim ownership. Inventorship: As seen, AI systems are capable of coming up with creative and brilliant ideas and outputs. This raises the issue of who should take credit for the invention of AI-produced inventions.
- The patentability standards may need to be revised to reflect AI-created inventions. Existing requirements of human invention and non-obviousness may need to be modified to accommodate AI intervention.
- Comparable to patents, there has been a debate about whether AI systems may be considered the authors of original works. Therefore, clear regulations outlining copyright ownership and protection must be in place.
- AI systems make independent choices, and it might be difficult to link legal responsibility for their consequences. Determining whether accountability can remain with the AI system, creators, or users is complicated,
- The AI system's nondisclosure and non-transparency issues may make it challenging to be responsible for using it's missteps. This is even more concerning in areas of severity such as health and self-driving cars.
- AI systems are dependent on gathering and using substantial amounts of personal information. However, consent is a must priority and can be difficult during practice. Importance of Ethical considerations: Legal culpability must address any ethical aspects such as equality, discrimination, and bias of AI judgment outcomes. Developers, as well as enterprises, are required to be held accountable for creating and operating equitable AI systems.
- Policymakers and legal experts are developing frameworks and regulations. They attempt to maintain a delicate balance between protecting intellectual property, supporting legal accountability, and encouraging more responsible AI practices. Active collaboration of governments, industries, and academia is essential to address the AI intellectual property rights and legal liability landscape as per our rapidly shifting environment's needs. It is crucial that AI developers, e-commerce platforms, and rights holders take the initiative and actively cooperate to tackle the challenges of intellectual property and liability during the era of AI.

REFERENCES

Ballardini, R. M., He, K., & Roos, T. (2019). AI-generated content: authorship and inventorship in the age of artificial intelligence. *Online Distribution of Content in the EU*, 117–135.

Gochhait, S., Mazumdar, O., Chahal, S., Kanwat, P., Gupta, S., Sharma, R., ... & Sachan, R. (2020). Role of artificial intelligence (AI) in understanding the behavior pattern: a study on e-commerce. *ICDSMLA 2019: Proceedings of the 1st International Conference on Data Science, Machine Learning and Applications*, 1600–1606.

Grover, V., & Teng, J. T. (2001). E-commerce and the information market. *Communications of the ACM*, 44(4), 79–86.

Hewa, T. M., Hu, Y., Liyanage, M., Kanhare, S. S., & Ylianttila, M. (2021). Survey on blockchain-based smart contracts: Technical aspects and future research. *IEEE Access*, 9, 87643–87662.

Kumar, A., Finley, B., Braud, T., Tarkoma, S., & Hui, P. (2020). Sketching an ai market-place: Tech, economic, and regulatory aspects. *IEEE Access*, 9, 13761–13774.

Khrais, L. T. (2020). Role of artificial intelligence in shaping consumer demand in E-commerce. *Future Internet*, *12*(12), 226.

Lingam, Y. K. (2018). The role of Artificial Intelligence (AI) in making accurate stock decisions in E-commerce industry. *Int. J. Adv. Res. Ideas Innov. Technol*, 4(3), 2281–2286.

Lyu, L., Li, Y., Nandakumar, K., Yu, J., & Ma, X. (2020). How to democratise and protect AI: Fair and differentially private decentralised deep learning. *IEEE Transactions on Dependable and Secure Computing*, 19(2), 1003–1017.

Negi, D., Sah, A., Rawat, S., Choudhury, T., & Khanna, A. (2021). Block chain platforms and smart contracts. *Blockchain Applications in IoT Ecosystem*, 65–76.

Pokrovskaya, A. (2023). Intermediaries liability for copyright infringement: application of the "safe harbor" model. *E3S Web of Conferences*, 420, 06046.

Singh, M. K., & Rishi, O. P. (2020). Event driven recommendation system for E-commerce using knowledge based collaborative filtering technique. *Scalable Computing: Practice and Experience*, *21*(3), 369–378.

Tan, W., Zhang, X., & Cai, X. (2021). Digital Rights Management platform based on Blockchain technology. *Human Centered Computing: 6th International Conference, HCC 2020, Virtual Event, December 14–15, 2020, Revised Selected Papers 6, 173–183.*

Vergne, J. P. (2020). Decentralized vs. distributed organization: Blockchain, machine learning and the future of the digital platform. *Organization Theory*, *1*(4).

Xiao, L., Huang, W., Xie, Y., Xiao, W., & Li, K. C. (2020). A blockchain-based traceable IP copyright protection algorithm. *IEEE Access*, *8*, 49532–49542.

INFORMATION ABOUT THE AUTHOR / ИНФОРМАЦИЯ ОБ АВТОРЕ

Anna V. Pokrovskaya — Postgraduate student of the Law Institute, Department of Civil Law and Procedure and Private International Law, Moscow, Russia. Expert of patent practice national phases, Intellectual Property Center "Skolkovo", Moscow, Russia.

Анна Владимировна Покровская — аспирант юридического института, кафедры гражданского права и процесса и международного частного права, г. Москва, Россия. Эксперт патентной практики по национальным фазам РФ, ЦИС «Сколково», г. Москва, Россия.

Статья поступила в редакцию 20.05.2024; одобрена после рецензирования 10.06.2024; принята к публикации 10.06.2024. The article was submitted 20.05.2024; approved after reviewing 10.06.2024; accepted for publication 10.06.2024.