University of Priština in Kosovska Mitrovica
FACULTY OF LAW

INSTITUTE OF CRIMINOLOGICAL AND SOCIOLOGICAL RESEARCH
Belgrade

INSTITUTE OF COMPARATIVE LAW
Belgrade

International Scientific Conference
“CONTEMPORARY CHALLENGES IN THE ACHIEVEMENT AND PROTECTION OF HUMAN RIGHTS”

University of Pristina
Kosovska Mitrovica
Faculty of Law

Institute of Criminological and Sociological Research
Belgrade

Institute of Comparative Law
Belgrade

International Scientific Conference

CONTEMPORARY CHALLENGES IN THE ACHIEVEMENT AND PROTECTION OF HUMAN RIGHTS

Thematic Conference Proceedings

The International Scientific Conference “Contemporary challenges in the achievement and protection of human rights” was held on 23th and 24th of May 2025 at University of Priština, Faculty of Law in Kosovska Mitrovica

Kosovska Mitrovica, 2025.

University of Priština in Kosovska Mitrovica
FACULTY OF LAW

INSTITUTE FOR CRIMINOLOGICAL AND SOCIOLOGICAL RESEARCH
Belgrade

INSTITUTE FOR COMPARATIVE LAW
Belgrade

International Scientific Conference
"CONTEMPORARY CHALLENGES IN THE ACHIEVEMENT AND PROTECTION OF HUMAN RIGHTS"

Publishers
University of Priština, Faculty of Law
No. 29 Lole Ribara St. 38220 Kosovska Mitrovica, www.pra.pr.ac.rs

Institute for Criminological and Sociological Research
No. 18 Gračanička St. 11000 Belgrade, www.iksi.ac.rs

Institute for Comparative Law
No. 41 Terazije St. 11103 Belgrade, www.iup.rs

For the Publishers
Prof. Slobodanka Perić, Ph.D. Dean
Ivana Stevanović, Ph.D. Director
Prof. Jelena Ćeranić Perišić, Ph.D. Director

Prof. Suzana Dimić, Ph.D.
Associate Professor, University of Priština in Kosovska Mitrovica, Faculty of Law
Prof. Srdjan Radulović, Ph.D.
Associate Professor, University of Priština in Kosovska Mitrovica, Faculty of Law
Prof. Gordana Damjanović, Ph.D.
Associate Professor, University of Priština in Kosovska Mitrovica, Faculty of Law
Prof. Danijela Petrović, Ph.D.
Associate Professor, University of Priština in Kosovska Mitrovica, Faculty of Law
Nevena Milenković, Ph.D.
Assistant Professor, University of Priština in Kosovska Mitrovica, Faculty of Law
Jovana Petrović, Ph.D.
Assistant Professor, University of Priština in Kosovska Mitrovica, Faculty of Law

Cover Design
Prof. Srđan Radulović, Ph.D.

Printed by
Kvark, Kraljevo

Number of prints
100

ISBN
978-86-6083-103-5

The Ministry of Science, Technological Development and Innovation of the Republic of Serbia fully financed the publishing costs.

https://doi.org/10.63177/isc.2025.07
Original scientific paper
submitted: 16. 04. 2025.
accepted: 23. 04. 2025.

Mirjana GLINTIĆ, Ph.D
Senior Research Associate, Institute of Comparative Law, Republic of Serbia, m.glintic@iup.rs, ORCID 0000-0001-8551-4999.[1]

Anja BEZBRADICA
Research Assistant, Institute of Comparative Law, Republic of Serbia, a.bezbradica@iup.rs, ORCID 0000-0002-5049-3099.

ARTIFICIAL INTELLIGENCE AS A CAUSE OF DISCRIMINATION IN INSURANCE LAW[2]

Summary

Using AI in the form of a self-learning algorithm that can solve recurring problems based on available data, may lead to a development of a systemic deviation between the modeling and reality. Given deviation may result in bias in the decision-making process. This paper aims to highlight the phenomenon of AI-caused bias in insurance industry since insurers will rely on AI greatly. Since the bias has the potential to cause discrimination and unequal treatment of policyholders, the authors examine national legislation regarding the prohibition of discrimination in order to determine to what extent these regulations should apply to bias in insurance and what potential sanctions exist for such behavior. Additional issue to this matter is the question of liability for the AI-caused damage which required going beyond the national legislation and searching for the answers in newly adopted European legislation.

Key words: insurance, bias, discrimination, artificial intelligence, liability.

[1] Mirjana Glintić PhD, was appointed as a mentor to Anja Bezbradica, M. A. research assistant at the Institute of Comparative Law, by the Decision of the Scientific Council of the Institute of Comparative Law No. 52 of 25/1/2022. This paper is one of the results of the mentoring process with the mentee Anja Bezbradica.

[2] This work is a result of research within the project "Adapting the Legal Framework to Social and Technological Changes with a Special Focus on Artificial Intelligence", carried out in 2025 by the Institute of Comparative Law with financial support from the Ministry of Science, Technological Development and Innovation (contract number 451-03-136/2025-03/200049).

1. INTRODUCTION

Artificial intelligence (AI)[3] can significantly contribute to the efficiency in all fields based on the processing and use of large amounts of data. Greatest advantages of AI compared to humans are the greater level of objectivity of their decisions due to the lack of emotions and feelings, and better performance in activities requiring accuracy, repeatability, and the processing of massive amounts of data quickly (Rejmaniak, 2021, 25).

An insurance industry is no exception, as insurers increasingly rely on AI technology. On one hand, insurers believe that by using new technologies, they can process vast amounts of data in a short time and create a more accurate profile of their clients and the risks they bring. On the other hand, policyholders see this new approach as an opportunity to receive insurance policies tailored to their specific needs. Personalized insurance products that match the personal circumstances of policyholders are becoming growingly sought because they convey the message that they represent a meaningful investment of money to cover risks with a high probability of occurring for that specific policyholder.

This does not however imply that these systems will always do the duties assigned to them in a manner that is deemed suitable from a societal standpoint. On daily basis evidence appear proving that AI can also be a subject to bias, which can lead to discrimination of individuals or entire groups (Rodrigues, 2020, 3). The use of AI by insurers to make decisions based on data collected with its help carries the risk of bias, systemic errors in predictions, and consequently, discrimination against policyholders and insurance users. Specifically, if an insurer uses AI in the form of a self-learning algorithm that can solve recurring problems based on available data, AI may develop a systemic deviation between the modeling and reality, resulting in bias in the decision-making process.

The importance of this issue is also recognized in the Strategy for the Development of AI for the period 2025-2030 of the Republic of Serbia. Among five specific aims of the Strategy, one is dedicated to ethical and safe deployment of AI and it addresses AI-based discrimination (Strategy for the Development of Artificial Intelligence in the Republic of Serbia, 2025, 6, 10, 14).

[3] The High-Level Expert Group on Artificial Intelligence – as “software (and possibly also hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge or processing the information, derived from this data and deciding the best action(s) to take to achieve the given goal. AI systems can either use symbolic rules or learn a numeric model, and they can also adapt their behavior by analyzing how the environment is affected by their previous actions”. For more see High-Level Expert Group on Artificial Intelligence, 2019, 3.

2. AI IN INSURANCE INDUSTRY

The main feature of AI that distinguishes it from other algorithms is its ability to learn. External empirical data are utilized to develop and revise rules for the enhanced management of analogous data in the future, and to articulate these rules in a clear, symbolic format (Michie, 1991, 562). Firstly, these data are used for training and afterwards for testing the AI models.[4] In this way, they can contribute to solving very complex problems and apply the learned knowledge to very large datasets (Martins, 2019, 6). Before machine learning methods become applicable in practice, the factors relevant to the specific application case must be determined. Existing features are examined, and, assuming a reasonable probability of error, it is considered whether the features contribute to the improvement of the algorithm during the learning process. If this is the case, they are further used to train the AI.

The possibilities of AI systems for insurance industry are enormous because they enable analyzing both previously and newly collected data from different sources and not just those submitted by the policyholder (shopping habits, social media, taken selfies, etc.) Consequently, two AI related trends are to be recognized in insurance sector. The first trend is data-intensive underwriting,[5] in which insurers experiment with AI to analyze risks and determine insurance premiums. When used for underwriting, new attributes for risk indication can be recognized by AI, which further leads to more precise price ranging of insurance products.[6] The second trend is behavior-based insurance, in which insurers increasingly monitor the behavior of individual customers (van Bekkum & Borgesius & Heskes, 2024, 2, Henkel & Heck & Göretz, 2018, 33–36). Insurers follow how the policyholder acts in real time and adapt the premiums accordingly.[7] The idea of individualized insurance is attractive for policyholders and it can be expected to gain great popularity in the future. Even though these insurance schemes base on the same principles as the traditional ones, insurers are more focused on the individuals and their behavior and not on the groups with similar characteristics. Apart from that, these schemes are more prevention oriented because they "award" policyholders that, for example, exercise more or drive in a more precautious manner.

[4] Training data is used to calibrate, adjust the algorithm, or establish the model, while testing data is used to evaluate the learned AI model.

[5] The Geneva Association, the global association of insurance companies, describes underwriting as "a core process of insurance that involves assessing and pricing risks presented by applicants seeking insurance coverage". https://www.genevaassociation.org/publication/digital-technologies/promoting-responsible-artifical-intelligence-insurance, last accessed 8.4.2025.

[6] This is already the case in Great Britain and Netherlands (van Bekkum, Borgesius, Heskes, 2024, 7).

[7] These insurances are called telematics insurances and they are of special importance for health insurance and automobile liability insurance.

2.1. Bias and AI

However, despite all the advantages, using AI systems comes with certain challenges that can affect the outcome of the final decisions made this way. Finding optimal data requires a constant balancing act between the complexity of the model and its accuracy. The same idea lies at the core of the insurance industry—the idea of finding a balance between large amounts of data and accurately predicting future events.

If too few significant influencing variables are used for training the AI, it leads to the situation where not all relevant factors are represented, and the error rate is relatively high (Underfitting). Additionally, the consequence of using too much data can result in the AI's acquired knowledge not being transferable to other datasets, causing an increase in the probability of error (Overfitting) (Hastie & Tibshirani & Friedman, 2019, 219). These systematic errors of AI are called AI bias. The term bias is therefore used to describe the systematic deviation between the model and reality (Hastie & Tibshirani & Friedman, 2019, 219). In the field of AI, bias represents a significant problem because it can strongly influence algorithmic behavior and lead to individuals or groups experiencing unequal, unfair, or even discriminatory outcomes in AI decision-making[8] because "the digital poorhouse, in short, does not treat like cases alike."(Eubanks, 2018, 146–147).

Machine learning and deep learning, as forms of AI, are entirely dependent on external data (inputs), which implies that bias and unequal treatment can stem from the quality of the training data, which can be influenced by various factors or as Eubanks states "…bias is introduced through programming choices, data selection, and performance metrics." (2018, 146–147). Let us just name few factors leading to a possible bias. Firstly, human decisions may add bias into the system since the humans are the ones that choose the training data (Avramović & Jovanov, 2023, 169). Another difficulty is the unpredictable nature of AI impacts during its existence (Mihajlović & Ćorić, 2024, 10). Training data have to include certain historical data in order to fulfill the request of great amount of data as a solid training base.[9] These can be burdened by bias, leading further to AI bias.[10] One may

[8] For example, Amazon used an algorithm to evaluate resumes and job applications, which highly ranked male candidates with certain names and those who engaged in specific sports as hobbies, https://qz.com/1427621/companies-are-on-the-hook-if-their-hiring-algorithms-are-biased, last accessed 2.4.2025. For other forms of discrimination caused by the usage of AI see Mihajlović & Ćorić, 2024, 16. Also Knežević Bojović *et al*., 2013, 125.

[9] This has also been recognized in the Strategy for the Development of AI for the period 2025-2030 of the Republic of Serbia. "Historic" data, gender/sex unbalanced data, or a lack of inclusivity of all important data sources are namely defined as causes of discrimination.

[10] The algorithm trained primarily with historical data can easily lead to bias and further inequalities due to a fact that the historical data do not reflect reality accurately. For example, women historically speaking were facing reduced employment opportunities, which is not the case anymore. If the AI model is however trained on these data, it can conclude that women nowadays are less profitable than men. (Lattimore *et al*., 2020, 33–36)

not exclude the scenario according to which the AI is fed by discriminatory data from beginning, which already happened with some of Microsoft bots (Neff & Nagy, 2016, 4920– 4922). Also, some data are easier to access and analyze, which made social networks to have an important effect on perception of certain societal issues (Ntoutsi *et al*., 2020, 3). The mentioned potential causes of bias further spill over into a large number of cases, as AI continues to learn from this data without ever questioning the decision-making patterns it uses. This is particularly critical if it is established that AI is making unauthorized distinctions between policyholders, potential buyers, or third parties, which constitutes a violation of anti-discrimination laws or leads to unequal treatment of policyholders that, at first glance, may not appear to violate legal regulations.[11]

Despite the belief that discrimination can easily traced when algorithm, it is not completely the case due to the lack of transparency on the used data and training methods (Heinrichs, 2022, 143, 150–153). Due to the self-development of algorithms, the behavior of AI can be unexpected and inexplicable, even to engineers. The lack of visibility into AI's operation arises from the complexity of algorithm structures, such as artificial neural networks, and reliance on geometric relationships in phenomena that humans sometimes cannot perceive (Bathaee, 2018, 901). The inability to understand the decision-making process of AI or predict its outputs is referred to as the "black box" problem (Pasquale, 2015, 3–14).

2.2. Unequal and discriminatory effects in insurance industry

Despite contractual freedom being a governing principle of insurance contract law (Petrović Tomić & Glintić, 2024, 226–230), non-discrimination rules set certain limitations to it. When it comes to discrimination and unequal treatment in insurance sector, only gender and ethnicity are defined as protected characteristics at the EU level.[12] If an insurer

[11] Danger of AI caused bias has already been recognized by international legislator and in order to protect individuals` rights when using AI systems, ethical and legal frameworks are being developed, such as White Paper on Artificial Intelligence, the Ethics Guidelines for Trustworthy AI and a European Parliament Resolution on a Framework of the Ethical Aspects of Artificial Intelligence, robotics and related technologies. In this document various possible dangers of bias have been recognized, which requires organized political reaction. Just some of the measure for the elimination of unequal treatment of AI proposed by the European Parliament are the national supervisory authorities, further investment in research, innovations and knowledge transfer. At the European level, the Ethical Guidelines for the Use of Artificial Intelligence by the High-Level Expert Group on Artificial Intelligence of the European Commission emphasize that learning systems should be nondiscriminatory. Some companies have already recognized this and have taken appropriate voluntary commitments or established dedicated ethical advisory boards. The Council of Europe's Committee of Ministers adopted the Council of Europe Framework Convention on Artificial Intelligence, Human Rights, Democracy and the Rule of Law on 17 May 2024.

[12] Directive 2000/43/EC of 29 June 2000 implementing the principle of equal treatment between persons irrespective of racial or ethnic origin (Directive 2000/43/EC); Directive 2004/113/EC of 13

differentiates between groups based on a legally protected characteristics, such as ethnicity or gender, discrimination occurs.[13] Discrimination can be direct and indirect and in insurance sector a former one is a more possible one. It is barely imaginable that insurers would use forbidden characteristics (gender and ethnicity) explicitly. Insurers can develop practice that seems non-discriminatory at first sight, but as a result leads to discrimination. According to the non-discrimination directives, insurers can objectively justify indirect discrimination if they have "a legitimate aim and [if] the means of achieving that aim are appropriate and necessary" (Directive 2000/43/EC, 2000, art. 2(2)(b)). Proving that differentiation is appropriate and necessary and that it doesn't cause disproportionate disadvantages for protected groups in one case is not an easy task.

When based on other characteristics that are not protected by legal sources, differentiation by insurers is not illegal. This however doesn't mean that these differentiations are not to be considered unfair, even though characteristics are not legally protected. Forbidden characteristics can be easily removed from the data used in machine learning processes. The problem, however, is that many characteristics can serve as substitutes for others—proxy characteristics (Harcourt, 2010). This is done through proxy variables (such as place of residence, financial situation, ZIP codes, etc.), from which conclusions can be drawn about the original discriminatory variable. In this regard, a particular challenge lies in determining whether a non-discriminatory input will lead to a discriminatory outcome. In insurance, proxy discrimination is very possible, which is why the mentioned issues represent a particular challenge. *McWright v. Alexander* decision (771 F. Supp. 256 (1991)), which defines proxy discrimination, also emphasizes some of the mentioned issues: "Proxy discrimination is a form of discrimination against individuals. It occurs when an insurer issues a policy that treats individuals differently based on seemingly neutral criteria that are closely associated with a discriminatory criterion. For example, discrimination against

December 2004 implementing the principle of equal treatment between men and women in the access to and supply of goods and services (Directive 2004/113/EC). It is important to emphasize that some of the member states extended the scope of non-discrimination rules to insurance sector. See European Commission. Directorate General for Justice and Consumers. And European network of legal experts in gender equality and nondiscrimination. A Comparative Analysis of Non-Discrimination Law in Europe 2022: The 27 EU Member States, Albania, Iceland, Liechtenstein, Montenegro, North Macedonia, Norway, Serbia, Turkey and the United Kingdom Compared, https://data.europa.eu/doi/10.2838/428042, last accessed 5.4.2025.

[13] European Union legislation also recognizes age; disability; gender; religion or belief; racial or ethnic origin; sexual orientation as protected characteristics. Religion or belief, disability, age or sexual orientation: Council Directive 2000/78/EC of 27 November 2000 establishing a general framework for equal treatment in employment and occupation. Racial or ethnic origin: Council Directive 2000/43/EC Implementing the Principle of Equal Treatment Between Persons Irrespective of Racial or Ethnic Origin, 2000 OJ L 180/22. Gender: Council Directive 2004/113/EC Implementing the principle of Equal Treatment between Men and Women in the Access to and Supply of Goods and Services, 2004 OJ L 373/37. Directive 2006/54/EC of the European Parliament and of the Council on the implementation of the Principle of Equal Opportunities and Equal Treatment of Men and Women in Matters of Employment and Occupation (Recast), 2006 OJ L 204/23.

individuals with gray hair is seen as a substitute for age discrimination because the "correlation" between age and gray hair is sufficiently close." Additionally, the question arises whether this form of discrimination must be carried out with the insurer's intent, or if it is enough that it occurs as an unintentional and unconscious action. This disparity in definitions creates significant differences in the impact on actuarial work. If intent is required, the question of how to prove intent becomes relevant. It is clear that if there is indisputable evidence showing that the insurer knowingly used a variable as a substitute for race, it would meet the standard for proxy discrimination. However, without clear evidence, it would be difficult to conclude intent. If intent is not necessary to define proxy discrimination, the focus shifts more toward whether there is a disproportionate impact of variables that are merely predictive because of their relationship with a protected class.

European Court of Human Rights has answered this question regarding indirect discrimination: "[A] difference in treatment may take the form of disproportionately prejudicial effects of a general policy or measure which, though couched in neutral terms, discriminates against a group. Such a situation may amount to "indirect discrimination", which does not necessarily require a discriminatory intent."[14] When it comes to AI, it is highly possible that AI systems can unintentionally lead to indirect discrimination. For that reason, legislators have to be more focused on the practice and its effects than on the intention of the discriminator.

3. NATIONAL LEGISLATION

Given that bias can lead to a prohibited discrimination and to an unequal treatment of policyholders or insurance users, it is necessary to analyze national regulations regarding the prohibition of discrimination to determine to what extent these regulations could be applied to bias in insurance and what potential sanctions exist for such behavior.

3.1. The Law on Prohibition of Discrimination

In the Republic of Serbia discrimination is prohibited by the Constitution as the highest legal act, which explicitly states that all discrimination, direct or indirect, is prohibited on any grounds, especially on the basis of race, gender, national origin, social background, birth, religion, political or other beliefs, property status, culture, language, age, and mental or physical disability (Constitution of the Republic of Serbia, 2006, art. 21). In addition to the Constitution, there are numerous other individual regulations that insufficiently and superficially address specific measures taken to prevent discrimination in certain areas or towards specific vulnerable groups. This has inspired the adoption of the

[14] ECtHR, Biao v. Denmark (Grand Chamber), No. 38590/10, 24 May 2016, para. 103.

Law on Prohibition of Discrimination, which regulates the general prohibition of discrimination (art. 1, 4, 5, 6, 17, 23).

The mentioned regulations are often referenced in the opinions of the Ombudsman for Equality Protection, with an explicit explanation that direct discrimination occurs when an individual or a group of people, due to their personal characteristic, are placed in a less favorable position compared to an individual or group in the same or similar situation who do not possess that personal characteristic.[15]

In the event that a civil lawsuit is initiated, if the plaintiff makes it likely that the defendant has committed an act of direct discrimination, the burden of proof that the act did not result in a violation of the principle of equality, i.e., the principle of equal rights and obligations, lies with the defendant (Law on Prohibition of Discrimination, 2021, art. 45). It means that if, during the formation of an insurance offer or the calculation of premiums or insurance payout requests, the insurer used AI that employed legally prohibited characteristics in performing these tasks, the insurer will face a very difficult task. Can they even prove the absence of a causal connection between the prohibited characteristic and the resulting discrimination? Deep neural networks, along with the lack of understanding of how artificial intelligence learns and operates, will significantly complicate the insurer's attempts to prove the absence of discriminatory behavior (Kolleck & Orwat, 2020, 40).

In the case of indirect discrimination under Article 7 of the Law on Prohibition of Discrimination, the insurer would have to prove that the differential treatment of a particular individual or group, compared to others in the same or similar situation, based on seemingly neutral provisions, criteria, or practices, is objectively justified by a legitimate goal (Kuzminac, 2024, 20). Therefore, the insurer would have to prove that the AI carried out justified discrimination for objective reasons, which also leads to facing the same challenges in a legal sense that accompanies insurer`s attempt to deny direct discrimination. All these legal provisions indicate that the insurer probably will not be able to avoid responsibility by claiming that they did not understand how AI functions or that they did not intend to engage in discriminatory behavior by using AI.

By initiating legal proceedings, the insured party can seek compensation for material and non-material damages, a ban on further discriminatory actions, a prohibition on the repetition of discriminatory actions, a determination that the defendant acted discriminatorily toward the plaintiff or others, and the removal of the consequences of discriminatory actions (Law on Prohibition of Discrimination, 2021, art. 41–43).

Compensation of the damage caused through discrimination[16] will be of a special interest from the legal standpoint. Discussions regarding liability for damage arising from

[15] 743-21 A complaint of discrimination in the provision of services based on the personal characteristic of age.

[16] Fora n example, an AI system may, after processing a large volume of data, learn that male customers are more likely to accept higher insurance premiums than female customers, and

the operation of AI are still ongoing at both national and supranational levels. In terms of liability, the first question that arises is: who is the addressee of the prohibition against discrimination, and consequently, who can be held liable? Is the AI system itself prohibited from discriminating? Or does the prohibition apply to the insurer who employs the AI? Given that the concept of electronic personhood has not yet been adopted or applied, it is evident that AI lacks legal subjectivity and thus cannot be considered a direct addressee of anti-discrimination norms (Martini, 2019, 290). Also, a high degree of autonomy in AI systems eventually renders it impossible to maintain full control over their behavior, which evolves according to self-modifying rules that the insurer cannot fully foresee.

Under general civil law rules, in cases of tortious liability, fault is the primary basis for responsibility.[17] A particular challenge arises from the fact that, in the context of machine learning, machines cease to function merely as instruments of human decision-making and begin to act as autonomous decision-makers. This shift adversely affects the establishment of causal links and the attribution of fault, thereby altering the traditional paradigm of liability. Establishing causality becomes more complex in situations where access to relevant information is restricted or where users lack the technical expertise to identify the root causes of the AI system's actions. Furthermore, proving fault becomes increasingly difficult given the unpredictability of harmful outcomes generated by AI systems. The determination of legal duties for manufacturers, owners, or users to supervise or enhance the functioning of such systems would lead to the development of a standard of due care.

At the European level, there are variations in the allocation of the burden of proof and the required standard of evidence (Karner & Koch & Geistfeld, 2021, 10–11) These differences result in an unbalanced position for injured parties, depending on the jurisdiction in which the damage occurred. There is a prevailing view that the burden of liability for the damage caused by AI should be transferred to the manufacturer (Arsenijević, 2023, 144). However, it is also emphasized that users remain part of the chain of responsible parties when their actions contribute to the AI system's harmful behavior toward another party (e.g., through the installation of new software, physical interference with hardware, or assigning specific tasks to the AI system) (Arsenijević, 2023, fn. 42). Accordingly, all accountability should ultimately fall on the insurer, who voluntarily chose to utilize AI in their operations.[18] The decision, for instance, to offer male policyholders a more favorable

subsequently begin to systematically offer insurance products to men at higher prices, despite identical risk profiles.

[17] In our legislation tort liability is regulated in art. 154, para. 1 of the Law on Contract and Torts.

[18] A distinct issue is the matter of the insurer's contractual liability in cases where the use of AI results in a breach of contractual obligations toward the insured. In such cases, the rules concerning the debtor's duty to perform their contractual obligations in good faith come into effect. A debtor may be released from contractual liability if they can prove that they were unable to fulfill the obligation or that the delay in performance was due to circumstances arising after the conclusion of the contract which they could not have prevented, removed, or avoided (Law on Contract and Torts,

insurance product constitutes a declaration of intent and a conscious action on the part of the insurer. At this point in technological development, it remains impossible to attribute such intent or conduct to an AI system, as AI lacks legal will and the capacity for self-expression.[19] What introduces uncertainty into this equation is the insurer's lack of knowledge regarding the internal workings and decision-making processes of the AI system. Nonetheless, it is the insurer who ultimately decides to offer the calculated premiums and to engage in legal transactions. Therefore, it can be concluded that it is the insurer who is responsible for discriminatory practices.

Currently, there is no such thing as bias-free AI, and insurers must be fully aware of this reality. They must recognize that, in any given case, an AI system may rely on prohibited characteristics, potentially resulting in discriminatory outcomes (Spindler, 2015, 767–768). The question then becomes: to what extent can an insurer avoid discrimination? Through available AI governance methods, it may be possible to limit bias, but not to eliminate it entirely (Pohlmann *et al*., 2022, 142, 153). In this regard, insurers have an obligation to implement measures that reflect the current state of the art. Failure to do so may be considered negligent.

Since no existing measures can completely prevent discrimination by self-learning AI systems, such occurrences cannot be fully avoided. The only absolute safeguard would be the complete avoidance of AI usage. This would imply that any insurer who uses AI is, by default, acting negligently and thus bears the obligation to compensate for resulting harm. Although this position may appear contrary to the spirit of innovation, the risks associated with AI cannot be regarded as socially acceptable risks that the insured must bear—even in circumstances where they are subject to discrimination.

3.2. Law on Prevention and Diagnosis of Genetic Diseases, genetically conditioned anomalies, and rare diseases

The Law on Prevention and Diagnosis of Genetic Diseases, genetically conditioned anomalies, and rare diseases, genetically conditioned anomalies, and rare diseases stipulates a prohibition on discrimination and placing individuals at a disadvantage due to their genetic characteristics, the genetic traits of a genetically related person, or due to the act of

2020, art. 263). This implies that only force majeure excuses a debtor from non-performance of a contractual obligation. From the perspective of the national legislator, a debtor cannot be exempted from liability merely by proving the absence of fault. Some interpretations even hold that such liability constitutes strict (objective) liability, as force majeure and the absence of fault are treated as functionally equivalent. Karanikić Mirić, 2019, 46).

[19] In legal theory, some scholars have proposed that an insurer could be held liable for the decisions made by an AI system on the basis of vicarious liability, treating the AI as an agent. However, this position is untenable due to the absence of legal subjectivity on the part of AI (Pohlamnn *et al.*, 2022, fn. 41).

undertaking or not undertaking genetic testing (art. 9). This provision is relevant in the context of various forms of life insurance because certain aspects of this contract could be affected by results of genetic information (Glintić, 2023, 557–559).

Given that the Law on Prevention and Diagnosis of Genetic Diseases, genetically conditioned anomalies, and rare diseases (art. 38) refers to the analogous application of provisions from the Health Insurance Law it is essential to consider the provisions of this law as well. These provisions ensure that genetic information and testing results are not misused in a way that would lead to discrimination in insurance practices, particularly in life insurance. The Health Insurance Law stipulates a prohibition on insurers requesting genetic data or results of genetic tests for hereditary diseases from individuals who express a clear intention to enter into a voluntary health insurance contract with that insurer, as well as from their relatives, regardless of the line and degree of kinship (Health Insurance Law, 2023, art. 173). In the context of AI usage by insurers, this prohibition primarily means that it must be ensured that AI does not have access to genetic information whose use is legally prohibited, as only preventive actions can ensure compliance with legal bans.

Numerous limitations regarding the use of personal data are also to be found in the Personal Data Protection Act, which aims, among other objectives, to protect such data from discrimination in specific situations. Article 39 of the Personal Data Protection Act, which essentially prohibits automated decision-making based on certain categories of personal data, should also be interpreted as a safeguard against discrimination.[20] To the extent that automated decisions may exceptionally be made on the basis of consent—regarding the aforementioned categories of data—or on the grounds of the legitimate interest of the data subject to protect their rights, specific conditions must be met. The individual whose data are being processed must be informed about the existence and nature of the automated decision-making process. These obligations apply equally to insurance agents and brokers. It is though questionable when a decision is based solely on automated processing and when not. When a human makes a final decision on the basis of a recommendation of an AI system, is it a decision based solely on automated processing or not?

Moreover, the transparency obligations outlined in Article 5(1) of the Personal Data Protection Act ensure that the criteria used for automated decision-making, as well as the very fact that such decisions are being made, are presented transparently to the data subject.

Where consent is required for data processing pursuant to Article 15 of the Personal Data Protection Act, the insurance policyholder must be informed of the purposes of data processing in a manner that enables them to provide informed and effective consent. With self-learning AI systems, however, it may be difficult—or even impossible—to inform the data subject of the purposes of data processing in a way that would allow for meaningful consent. The AI system may need to make autonomous decisions regarding the purposes of processing, such that the specific purposes become apparent only during the course of the

[20] This rule is called Kafka rule.

data processing itself (von Walter, 2019, 21, 23). Limiting AI's capabilities in order to enable effective consent may, paradoxically, introduce bias, as it could result in the use of a non-representative data set (von Walter, 2019, 21, 23).

Furthermore, insurers are required to conduct a data protection impact assessment (DPIA) prior to deploying AI as a new technology, in cases where the data processing is likely to result in a high risk to the rights and freedoms of natural persons (Personal Data Protection Act, 2018, Art. 54(5)).

4. AI ACT PROVISIONS

The problem of AI caused discrimination and possible unequal treatment is not just in the domain of theory, but represents a practical problem with severe consequences. For that reason, European legislator has dedicated some of the provision of newly adopted AI Act to protection of final users of AI. It can certainly be stated that AI Act is partly devoted to prevention of discrimination (Spindler, 2021, 361–362), especially through the establishment of transparency rules, which in turn facilitates the detection of unjustified unequal treatment. According to the definition provided in the AI Act, an AI system refers to software developed using one or more specific techniques, capable of generating outputs such as content, predictions, recommendations, or decisions for a defined set of objectives established by humans, thereby influencing the environments with which they interact (AI Act, art. 3, para.1). When insurers employ algorithms in their interactions with clients, they define specific objectives such as contract formation, risk assessment, or loss evaluation. Particularly noteworthy is art. 50 of the AI Act, which pertains to transparency and establishes the obligation to inform natural persons that they are interacting with an AI system, with the aim of preventing deception (AI Act, recital 70). The underlying idea is that this obligation does not apply solely to natural persons acting on their own behalf, but also to those acting on behalf of or for the account of another party. Consequently, the transparency provisions of the regulation will apply to insurers regardless of whether they are interacting with private individuals or corporate entities. They will be required to inform their negotiating or contractual counterparts that they are utilizing artificial intelligence systems (AI Act, art. 50).[21] In the context of the usage of AI in insurance sector, when systems of biometric identification from art. 3(35) of the AI Acta are used,[22] this information has to be explicitly stated.

Since the core of the AI Act is the regulation of high-risk AI systems (Ćeranić Perišić, 2025, 158), AI Act has also defined a set of requirements for these systems,

[21] More details on the matter can be found in Spindler, 2021, 361, 368.

[22] Biometric identification means the automated recognition of physical, physiological, behavioral, or psychological human features for the purpose of establishing the identity of a natural person by comparing biometric data of that individual to biometric data of individuals stored in a database (AI Act, art. 3 (35)).

including risk management, data governance, technical documentation, recordkeeping, instructions for use, human oversight, etc.[23] These rules are applicable to insurance products when biometric categorization systems are used for the biometric identification of natural persons remotely, either in real time or retrospectively (AI Act, 2024, art. 6(2) in conjunction with Annex III). This could be the case, for example, with 'pay-as-you-live' insurance, where a life insurance company might monitor whether the policyholder smokes since Annex III of the AI Act recognizes as high-risk systems those AI systems tended to be used for risk assessment and pricing in relation to natural persons in the case of life and health insurance. In those case deployers of high-risk AI systems have to carry out a fundamental rights impact assessment prior to putting it into use, including the identification of specific risks of harm likely to have an impact on the fundamental rights of those persons or groups (AI Act, 2024, recital 96).

What is an additional value of AI Act is that this legal act provides uniform rules concerning evidence disclosure in relation to high-risk AI systems and the burden of proof. National courts are authorized, in damage compensation proceedings, to request that providers or users of high-risk AI systems (as defendants) disclose information regarding the specific characteristics of the systems they develop or operate. If the defendant refuses to comply with such a request, a rebuttable presumption arises that they have breached their duty of care and are therefore liable for the damage. Accordingly, liability is grounded in the unlawfulness of the defendant's conduct (Arsenijević, 2023, 152). Liability thus extends to providers of AI systems (i.e., manufacturers and owners) as well as to users (AI Act, art. 3). The procedural position of the injured party is facilitated by the rules on the rebuttable presumption of a causal link between the (in)action of the liable party and the resulting harmful outcome of the AI system or its failure to act (Arsenijević, 2023, fn. 76). The defendant may rebut this presumption by demonstrating that the claimant had reasonable access to sufficient evidence and expertise to establish the casual link.

[23] The AI Act qualifies as high-risk some AI systems that have a significant harmful impact on health, safety, fundamental rights, the environment, democracy and the rule of law (AI Act, 2024, art. 6).

5. CONCLUSION

High-tech tools have a built-in and patina of objectivity that often leads us to believe that their decisions are less discriminatory than those made by humans. The main issue with the wider usage of AI tools is that it can however accentuate current prejudices and create new categories and criteria, perhaps leading to new sorts of biases. For that reason and at least at this phase of development of AI tools human engagement still remains essential. It appears that the AI system's restrictions, paired with a grasp of the context (a human domain), will allow us to maximize AI capabilities. AI systems' biases do not decrease societal disparities on their own, but they can be a formidable tool in the hands of humans because they can be amplified due to combination of social and technological context. Users must be aware of the fact that AI system don't provide assurance and that they often have to act as the final decision-makers. Excessive belief in the impartiality and infallibility of AI systems may result in unequal treatment of persons in similar situations. This could be due to system or data bias, and for that reason the person who interprets the system's output plays the most important role. When it comes to an insurance industry, it is clear that the great responsibility lies on insurance companies that use AI tools.

Taking into account legal provisions of Serbian Insurance Law, it is clear that insurance companies are required to ensure the existence and functioning of an effective governance system, which includes, among other components, risk management (Insurance Law, 2021, Art. 147). This central requirement imposed on insurers can logically be extended to encompass the use of artificial intelligence by insurance companies. The precise implications of governance in the context of AI use will likely be clarified through future case law and guidance issued by the National Bank of Serbia (NBS).

Insurers will be required to ensure the legality of AI systems and to safeguard their security (Pohlmann *et al*., 2022, fn. 105). Within this obligation, a key component will be the prevention of AI bias and adherence to anti-discrimination norms, which will require the engagement of both and European legislator since there is a legal gap on the matter.

A crucial question concerns who bears the primary responsibility for possessing the necessary knowledge and experience in the field of AI within the insurance company. Under the current legal framework, this responsibility will most likely rest with members of the management board, who are required to have appropriate professional qualifications (Insurance Law, Art. 62; Solvency II, Art. 273(3)), even though expertise in AI is not explicitly mentioned. Nonetheless, both theoretical and practical IT knowledge is expected from the individual responsible for leading the insurer's IT department.

LITERATURE

Arsenijević, B. 2023. Odgovornost za štetu od veštačke inteligencije. In: Petrović, Z. & Čolović, V. & Obradović, D. *Prouzrokovanje štete, naknada štete i osiguranje*. Beograd, Valjevo: Institut za uporedno pravo, Udruženje za odštetno pravo, Pravosudna akademija, pp. 135–155;

Avramov, D. & Jovanov, I. 2023. Sudijska (ne)pristrasnost i veštačka inteligencija. *Strani pravni život*, 2, pp. 161–177;

BaFin. 2017. IT-Kompetenz in der Geschäftsleitung, BaFin passt Entscheidungsmaßstäbe für Bestellung von ITSpezialisten zu Geschäftsleitern an. *BaFin Journal*, 12, pp. 15–18;

Bathaee, Y. 2018. The Artificial Intelligence Black Box and the Failure of Intent and Causation. *Harvard Journal of Law and Technology*. 31(2), pp. 890–938;

Ćeranić Perišić, J. 2025. Digital transformation: Regulation of Artificial Intelligence in the European Union. In: Kellerhals, A. & Baumgartner, T. & Ademi, F., *European Integration in Times of Security Challenges.* Zürich: EIZ Publishing, pp. 147–164;

Eubanks, V. 2018. *Automating inequality. How high-tech tools profile, police, and punish the poor*. New York: St. Martin's Press;

Glintić, M. 2023. Korišćenje genetskih podataka u pravu osiguranja. In: Rajić Ćalić, J., *Uporednopravni izazovi u savremenom pravu – In memoriam dr Stefan Andonović.* Beograd, Kragujevac: Institut za uporedno pravo, Pravni fakultet Unverziteta u Kragujevcu, pp. 553–569;

Hastie, T.& Tibshirani, R. & Friedman, J. 2009. *The Elements of Statistical Learning: Data Mining, Inference, and Prediction*. Berlin: Springer;

Heinrichs, B. 2022. Discrimination in the age of artificial intelligence. *AI and Society*, 37(1), pp. 143-154;

Henkel, M. & Heck, T. & Göretz, J. 2018. Rewarding Fitness Tracking—The Communication and Promotion of Health Insurers' Bonus Programs and the Use of Self-Tracking Data. In: Meiselwitz. G., *Social Computing and Social Media. Technologies and Analytics*. Berlin: Springer. pp. 28–49;

High-Level Expert Group on Artificial Intelligence, 2019. *A Definition of Artificial Intelligence: Main Capabilities and Scientific Disciplines*;

Karanikić Mirić, M. 2019. *Objektivna odgovornost za štetu*. Beograd: Službeni glasnik, Beograd;

Karner, E. & Koch, B. & Geistfeld, M. 2021. *Comparative Law Study on Civil Liability for Artificial Intelligence*. Luxembourg: European Commission, Publications Office of European Union;

Knežević Bojović, A. *et al*. 2013. *Zabrana diskriminacije: odabrane presude Evropskog suda za ljudska prava i Evropskog suda pravde.* Beograd: Udruženje javnih tužilaca i zamenika javnih tužilaca Srbije;

Kolleck A. & Orwat C. 2020. *Mögliche Diskriminierung durch algorithmische Entscheidungssysteme und maschinelles Lernen – ein Überblick*. Berlin: Büro für Technikfolgen - Abschätzung beim Deutschen Bundestag;

Kuzminac, M. 2024. Razmatranje posredne i prenesene diskriminacije u sferi zapošljavanja i rada iz ugla prava Evropske unije. *Strani pravni život*, 1, pp. 15–37;

Lattimore, S. *et al.* 2020. *Using Artificial Intelligence to Make Decisions: Addressing the Problem of Algorithmic Bias*. Technical Paper. Sydney: Australian Human Rights Commission;

Martini, M. 2019. *Blackbox Algorithmus– Grundfragen einer Regulierung Künstlicher Intelligenz*. Berlin: Springer;

Martins, D., 2019. *Enabling Non-technical Users to Query and Purchase Data*. Doctoral Thesis. Münster: University of Münster;

Michie, D. 1991. Methodologies from Machine Learning in Data Analysis and Software. *The Computer Journal*, 34 (6), pp. 559–565;

Mihajlović, A. & Ćorić, V. 2024. Artificial Intelligence And Discrimination – Strenghts And Weaknesses Of The Current European Anti-Discrimination Legal Framework. In. Reljanović, M., *Regional Law Review*. Belgrade: Institute of Comparative Law, pp. 9–29;

Neff, G. & Nagy, P. 2016. Talking to Bots: Symbiotic Agency and the Case of Tay. *International Journal of Communication*. 10, pp. 4915–4931;

Ntoutsi, E. *et al*., Bias in data-driven artificial intelligence systems—An introductory survey. *Wiley Interdisciplinary Reviews*. 1–14;

Pasquale, F. 2015. *The Black Box Society: The Secret Algorithms That Control Money and Information*. Cambridge: Harvard University Press;

Pohlmann, P. *et al*. 2022. Künstliche Intelligenz, Bias und Versicherungen – Eine technische und rechtliche Analyse. *Zeitschrift für die gesamte Versicherungswissenschaft*, 11, pp. 135–175;

Petrović Tomić, N. & Glintić, M. 2024. The Hybridization of The Regulatory Framework Of Insurance Contract Law: Elements Of A New Setting. *Annals of the Faculty of Law in Belgrade*, 72(2), pp. 223–250;

Rejmaniak. R. 2021. Bias in Artificial Intelligence Systems. *Bialystok Legal Studies*, 26(3), pp. 25–42;

Rodrigues, R. 2020. Legal and Human Rights Issues of AI: Gaps, Challenges and Vulnerabilities. *Journal of Responsible Technology*. 4, pp. 1–36;

Spindler, G. 2016. Roboter, Automation, künstliche Intelligenz, selbst-steuernde Kfz – Braucht das Recht neue Haftungskategorien? Eine kritische Analyse möglicher Haftungsgrundlagen für autonome Steuerungen. *Computer und Recht*, 31(12), pp. 766–780;

Spindler, G. 2021. Der Vorschlag der EU-Kommission für eine Verordnung zur Regulierung der Künstlichen Intelligenz (KI-VO-E), Ansatz, Instrumente, Qualität und Kontext. *Computer & Recht*, 37, pp. 361–374;

van Bekkum, M. & Borgesius, F. Z. & Heskes, T. 2024. AI, insurance, discrimination and unfair differentiation. An overview and research agenda. *Law, Innovation and Technology*, pp. 1–28;

von Walter, A. 2019. Gedrosselte Intelligenz? Künstliche Intelligenz und der Datenschutz. *Kommunikation und Recht*, 7-8, pp. 21–24;

LEGISLATION

Council Directive 2000/43/EC of 29 June 2000 implementing the principle of equal treatment between persons irrespective of racial or ethnic origin, OJ L 180, 19.7.2000;

Constitution of the Republic of Serbia, „Official Gazette of the Republic of Serbia“, No. 98/2006, 115/2021;

Insurance Law, „Official Gazette of the Republic of Serbia“, No. 139/2014, 44/2021;

Law of Contract and Torts, „Official Gazette of the SFRY“, No. 29/78, 39/85, 45/89; Constitutional Court Decision, No. 57/89, „Official Gazette of the FRY“, No. 31/93, „Official Gazette of SCG“, No. 1/2003 – Constitutional Charter, „Official Gazette of the RS“, No. 18/2020;

Law on Prevention and Diagnosis of Genetic Diseases, Genetically Conditioned Anomalies and Rare Diseases, „Official Gazette of the Republic of Serbia“, No. 8/15;

Law on Prohibition of Discrimination, „Official Gazette of the Republic of Serbia“, No. 22/2009, 52/2021;

Law on Personal Data Protection,“Official Gazette of RS“, No. 87/2018;

Strategy for the Development of Artificial Intelligence in the Republic of Serbia for period 2025-2030, available at https://www.media.srbija.gov.rs/medsrp/dokumenti/strategy_artificial_intelligence.pdf.

CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

341.231.14(082)
34(082)

INTERNATIONAL scientific conference Contemporary challenges in the achievement and protection of human rights (2025 ; Kosovska Mitrovica)
Thematic conference proceedings / International Scientific Conference Contemporary challenges in the achievement and protection of human rights, 23th and 24th of May 2025 in Kosovska Mitrovica ; [organizers] Faculty of law, Institute for criminological and sociological research, Institute for comparative law ; [editor-in-chief of the International scientific conference Bojan Bojanić]. - Kosovska Mitrovica : University of Priština, Faculty of Law ; Belgrade : Institute for criminological and sociological research : Institute for comparative law, 2025 (Kraljevo : Kvark). - 167 str. ; 24 cm

Tiraž 100. - Editor's note: стр. 13. - Napomene i bibliografske reference uz tekst. - Bibliografija uz svaki rad. - Apstrakti.

ISBN 978-86-6083-103-5 (PF)

а) Људска права -- Међународна заштита -- Зборници б) Право -- Зборници

COBISS.SR-ID 168835081