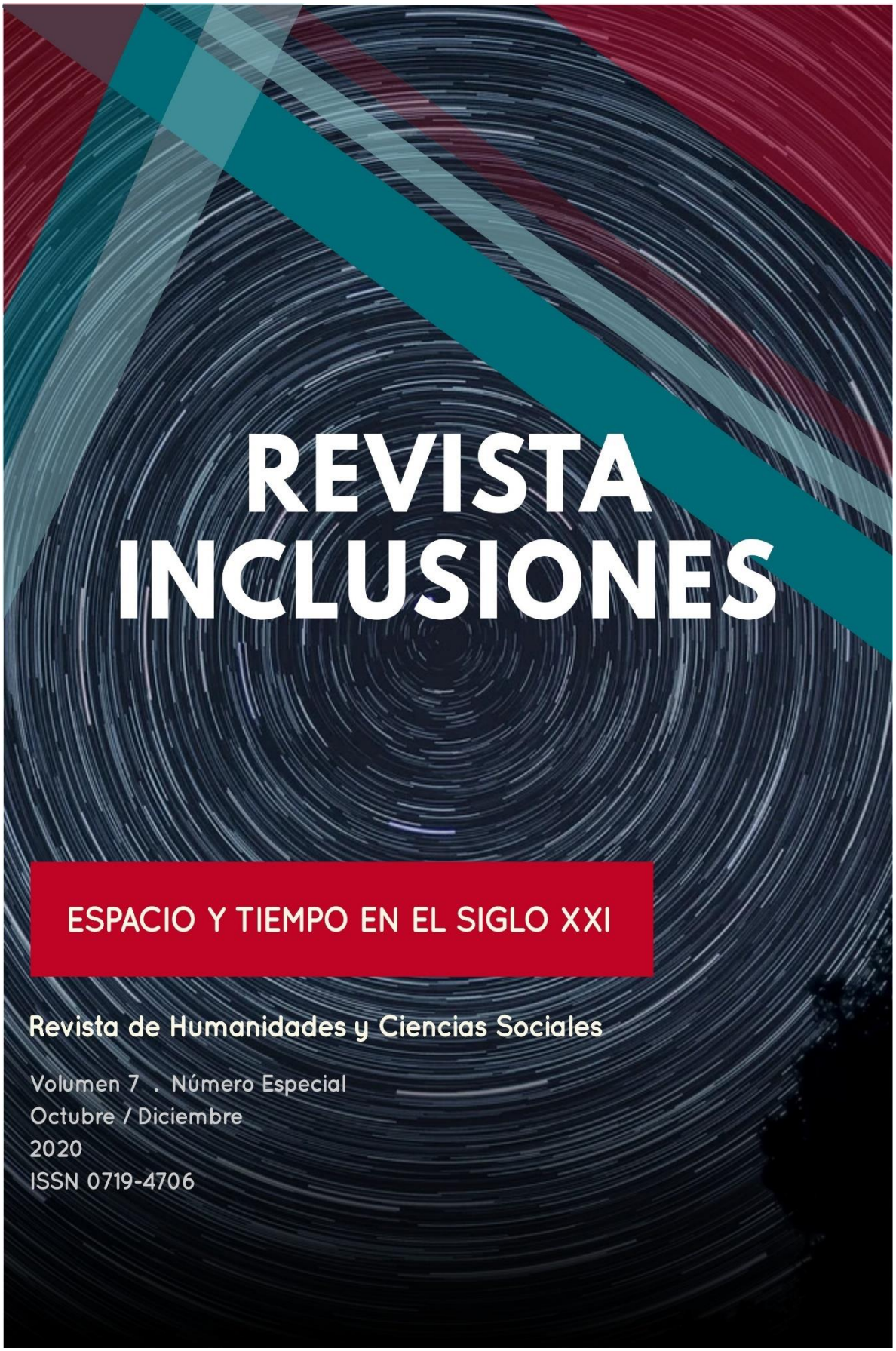
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MACHINE LEARNING TECHNOLOGIES IN LEGISLATIVE ACTIVITIES: ANALYTICAL AND PREDICTIVE POTENTIAL

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Abstract

Growing automation in the spheres of public administration predetermines the need to form a doctrinal and applied understanding of its consequences in different manifestations. The introduction of information technologies into legislation is only one direction of forming and developing a digital state, which is among the most important phenomena. This study is based on the dialectical approach and a combination of general and specific scientific methods of cognition and comprehension. The article considers the use of such algorithms in various spheres that are often unrelated to lawmaking.

Keywords

Legislative activity – Machine learning technology – Machine learning algorith – Discrimination

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Introduction

The objective need to digitalize legislative procedures is conditioned not only by actively developing technologies that are used in almost all spheres of human activity, society and state, but also by the positive results of their use. The introduction of digital technologies into the legislative process leads not only to the optimization of its components[1], but also significantly expands the scope of lawmaking, which increases its efficiency and democratizes all legislative activities. In particular, the analysis of information and process modeling through digital technologies allows one to identify such areas of public relations that should not be influenced by a regulatory legal act but might be affected and determine the potential impact on other activities of an individual, society and state[2].

A significant number of digital technologies that can be implemented into legislative activities to various limits and in various aspects makes it necessary to understand and form potential models of their use to consider all the possible risks of a transition to "digital lawmaking". Such risks are predetermined by the contradictory nature of any innovative technology which combines positive aspects and threats to human rights and civil freedoms. The introduction of machine learning technologies is only one possible direction of digitalizing legislative activity. It is worth mentioning that the role of such technologies in management significantly increases[3].

The use of machine learning technologies in lawmaking enables not only to "classify" texts by their content and determine their regulatory focus but also to develop software that will function independently (without human involvement) based on input data and predict the final result[4]. To effectively use such technologies, it is important to take into account the adequacy, applicability and correctness of the input data, i.e. the "past experience"[5] that serves as the basis of future algorithms. Within the framework of legislative activity, this issue becomes even more urgent for applying the results obtained through machine learning technologies, i.e. the adopted legislative acts can extend their effect to all or most citizens of some state. Consequently, the first problem of introducing machine learning into lawmaking is to select information and form adequate experience as a basis for using the corresponding algorithms. Another problem is the prejudice of automated decisions that cannot be avoided even due to the complete independence of the corresponding algorithm. This issue is especially acute in the case of automated processing and data analysis that can become discriminatory in terms of gender, age, race or ethnicity, etc[6].

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[1] O. G. Metsker; E. Trofimov; M. Petrov y N. A. Butakov, “Russian Court Decisions Data Analysis Using Distributed Computing and Machine Learning to Improve Lawmaking and Law Enforcement”, Procedia Computer Science Vol: 156 (2019).

[2] O. Metsker, E. Trofomov, Text and Data Mining Techniques in Judgment Open Data Analysis for Administrative Practice Control. In book: Electronic Governance and Open Society: Challenges in Eurasia (pp.169-180), 2019.

[3] W. M. Hampton, Predictive Coding: It's Here to Stay. E-Discovery Bulletin. Practical Law. 2014.

[4] D. Silver; A. Huang; C. J. Maddison; A. Guez; L. Sifre; G. van den Driessche; J. Schrittwieser; I. Antonoglou et al. “Hassabis Mastering the Game of Go with Deep Neural Networks and Tree Search”, Nature Vol: 529 (2016): 484-503.

[5] E. Alpaydin, Introduction to Machine Learning (Cambridge: The MIT Press, 2014)

[6] B. A. Williams; C. F. Brooks y Y. Shmargad, “How Algorithms Discriminate Based on Data They Lack: Challenges, Solutions, and Policy Implications”, Journal of Information Policy Vol: 8 (2018).78-115.

As a result, we cannot neglect the issue of responsibility for decisions made in an automated mode without human involvement or with minimum human involvement. This problem is closely connected with the resolution of a complex and contradictory – is artificial intelligence a party to certain legal relations and influenced by such legal categories as legal capacity or delinquency?[7]. There is also an opposite opinion that artificial intelligence cannot be regarded as a legal subject due to the lack of the most important elements of legal personality[8].

However, such risks should not hinder the extended application of machine learning in the field of lawmaking since these technologies contribute to the improvement of regulatory legal acts. These specifics are conditioned by the higher analytical potential of such technologies, which enables to comprehensively and fully assess the existing regulatory experience and law enforcement in a certain sphere for improving the current legislation. The predictive capability of machine learning technologies helps predict the consequences of certain decisions with a high degree of probability and evaluate the probability of making a decision.

Methods

The study is based on the dialectical approach and a combination of general and specific scientific methods of cognition and comprehension, including:

1) The method of explication formulates and substantiates the potential applicability of machine learning technologies to certain stages of the legislative process;
2) The formal-legal method is used to examine the legal basis of machine learning technologies and develop recommendations for improving the implementation of the indicated algorithms to minimize the risks associated with this procedure;
3) The comparative-legal method considers the current use of machine learning technologies;
4) The method of legal modeling develops and substantiates recommendations for the key aspects of using machine learning technologies in legislative activity.

Results

Legal, political and other sciences try to develop criteria for objectivity in lawmaking and provide mechanisms that eliminate prejudice and subjectivity in the development and adoption of well-grounded legislative decisions due to the need to overcome the consequences of arbitrary decisions[9].

[7] G. A. Gadzhiev y E. A. Voikanis, “Mozhet li robot byt subektom prava? (Poisk pravovykh form regulirovaniya tsifrovoi ekonomiki)”, Pravo: Zhurnal Vysshei shkoly ekonomiki num 4 (2018): 24-48 y H. Eidenmueller, “The Rise of Robots and the Law of Humans”, Oxford Legal Studies Research Paper num 27 (2017).

[8] R. I. Dremlyuga y O. A. Dremlyuga, “Iskusstvennyi intellekt – subekt prava: argumenty za i protiv”, Pravovaya politika i pravovaya zhizn num 2 (2019) y. L. Solum, “Legal Personhood for Artificial Intelligences”, North Carolina Law Review Vol: 70 num 4 (1992): 1262. Retrieved from: https://scholarship.law.unc.edu/cgi/viewcontent.cgi?article=3447&context=nclr

[9] A. J. Casey y A. Niblett, “A Framework for the New Personalization of Law”, University of Chicago Law Review Vol: 86 (2019): 333-358.

Modern digital technologies can decrease the negative manifestations of the "human factor" in lawmaking. Machine learning belongs to such technologies. Machine learning is a category of algorithms that allows forming the most accurate forecasts of the final result based on input data and statistical analysis.

The functioning of machine learning technologies requires the following components:

– Algorithm: the choice of a specific algorithm is determined by the problem that should be solved with a certain technology. Machine learning creates several models for describing the initial data and subsequently selects the most suitable one. Each algorithm is significant since the accuracy of the results obtained, the scope of the finished model and the speed of its functioning depend on the chosen approach to its formation;

– Information: the available data that serves as the basis for forming the final result. The final result depends on the amount of input data: the more data the model receives for analysis, the higher is the predictive potential of the final product. A large amount of qualitatively classified data helps to test machine learning algorithms on big data, which increases the accuracy of such classification[10]. It is also important to consider the quality and correctness of the information provided to the chosen algorithm. Selecting the initial dataset for machine learning is one of the most important conditions for its adequate functioning. For example, if we proceed from the fact that the issues of law enforcement are indicators of the need to develop legislation, the relevant database for the algorithm used in lawmaking should be based on information about the number of offenses in a particular sphere (in relation to legal liability) or the number of claims filed (in relation to law enforcement in the private sector), etc. This will enable to formulate the necessary recommendations for improving the current regulation using the capabilities of machine learning technologies[11];

– The selection of these indicators is the next part of machine learning, i.e. a specific set of features used to build an algorithm, each of which has its own specific impact on the final result. Such features are selected in the order associated with the use of different machine learning algorithms.

The main algorithms of machine learning are as follows: supervised learning, unsupervised learning and reinforcement learning. To implement the algorithm of supervised learning, a data entry specialist should have skills in this area to assess the accuracy of the result achieved and adjust this algorithm during the learning process. In particular, we need to indicate which variables, characteristics or features (the so-called precedents understood as the existing "response-object" pairs) should lay the foundation for a model of the subsequent analysis and use in determining the relationship between the corresponding pairs and implementation of predictive functions in relation to any other object, namely the formation of a training sample for the algorithm[12].

[10] J. Saarikoski; H. Joutsijoki; K. Järvelin; J. Laurikkala y M. Juhola, “On the Influence of Training Data Quality on Text Document Classification Using Machine Learning Methods”, Int. J. Knowl. Eng. Data Min Vol: 2 num 3 (2015): 143-169.

[11] C. C. Aggarwal, Recommender Systems (Heidelberg: Springer International Publishing, 2016)

[12] M. Hindman, Building Better Models: Prediction, Replication, and Machine Learning in the Social Sciences. The Annals of the American Academy of Political and Social Science Vol. 659, Toward Computational Social Science: Big Data in Digital Environments (May 2015), pp. 48-62

After that, the model will independently use this information in relation to new data, analyzing them and making the final prediction based on the existing experience, i.e. the target or dependent variable.

Unsupervised learning does not provide any ready-made answers as independent variables and is used to determine internal dependencies, patterns and relationships between different objects. At the same time, the algorithm tries to independently extract features and dependencies from the provided data, which reduces the human factor. The process of learning can be partially supervised by a teacher who provides some "patterned" data. This information is analyzed to reveal certain dependencies and relationships which can be applied to unknown data within the object in question.

Within the framework of reinforcement learning, an artificial intelligence agent learns through interacting with an object and receiving appropriate reinforcement responses, which distinguishes this algorithm from supervised learning that forms a special training sample and the environment does not act as a "teacher". If some action contributes to the achievement of the goal set, the agent receives appropriate reinforcement and identifies the subsequent steps that are as close to solving the initial task as possible. Despite the seeming simplicity of such an algorithm, it is difficult to implement due to the poor learning ability of artificial intelligence and the insignificance of a useful signal. Sometimes it can be so small that it becomes virtually invisible to the agent in contrast to "negative" consequences. In this regard, it does not seem necessary to dwell on this algorithm in the context of using machine learning technologies in lawmaking.

The above-mentioned algorithms are characterized by different methods that help to achieve goals with varying degrees of efficiency. All these algorithms can be used in legislative activity due to their analytical and predictive capabilities. As a result, they can significantly transform the development and adoption of regulatory legal acts. When determining the applicability of machine learning to the field of legislative activity, we cannot but mention the shortcomings of these technologies. Machine learning mostly assumes the pre-processed and classified data used by algorithms as training samples. Such data serve as the basis for finding logical patterns. The lack of such data can lead to situations when new information will not fit into the training sample indicated at the initial stage. Thus, the algorithm will have to define the category of this new data and recreate it as an independent component within the existing database, which is not an easy task[13].

The disadvantages of machine learning include the hypersensitivity of such algorithms. The existing empirical data confirm this disadvantage in the context of analyzing graphic images. Using simple manipulations, it is possible to trick face recognition algorithms[14]. Hypersensitivity is common not only to the "graphical" use of machine learning. The ability of artificial intelligence to distinguish between adjacent and similar phenomena is also relevant for the legal sphere, including lawmaking. In addition, an algorithm should recognize different structural elements of the rule of law (a hypothesis, disposition or sanction) that can be represented in different ways and enshrined in different norms and regulations. The Russian polysemous words also pose a problem and condition-specific cases.

[13] W. J. Scheirer; L. P. Jain y T. E. Boult, “Probability Models for Open Set Recognition”, IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI) Vol: 11 num 36 (2014).
[14] M. Sharif; S. Bhagavatula; L. Bauer y M. K. Reiter, Adversarial Generative Nets: Neural Network Attacks on State-of-the-Art Face Recognition. Adversarial machine learning. 2017.

The list of such risks is not exhaustive but they are of a general and methodological nature and should be considered when deciding on the applicability of machine learning to the sphere of legislative activity. However, such risks cannot hinder the implementation of these technologies since they bring positive results, i.e. introduce more analytical and predictive components into the process of preparing and adopting legal acts. We will consider particular manifestations of the potential use of machine learning in lawmaking further in the article.

Discussion

Lawmaking can use machine learning technologies due to their analytical and predictive potential, which significantly increases the efficiency of the legislative process.

The actual manifestation of such potential is predetermined by methods that automate certain types of activities within different stages of lawmaking, which stipulates the need to consider such automation and study its positive results.

Regarding the analytical potential of machine learning technologies, we should dwell on their possibilities of scanning, clustering and classifying data[15] to consider legal drafts, define their specifics, establish the need to regulate one or another issue, exclude doublets and potential contradictions with the existing norms.

The analytical potential of machine learning allows these technologies to be implemented for considering and determining the feasibility of the results brought by public discussions on online platforms. The chosen algorithm can evaluate such proposals (after the initial selection based on formal features and human analysis) for their compliance with the project goal and the existing regulation.

The parties to legislative initiatives are not required to create projects in machine-readable codes, i.e. they are made in natural languages and then converted into a machine-readable form. However, the existing regulatory framework should be transformed into a machine-readable code for the subsequent operations, which is difficult due to a significant amount of data. A possible direction for adapting legislative activities to machine learning is their gradual introduction into the spheres of legal regulation[16],[17].

To translate the existing experience into a machine-readable form and allow the algorithm to use it as a basis for analyzing new information, we can also use clustering methods. These techniques highlight the key functions of adopted legal acts and distribute the entire amount of data into groups depending on the subject of regulation or the date of their adoption. Thus, the algorithm needs to solve the following tasks[18]: to process new information and include it into the model under development.

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[15] I. Alnafra; A. S. Nikolaev y E. L. Bogdanova, “Primenenie metodov mashinnogo obucheniya v sisteme upravleniya intellektualnoi sobstvennostyu na osnove tekhnologii blokchein”, Vestnik SGSEU Vol: 76 num 2 (2019): 9-14.

[16] Simploer. Avtomatizatsiya prava. Novye rezervy effektivnosti. Stsenarii i tekhnologii. retrieved from: https://www.simplawyer.com

[17] A. J. Casey y A. Niblett, “Self-driving Laws”, The University of Toronto Law Journal Vol: 66 num 4 (2016): 436.

[18] A. I. Spivak; A. V. Razumovskii; D. A. Nasonov; A. V. Bukhanovsky y A. Redice, “Storage tier-aware replicative data reorganization with prioritization for efficient workload processing”, Future Generation Computer Systems, IET Vol: 79 part 2 (2018).618-629.

The method aims at forming a model that will identify the key functions within any new dataset and relate it to the current regulations in this sphere[19].

In addition, we should dwell on another issue that is closely related to lawmaking. It is necessary to comply with the legal regulation of those socio-cultural (national) values that are typical of a particular country. This issue is not speculative since it has already infiltrated everyday life, for example, the universalization of the rules for making decisions by artificial intelligence controlling vehicle traffic.

In the field of lawmaking, this adjustment is ensured by a preliminary check of the regulatory legal acts developed and adopted with the help of machine learning technologies. It is determined whether such acts comply with basic principles and ideas. A possible mechanism for resolving such an issue is a preliminary constitutional review, when the compliance of such drafts is checked in accordance with the precedents formed by constitutional or similar courts.

The next direction associated with the possibility of using machine learning implies the use of its predictive potential. In particular, it is possible to develop special algorithms aimed at eliminating gaps in the current legal regulation. This is conditioned by the ability of the new model to determine the missing elements that should be restored based on the analysis of interrelated data. In the context of lawmaking, it refers to the analysis of the relevant legal framework and systemic connections among legal norms and the possibility to establish those social relations that require regulation.

One more aspect is to decide on the admissibility of analogy in the regulation of similar social relations. If there are no facts in the given set of data, the algorithm can independently replenish them based on the information available. This method can be exemplified by the current register of unscrupulous suppliers who participated in public tenders.

Another way of using machine learning in lawmaking is the ability to predict the necessary changes in regulatory legal acts by analyzing the latest amendments to the relevant legislation. This approach is due to the ability of artificial intelligence to analyze the previous actions, predict future options and identify areas related to this activity.

The predictive potential of machine learning technologies consists of foreseeing the possibility of accepting or rejecting a particular legal act[20] and assessing its regulatory impact, which will determine the effectiveness of new regulation at the initial stage[21].

Within the framework of lawmaking, we will consider only the legal risks of introducing and using machine learning technologies[22]. Depending on the "life cycle" of a particular technology, we can distinguish between two types of such risks:

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[19] H. Noh; Y. Jo y S. Lee, “Keyword selection and processing strategy for applying text mining to patent analysis”, Expert Systems with Applications Vol: 42 num 9 (2015).

[20] J. J. Nay, “Predicting and Understanding Law-Making with Machine Learning”, PLOS ONE Vol: 12 num 5 (2017): 1-12.

[21] R. Zubek; A. Dasgupta y D. Doyle, Predicting the Impact of Legislative Texts: An Application of Supervised Machine Learning to Statutory Instruments in the United Kingdom, 2005-2015. Retrieved from: https://pdfs.semanticscholar.org/6774/1556f715a5594e431d21832f6afa9bf90c9b.pdf

1 – The risks revealed **at the stage of training** artificial intelligence;

2 – The risks revealed **at the stage of using** artificial intelligence.

These risks are common to any area of implementing artificial intelligence. The stage of training artificial intelligence is mainly connected with the risks of collecting, storing and analyzing data by artificial intelligence, for example, in the context of personal data safety and protection[23]. Information integrity is among the most significant and restricting spheres for applying digital solutions[24].

The risk of discrimination is revealed in another way at the stage of training artificial intelligence. During training, any algorithm can learn to discriminate based on a person's gender, race, nationality and religion, which questions the legality of the algorithm itself and the results obtained through its use.

Thus, access to personal information used as a basis by different algorithms is also predetermined by active human involvement in the digital environment and the so-called "digital invisibility"[25]. Due to poverty, socio-territorial inequality or lifestyle, people often drop out of activities that can be analyzed and collected by artificial intelligence for various purposes.

The construction of various artificial intelligence models based on such information (certain social groups are excluded as owners of the necessary information) can lead to the fact that they cannot meet the requirements of impartiality and objectivity[26].

In the functioning of artificial intelligence, discrimination manifests itself when a training sample states that individuals belong to a particular social group.

The current research in this area confirms that the prior experience presented to the model, whose analysis helps to predict the final results, can lead to the fact that the algorithm eventually "learns" to use stereotypes based on socially biased attitudes due to one's belonging to a particular race, gender or habitation[27]. Although there are risks of using such algorithms in the field of recruitment[28], this type of data is still present in the field of lawmaking and might be included into the information that serves as the basis for machine learning. It refers to the analysis of law enforcement that considers the violation of equality as one of the burning problems.

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[22] E. A. Voinikanis; E. V. Semenova y G. S. Tyulyaev, “Iskusstvennyi intellekt i pravo: vyzovy i vozmozhnosti samoobuchayushchikhsya algoritmov”, Vestnik Voronezhskogo gosudarstvennogo universiteta. Seriya: Pravo num 4 (2018): 137-148.

[23] S. Gardner, Artificial Intelligence Poses Data Privacy Challenges. Bloomberg Law Privacy and Data Security. 2016. Retrieved from: https://www.bna.com/artificial-intelligence-poses-n57982079158/

[24] M. Kovic, “Blockchain for the people. Blockchain technology as the basis for a secure and reliable e-voting system”, ZIPAR Discussion Paper Series Vol: 1 num 1 (2017).20.

[25] B. A. Williams; C. F. Brooks y Y. Shmargad, “How Algorithms Discriminate…86

[26] J. Lerman, Big Data and Its Exclusions. Stanford Law Review Vol: 66 (2013). Retrieved from: https://www.stanfordlawreview.org/online/privacy-and-big-data-big-data-and-its-exclusions/

[27] C. Aylin; J. J. Bryson y A. Narayanan, “Semantics Derived Automatically from Language Corpora Contain Human-Like Biases”, Science Vol: 356 (2017): 183-186.

[28] B. Solon y A. D. Selbst, “Big Data's Disparate Impact”, California Law Review num 104 (2016): 671-732

The exclusion of such information cannot solve the above-mentioned problem, but the less information on one's affiliation to a particular social group is included in the total data, the less likely such risks are. If such information is dropped out, there is a new risk that the algorithm will analyze the data available since there are no variables recognized as acceptable in predictive models. Consequently, such variables will acquire greater importance and have a larger impact on the final result not because of their actual significance for solving a particular issue but due to their connection to the missing information[29]. However, any algorithm can be biased even in the absence of such data. At the same time, there are certain risks associated with the exclusion of some information from the algorithm. As a result, artificial intelligence can produce arbitrary and unreasonable results.

We can suggest the following options for eliminating the above-mentioned discrimination risks when using algorithms:

– The review of algorithms and the information they use. This method is effective in relation to online services that are often based on data analysis and might be subjective[30]. As part of this reviewing, we need to examine program codes, conduct surveys among users of such services and create fake accounts containing different information to determine how it affects the functioning of the chosen services, etc. The government can be also involved in such activities when specific bodies purposefully assess the performance of the algorithms developed and used by private companies[31].

This method of introducing machine learning into lawmaking has certain peculiarities. In this case, the state uses machine learning algorithms and its verification can be only internal, which does not fully guarantee its objectivity. External verification in all areas not just the sphere of digital technologies provides a great number of guarantees. Therefore, we can evaluate the expediency of using means of external verification by private companies specializing in the implementation and use of digital technologies.The internal verification of algorithms that involves the analysis of the existing algorithms for their predisposition to discrimination. This type of verification comprises several methods, one of which is related to the study of discriminatory risks in the collection and analysis of data, which suggests the possibility of avoiding this risk[32]. The elaboration and development of such methods are associated with the activities of the Fairness, Accountability, and Transparency in Machine Learning research group that embraces scholars and actors who use machine learning to adopt the most reasonable rules in this area.

[29] D. G. Pope y J. R. Sydnor, “Implementing Anti-Discrimination Policies in Statistical Proofing Models”, American Economic Journal: Economic Policy Vol: 3 num 3 (2011).206-231.

[30] Ch. Sandvig; K. Hamilton; K. Karahalios y C. Langbort, Auditing Algorithms: Research Methods for Detecting Discrimination on Internet Platforms. Paper presented at the 64th Annual Meeting of the International Communication Association. 2014. Retrieved from: http://www-personal.umich.edu/~csandvig/research/Auditing%20Algorithms%20--%20Sandvig%20--%20ICA%202014%20Data%20and%20Discrimination%20Preconference.pdf

[31] D. K. Citron, Big Data Should Be Regulated by "Technological Due Process". The New York Times, August 6, 2014. Retrieved from: https://www.nytimes.com/roomfordebate/2014/08/06/is-big-data-spreading-inequality/big-data-should-be-regulated-by-technological-due-process

[32] B. Berendt y S. Preibusch, “Better Decision Support through Exploratory Discrimination-Aware Data Mining: Foundations and Empirical Evidence”, Artificial Intelligence and Law Vol: 22 num 2 (2014): 175–209.

In addition, we can be guided by the standards developed by the Association for Computing Machinery aimed at increasing the objectivity of artificial intelligence.

To minimize the risk of discrimination when using machine learning, it is necessary to assess and analyze the data used in its operation, as well as improve the quality of this data[33]. As a result, there is a new risk connected with the potential possibility of implementing this technology in state activities.

When some algorithm is trained for its subsequent application in lawmaking, it brings a new risk derived from the ones indicated above and typical of legislative activity. We mean the risks of forming an incorrect database of the "past experience" that serves as the basis for training artificial intelligence. Contradictions, inconsistencies and other inaccuracies in the existing legal acts is a common thing. At the same time, the current base of legal acts is used as an empirical and experimental basis for teaching the corresponding algorithm. Therefore, it is necessary either to "mark" such inaccuracies to let the algorithm perceive them in a certain way or eliminate them to minimize the possible risk of the negative influence of such contradictions on the final algorithm.

In this regard, various specialists should be involved in selecting data that will serve as the base for the algorithms used in legislative activities. Their task is to "mark" the maximum amount of legal norms and rules as contradictory or ambiguous, so that the algorithm can recognize this information as controversial and decide whether to analyze it and use it for further operations. The practical experience that applies to processing and analyzing social data can be also used in this case. The more background information about the existing inaccuracies and controversies the algorithm gets, the higher the accuracy of the predictive result is.

These risks do not cover all possible difficulties associated with the automation of lawmaking. Nevertheless, they form an idea of their most acute contradictions and necessitate their minimization to increase the use of digital technologies in public activities.

Conclusion

While analyzing the theoretical concepts and practical cases of using machine learning technologies in lawmaking, we drew the following conclusions:

1) The use of machine learning technologies in legislative activity can significantly increase the efficiency of this process, both by reducing procedural costs and by expanding the list of parties involved in the process.

2) The analytical potential of machine learning addresses a whole range of issues, whose automation transforms the legislative process. It refers to the analysis of legislative initiatives and prospects for their possible adoption, as well as to the determination of contradictions and inconsistencies in the existing regulation and their subsequent elimination.

3) Predictive potential is associated with the ability to assess the need for adopting some acts and determine its regulatory impact. Based on the existing experience

[33] S. Tolan, Fair and Unbiased Algorithmic Decision Making: Current State and Future Challenges, 2019. Retrieved from: https://arxiv.org/ftp/arxiv/papers/1901/1901.04730.pdf

in amending the current legislation, these algorithms can foresee the need for making appropriate changes to legal acts, which is predetermined by the consistency of law and allows to avoid internal contradictions in national legislation.

4) The implementation of machine learning technologies is connected with various risks conditioned by both the nature of such technologies and the specifics of lawmaking. The risks presented in this article are accompanied by certain recommendations for their minimization, which should be taken into account when deciding on the extent and methods of introducing machine learning into legislative activity.

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