

Research on Legal Regulations of Information Automated Decision-making from the Perspective of Private Law

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Abstract: Information automated decision-making has been widely applied and developed in private field. Being in the trend of a mighty rise, it brings convenience to life, meanwhile its own nature attribute of the “black box” has triggered various legal challenges which are increasingly prominent, such as the issues of transparency, discrimination and interpretation power. The legal regulations of automatic information decision-making from the perspective of private law need to analyze the causes of legal challenges and the limitations of relevant legal regulations. Exploring the root causes of interest conflicts and putting forward suggestions on the right structure of data subjects and the definition of obligations of decision-making subjects, as well as being based on the status quo of private law of information automated decision-making in China, this paper proposes legal regulations from the perspectives of legislation, institutional framework, multiple governance mechanism and judicial accountability.

Keywords: Information automated decision-making, Transparency, Discrimination, Legal regulations.

1. Introduction

The third wave of artificial intelligence having witnessed the era of artificial intelligence, machines can learn deeply and programmers do not need to program computers step by step. Machines can learn algorithms by themselves and solve more complex tasks. Almost anything can exist in the form of data, so data is called the carrier of information. However, due to the limitations of data storage and processing capacity, the massive amount of data forces us to give up the specific and limited way of thinking and apply information automated decision-making. As Pedro Domingos put in the Ultimate Algorithm, “The industrial revolution liberated human beings from manual labor, while the information revolution liberated human beings from mental labor, but machine learning liberated computers. Without machine learning, programmers will become the bottleneck of the revolutionary process; with it, progress will not be a problem.” In such a context, information automated decision-making began to intervene and even dominate more and more human social affairs, all over the fields of private work and life. [13]

On the one hand, the application and development of information automated decision-making facilitates private work and life as well as provides unprecedented opportunities. On the other hand, due to China’s legal regulations in the field of private law lagging behind, information automated decision-making faces many legal challenges from the perspective of private law. Therefore, we should keep enough alert to information automated decisions in order to enhance the ability to resist risks.

2. Legal Regulations Dilemma of Information Automated Decision-making

The legal challenges faced by information automated decision-making are numerous, and the application directions

are also numerous. It mainly faces challenges such as transparency, discrimination [14] and the right of interpretation. Specifically, its “black box” [15] nature brings transparency problems; recommending goods and information according to personal taste which makes people unaware in the cage of information, what’s worse, the “information cocoon room” [16] effect exacerbates discrimination; the necessity of information automated decision-making interpretation right and how to construct the interpretation right of specific scenarios, etc. From the perspective of private law regulations, China’s legal regulations of information automated decision-making lag behind, and there are many deficiencies. The law needs to respond to technological development in time, otherwise information automated decision-making will continue to face more problems and limitations.

The “black box” nature of information automated decision-making makes people unable to accurately understand the decision-making process, which brings transparency problems to it. There are three forms of information automation decision-making “black box”. From the actual situation of its application, the second form of “black box” corresponding to semi supervised machine learning is the main situation at present, because most information automated decisions need human intervention. In addition, the first form is the “black box” in the primary stage [17]. Both the input and output terminals need human intervention, so the “black box” is not enough to be afraid. The third situation is to carry out information automated decision-making without human intervention. Although with the application and development of artificial intelligence, human decision-making will be gradually replaced by automated decision-making. However, it is unrealistic to manage this form of algorithm “black box” at the present stage. Therefore, this paper mainly discusses the second form of “black box” of information automated decision-making. The “black box” of information automated decision-making makes its many processes opaque, however, when information automation

decision-making designers or technology companies infringe on the legitimate rights and interests of the public, they can evade their responsibilities on the grounds of their automatic operation and technology neutrality, resulting in general public having no trace to be found and no testimony to redress their injustice. Therefore, in order to achieve the transparency of the algorithm, it is debatable whether to disclose the source code and how to make different disclosure.

The “black box” of information automation decision-making not only brings the problem of transparency, but also brings the problem of discrimination. As a neutral technology, it does not have any views and emotions. But it is based on human bias, and the model of information automated decision-making is trained based on human knowledge and experience -- human inherent bias enters the model of it through data and training, then through data prediction, analysis and integration, it has been strengthened and even solidified -- which has brought about the problem of discrimination. The author believes that the root cause of discrimination of it is social prejudice. Employment discrimination, racial discrimination, identity discrimination and price discrimination already exist in daily society, even some social prejudices have been deeply ingrained. They are added to the database with data analysis and integration. For example, Amazon has discrimination against gender when using AI recruitment system. The discrimination of machine comes from the deviation of data, and the deviation of data mainly comes from human bias. In addition, too many “keyboard men” in social platforms have contributed to the deepening of social prejudice. They often scoff at some social problems, habitually using moral kidnapping and various discrimination, so that “those who are right are worse than those who are loud” on online social platforms. They guide social public opinion, cover up silent rational people and breed all kinds of discrimination. Meanwhile, it is imperceptibly guide information automated decision-making. The concept of discrimination unconsciously influences the young generation after the “mask” of information automated decision-making. This moving in cycles as well as unconsciously influence is not conducive to the formation of the correct values of the broad masses of the people. If the “information cocoon” is to close individuals in the information cage, then social prejudice is to close social groups in the data cage. Therefore, we must put forward practical legal regulations path.

In order to explain the “black box” problem of information automated decision-making, some scholars put forward the path of interpretation right of information automated decision-making. Although the power of information automated decision interpretation is necessary, it will still encounter great difficulties in practice [10]. The aim of the interpretation right of information automated decision-making is to assist the public to understand the decision-making process of the algorithm, but not explain all information automated decisions. Due to the limitations of technology, this cannot be done. At present, the issue of information automation decision-making is not whether the designers of it are willing to explain, but whether they can explain. In machine learning, for supervised learning, we can understand the input and output of information automation decision-making, so it is better to explain the process. However, for semi-supervised learning or unsupervised learning, we cannot fully know the input and output, and what information or eigenvalues are infiltrated when the input is

transformed into the output, so it is difficult to explain that unsupervised autonomous learning of machines due to that noncausal relationship against consciousness. Although there are technical difficulties in interpretation, the application and development of information automated decision-making are unstoppable. In order to establish the data subject’s trust in the data controller or data processor, how to construct the interpretation right system plays a vital role.

In addition, whether the right of interpretation of information automated decision-making is beneficial to enhance the responsibility of it and provide a basis for the tort subject of it is also controversial. The power of information automated decision interpretation has limited protection for data users, but it has a bad impact on trade secrets and market competition, which hinders the innovative development of society, and does not comply with the cost-benefit analysis law [18]. Besides, due to the limitation of algorithm technology, data controllers cannot clearly explain the decision-making process, however, it doesn’t mean that data controllers should be responsible for that, so accountability conflicts with the protection of trade secrets, and the right of interpretation cannot guarantee effective accountability. On the contrary, blindly pursuing the right of interpretation will bury hidden dangers for the protection of trade secrets. Therefore, it is of great significance to clarify the relationship between the accountability of information automation decision-making and the right of interpretation, and reasonably solve the accountability problem to demonstrate the legitimacy of the right of interpretation.

3. Definition of Subject Rights and Obligations in Information Automated Decision-Making from The Perspective of Private Law

3.1. The Necessity of Defining Subject's Rights and Obligations Under the Priority of Legal Value

The subjects of information automated decision-making include the designers, controllers, processors and users in a strong position, and the data subjects [19] and data users in a weak position. In order to better deal with the legal challenges, it is necessary to deeply analyze the rights and obligations of the subject, clarify the boundary between rights and obligations, and better explore the legal regulations of information automated decision-making.

The root of the conflict of subject rights is the difference of the priority of legal value. The profit seeking nature of capital determines that the primary value of technology is efficiency, and efficiency is the dominance in information automated decision-making. Personalized recommendation can improve the search efficiency of users. Specifically, information automation decision-making is applied in the fields of intelligent recruitment, education and training, credit loan, intelligent diagnosis and so on, which reduces the cost of decision-making and improves the work efficiency. However, information asymmetry intensifies the “digital divide” between decision makers and data users, further leads to the imbalance between algorithm power and individual rights, which challenges social fairness and justice, intensifies the discrimination of information automatic decision-making, damages individual legitimate rights and interests, and even endangers social public interests and people’s well-being.

Therefore, how to allocate the priority of legal value plays an important role in the legal regulations of information automated decision-making research and development.

The superiority of legal value reflects the conflict of rights between the subjects behind it. There is a conflict between the intellectual property rights of decision-makers and the right to be informed and interpretation of data users. Information automated decision-making can be protected by Copyright Law. Its binding hardware equipment can also be protected by Patent Law as a new technology. Of course, algorithms can also be protected as trade secrets. This is also the reason why the information automation decision controller defends the right to be informed and interpretation of data users. Trade secret and intellectual property are two different ways to protect technology. The confidentiality of trade secrets completely conflicts with the openness of users' right to be informed and interpretation [20], which enjoyed by data users plays a certain supervisory role in information automated decision-making. If the algorithms are protected by trade secrets, the information will be in a relatively secret state, which is not conducive to information sharing, and aggravate the "algorithm tyranny" [21], while intellectual property rights have a protection period, which can be protected in exchange for publicity. However, we should consider the degree of disclosure. If we blindly require the disclosure of source code, although it protects the right to be informed of data users, it will bring challenges to the intellectual property rights of information automated decision-making related products, so that other algorithm controllers have an opportunity to steal technology, which is not conducive to the benign development of scientific and technological innovation. Therefore, compared with the data subject's right to be informed and interpretation, the laws of various countries prefer to protect intellectual property rights to promote scientific and technological innovation.

To sum up, in order to deal with the legal challenges of information automated decision-making transparency, interpretation power, discrimination and so on, it is necessary to find a balance between the rights of data subjects, impose more obligations on the data decision-makers in an advantageous position, and correspondingly give more rights to the data subjects in a disadvantageous position.

3.2. Right Structure of Data Subject

Facing the problem of transparency, it is necessary to give data users the right to be informed. The infringement of "black box" nature of information automated decision-making on the right to be informed is manifested in the collection of information when users are "unaware". Personal information such as name, cell phone number, ID number and so on are collected and automatically resold or shared to the third-party platform for processing and utilization. Network users have the right to know the processing and utilization of their personal information, rather than being manipulated by the algorithm "black box". Therefore, in order to improve the transparency of information automated decision-making, it is very necessary to give network users the right to be informed.

In the face of discrimination in information automated decision-making, it is debatable whether data users should be given the "right of stealth". Data without users' authorization cannot be used to prevent their data from being acquired or stored by others, so as to fundamentally protect their privacy and avoid discrimination, but this is almost impossible to

achieve in practice. For example, it is widely used in street cameras and facial recognition technology to obtain people's appearance information. In addition to some elderly people still using "old people's machines", personal data will inevitably be collected on the "smart phones" that most people use. In the "digitalized" mapped individuals, even if the protection of "right of stealth" cannot be achieved, users still need to be given more possibilities of "stealth". For example, giving users the right to ask data users to erase their data after receiving the service, namely the "right to be forgotten". On the contrary, if data cannot be forgotten, data will become a feature of people, and people will be "digitized", leading to the reduction of the main characteristics of people, and thus unable to dominate decision-making, and finally become slaves of data. But what need to consider is the deletion of data by the data subject may affect the correlation of data and, in turn, affect the accuracy of the information automated decisions, which conflicts with the design purpose of information automation decision making. In order to solve this problem, the author thinks that giving data subjects a limited "right to be forgotten", as well as introducing the power of interpretation and correct. On the one hand, they can avoid the error of automated decision of information caused by excessive deletion of data. On the other hand, after the request of the data subject, both the source data and the derived data should be deleted. Considering the huge population base, it is not very realistic and may increase the operation cost of the decision-making subject.

In view of the right of interpretation, data users can be endowed with the right to express dissent or challenge, as well as some subsequent relief rights. When there is an error in personal data, the data subject can express dissent or challenge, and can ask the data processor to correct the personal information without reasonable explanation. Of course, if the data controller has not made a reasonable response at this moment, the data subject should be endowed the right of "opt-out" [22]-- when the choice of information automated decision has a significant impact on personal choice, behavior and life, the data subject can choose not to be determined by it, such as in some occasions of discrimination or prejudice.

In a word, rights such as the right to be informed, the right to be forgotten, the right to interpretation, the right to correct and the right of "opt-out" can be constructed to protect the legitimate rights and interests of data subjects, but these rights shall not violate public interests or public policies, and shall not damage the legitimate data processing interests of data processors under limited conditions, in order to seek the balance of rights between data subjects.

3.3. Obligation Boundary of Decision-Making Subject

Due to the special nature of information automation decision-making, the Internet platform is in a dominant position relative to the determined data subject, occupies relatively concentrated social resources, and sometimes forms "algorithm power", which is easy to cause "algorithm tyranny". Cambridge Analytics, a British company, uses the psychological test app to collect Facebook user data and embezzle the personal data of up to 50 million data users. Can Cambridge Analytics, as a third-party company, obtain unauthorized data? Can the authorized party transfer user data to a third party? At the theoretical level, it is easy to get a

negative answer, but it is not easy to operate in practice. How to solve the boundary problem of data use right is a difficult issue in practice. In order to protect the rights of data subjects, the obligations of information automated decision-making subjects must be defined.

In order to deal with the above three types of legal challenges, the author believes that the obligation of decision-makers can be defined before, during and after the event, but it should not be limited too much when defining the obligation limit, otherwise it will hinder the innovative development of automated decision-making technology. Exploring the interest balance between data subjects is a factor that needs to be fully considered. For example, the European Court of Justice ruled that Google only needs to implement the “right to be forgotten” in the EU and does not need to expand the scope of implementation to the global scope. When there is a conflict between autonomy and privacy, on the one hand, the case effectively protects the rights of the data subject, on the other hand, it has no excessive restrictions on the data decision-making subject in countries other than Europe. To a certain extent, it has a milestone role in balancing the interests of the two.

4. Suggestions on legal Regulations of Information Automated Decision-Making in China from The Perspective of Private Law

4.1. Legislative Suggestions on Information Automated Decision-making in China

China has not adopted a unified legislative model for the legal provisions of information automated decision-making, but scattered provisions in the Civil Code, the Network Security Law, the Data Security Law, the Personal Information Protection Law, the Consumer Rights and Interests Protection Law, the E-commerce Law and the provisions of various departments of the State Council, and most of them are principled and framework provisions. Next, relevant legal implementation details or legislative explanations should be issued to solve the problems of legal application in real life, so as to better comply with the trend of the big data era and deal with various conflicts, challenges and opportunities, specifically as follows:

First, comprehensively learn from the regulation methods of information automated decision-making in Europe and America. Combined with the current development of information automated decision making in China, we should fully absorb the legislative experience of the European and American countries, and extract the essence and remove the dross. For example, at present, there is a legal gap in the accountability of information automated decision-making in China. We can learn from the 2019 Algorithm Accountability Act of the United States, clarify the subject of algorithm accountability, clarify whether the information automated decision-making infringement belongs to general infringement or special infringement, and what scenario the information automated decision-making infringement requires the inversion of the burden of proof, then solve the problem of the difficulty of safeguarding people’s rights effectively.

Second, make special provisions for information automated decision-making. In the face of the decentralized and non-uniform legislative situation, on the premise of full

investigation, demonstration and soliciting opinions, we can consider issuing a special law on information automated decision-making, which will unify the legal basis, define relevant concepts and expand the scope of regulations, so as to deal with the legal challenges. Actually, the special legislative process cannot be too hasty, but we should be prepared.

Third, strengthen the legislative interpretation of information automated decision-making. In many laws, the provisions on it are quite principled. In order to enhance the operability and enforceability of the law, it is necessary to further clarify the legal provisions on information automated decision-making through legislative interpretation, and explain the new scene types of it in real life.

4.2. Institutional Framework of Information Automated Decision-making

4.2.1. Build A Differentiated Information Automated Decision-making Disclosure System

Not only does information automation decision-making have a black box nature, but human decision-making also has a black box nature. Due to the influence of environment, time, emotion and cognition, the performance and stability of human decisions are not necessarily satisfactory, but they can be solved through public participation mechanism and accountability mechanism. Then this has certain reference significance for solving the black box problem of information automated decision-making. For example, the Internet platform should hold seminars on information automated decision-making regularly to attract public participation. However, in order to avoid malicious public or platform competitors using open information to disrupt the fair order and benign competition of the market, there must be a practical approach to disclosure, making the source code or algorithm architecture available to the general public differently.

For the scope of disclosure, partial disclosure and small-scale disclosure can be combined. The disclosure of the information automated decision-making system that causes objections shall be regarded as partial disclosure [23]; the distinction between internal and external disclosure of it is small-scale disclosure. Set up an independent review committee within the information automated decision-making system, just like the supervision organization of the company, to maintain the fairness, rationality and legitimacy of it, and introduce a third-party organization to evaluate.

For the public subject, when the public governance organization applies information automated decision-making, in order to maintain social justice, it needs limited large-scale open, but in some special cases, it does not disclose, such as investigating criminals, etc.; for private companies such as Internet platforms, information automated decisions may not be forcibly disclosed as trade secrets or intellectual property rights, but conditionally disclosed. Therefore, private companies do not need to be disclosed as the government abides by fair procedures.

In general, to build a differentiated information automated decision-making disclosure system [24], we should consider the scope and subject of disclosure, so that the accountable subject exists, and do not “one size fits all” which will make potential counterparts take advantage of it.

4.2.2. Establish A Data Cleaning System to Regulate Information Automated Decision-making Discrimination

China implements the way of ex post relief to solve the problem of information automated decision-making bias, but it is difficult to achieve the regulatory effect in practice. There is no short and quick way to solve the problem of social prejudice. We need to strengthen the education on the concept of equality, which should be nurtured from childhood and gradually reduce social discrimination.

For the issue of discrimination in the information automatic decision-making system, a data cleaning system [25] can be established. Firstly, we should establish a prior data cleaning system, clarify the data cleaning obligations of the designers of information automated decision-making model, and prohibit discriminatory data from being used as training data to keep it neutral. Secondly, in the specific decision-making scenario of information automation, we should improve the data cleaning system within the Internet platform, clarify the responsible subject of data cleaning task, improve the process, and exclude discriminatory data from the process of information automation decision-making. Finally, accept the supervision of internal regulatory authorities and cooperate with the information automated decision-making impact assessment mechanism to provide a review report on the requirements of discrimination.

In order to implement the data cleaning system, the information automation decision-making supervision organization needs to issue standard guidelines on data cleaning as soon as possible.

4.3. Construct the Collaborative Governance Mechanism of Information Automated Decision-Making with The Idea of “Meta Regulation”

4.3.1. Information Automated Decision-Making Industry Self-discipline

In the exploration of the regulations path of information automated decision-making, the author believes that the governance idea of “meta regulation” [26] can be adopted, that is, the regulations are the combination of self-regulations and legal regulations. Make full use of industry self-discipline. When the data platform cannot achieve the regulatory goal, it will be subject to mandatory regulations by law. In order to achieve industry self-discipline and minimize legal regulations, there are the following ways:

Firstly, build an independent data processing supervision department for the data platform, supervise the daily information automated decision-making process, and punish the illegal individuals.

Secondly, improve the information automatic decision-making data platform. On the one hand, we need to classify the data, eliminate discriminatory data and encrypt private data. On the other hand, establish a data sharing platform supervised by industry associations to promote data circulation and utilization.

Thirdly, industry associations formulate normative guidelines to standardize the information automation decision-making activities of various data platforms.

Generally speaking, industry self-discipline is a non-mandatory regulatory model, which requires the self-discipline of various data platforms and individuals.

4.3.2. Build A Supervision Mode of “Both Internal and External”

The supervision mode of “both internal and external” includes internal self-regulations and external supervision, which has five parts.

The first part is that decision-making subjects make the impact assessment on the information automation decision and form the first draft of the report, mainly including whether the information automation decision is fair, reasonable and legal, the impact or risk on the data subject, and whether the risk reduction measures are reasonable and appropriate. The second part is that the impact assessment report of information automated decision-making is solicited opinions from the public. The third part is that the self-examination of the independent supervision department within the information automation decision-making enterprise and the improvement of the report according to the public’s opinions. The fourth part is to submit it to the national regulatory authority for review, which can be operated after passing the review. The fifth part is the internal regular audit and filing report of information automation decision-making enterprises, and the irregular audit of national regulators.

The “both internal and external” supervision mode runs through before, during and after the event, which is the full cycle supervision of information automated decision-making. A multi algorithm supervision mechanism of enterprise self-discipline, public participation and public power governance is preliminarily established. This process can also be supervised by a third-party organization.

4.3.3. Actively Participate in International Governance

In the era of artificial intelligence, information automatic decision-making communication has become a new way of information communication in the world, and information automatic decision-making technology has become the “soft power” of national politics and economy. Information automatic decision-making communication has brought “digital divide” [27], discrimination, privacy disclosure and transparency issue to the world, making mankind move towards an unequal world with both opportunities and challenges. Therefore, the governance of information automated decision-making is not a matter for a country, and no country can be alone.

China should actively participate in the international community’s governance of information automated decision-making. Firstly, actively participate in Multilateral Governance led by countries and international organizations. Secondly, adhere to the information automated decision-making technology governance based on multi stakeholders. Thirdly, develop the cooperative governance of information automated decision-making with region as the main body. Facing the risks and challenges brought by information automated decision-making, the international community should coordinate governance.

4.4. Strengthen the Accountability Mechanism in Judicial Relief

When the data subject is still unable to solve the dispute after internal error correction, mutual consultation, communication and mediation with the information automated decision-making subject, they can seek judicial relief. However, due to less relevant legal regulations, they often encounter obstacles in judicial accountability.

According to Article 69 of Act on the Protection of Personal Information in China, the presumption of fault liability in the principle of fault liability for infringement of personal information rights and interests is clarified. From then on, it can be concluded that the tort of information automated decision-making also applies the presumption of fault, that is, if the subject of information automated decision-making cannot prove that he is not at fault, he should bear the corresponding responsibility. The presumption of fault is obviously a compromise choice in the accountability after the Act on the Protection of Personal Information gives the data subject the right, whose protection of the injured party is slightly weak.

Facing the increasing trend of “algorithm power”, the author believes that in order to protect the judicial relief rights of data subjects, we must strengthen the accountability mechanism of judicial relief, especially clarify the civil liability first. The carrier of information automated decision-making is the thing controlled by the data subject. The data subject has rights to it, while the decision-making subject who does not enjoy the control power has inviolable obligations to it. Violation of obligations will destroy the stable social order and then produce civil liability. The actual risk and possible risk should be included in the scope of civil liability regulations of information automated decision-making. For the actual risk, the scope of civil liability of the decision-making subject includes not only the responsibility for designing information automated decision-making technology, but also the responsibility for the adverse legal consequences arising from the deployment and application. At the same time, in order to clarify the subject of tort as well as doctrine of liability fixation and distinguish the civil liability of different decision-making subjects, it is necessary to clarify the human liability and material liability. Human liability refers to the subjective fault of the information automated decision-making subject when designing the algorithm, that is, knowing that the designed algorithm will cause tort to the data subject, hoping or allowing the tort to occur, or failing to fulfill the specific duty of care. This kind of responsibility is fault liability, which is applicable to the information automated decision-making designer. Material liability means that the direct cause of damage to the data subject in the deployment and application of information automated decision-making comes from material, and the data decision-making subject bears alternative liability or indirect liability for the damage caused by the data affected by information automated decision-making. This liability is similar to product defect liability. The information automated decision-maker and user shall bear no fault liability. If the information automation decision-maker is at fault, the processor and user can recover from it, that is, the designer, processor and user shall bear unreal joint-liability [28]. For possible risks, civil liability mainly regulates the designers or developers. If the algorithms they design are harmful to social and public welfare, the law will impose severe sanctions, including but not limited to punitive damages. In addition, when dealing with relevant civil disputes, judges also need to consider the damage consequences of information automated decision-making, which generally appear in the form of opportunity cost and cannot measure the actual loss, such as the loss of admission opportunities.

In addition to clarifying the legal regulations of relevant civil liability, in order to strengthen judicial accountability, the court can also make a judicial interpretation to protect the

rights and interests of the injured party in time according to the law, enhance the practicality of the law and effectively protect the legitimate rights and interests of the injured party.

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