

Opportunities and Challenges of Artificial Intelligence in the Application of Taxation System

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Abstract: The construction of the tax intelligent system contributes to the efficient handling of tax-related matters and the monitoring of tax risks. It also helps to standardize taxation behaviors, reduce human-induced judgment standards, and reduce administrative costs. The application of artificial intelligence in the taxation system has brought about governance problems. China should establish an artificial intelligence development governance system and improve the intelligent development legal system.

1. Introduction

In 2016, the State Council issued the “13th Five-Year National Strategic Emerging Industry Development Plan”, which will develop artificial intelligence as one of the foundations for promoting the development of the information technology industry. In 2017, “Artificial Intelligence” was written into the government work report, which determined that the overall technology and application of artificial intelligence in China will be synchronized with the world advanced level by 2020; in 2025, the basic theory of artificial intelligence in China will achieve a major breakthrough, and some technologies and applications will reach the world. Leading level; in 2030, China's artificial intelligence theory, technology and application have reached the world's leading level. China has entered an era of rapid development of artificial intelligence theory and application, and artificial intelligence technology has been increasingly used in the field of government affairs. At present, the development of artificial intelligence in the taxation system is at the stage of automation of some tax-related transactions, such as tax-related questions and answers, online filing of tax returns, and invoice supervision. In the future, the intelligent taxation system will enter the tax collection and management intelligence, gradually realize the intelligent consultation question and answer system, use the big data to analyze the tax relationship map and dynamic credit to realize the tax-related risk identification, and realize the tax system vulnerability investigation through the neural network operation.

2. The current financial and taxation management system defects

2.1 The tax consultation question and answer system is inefficient

The 12366 tax service platform provides tax consulting services, tax guide services, tax reporting services, and complaints supervision services. Among them, tax consulting services and tax guide services provide taxpayers with information services such as tax laws and regulations, tax-related information, tax registration, invoice purchase, and tax returns. At present, there are 21 national taxes and 15 local taxes in the country to open the “12366 tax service hotline”, which has become an important bridge for tax authorities to communicate with taxpayers. There are two current consultation methods, network consultation or telephone consultation. As of August 2019, the State Administration of Taxation website statistics, 12366 tax service hotline acceptance of 33 a week, one-month acceptance of 669, one-year acceptance of 22016, the number of acceptant does not match the current taxpayer demand. In recent years, the reform of the tax reform and income tax reforms have been complicated, and the problems of taxpayer consultation have increased dramatically and become more personalized. The existing 12366 tax advisory platform can no longer meet the taxpayer's consulting needs. In addition, the national tax policy is answered by the Beijing 12366 Call Center in

accordance with the national general tax policy. The local tax policy is answered by the province's 12366 tax service hotline. Taxpayers need to classify tax policies and choose different consultation platforms to get a reply. There are professional requirements for taxpayers, taxpayers may not be able to correctly choose the way of consultation because of the lack of tax knowledge, and can't get the answers to the questions they need.

2.2 Asymmetric tax information

Tax information collection by tax authorities is mainly provided by self-collection and taxpayers. Since information sharing has not been realized between government departments, tax authorities cannot obtain forensic information provided by taxpayers. Under the condition of information asymmetry, taxpayers often want to pay less. This kind of information asymmetry has become insufficient for taxpayers to understand the taxation content and tax burden of the tax authorities, and the tax authorities have insufficient information on the taxpayer's organizational structure and business status. This kind of information asymmetry will reduce the accuracy of tax administrative discretion, violate the concept of tax fairness and justice, and damage the image of the tax authorities.

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2.3 The “big data” analysis capability of the Golden Tax Phase III project has yet to be developed

On March 1, 2019, the Golden Tax Phase III realized the combination of the national and local tax systems into a database, reorganizing and configuring the collection and management system, and unified job setting, workflow and parameter configuration. For taxpayers, the tax time will be greatly shortened. For the tax bureau system, the combined corporate information will be more comprehensive and accurate, which will reduce the possibility of tax evasion. At present, the Golden Tax Phase III project only realizes the data merger of the national tax, can verify the company's income, cost, profit, avoid virtual invoicing, and falsely report the risk of profit. However, the data of other government departments have not yet been incorporated into the database, such as real estate, household registration, etc., and the taxpayer's relationship map cannot be drawn more carefully. There is still risk of tax evasion, so the functionalities of “big data” and “cloud platform” have to be developed yet.

3. The construction of future fiscal and taxation intelligence

3.1 Intelligent consultation question and answer system

Taxation is about everyone, and the intelligent taxation platform should provide a convenient and fast response consultation platform. The tax advisory core system collects, processes, and analyzes the problems of taxpayer consultation in the past, and forms a problem database. Taxpayers can consult related issues through webpages, APPs, and WeChat channels. The intelligent consultation question answering system should establish a dynamic interactive question answering system, which is a candidate problem database, which uses the techniques of speech recognition and language understanding to analyze taxpayer problems, calculate semantic similarity, and solve taxpayer problems and dynamic interactive question and answer database. Make a match and submit the answer to the question online. For the problem of large complexity and individuality, the intelligent consultation question and answer system gradually guides the problem raised by guiding the taxpayer. If the question is indeed a fault in the problem library, after the answer is manually processed, the frequency of the problem is calculated according to the big data, and the intelligent question answering library is automatically updated. In addition, it is necessary to use the machine optimization matching model to establish a problem library to update the maintenance mechanism in a timely manner, and continuously improve the efficiency of the consultation question and answer.

3.2 Automatic alarm for tax-related risks

The intelligent taxation system can judge the tax-related risk according to the tax relationship cloud chart and the dynamic credit scoring system. Once the system runs, the potential risk will be

automatically issued. Taxpayer relationship cloud map is a network diagram reflecting the relationship between supply chain relationship and shareholding structure. According to the shareholding ratio of industrial and commercial registration, transaction data provided by value-added tax invoice, etc., combined with bank capital transaction information, data mining technology is used to achieve large Intelligent monitoring and processing of scale data implementation. ^[2] Based on the tax relationship cloud map, it is possible to comprehensively grasp the taxpayer's economic activities and related conditions, analyze the authenticity of economic business and the rationality of related transactions in real time, monitor the accuracy and completeness of tax returns, and realize taxation risks. real time monitoring. In addition, artificial intelligence plays the role of a monitor based on the relationship cloud image, realizing the forecast of tax revenue, and providing the tax authorities with effective economic data reference by predicting the future tax amount.

The dynamic credit scoring system is based on the taxpayer relationship cloud map, predicting the behavior of taxpayers in different economic scenarios, providing multi-dimensional credit evaluation indicators, using the neural network model to construct a credit evaluation system to improve risks in specific economic environments. Recognition ability. ^[2] The taxpayer relationship cloud map analyzes and supervises the economic activity behavior of enterprises based on the VAT invoice information, and outlines the supply chain information of the enterprise. According to the profit ratio of the peer companies and the transaction, it is judged whether the taxpayer's taxation behavior is illegal, and real-time credit evaluation of the taxpayer is realized. Through tax-related risk warning and timely identification of potential risks of taxpayers, the tax auditing agency will promptly intervene to ensure that taxation work is carried out in a normal and orderly manner.

3.3 Tax system loophole investigation

With artificial intelligence systems, policy implementation differences caused by human factors can be minimized. Artificial intelligence selects the taxation warning information selected from the aspects of industry characteristics, enterprise scale, business scope, supply chain relationship, etc., through the construction of the early warning model, calculates the risk value of tax management, and finds the risk of collection and system and system loopholes. These early warning conclusions based on the same algorithm avoid the rights-seeking rent brought about by administrative actions such as human discretion. In addition, in recent years, the tax policy has changed rapidly and the amount of information is large. With the high-speed computing power of artificial intelligence, the policy change and the spread calculation are completed in a short period of time, and the risks that each tax policy change may bring are analyzed, and the warning is accurately pushed. Reduce the risk of tax reform.

4. Financial and taxation intelligent governance problems

4.1 Personal information and privacy cannot be guaranteed

The process of artificial intelligence application and taxation system needs to collect and analyze the basic data and economic behaviors of different groups of enterprises and individuals, which may cause leakage of public data information. The application of current big data technology can quickly calculate and analyze personal preferences and push relevant information by analyzing people's click-through rate. Artificial intelligence technology relies on big data support to identify, match, and predict data to achieve accurate tax payment services. ^[3] As more and more data is collected, the privacy of personal information cannot be guaranteed, and the risk of information disclosure increases. After the implementation of the "Golden Tax Phase III" system, the taxpayer's staff has a sharp increase in the amount of taxpayer information. Staff members can use the job number and password to access and copy the taxpayer information needed, and it is difficult to disclose accountability information according to the login tracking record.

The global technology company Live Person released the "2019 Asia-Pacific and Japanese Enterprise Artificial Intelligence Ethics Research" report on June 26, 2019. The study pointed out that "the artificial intelligence problem most concerned by Chinese enterprises is that unauthorized data

access and artificial intelligence technology are malicious. Use the ethical and moral risks brought about." In the process of connecting artificial intelligence with Internet big data communication technology, it often becomes the target of network hacking. Currently, firewall information protection software is installed in the tax information system, but the security is still low. The "hacking attack" phenomenon that frequently occurs in the financial system triggers the risk of financial business should be highly alarmed by the tax authorities. With the promotion of the "Golden Tax Phase III" and the popularization of artificial intelligence, it reflects the basic information of taxpayers, trading activities, the amount of tax information in the wealth situation has increased dramatically. In addition to the taxpayer's personal filling, this information comes from information sharing among banks, real estate, industry and commerce, and has great economic value. The hackers attacked the taxation information firewall of the tax authorities under the incentives of interest, stealing taxpayer information and selling it, posing personal and property threats to taxpayers, and weakening the social credibility of state organs.

4.2 The development of artificial intelligence technology is out of control risk

The human brain has a limited calculation speed in a limited time, and often assists the empirical method in selecting the "most satisfied" strategy. Artificial intelligence, through deep learning and merging algorithms, can exhaust the conclusions under various conditions in a very short time. The computational operation focuses on the correlation of data, such as neural networks by analyzing supply chain and related party transactions. Calculating the taxation activities of each economic business, this networked computing activity has exceeded the scope of human brain computing. Once the artificial intelligence technology is out of control, or the large data packets that are relied on are not recognized after being tampered with, the human brain cannot judge the artificial intelligence operation mechanism at this time, and it is separated from the user's controllable range, thereby bringing the risk of the out-of-control of the development of artificial intelligence technology. . Once the financial and taxation intelligent system has a risk of losing control, it not only affects the taxpayer's credit, taxation, and legal responsibility, but also may result in miscalculation of the state's fiscal budget revenue and expenditure, with immeasurable consequences.

4.3 The problem of the identification of artificial intelligence out of control after the event

There are two reasons for the loss of artificial intelligence risk, including the risk of loss of control caused by artificial intelligence design defects, no design defects, but the artificial intelligence is out of control behavior. ^[4] The design and application of artificial intelligence system involves the design side, training side, and application side of artificial intelligence system. It is difficult to determine the responsible subject because of the diversification and unpredictability of the artificial intelligence system. When the artificial intelligence out of control risk arises, it is legally difficult to define the designer or manufacturer of a component of the intelligent system as the responsible entity, and it is even difficult to clearly determine whether the responsibility belongs to the operator or designer of the intelligent system. In addition, as an artificial intelligence carrier, robots can think and make decisions independently like human beings. Whether robots are the subject of law and take responsibility for their decision-making behaviors will pose enormous challenges to the traditional legal system. When the financial services provided by artificial intelligence suffer losses, it is currently impossible to face the responsible party at the legal level to share the punishment measures.

5. The exploration of fiscal and taxation intelligent governance

5.1 Pay attention to the research and development of user information encryption technology

Under the fiscal and taxation intelligent system, the collection of taxpayer's basic information requires data authorization, storage protection, and application boundary setting. The degree of artificial intelligence and digital technology and computer system in the use of fiscal and tax data is different, and the individual information of the user is different. There are also differences in collection and analysis. In order to be better popularized in the field of finance and taxation, artificial intelligence

must integrate the risk of leaking user information and realize the upgrade of information encryption technology. Therefore, it should cooperate with third-party artificial intelligence technology research and development institutions, focusing on the development and application of user information encryption technology. At the same time, in the process of using the data, we must pay attention to the application boundaries and the authority of people to obtain data, and better protect taxpayer information.

5.2 Building a rule-based intelligent development model

The construction of governance rules system is the key to the development of artificial intelligence. The governance rules include research and development specifications, product standards, operational security requirements, and usage rules. Rule-based governance needs to be combined with ethics, that is, intelligent system design needs to refer to rule standards and ethical thinking. At present, the construction of artificial intelligence rule systems in various countries is still in the discussion stage. There are no mature regulatory laws and institutions, nor the ruling standards for damage cases caused by artificial intelligence. The “New Generation Artificial Intelligence Development Plan” issued by the State Council in 2017 focused on the risks of artificial intelligence development. The development of artificial intelligence in China has risen to the national strategic level, and the corresponding regulatory authorities must put the construction of the intelligent governance rule system on the agenda. The taxation department should formulate the development norms of the taxation intelligence system on the basis of the intelligent development rules to ensure the steady operation of the state finance and taxation system.

5.3 Improve the legal system for the development of artificial intelligence

Artificial intelligence does not enjoy the legal subject status and cannot bear the legal responsibility when an error occurs. ^[5] When the development of artificial intelligence technology is out of control, the legal liability bearer responsible for the loss of control shall be responsible for the fault. In view of the above, when the artificial intelligence is regarded as a technological product in the general sense, the artificial intelligence is regarded as the technical product in the general sense, and the designer or the producer should bear the legal consequences caused by the loss of the artificial intelligence. It is assumed that the cause of the out-of-control of artificial intelligence is other factors than design defects. At this time, there should be corresponding legal liabilities for the responsible person or user who does not have strict management obligations of artificial intelligence, that is, the corresponding subject such as taxpayer or tax authority. According to the current status of China's current laws and regulations, the risk of artificial intelligence out of control is not sufficient. In addition, the Internet enterprise risk prevention and control ability is weak, the public enjoys the convenience brought by artificial intelligence and lacks legal knowledge and risk awareness. In order to better apply artificial intelligence to the taxation system, it is also essential to improve and perfect the supervision system. The tax authorities should estimate the impact of new technologies, new technologies and new products on the taxation system, and provide reference for the formulation of relevant statute law.

6. Conclusion

Smart taxation has become an important development trend for tax collection and management in the future. We must face up to the changes brought by artificial intelligence technology to tax management, constantly explore technology, continuously develop application areas, and apply intelligent technology to more taxation services and tax management.

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