Research on the Application of Legal Theory Under the Smart Court System

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Abstract

Cutting-edge technologies such as networking, digitalization, and artificial intelligence have enabled judicial operations, which have had a profound impact on the traditional judicial order, including the judicial structure at the structural level, the governance rules at the entity level, and the technology embedding at the application level. This requires that legal values be constructed in a contemporary manner in combination with different scenarios, and that the public be more concretely and intuitively approach the values of judicial fairness and justice through diversified and visual digital expressions. Only by accurately grasping the construction and application orientation of artificial intelligence technology in the court system can we effectively enhance judicial capacity and achieve a higher level of court construction.

Keywords: smart court, application of legal theory, digital justice, value reshaping

1. Concept and Application of Smart Court System

In the traditional court system, justice is often absent, and people's litigation rights cannot be fully and effectively protected. Citizens are excluded from legal protection, and only a few people have access to justice and enjoy high-quality court services. This system has damaged the foundation of the rule of law, and it is urgent to rely on technological change to achieve court transformation, that is, a smart court system. Applying new-generation science and technology such as artificial intelligence to judicial trials, litigation services and judicial management, with the realization of the intelligence of the entire process and all nodes of judicial business as the core, to realize the data-ization, platformization and intelligence of business and its processes, thereby improving the accuracy, precision and efficiency of judicial trials. The characteristics of smart courts are reflected in the following aspects. First, technology-driven is its essential feature, which is manifested in the widespread application of advanced technologies such as big data, artificial intelligence, and cloud computing in the litigation process, such as the positive role of AI in case prediction and judgment document generation. Secondly, process reconstruction is the key to smart courts. Paperless case handling is not only a reflection of technological progress, but also a profound change in the traditional litigation model, aiming to achieve a balance between fairness and efficiency. Furthermore, service orientation is the value orientation of smart courts. Through online litigation services, the convenience of judicial services for the people is improved, and the close connection between judicial services and public needs is achieved. Finally, transparency and openness are the cornerstones of smart courts. Through information technology, we can enhance judicial credibility and promote the establishment of a sunshine judicial mechanism.

Driven by national policies, the construction of smart courts has been carried out rapidly. Among them, important plans such as the Outline of the National Informatization Development Strategy and the 13th Five-Year National Informatization Plan have included the construction of smart justice in the national informatization development strategy. The "New Generation Artificial Intelligence Development Plan" issued by the State Council clearly states that a "smart court" should be built, and it is proposed to build a smart court data

platform that integrates trial, personnel, data application, judicial openness and dynamic monitoring, promote the application of artificial intelligence in evidence collection, case analysis, legal document reading and analysis, and realize the intelligence of the court trial system and trial capabilities.

1.1 Smart Court Platform Application

Platform applications mainly move offline work online to realize the networking, visualization and platformization of judicial task execution. Smart courts have built business modules for smart trial, smart management, smart execution and smart services, as well as judicial big data management and service platforms, judicial knowledge platforms and general management platforms, connecting the big data platform with the knowledge platform through the judicial artificial intelligence engine. By building an online platform, the court highlights the legal services it can provide rather than a single symbol of a place, so that more people can have the opportunity to receive high-quality legal services, make full use of information technology, meet the judges' precise needs for laws, cases and professional knowledge in the process of handling cases, and provide the public with reference to legal norms and judgment rules.

1.2 Technology Application of Smart Courts

On the basis of general artificial intelligence technology, the characteristics of judicial practice are integrated to produce software, systems and equipment that can not only meet the needs of legal practice but also follow judicial laws. Judicial artificial intelligence based on machine learning focuses on the development and application of technology. This type of technology requires big data such as voice, images, videos, personal information, and legal documents as training materials. The application of judicial big data has become the basic premise for the development of this type of technology, and deep learning algorithms are widely used in this type of technology. In terms of voice technology, it is mainly used for voice recognition technology for trial or interrogation voice transcription. In terms of image and video processing, there are mainly image recognition technology for trial assistance, abnormal behavior recognition and video processing technology for open trials. In terms of legal information retrieval, it mainly includes technologies for similar case push and legal and regulatory push. The combination of various technical software and systems can not only improve trial efficiency but also enhance judicial fairness, and can also promote the dual realization of procedural justice and substantive justice. At the same time, the online dispute resolution mechanism can also use algorithms and big data as the basis to use scientific and technological means to achieve the source prevention and governance of legal disputes.

2. Analysis of Legal Risks in the Smart Court System

From the result-oriented perspective of the application of the smart court system, justice is still its ultimate goal, but the value connotation of justice has been iterated, and digital justice that integrates the technological imprint of the times has come into being. The essence of digital justice is social justice, not "machine justice"[1]. The intelligent operation of the judiciary and the digital interpretation of the value of justice are not just for the purpose of reducing the service cost of the digital society and making litigation faster. The main driving force comes from the improvement of people's convenient access to the court system and legal services, and that everyone can enjoy equal rights and interests, and everyone's dignity can be maintained and defended by law. Therefore, clarifying the application goals of smart courts and identifying the existing legal risks are inevitable requirements for reshaping the value of justice.

2.1 Risk of Weakening Judicial Entities

The in-depth application of judicial artificial intelligence represented by smart courts has indeed facilitated judges and litigants, ensuring that judges exercise judicial power impartially and litigants have the right to a fair trial. However, the role of people in a technological society has been continuously weakened, and the two-way promotion between technology and society has reduced human subjectivity in a certain dimension. Human judges and litigants in the judicial field also face similar risks.

First, the status of human judges as judges is weakened. The decision-making power of human judges is gradually transferred to judicial artificial intelligence, and super artificial intelligence justice weakens the status of judges as judges. Autonomy and emotional processing are the core functional requirements of smart courts in the later stage and future smart courts, and are the key to the overall informatization of smart courts to a high degree of intelligence. Specifically, in the intelligent stage, the deep autonomous learning of algorithms absorbs the role characteristics of human judges, human-like attributes are continuously strengthened, and emotions and processing are learned by algorithms. These traditional normative boundaries have been broken through by practical rationality. For example, some judges have a preference for specific types of cases, which leads to the weakening of the status of human judges as judges.

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Second, the parties' status as participants has weakened. In view of the in-depth application of artificial intelligence and the judicial big database composed of codes, the parties to the litigation are no different from the legal clauses and effective cases coded in the big data set, and have become coded "numbers". In individual case trials, the source of the judge's subjective feelings about the parties to the litigation is no longer their distinctive personality characteristics such as their participation in the case, special litigation behavior preferences, or defense rhetoric, but more from the "stereotyped" characteristics of the categories analyzed or even classified by big data. In judicial cases, the weakening of the parties' status as participants will also directly lead to the judges' lack of attention to human feelings and common sense. In the process of balancing the principles of heaven, the law of the country, and human feelings, there is a lack of humanistic care for specific people, which makes judicial judgments lose the human warmth they should have.

2.2 Risk of Alienation of Legal Methods

Symbolic and algorithmic adjudication is a mechanical adjudication that lacks the judge's ability to reason and argue in the process of adjudicating cases. It replaces traditional legal methods such as "same case, same judgment", value judgment and legal prediction. When dealing with complex cases, artificial intelligence tends to ignore the specificity of individual cases, and it is difficult to make moral reasoning and value judgments. It lacks the unity of legal principles, facts and emotions pursued by adjudication. Due to technical problems such as data labeling, algorithmic bias, feature engineering and overfitting, artificial intelligence still cannot meet the needs of legal practice. We must use symbolic systems with caution to avoid alienation of legal methods.

It is undeniable that algorithms and laws have similarities. Both laws and algorithms are sets of instructions constructed to achieve specific goals. Both use information filtering and model building as a means to reduce cognitive burden and improve cognitive efficiency. Some basic principles in algorithm design can be used as a reference for legal studies. The algorithmic laws represented by codes can also express the operating laws of laws to a certain extent. The implementation of blockchain code in smart contracts is an example of legal coding or algorithmization. However, replacing laws with algorithms, or replacing the operating laws of legal practice with the operating laws of artificial intelligence, is likely to mislead smart justice and lead to "algorithmic dictatorship."

Since the principle of algorithm is essentially different from the legal theory, the difference between the two is that the design of algorithm follows digital logic, reflecting the law of obtaining results through finite steps of code operation, while the law, in addition to legislative intent and adjudication logic, must also follow moral and ethical values, embody the constraints and guiding values on human behavior, and reflect the law of judicial adjudication. On the other hand, the problems of the code or algorithm itself will cause the law to seriously deviate from the legislative intent and violate the law of justice. The natural bias of the code or algorithm will amplify the consequences of the algorithm being alienated into law. Objectively, it is due to the defects of the data itself and the unsolvable defects of the algorithm, that is, the unfair results caused by the defects of the data through the algorithm. Subjectively, it is the injustice caused by the malicious design of the algorithm designer or the subjective preference of the user. If such an algorithm is used to assist judicial decisions, it will violate the law of judicial fairness.

3. Clarification of the Elements of Legal Application

In the face of digital and intelligent judicial practice, traditional legal value elements no longer have full explanatory power in terms of applicable fields, regulatory subjects, procedural operations and result evaluation. It is necessary to clarify the value elements covering digital justice in terms of specific technology embedding. On the one hand, the case handling assistance system of smart courts realizes the structured management of legal elements, improves the case handling efficiency of judicial personnel, and breaks through the procedural field under physical space; on the other hand, it extracts a large number of case fact characteristics from the artificial intelligence system information resource library and learns the judgment results, establishes a specific case judgment model, predicts the ongoing substantive judgment and pushes reference information such as case analysis to judges, provides judges with comprehensive and reliable judgment guidance, and gives warnings for the deviation of judges from the current generation model based on predictive judgments while guiding judges, and [1] relies on algorithm technology to realize the prediction and supervision of substantive judgments. The clarification of legal elements in the construction of smart courts aims to reveal the dynamic balance between technological progress and legal principles, emphasizes the adherence to the legal cornerstone while innovating in technology, and ensures that smart courts do not lose their fairness and the essence of the rule of law while improving efficiency.

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3.1 Based on Efficiency Improvement

Judicial efficiency is the premise for the realization of justice. The existence of any social dispute means the continuation of the state of uncertainty of rights. Failure to achieve efficiency means the inability to properly handle the contradiction between judicial resources and judicial needs. The resolution of disputes should not only be fair, but also fast. Efficiency and justice are inherently consistent. However, how to allocate judicial resources more efficiently and reasonably and achieve judicial efficiency with better quality is a problem that must be faced in the realization of digital justice. The effect of achieving judicial efficiency is the meaning of judicial justice and determines the degree of realization of fair justice. The realization of digital justice requires the potential of technological power in the production and realization of justice[1].

3.2 Guaranteeing Judicial Openness

By making the trial process and technical standards public, we can increase public participation and social acceptance, so that judges and the public can understand the truth and achieve justice, thereby improving judicial credibility and authority. Judicial openness can force the judicial process to be standardized, protect citizens' rights to know, participate, express and supervise, improve the judicial supervision and restraint mechanism, and fully realize fair justice.

3.3 Based on Judicial Credibility

Judicial credibility is the ability of the judiciary to win the trust of the public and society, and judicial credibility is an extension of legal credibility. The legal values of fairness and justice guide judicial artificial intelligence to deeply empower judicial reform, break through "information islands" and "data barriers", and promote the construction of a sunshine judicial mechanism[2]. Enhance the openness and transparency of procedures, continuously improve the path for the public to participate in the judiciary, and make judicial judgments reflect the general social justice. Establishing judicial credibility is conducive to establishing judicial authority, enabling social entities to interact with the judiciary in a benign manner, and jointly building a harmonious society.

4. Improve the Legal Logic of the Smart Court System

The construction standards of digital justice in smart courts are often higher than ordinary procedural justice and substantive justice. Based on this, it is necessary to make full use of the blessing function that digital technology brings to the judicial system, and on the other hand, to guard against the alienation risks of digital technology. The realization of the values of fairness and justice requires the effective and reasonable use of digital technology, the integration of natural law, national law and human nature, and the coordination and unity at the theoretical cognition level, technical application level and institutional guarantee level.

4.1 Clarify Basic Theoretical Knowledge

4.1.1 Theory of Human Subject Dignity

Although digital justice and traditional justice are applicable in different scenarios and explain different phenomena, their basic values and concepts should be consistent, such as "maintaining procedural fairness and protecting human dignity, which have characteristics that transcend time and space, and will not become obsolete under new technological conditions. Because the service objects of artificial intelligence technology are people, as long as human subjectivity remains constant, the requirement to respect human dignity will not change[3]." Precisely because of this, in order to meet the basic requirements of digital justice, it is necessary to take the elimination of bias, full participation, and other standards for maintaining procedural fairness and protecting human dignity as the basic goals of the use of digital technology.

4.1.2 Rights and Power Balance Theory

The balance theory of rights and powers based on the principle of public law is to transform vertical power into a horizontal, two-way power and rights relationship, and incorporate individual rights as an influencing factor of this relationship. Only when power and rights are in a state of mutual restraint and balance can the stability of the legal system be maintained and the maximum interests of society be achieved. The imbalance between legal power and basic rights will cause social instability and is not conducive to the structural balance of social values. Only by incorporating algorithmic rights into the balance theory of rights and powers can individuals be called citizens, rather than objects controlled by algorithms. Accordingly, the parties in the smart judicial field are the subjects of litigation participation, rather than objects.

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[3] Liu Dongliang. (2020). Technical Due Process: Dual Variations of Procedural Law and Algorithms in the Age of Artificial Intelligence. *Comparative Law Research, 5.*

4.2 Legal-Oriented Logical Framework

In the construction of smart courts, the construction of a logical framework guided by legal values is a key link, which aims to ensure the deep integration of legal logic and intelligent technology to drive the efficiency and fairness of the judicial system. This model should include three core levels: technical level, legal level and social acceptance level, which will influence each other and jointly shape the future form of smart courts.

First, the technical layer is the foundation, which covers cutting-edge scientific and technological means such as artificial intelligence and big data analysis. These technologies not only improve trial efficiency, such as automatic document generation and intelligent decision-making assistance, but also enhance judicial transparency through visualization tools. For example, using machine learning algorithms to analyze historical cases can provide references for judges and promote the consistency and fairness of judgments. Secondly, the legal layer ensures the legality and rationality of technology application. The construction of smart courts cannot be separated from legal principles and must be promoted on the premise of respecting procedural justice and protecting the rights and interests of the parties. For example, although paperless case handling has improved efficiency, it is also necessary to solve the problems of data security and privacy protection to prevent the convenience of technology from sacrificing procedural guarantees. Finally, the social acceptance layer focuses on the public's cognition and acceptance of smart courts. Courts are not only users of technology, but also maintainers of social trust. Therefore, the innovation framework of smart courts should take into account the public's understanding, improve public participation through education, consultation and other means, and reduce the alienation caused by technology. By clarifying the logical relationship between these three levels, smart courts can build a court system that is both in line with legal logic and fully utilizes the advantages of technology. Table 1 summarizes this legal-oriented logical framework and its interrelationships.

Table 1. Logical framework of legal orientation

Level	Elements	effect
Technical Layer	AI, Big Data	Improve efficiency and enhance transparency
Legal level	Legal principles, procedural justice	Ensure openness and maintain fairness
Social acceptance	Public awareness and participation	Build trust and increase acceptance

4.3 Measures to Strengthen Legal Orientation

4.3.1 Explore the Legal Protection Mechanism of Digital Human Rights

As the fourth generation of human rights[1], the digital human rights structure contains the rights of digital citizens such as personal dignity, right of expression, right of privacy, and right of data. It is necessary to systematically protect the rights under the digital human rights structure based on the concept of public law management, and digital human rights must have the value of maintaining equality, and guarantee the basic capabilities and development rights of individuals, especially vulnerable groups[2]. Digital differentiation has brought new opportunities and capabilities inequality problems such as digital survival, discrimination, and control. These urgently need to be filled through the entire social governance system, including the rule of law, with digital equality as the guide, to protect the digital divide faced by vulnerable groups, safeguard their digital living space, and promote the realization of fairness and justice under the construction of a smart court system.

4.3.2 Focus on the Appropriateness and Integration of Technology Application

The value of the intelligent trial system lies in assisting judges to better exercise their judicial power, rather than replacing judges' judgments. Judges' trials rely on free conviction, and the logic of proof relies not only on logical rules but also on experience. As Holmes said, "The life of the law has never been logic, but experience." Smart judicial assistance to judges' trials should consolidate the judges' judicial power, rather than weaken or eliminate it. While embedding technology, attention should be paid to strengthening its appropriateness and integration.

The relationship between technology and justice should shift from one-way empowerment to integrated development, and establish a smart court paradigm characterized by synergy, stratification, and complexity. The "Opinions on Strengthening the Judicial Application of Blockchain" and "Opinions on Standardizing and

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Strengthening the Judicial Application of Artificial Intelligence" issued by the Supreme People's Court also clearly define the direction of strengthening the application of technology in typical scenarios to serve social governance. In the construction of smart courts, it is necessary to adapt to technology governance, standardize technology governance, and develop ahead of technology governance. On the basis of "rule coding", it is necessary to achieve the reshaping effect of the entire life cycle of technology judicial applications such as "judicial decision modeling" and "judicial process scenario".

4.3.3 Strengthen the Openness of Smart Scenarios and Transparency of Algorithms

In the application scenarios of smart courts, the requirements of algorithm transparency and openness should be embedded in the algorithm application system. By building a process-based interpretable, traceable, and auditable risk control mechanism, and configuring the right of individuals to remedy against algorithmic erroneous decisions, the algorithm-driven economic form, social opinion, and network order should be promoted to comply with the principle of safe and authentic public interests, and to promote the formation of a sound legal digital social order. On the one hand, it is necessary to increase the power review of the judicial artificial intelligence system from the perspective of power control. During the system development, maintenance, and operation, a special team composed of judicial experts and technical experts will inspect and test the underlying logic of the algorithm relied on by the intelligent case handling system, and conduct follow-up audits on it, so as to ensure that the intelligent system is in a benign operating state and has an interpretable basis. On the other hand, it is necessary to improve the system that stakeholders have the right to obtain assistance from "people with specialized knowledge" from the perspective of empowerment.

Acknowledgements

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