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The Role of Lawyers in Legislative Innovation in the Digital Age

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Abstract: *With the rapid development of digital technology, the legal field is facing unprecedented changes. This paper aims to explore the role of lawyers in promoting legislative innovation in the digital age, focusing on how lawyers can use emerging technologies such as artificial intelligence, blockchain, big data, interdisciplinary cooperation and public participation to promote innovation in the legal framework. The study first summarizes the main theoretical and practical achievements of current digital law and legislative innovation through literature review, revealing the background of changes in legal needs and the evolution of lawyers' roles in the digital age. Secondly, this paper designs a mixed-method empirical study that combines quantitative analysis and qualitative research to evaluate the impact of digital technology, interdisciplinary collaboration, and public participation on the role of lawyers in legislative innovation. The quantitative part evaluates the innovation and feasibility of legislative advice provided by lawyers with the support of digital tools and the differences between traditional methods; the qualitative part uses interviews and focus group discussions to explore in depth the role of lawyers in the actual legislative process, the challenges and opportunities they face. Finally, the experimental results show that the number of public participation in legal feedback gradually increases at the end of the year. The way of digital technology supporting legislation scored higher in rationality, innovation and feasibility, which are 8.5, 8.0 and 8.3 respectively. Lawyers score higher in communication effectiveness and problem-solving ability, while technical experts have certain advantages in depth of understanding.*

Keywords: *Digital Age; Lawyers; Legislative Innovation; Artificial Intelligence; Interdisciplinary Cooperation; Public Participation*

1. Introduction

The rapid development of digital technology has brought huge challenges to the traditional legal supply paradigm. In order to overcome the shortcomings of the current legal supply paradigm, such as lagging concepts, single dimensions, and narrow vision, it should adopt the method of second-order trend observation, adhere to a flexible time perspective oriented to the future, achieve "forward review" and "backward deduction" in a comprehensive sense, and explore a new path for "legal creation". This paper aims to explore the role of lawyers in promoting legislative innovation in the digital age, and analyze how lawyers can promote innovation in the legal framework by using new technologies such as artificial intelligence, blockchain, big data, interdisciplinary cooperation, and public participation. Through a combination of quantitative and qualitative empirical research, this paper will reveal how digital technology improves the quality of lawyers' legislative advice, as well as the positive role of interdisciplinary collaboration and public participation in promoting legal reform. The purpose of this study is not only to provide a reference for lawyers on how to better utilize new technologies, but also to provide theoretical support for the innovation and optimization of the future legal system.

This paper first introduces the importance and background of lawyers in promoting legislative innovation in the digital age, and reviews the literature in related fields, revealing the profound impact of digital technology on legal and legislative innovation. Then, this paper designs a mixed method empirical study, combining quantitative and qualitative analysis, to evaluate the impact of artificial intelligence, big data, and interdisciplinary collaboration on lawyers' legislative innovation capabilities. The research method section describes in detail the data collection and analysis process, including legal document analysis, interviews, and focus group discussions. Finally, the results and discussion section presents empirical data, reveals the impact of digital technology, public participation, and

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interdisciplinary collaboration on the quality of legislative proposals, and proposes strategies and suggestions for future legal reforms based on the research results.

2. Related Works

There are a large number of experts conducting research on legal digitization. Lescrauwaet et al. explored the intersection of emerging technologies such as AI (artificial intelligence), blockchain and biotechnology, and emphasized the importance of an adaptive legal framework for responsible innovation [1]. Coker et al. analyzed the critical role of legal practitioners in mitigating risk in the Nigerian corporate environment, highlighting their importance in building a dynamic legal framework, promoting a culture of compliance, fostering collaborative innovation and sustainable corporate governance, and advancing education and capacity building, financial stability and risk management [2]. Akpuokwe et al. reviewed the complex legal challenges brought about by the development of artificial intelligence and robotics, covering issues such as accountability, ethics, data privacy, and intellectual property rights [3]. Rodgers et al. explored the impact of technology, particularly artificial intelligence and machine learning, on law firms in the United States and the United Kingdom. Although technology has not yet completely transformed law firms, its application is changing the way law firms operate [4]. Naveed & Shah investigated the Information Literacy (IL) skills of lawyers in Sargodha, Pakistan, and analyzed questionnaire data from 297 lawyers [5].

Schillig believes that legal discourse is influenced by the hype cycle of DLT (Distributed Ledger Technology) blockchain technology, and proposed a structured method to analyze its legal impact from the perspective of the hype cycle [6]. McLachlan et al. explored the use of visual modeling and information visualization (InfoVis) to improve the accessibility of legal knowledge as the basis for legal artificial intelligence [7]. Dudchenko explored the application of computer technology in legal practice, emphasizing the importance of a systematic approach to understand research results in a logical order and conduct literature reviews [8]. Norris distinguished between traditional private law enforcement and new variants through the theory of participatory democratic regulatory governance, arguing that traditional forms contribute to democratic governance, while new forms may weaken the reasons for public participation in regulation and bring the risk of legal lynching [9]. Through the analysis of three university cases, Reynolds pointed out that the mutual penetration of social networks in the fields of education and law has contributed to this change and proposed the concept of "endogenous reuse of law" [10]. Fang et al. found that the discourses of legal professionals and semi-professionals revealed three institutional logics for their understanding and use of AI: expertise, accessibility, and efficiency [11]. Reis et al. conducted a comprehensive review of global privacy legislation and enforcement mechanisms, revealing the challenges to personal privacy protection in the digital age [12]. Groves discussed the central role and political status of the Attorney General's Office in the legal system, with a focus on federal law [13]. Muhammad evaluated the changes in the role of notary public in the establishment of a single shareholder Limited Liability Company (LLC) introduced by Law No. 11 of 2020 [14]. Existing research on the coordination between legal frameworks and technological innovation has mostly focused on the potential and challenges of technology, but lacks in-depth exploration of legal adaptability and regulatory structure adjustments.

3. Methods

3.1 Concepts of Artificial Intelligence and Digital Law

3.1.1 Artificial intelligence

The powerful effectiveness of generative artificial intelligence has injected new vitality into public participation in legislation. In China, there are widespread problems in the area of public participation in legislation, such as lack of convenience and insufficient information supply. Background materials related to legislation are either not published or hidden in the official websites of public authorities. It is difficult for the public to easily obtain the necessary information for participation, which greatly affects the enthusiasm of public participation. The emergence of ChatGPT generative artificial intelligence has become a good remedy to alleviate this situation. When artificial intelligence receives a legislative consultation request from a user, it will quickly retrieve the legislative information and user comments collected during pre-training, analyze and integrate them according to certain logic, and finally present them to the user in natural language. At the same time, when users need to write legislative suggestions on relevant information, they only need to enter the key words and phrases they are interested in, and

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then the generative artificial intelligence will automatically generate a legal text with formal professionalism.

3.1.2 Digital law

Digital law is the use of information technology to implement digital and intelligent processing of the legal industry. With the continuous development of science and technology, the legal industry is gradually moving towards a digital route, which is not only an expansion of the traditional legal model, but also an improvement in the effectiveness and quality of legal practice. The core of digital law lies in the use of advanced information technology, such as artificial intelligence, big data analysis, blockchain, etc., to enhance the management, decision-making and execution efficiency of legal affairs. Among them, artificial intelligence plays a key role in digital law. It can provide intelligent legal consulting, contract review and other services through automated analysis and understanding of legal texts, greatly improving the efficiency and accuracy of legal work. In the legal and judicial field, digital law can help judges and lawyers quickly search for cases and legal documents, and assist in judgments and litigation activities; in the corporate legal field, digital law can realize functions such as intelligent contract management and risk warning, thereby reducing corporate legal risks and costs; in the public administration field, digital law can provide intelligent policy consulting and regulatory interpretation services, thereby improving government governance efficiency. However, digital law also faces some challenges and problems. First, the combination of law and technology requires overcoming the communication barriers between legal professionals and technology professionals, and establishing an interdisciplinary cooperation mechanism; second, the development of legal technology may bring about some ethical and privacy issues, such as personal information protection, algorithm fairness, etc., which require strengthened supervision and regulation.

In this context, the traditional legal rules supply paradigm has been shaken at three levels. First, digital risks are generalized and alienated under the constraints of existing rules, and the traditional loophole filling and analogy application methods cannot effectively achieve legal continuity. Second, many connotations of digitalization deviate from the basic requirements of democracy. Legislators are unable to effectively respond to the “new injustice” and “new poverty” caused by digitalization. The demands for public interests cannot be achieved simply by amending legal texts. Third, digitalization has led to an overall deviation of individuals from the "standard personality" based on family and work. If we still adhere to the traditional legal interest balancing and adjustment paradigm, the tension between the two standards formulated in the system and the standards effective in society will not be eliminated.

Therefore, the public in the digital age will face the unchanging foundations of legal change: in the past, the "logic" of legal production dominated the "logic" of technological development; now, this relationship is reversed, and the "invisible hand of technology" has become an important force in shaping market and social rules. Legislators are increasingly unable to describe the relative degree of certainty in the application of the law, and it is also more difficult to construct new certainty through the adjustment of rules and standards. However, due to the lack of a new rule-generating mechanism that is compatible with digital development, individuals who are highly dependent on digital technology will face a collective fate of a deteriorating living environment.

3.2 Application of Emerging Technologies Such as Artificial Intelligence, Blockchain, and Big Data

Rationally speaking, the life of a legal system lies in its implementation. No matter how good a legal system is, if it is not implemented in practice, it will be like a pile of waste paper and will be useless. In fact, the biggest pain point of short video copyright protection is not the lack of legal system, but the problem of legal system implementation. The reason why the current relevant legal system is difficult to implement is not only due to the implementation subject, but also due to technological means. Fortunately, the development of emerging technologies such as artificial intelligence, blockchain, and big data has provided technical support for the implementation of the short video copyright protection legal system. For example, artificial intelligence can replace the manual review of short video platforms, provide technical support for short video platforms to perform video filtering, review, supervision, and punishment, and reduce the operating costs of short video platforms. Blockchain, with its immutable characteristics, can fix the infringement facts of the infringer and help the right holder to protect his rights. Big data can be used in copyright confirmation to help copyright certification organizations complete the certification work within the set time. It should also be noted that the application scope of these emerging technologies is not limited to this. This is only to demonstrate the positive role of emerging technologies in implementing the legal system for short

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video copyright protection.

3.3 Legislative Advocacy and Participation

Lawyers can play an active advocacy role in legislative innovation. They can not only provide legal advice to the legislature, but also put forward practical suggestions by participating in the policy-making process. For example, in the formulation of laws and regulations involving data privacy protection and cybersecurity, lawyers can use their professional knowledge and practical experience to help governments and businesses design legal frameworks that meet the requirements of the times. The scientific nature of local legislation means that legislation is based on reality and grasps objective laws. Specifically, it includes the scientific rationality of legislative concepts, legislative content, legislative procedures, legislative techniques, etc. At the macro level, local legislation must, while complying with the spirit of socialist rule of law, maintain the effectiveness and stability within the local legal system and play the practical role of good laws and good governance. At the micro level, without conflicting with higher-level laws, local legislation can be formulated within the scope of corresponding authority based on local specific conditions and actual needs, in order to conform to the general trend of local economic and social development and properly handle the relationship between power and responsibility, rights and obligations. Lawyers not only have a solid foundation in legal theory, but also have accumulated a wealth of practical experience in legal practice, and can provide corresponding theoretical support and experience in the process of formulating local legislation.

4. Results and Discussion

4.1 Research Objectives

This study aims to explore the role of lawyers in promoting legislative innovation in the digital age, focusing on analyzing how lawyers can use digital technologies (such as artificial intelligence, big data, blockchain, etc.), interdisciplinary cooperation and public participation to promote innovation in the legal framework. This paper will also analyze the effects and challenges of lawyers' participation in the legislative process.

4.2 Research Hypothesis

- H1: With the support of digital technology, lawyers can improve the quality and efficiency of legal reform proposals.

- H2: Interdisciplinary cooperation helps lawyers to have a more comprehensive understanding of the legal impact of new technologies, thereby improving the feasibility and innovation of their legislative proposals.

- H3: Public participation promotes the transparency and acceptance of lawyers' legislative proposals, thereby accelerating legal innovation.

4.3 Research Methods

This study will adopt a mixed methods experimental design, combining quantitative and qualitative analysis, to comprehensively evaluate the role of lawyers in legislative innovation in the digital age.

4.3.1 Data collection

(1) Quantitative research

Legal document analysis: The quality differences between the legislative suggestions provided by lawyers with the support of digital tools and traditional handwritten suggestions are compared and analyzed, including the rationality, innovation, and feasibility of implementation of the suggestions.

Case studies: Several legal reform projects are selected to analyse the role played by lawyers and assess the impact of their involvement on the quality of the final legal text.

(2) Qualitative research

Interviews: Semi-structured interviews are conducted with lawyers, legislators, and technical experts to collect their insights on the role and challenges of lawyers in legislative innovation. The

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interview will focus on in-depth discussions on how lawyers use digital technology for legislative consultation, how to collaborate with experts in other disciplines, and how to promote public participation.

Focus groups: Interdisciplinary experts (e.g. computer scientists, sociologists, economists, etc.) are invited to discuss with lawyers the challenges in the current legal system and how digital technologies can advance the solution of these challenges. The focus group discussions will be audio recorded and content analyzed.

4.3.2 Data analysis

In order to explore the impact of digital technology, public participation and interdisciplinary cooperation on legal reform, the experiment verified the positive role of digital technology in improving the quality of legislative advice, promoting public participation and strengthening interdisciplinary cooperation through data analysis.

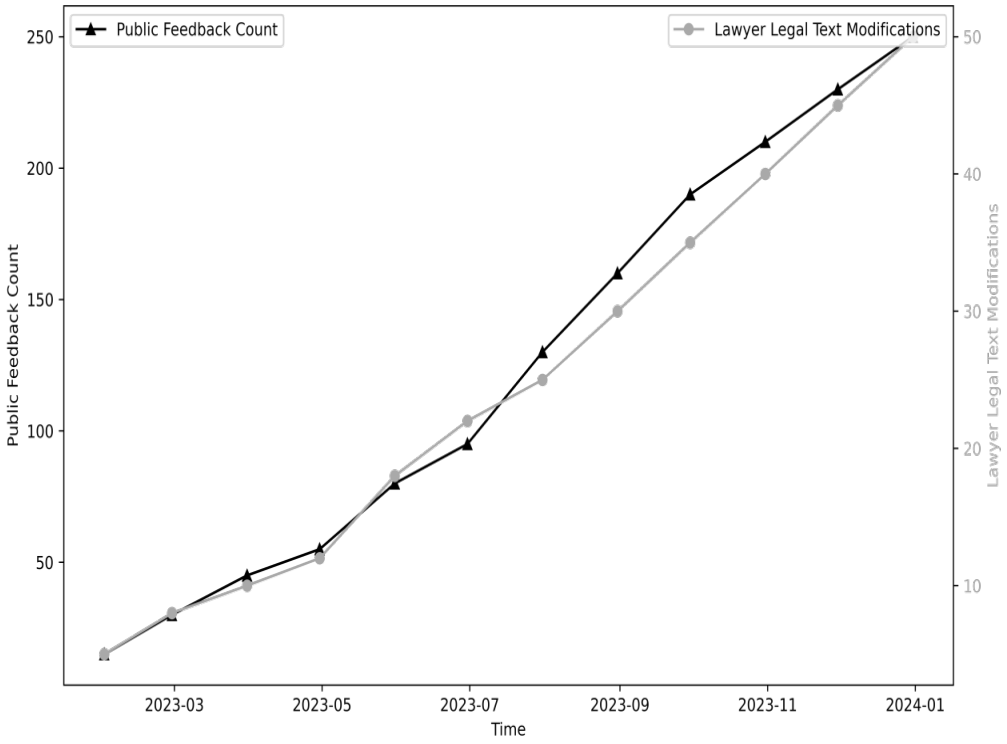

Figure 1: Public participation in legal reform

According to the data, the number of public feedback gradually increases at the end of the year, indicating that public participation has gradually improved. The increase in the number of feedback is also positively correlated with the number of legal texts modified by lawyers, indicating that public opinion directly affects lawyers' modifications to legislative texts. The analysis results show that as the amount of feedback increases, lawyers are more likely to adopt public suggestions when revising texts, reflecting the positive role of public participation in promoting legislative innovation. These data show that promoting public participation can enhance the adaptability and responsiveness of legal reform, as shown in Figure 1.

In this experiment, this paper compares the quality of legislative proposals supported by traditional methods and digital technology. The results show that the method supported by digital technology scores higher in terms of rationality, innovation and implementation feasibility, which are 8.5, 8.0 and 8.3 respectively, which is a significant improvement compared to the average score of the traditional method. By using technologies such as artificial intelligence and big data, lawyers are able to provide more innovative and practical advice. This result verifies hypothesis H1, indicating that the application of digital technology helps improve the quality and efficiency of legislative advice, as shown in Figure 2.

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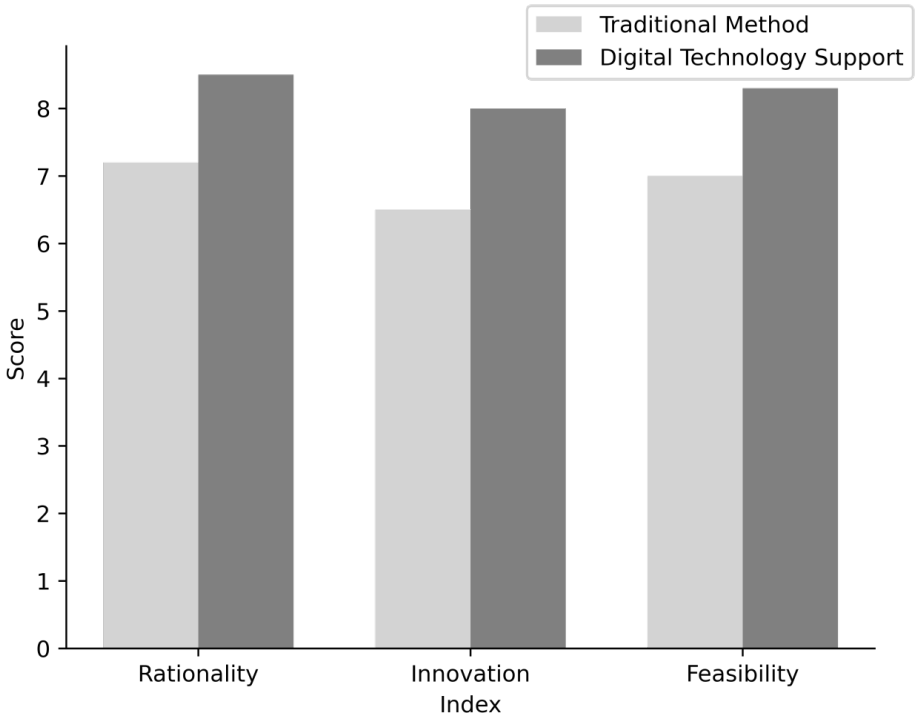

Figure 2: Legislative Proposal Quality: Traditional Support vs. Digital Support

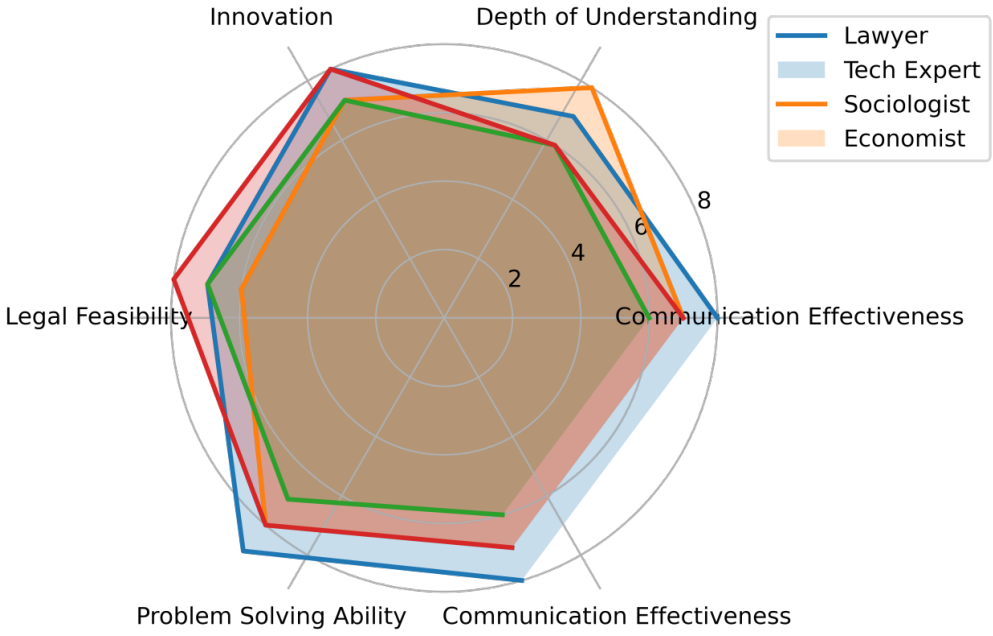

Figure 3: Interdisciplinary collaboration capabilities

In an interdisciplinary collaboration experiment, this paper evaluates the performance of lawyers, technical experts, sociologists, and economists in five aspects: communication effectiveness, depth of understanding, innovation, legal feasibility, and problem-solving ability. The results show that lawyers score higher in communication effectiveness and problem-solving ability, while technical experts have certain advantages in depth of understanding. Sociologists and economists have similar scores on innovation and legal feasibility. These results support hypothesis H2, indicating that interdisciplinary collaboration can help lawyers gain more diverse perspectives, thereby enhancing the comprehensiveness and innovation of legislative proposals, as shown in Figure 3.

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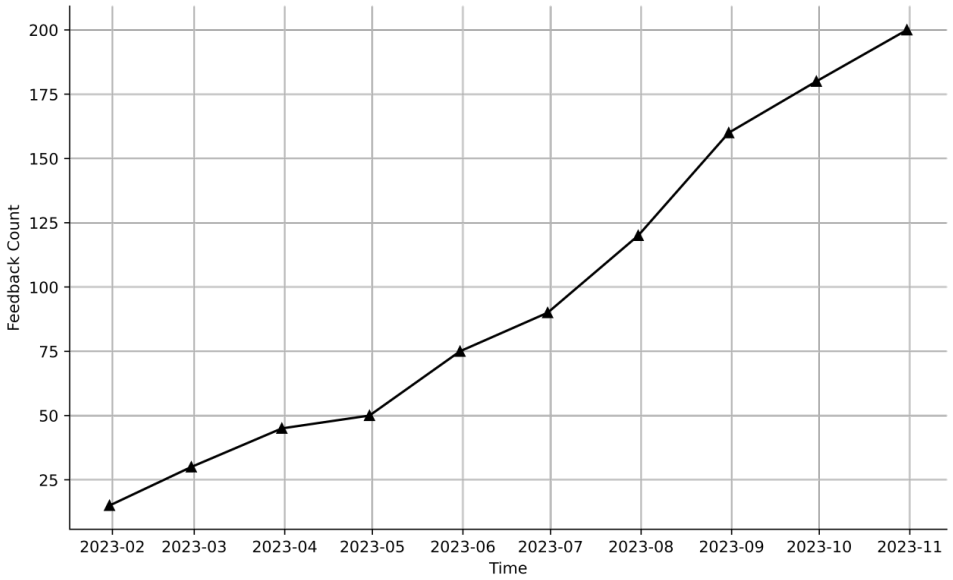

Figure 4: Changes in the amount of public feedback over time

By analyzing the temporal changes in the number of public feedback, this paper finds that the number of feedback shows a steady growth trend, especially reaching a peak after the promotion of the public participation platform. The number of initial responses is low, but increases significantly as public awareness of participation increases. This result supports hypothesis H3, indicating that public participation not only helps to improve the transparency of the legislative process, but also accelerates legal innovation through extensive opinion collection, as shown in Figure 4.

Table 1: Lawyers' frequency of using AI tools and the quality of legislative advice

Lawyer ID	AI Tool Usage Frequency (Monthly)	Legislative Proposal Quality Score (Digital Technology Support)	Legislative Proposal Quality Score (Traditional Method)
1	10	8.2	6.5
2	15	8.5	6.8
3	8	7.9	6.3
4	20	8.7	7
5	5	7.5	6
6	12	8.3	6.6
7	18	8.6	6.9
8	3	7.2	5.8
9	14	8.4	6.7
10	6	7.8	6.2

From the data analysis in Table 1, we can see that there is a positive correlation trend between the frequency of lawyers using AI tools and their legislative advice quality scores. In the case of using digital technology support, the quality score of legislative advice is significantly higher than that of traditional methods, especially when the frequency of use of AI tools is high, the score improvement is more obvious (such as lawyer numbers 2 and 4). The t-test results show that the quality score of legislative proposals supported by digital technology is significantly different from that of traditional methods, supporting hypothesis H1. In addition, regression analysis shows that the frequency of use of AI tools has a positive predictive effect on legislative proposal quality scores, which further supports hypothesis H2 and indicates that the application of digital technology can help improve lawyers' legislative innovation capabilities.

5. Conclusion

This study deeply explores the role of lawyers in legislative innovation in the digital age, analyzes the impact of emerging technologies such as artificial intelligence, blockchain, and big data on the quality of lawyers' legislative advice, and the positive role of interdisciplinary cooperation and public participation. Through mixed methods empirical research, the study shows that digital technology can

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significantly improve the quality and efficiency of legislative advice, especially in terms of rationality, innovation and feasibility. Interdisciplinary collaboration helps lawyers fully understand the legal impact of new technologies, thereby improving the feasibility and innovation of proposals, while public participation enhances the transparency and acceptability of the legislative process, helping to accelerate legal innovation. However, this study also has certain limitations. First, the sample size is relatively small and only covers the views of some lawyers and experts, which may not be sufficient to represent the broad group of legal practitioners. Second, the study mainly focuses on the positive effects of digital technology and ignores its potential ethical and privacy risks. Future research can expand the sample scope, explore in depth the ethical issues of digital technology in the legal field, and consider the application effects of digital technology in different cultural and legal contexts. In addition, future research can also focus on the transformation of legal education in the digital age, especially how to train lawyers to adapt to the development of new technologies and make greater contributions to the digital transformation of the legal industry.

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