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Interest Imbalance and Jurisprudential Reconstruction of Intellectual Property in the Digital Economy: A Data-Driven Innovation Perspective

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Abstract: The digital economy, characterized by data as the core factor of production, technology as the driving engine, and platforms as key carriers, poses systemic challenges to the traditional intellectual property (IP) system. Under the data-driven innovation model, features such as blurred IP rights boundaries, diversified interest holders, and chained value realization have led to increasingly prominent interest imbalances between rights holders and users, individuals and platforms, innovation incentives and the public interest. Based on the property rights separation framework established by China's "Twenty Articles on Data" and drawing on domestic and international judicial practices and legislative explorations, this paper analyzes from a jurisprudential perspective the manifestations and generative mechanisms of interest imbalance. It proposes a jurisprudential reconstruction path centered on "dynamic interest balance," grounded in "layered bundles of rights," and safeguarded by "collaborative governance," aiming to build an IP system adapted to the digital economy and provide legal guarantees for cultivating new quality productive forces.

Keywords: Digital Economy; Data-driven Innovation; Intellectual Property; Interest Imbalance; Jurisprudential Reconstruction.

1. Introduction

(I) Research Background

As the primary economic form following agricultural and industrial economies, the digital economy has become a core force reshaping global factors of production and economic structures. Data, as a key factor of production in the digital economy, has been deeply integrated with technologies such as artificial intelligence (AI) and blockchain, giving rise to a data-driven innovation model. This has fundamentally transformed the objects of IP protection, rights holders, and modes of realization. China's Outline for Building an Intellectual Property Power (2021–2035) explicitly proposes "researching and constructing data IP protection rules," while the "Twenty Articles on Data" creatively establishes a three-rights separation system consisting of data resource holding rights, data processing and use rights, and data product operation rights, providing top-level design guidance for the reform of the digital economy IP system[1]. However, the traditional IP system, built on clear object boundaries and static ownership logics, struggles to accommodate the non-rivalry, value heterogeneity, and dynamism of data. This has led to numerous rights conflicts in judicial practice, such as disputes over the copyrightability of AI-generated content, unfair competition in data scraping, and platform data monopolies, highlighting the inadequate adaptability of the current system.

(II) Research Significance

Theoretical significance. By deconstructing the impact of data-driven innovation on traditional IP jurisprudence, this paper reconstructs the interest-balancing theory of IP in the digital era, enriching the theoretical system of IP law. Focusing on the particularities of data IP, it explores the jurisprudential logic of layered bundles of rights and dynamic allocation, providing theoretical support for the protection of new types of IP objects.

Practical significance. Drawing on China's pilot experience in data IP and judicial practice cases, this paper proposes actionable suggestions for system improvement, offering references for legislators in formulating specialized rules for data IP. By clarifying rights boundaries and interest distribution rules, it provides behavioral guidance for market entities, reduces rights conflicts, and promotes the secure and orderly flow and innovative use of data elements.

(III) Literature Review

Scholars at home and abroad have conducted extensive research on IP issues in the digital economy. Regarding interest imbalances, many scholars argue that the traditional "rights-oriented" IP system is ill-suited to the digital age; the non-excludability and co-creation of data value lead to difficulties in ownership attribution and interest distribution. A research group from the Beijing High People's Court points out that IP adjudication in the digital economy faces threefold transitional challenges: from "rights" to "interests," from "technological development" to "legal governance," and from "order maintenance" to "innovation incentives." In terms of jurisprudential reconstruction, some scholars advocate replacing the traditional "rights attribution" approach with a "conduct regulation" path, achieving interest balance through unfair competition law, antitrust law, and other mechanisms. Others, based on the "Twenty Articles on Data," propose constructing a "three-rights separation" system for data IP, clarifying the status of derivative data products as IP objects. International research focuses on the impact of digital technologies on copyright and patent systems, exploring issues such as the protection of AI-generated content and IP in cross-border data flows, emphasizing the need for international cooperation and institutional reform[2]. Although existing studies reveal the surface manifestations of interest imbalance, they lack in-depth analysis of the generative mechanisms under data-driven innovation, and the reconstruction paths are not systematically designed—

particularly in areas such as layered rights allocation and coordination of diverse stakeholder interests.

(IV) Research Methods and Innovations

Research methods: Normative analysis is used to examine laws, regulations, and policy documents such as the Civil Code, Data Security Law, and Outline for Building an Intellectual Property Power, identifying deficiencies in the current system. Empirical analysis is applied to 32 typical judicial cases (e.g., China's first AI-generated text-to-image copyright dispute, data scraping unfair competition disputes) to summarize practical manifestations of interest imbalance. Comparative research draws on legislative experiences from the EU GDPR, Germany's Federal Data Protection Act, and the US CCPA to inform China's institutional design.

Innovations: First, it constructs a logical framework of "element characteristics→interest conflicts→jurisprudential reconstruction→institutional improvement" to systematically analyze the systemic impact of data-driven innovation on the IP system. Second, it proposes "dynamic interest balance" as the core jurisprudence, establishing a layered rights system of data resource holding rights, processing and use rights, and product operation rights, while clarifying the boundaries and exercise rules for each right. Third, it designs a collaborative governance mechanism integrating "judiciary + administration + market," breaking through the traditional single judicial protection model to enhance IP governance efficiency.

2. Manifestations of Interest Imbalance in IP Under the Digital Economy

Under the data-driven innovation model, the stakeholders in IP include data originators, collectors, processors, users, platform enterprises, and the general public. The diversification of interests and blurred rights boundaries lead to interest imbalances manifesting in complex and varied forms, primarily in the following four dimensions.

(A) Interest Imbalance Among Rights Holders: The Contradiction Between Pluralistic Contributions and Unitary Rights Granting

The traditional IP system follows the principle of "who creates, who owns," with relatively unitary rights holders. However, in data-driven innovation, realizing data value requires the collaborative participation of multiple actors: individuals provide raw data, platform enterprises collect and store it, technology developers apply algorithms to process and analyze it, producing economically valuable derivative data products[3]. The current system lacks mechanisms to recognize and distribute interests among pluralistic contributors, leading to skewed distribution in favor of technologically powerful parties. On one hand, individuals as raw data providers receive no reasonable return for their data contributions. Even though the Personal Information Protection Law provides for personal information rights, individuals cannot claim rights to the proceeds from anonymized data products. On the other hand, small and medium-sized enterprises (SMEs) and individual developers, lacking data resources and technological capabilities, struggle to compete with large platform enterprises. Platforms accumulate massive data to form monopolistic advantages, hindering market competition and innovation vitality. For example, in data scraping disputes, platform enterprises claim exclusive rights over data, while third-party developers argue that data should be shareable. The lack of uniform judicial standards reflects conflicts among diverse stakeholders.

(B) Interest Imbalance Between Rights Protection and Innovation Incentives: Coexistence of Over-Protection and Under-Protection

The core function of the IP system is to incentivize innovation through rights protection, but in the digital economy, over-protection and under-protection coexist. On one hand, some platform enterprises abuse IP protection, using data and algorithms as monopolistic tools, creating "patent thickets" and "data barriers" to suppress competitors and restrict data sharing and technological innovation. For example, certain internet platforms build technological barriers through extensive patent portfolios, obstructing SME market entry; some platforms refuse to open data interfaces to third-party developers, creating data monopolies[4]. On the other hand, new types of innovative outputs face under-protection: AI-generated content, lacking "human authorship," is difficult to protect under copyright law; data products, failing to meet the "originality" or "novelty" requirements of traditional IP, cannot be effectively protected; trade secrets are easily stolen in digital environments, and the burden of proof is high, leaving rights holders' interests harmed. This "protection imbalance" contradicts the legislative purpose of the IP system, suppressing innovation vitality and undermining market competition order.

(C) Interest Imbalance Between Individual Rights and the Public Interest: Conflict Between Data Utilization and Rights Protection

Data-driven innovation requires large-scale collection and processing of personal data, which carries both personality interests and economic value, leading to increasing conflict between individual rights and the public interest. On one hand, some enterprises, in pursuit of innovation efficiency, collect and use personal data without adequate informed consent, even commercially exploiting sensitive personal information, infringing upon personal information rights. On the other hand, overly strict personal information protection may restrict reasonable data use and impede the public interest. For example, sharing public data such as healthcare and transportation data can improve social governance efficiency, but due to fears of privacy infringement, data flow is obstructed. The EU GDPR establishes stringent data protection rules but has been criticized for overly restricting data-driven innovation[5]. China's Personal Information Protection Law adopts the "notice-consent" principle, but in practice, "blanket consent" and "implied consent" are widespread, making it difficult to safeguard individuals' substantive choice, reflecting the imbalance between individual rights and the public interest.

(D) International Interest Imbalance: Gap Between Rule-Setting Power and Development Rights

The globalization of the digital economy internationalizes IP interest imbalances. Developed countries, leveraging technological advantages and rule-setting power, dominate the formulation of global digital IP rules, using high-standard IP protection requirements to safeguard their economic interests. Developing countries, due to technological and institutional gaps, are at a disadvantage in digital economy competition, facing IP infringement allegations and market access barriers. For example, in cross-border data flows, developed countries demand that developing countries adopt equivalent data protection standards, otherwise restricting data flows and market access. In emerging technology fields such as AI and blockchain, enterprises from developed

countries hold a large number of core patents, forming technological monopolies that hinder technological innovation and industrial development in developing countries. This international imbalance not only exacerbates global digital economy inequality but also affects the fairness and effectiveness of the global IP governance system.

3. Generative Mechanisms of Interest Imbalance in IP Under the Digital Economy

(A) Transformation of Object Attributes: The Impact of Data's Particularities on the Traditional IP System

Traditional IP objects have clear boundaries, exclusivity, and stability, whereas data, as the core factor of production in the digital economy, differs fundamentally from traditional objects, rendering the traditional system inadequate. First, data is non-rivalrous: the same data can be used simultaneously by multiple parties without depletion, challenging the "one object, one right" principle applicable to traditional objects with "use depletion." Second, data exhibits value heterogeneity and dynamism: raw data has low value, while derivative data products formed through processing and analysis have high economic value, and data value changes dynamically with use scenarios and processing depth, making rights boundaries difficult to define. Third, data is relational and contextual: data value realization depends on collaborative participation of multiple actors and specific use scenarios, making absolute control by a single actor impossible, which contrasts with the "exclusive control" feature of traditional IP[6]. The transformation of data attributes renders the traditional IP standards for object definition, ownership rules, and protection methods ineffective, constituting the fundamental cause of interest imbalance.

(B) Deficiencies in Rights Allocation: Incompatibility of the Traditional "Unitary Right" Model with the Digital Economy

The traditional IP system adopts a "unitary right" allocation model, where rights belong to a single subject with absolute and exclusive content. However, in data-driven innovation, the creation of data value is a dynamic process involving multiple actors across data collection, storage, processing, and use. The unitary right model fails to reflect the contributions of multiple actors, leading to unjust rights allocation. On one hand, the current system does not specify layered allocation rules for data resource holding rights, processing and use rights, and product operation rights, leaving the rights boundaries of data originators, processors, and users blurred and lacking a basis for interest distribution. On the other hand, the traditional IP authorization criteria of "originality" and "novelty" are difficult to apply to data products, resulting in a lack of effective protection for numerous economically valuable derivative data products, while some platform enterprises improperly appropriate others' data achievements, disrupting market order. For example, in data scraping disputes, courts struggle to determine ownership of data products under copyright law and also find it difficult to define behavioral boundaries under unfair competition law, reflecting the absence of rights allocation rules.

(C) Lagging Governance Mechanisms: The Difficulty of a Single Judicial Protection Model in Addressing Diverse Interest Conflicts

The complexity and cross-sectoral nature of IP interest conflicts in the digital economy require the construction of diverse collaborative governance mechanisms, yet China's current governance mechanisms are notably lagging. First, the judicial protection model has limitations: traditional adjudication uses "case-by-case" decision-making, lacking systematic responses to digital economy IP disputes. Judges face difficulties in technical cognition and burden of proof allocation, leading to inconsistent adjudicatory standards[7]. For example, in disputes over AI-generated content, different courts have reached different conclusions on whether such content constitutes a work; in data monopoly disputes, courts struggle to define relevant data markets and the elements of monopolistic conduct. Second, coordination between administrative and judicial protection is insufficient. IP administrative agencies and judicial organs lack effective linkage in case referral, evidence sharing, and standard setting, resulting in low governance efficiency. Third, market governance mechanisms are absent. Systems for data IP registration, trading, and valuation have not yet been fully established, hindering the flow of data elements and the formation of interest distribution mechanisms. For instance, although China has launched data IP pilots, registration rules and trading models remain exploratory, failing to fully leverage the market's fundamental role in interest distribution.

(D) Legal Norm Gaps: Dual Constraints of Insufficient Institutional Supply and Rule Conflicts

The rapid development of the digital economy has caused the supply of IP legal norms to lag behind practical needs, while rule conflicts among different legal branches exacerbate interest imbalances. On one hand, specialized norms are missing. China has not yet enacted dedicated data IP legislation; Article 127 of the Civil Code only provides principled provisions on data rights and interests, lacking specific content, exercise rules, and protection methods. The Data Security Law and Personal Information Protection Law focus on data security and personal information protection, paying insufficient attention to the IP attributes of data[8]. On the other hand, rule conflicts are prominent. For example, the definition of "work" in the Copyright Law conflicts with the protection needs of AI-generated content; the Unfair Competition Law and the Anti-Monopoly Law have overlapping application and gaps in regulating platform data monopolies; differences among local legislations also lead to regional imbalances in data IP protection. The absence and conflict of legal norms leave market participants without clear behavioral guidance, place judicial organs in difficult positions of legal application, and exacerbate interest imbalances.

4. Core Logic of Jurisprudential Reconstruction of IP in the Digital Economy

(A) Value Orientation Reconstruction: From "Static Rights-Oriented" to "Dynamic Interest Balance"

The traditional IP system, guided by a "rights-oriented" value, emphasizes absolute protection for rights holders. However, the development of the digital economy requires a shift to a "dynamic interest balance" value orientation, achieving coordination among the diverse interests of rights holders, users, and the public[9]. The dynamic interest balance principle requires: first, recognizing the pluralistic contributions to data value creation, fully considering the

reasonable demands of all actors in rights allocation and interest distribution, avoiding tilting interests toward a single party; second, dynamically adjusting rights boundaries and protection intensity according to data type, use scenario, and value realization stage—for example, protecting personal information rights and data security for raw data, and protecting the IP of processors for derivative data products; third, balancing innovation incentives and the public interest, both protecting rights to encourage data utilization and preventing rights abuse to ensure reasonable data sharing and the realization of the public interest. The dynamic interest balance principle does not negate rights protection but achieves coordination of diverse interests from a broader perspective, aligning with the developmental laws of the digital economy.

(B) Rights Theory Reconstruction: From "Single Ownership" to "Layered Bundles of Rights"

In light of data's particularities, the traditional "single ownership" theory should be transcended by constructing a "layered bundles of rights" theory. This theory decomposes data rights into data resource holding rights, data processing and use rights, and data product operation rights according to different stages of the data value chain, forming a layered allocation and dynamic transfer system. Data resource holding rights refer to the right of data collectors to control and manage raw data, including storage, custody, and security protection[10]. The rights holder is the data collector, subject to limitations from personal information protection and data security. Data processing and use rights refer to the right of data processors to process, analyze, and use raw data. The rights holder is the processor that invests technology and capital, and its exercise requires a license from the data resource holder with reasonable compensation. Data product operation rights refer to the right of data product operators to trade and profit from derivative data products. This right is essentially data IP, belonging to the creator of the data product, enjoying exclusive use, profit, and disposal rights, subject to rights limitation rules. The layered bundles of rights theory both acknowledges the contributions of multiple actors and clarifies their respective rights boundaries, providing a clear basis for interest distribution.

(C) Protection Model Reconstruction: From "Rights Attribution" to "Rights Attribution and Conduct Regulation in Parallel"

The traditional IP protection model centered on "rights attribution" struggles to address the complexities of data ownership and behavioral boundaries in the digital economy. A model that combines "rights attribution and conduct regulation in parallel" should be established[11]. On one hand, the ownership rules for data IP should be clarified, defining derivative data products as objects of data IP, granting exclusive rights to data processors, and clarifying ownership through a registration system. On the other hand, the regulation of data use behaviors should be strengthened, using unfair competition law, antitrust law, data security law, etc., to govern data collection, use, and trading, prohibiting data theft, abuse, monopolies, and other improper conduct. For example, in data scraping disputes, not only the ownership of data rights but also the legitimacy of the scraping conduct—whether it harms others' legitimate interests and market competition order—should be examined. For platform enterprises, while protecting their legitimate IP, their use of data and algorithms to engage in monopolistic conduct should be regulated. The parallel model provides clear rights protection for legitimate innovation while effectively curbing unfair competition, achieving interest balance.

(D) Governance Concept Reconstruction: From "Case-by-Case Adjudication" to "Collaborative Governance"

The complexity of IP interest conflicts in the digital economy requires breaking away from the traditional "case-by-case adjudication" governance concept and constructing a "judiciary + administration +market" collaborative governance concept. Collaborative governance emphasizes: first, that judicial organs should shift from formal review to "penetrative" adjudication, deeply exploring technological essence and interest relationships, unifying adjudicatory standards, and leveraging the guiding and protective role of the judiciary; second, strengthening the regulatory and service functions of administrative organs—IP administrative departments, data management departments, market regulatory departments, etc., should enhance collaboration, establishing mechanisms for data IP registration, trading, and supervision, preventing data security risks and market monopolies; third, leveraging the fundamental role of market mechanisms—establishing data exchanges, improving data IP valuation and trading rules to promote market-based allocation of data elements and reasonable interest distribution; fourth, encouraging industry self-regulation and international cooperation—formulating industry norms and standards, strengthening international rule coordination and enforcement cooperation to address cross-border data IP disputes[12]. The collaborative governance concept integrates the advantages of diverse governance actors, enhancing the efficiency and scientific soundness of IP governance.

5. Practical Paths for Jurisprudential Reconstruction of IP in the Digital Economy

(A) Constructing a Layered and Categorized Rights Allocation System

Clarify the scope of data IP objects: Define derivative data products as the core objects of data IP, with the following constitutive elements: (1) independence—capable of existing independently of raw data; (2) functionality—formed through algorithmic processing into an information set with specific uses and economic value; (3) legality—complying with data security and personal information protection requirements. Raw data, lacking originality and functionality, are not included as data IP objects; their rights are protected through data resource holding rights. Additionally, distinguish public data, enterprise data, and personal data: public data should follow the principle of open sharing; enterprise data and personal data should have clear rights boundaries and use rules.

Improve layered bundles of rights allocation rules: Refine the content and exercise rules for data resource holding rights, processing and use rights, and product operation rights[13]. Data resource holders have the rights to control, store, and secure raw data, and the obligations to inform data providers of rights and obligations and protect personal information security. Data processing and use rights holders have the right to process, analyze, and use raw data, requiring a license from the holder with reasonable compensation, and must not use data beyond the licensed scope. Data product operation rights holders have exclusive use, profit, and disposal rights over derivative data products, with a protection period set

according to the value cycle of the data product (e.g., 3–10 years), after which the data product enters the public domain. Establish rights transfer mechanisms, allowing data processing and use rights and product operation rights to be transferred through licensing, assignment, etc., promoting efficient use of data elements.

Establish rules for resolving rights conflicts: When conflicts arise between different rights holders, follow the principle of "priority based on contribution + interest balance." In ownership disputes, allocate rights according to each party's contribution to data value creation. In conflicts over rights exercise, give priority to prior rights while considering others' legitimate interests and the public interest. For example, in conflicts between personal information rights and data IP, the principle of "personal information rights priority" should apply—data IP exercise must not infringe upon personal information rights. In conflicts between data product operation rights and the public interest, compulsory licensing may be applied, allowing use of data products for public interest purposes.

(B) Improving Legal Regulation Mechanisms for Interest Balance

Establish a data IP confirmation system: Create a voluntary registration system for data IP based on the registration opposition principle[14]. Data product operators may apply to IP administrative departments for registration, with registration content including product name, type, processing method, rights scope, etc. The registration certificate serves as prima facie evidence of ownership. Build a layered confirmation model: implement differentiated confirmation based on the degree of innovation and value of the data product—grant stricter protection for highly innovative and economically significant data products; simplify procedures and reduce protection intensity for ordinary data products. Drawing on the experience of the Shanghai Data Exchange, establish a data IP registration information sharing platform to enable public access and inquiry of registration information.

Strengthen rights limitations and abuse regulation: Introduce fair use, statutory licensing, compulsory licensing, and other rights limitation rules into the data IP system. Fair use applies to data product use for personal study, scientific research, public interest purposes, etc. Statutory licensing applies to specific fields such as news reporting and education. Compulsory licensing applies to situations such as data product monopolies or public health crises. At the same time, strengthen regulation of IP abuse: prohibit platform enterprises from using data, algorithms, and patents to form monopolistic positions and restrict competition through antitrust law; regulate data theft, false advertising, malicious litigation, and other unfair competition behaviors through unfair competition law. For example, clarify the legitimacy standards for data scraping, prohibiting large-scale data scraping for unfair competition purposes.

Improve interest distribution and compensation mechanisms: Establish a mechanism for evaluating data value contribution, comprehensively considering the inputs and contributions of raw data providers, processors, and users to reasonably allocate the proceeds from data products[15]. For derivative data products involving personal data, provide appropriate economic compensation to individuals, which may be realized through agreements, collective management organizations, etc. Establish a data IP infringement compensation system, clarifying calculation standards for damages, including actual losses, infringer's profits, multiples of licensing fees, etc. For willful infringement, apply punitive damages to fully protect the legitimate rights and interests of rights holders.

(C) Building a Multi-Stakeholder Collaborative Governance System

Optimize judicial adjudication mechanisms: Update judicial adjudication concepts, establishing the three concepts of "dynamic interest balance," "penetrative adjudication," and "collaborative governance," and unify adjudicatory standards. Improve fact-finding mechanisms, introducing technical investigation officers and expert witness systems to help judges understand complex technical issues. Reasonably allocate the burden of proof: for cases involving trade secrets such as algorithms and data, shift the burden of proof or reduce the rights holder's burden. Strengthen the use of provisional relief measures: in data IP infringement disputes, reasonably apply preliminary injunctions, property preservation, and other measures to prevent the expansion of harm to rights holders. Strengthen the guidance of typical cases: the Supreme People's Court should periodically publish typical cases on digital economy IP to provide adjudicatory guidance for lower courts.

Strengthen administrative regulation and services: Establish a cross-departmental collaborative regulatory mechanism: IP administrative departments, data management departments, market regulatory departments, etc., should enhance cooperation, share regulatory information, conduct joint enforcement actions, and combat data IP infringement, monopolies, and other illegal activities. Improve administrative adjudication systems: for data IP ownership disputes, infringement disputes, etc., parties may apply to IP administrative departments for administrative adjudication to improve dispute resolution efficiency. Strengthen data IP public services: establish public service platforms for data IP consultation, valuation, and trading, providing comprehensive services to market entities. Deepen data IP pilot work, summarize pilot experience, and gradually promote it nationwide.

Leverage market and industry self-regulation: Improve data factor market mechanisms, establish data exchanges, standardize data IP trading processes, formulate data IP valuation standards, and promote market-based circulation of data elements. Develop data IP intermediary service institutions, including IP agency, valuation, and litigation agency services, enhancing market participants' capacity to utilize IP. Encourage industry associations to formulate industry norms and standards, strengthen industry self-regulation, guide market participants to exercise rights and fulfill obligations in accordance with the law, and resolve internal industry disputes. For example, internet industry associations may develop industry norms for data sharing and use, clarifying industry standards for data scraping and interface opening.

Strengthen international cooperation and rule coordination: Actively participate in the formulation of global digital IP rules, promoting the formation of a fair and reasonable international rule system. Strengthen exchanges and cooperation with the EU, US, Germany, and other countries and regions, drawing on their advanced experiences in data IP protection and coordinating IP protection issues in cross-border data flows. Establish cross-border data IP enforcement cooperation mechanisms to combat cross-border data IP infringement and protect the overseas IP rights and interests of Chinese enterprises. Promote data IP cooperation among

countries along the "Belt and Road," building a regional data IP protection system to facilitate coordinated development of the regional digital economy.

(D) Strengthening Safeguard Measures for System Implementation

Accelerate specialized legislation: Based on pilot experience and theoretical research, formulate the Regulations on the Protection of Data Intellectual Property, clarifying the definition, object scope, rights content, confirmation procedures, protection methods, legal liabilities, and other aspects of data IP, constructing a systematic and complete data IP system. Revise the Copyright Law, Patent Law, Unfair Competition Law, and other relevant laws and regulations, improving alignment with the data IP system and eliminating rule conflicts.

Strengthen technical support systems: Use blockchain, digital watermarking, differential privacy, and other technologies to build a technical support system for data IP protection. Through blockchain technology, achieve registration, certification, and traceability of data IP, ensuring the authenticity and traceability of ownership; through digital watermarking technology, identify data products to prevent data theft and abuse; through differential privacy technology, protect personal information while enabling reasonable data use.

Raise public awareness of IP: Strengthen education and publicity on digital economy IP, enhance market participants' awareness and capacity for IP protection, and guide enterprises to strengthen data IP management and layout. Conduct IP training to cultivate a group of interdisciplinary IP talents who understand both law and technology, providing human resources support for the implementation of the data IP system. Strengthen academic research and exchange, promoting theoretical innovation and practical exploration of data IP.

6. Conclusion

The development of data-driven innovation in the digital economy poses systemic challenges to the traditional IP system, leading to increasingly prominent interest imbalances among diverse stakeholders. This interest imbalance stems from the particularities of data as an object, deficiencies in rights allocation, lagging governance mechanisms, and gaps in legal norms. Its essence lies in the mismatch between traditional IP jurisprudence and the developmental needs of the digital economy. To address this issue, jurisprudential reconstruction is necessary, establishing the value orientation of "dynamic interest balance," the rights theory of "layered bundles of rights," the protection model of "rights attribution and conduct regulation in parallel," and the governance concept of "collaborative governance." In terms of practical paths, a layered and categorized rights allocation system should be constructed, legal regulation mechanisms for interest balance improved, a multi-stakeholder collaborative governance system built, and safeguard measures for system implementation strengthened.

The construction of a data IP system is a systematic project requiring coordinated efforts from legislation, judiciary, administration, market, and other stakeholders. In the future, as the digital economy continues to develop and technologies continue to innovate, the data IP system will need continuous improvement to meet new development demands. Through institutional reform, we can fully protect the fruits of data-driven innovation, incentivize market participants' innovation vitality, achieve interest balance among diverse stakeholders, promote the secure and orderly flow of data elements, and provide a solid legal guarantee for high-quality development of the digital economy and the cultivation of new quality productive forces.

References

[1] Mei Xiaying. Reconstruction of Intellectual Property Boundaries in Data-Driven Innovation. China Legal Science, 2021 (4): 64-83.

[2] Wu Handong. Construction of Data Property Rights and Institutional Reform of Intellectual Property Law. Legal Research, 2022, 44(5): 20-38.

[3] Long Weiqiu. Research on the Construction and System of New Data Property Rights. Political Science and Law, 2017, 35(4): 63-77.

[4] Shen Weixing. On the Hierarchical Nature of Data Property Rights Systems: The "Three-Three System" Method of Data Rights Confirmation. China Legal Science, 2023(2): 25-47.

[5] Zhang Ping. The Property Rights Logic and Legal Response in the Data Factor Market. Intellectual Property, 2020(11): 3-16.

[6] Kong Xiangjun. On the IP Protection Path for Data Rights and Interests. Comparative Law Studies, 2022(1): 1-16.

[7] Wang Qian. Data-Driven Innovation and the Challenges to Copyright Law. Law Science, 2020(9): 109-123.

[8] Xie Yizhang. Regulation of Data Scraping Under Competition Law and Coordination with IP Law. Peking University Law Journal, 2021, 33(5): 1320-1339.

[9] National Industrial Information Security Development Research Center. White Paper on Market-Based Allocation of Data Elements (2022) [R/OL]. (2022-12-15) [2024-04-15].

[10] Feng Xiaoqing. Reshaping the Interest Balance Mechanism of Intellectual Property in the Digital Age. Law Review, 2022, 40(3): 1-14.

[11] Gao Fuping. Data Production Theory: The Foundational Theory for Allocating Data Resource Rights. Journal of Shanghai Jiaotong University (Law Edition), 2019(4): 5-20.

[12] Yi Jiming. Data Revolution, Innovation-Driven Development, and the Transformation of the Intellectual Property System. Science Technology and Law, 2018(5): 1-10.

[13] Liu Ying. Data Ownership and IP Protection Dilemmas of AI-Generated Content. Law Journal, 2021, 42(6): 77-89.

[14] Zhou Lin. Functional Synergy Between the Data Factor Market and the Intellectual Property System. Intellectual Property, 2021(6): 19-32.

[15] China Academy of Information and Communications Technology. New Landscape of the Global Digital Economy (2023): New Developments in Data-Driven Innovation [R/OL]. (2023-07-05) [2024-04-15].