

# Rethinking and Solving the Model for Protecting Enterprise Data

Rui Cao<sup>1,\*</sup>

<sup>1</sup> School of Law, Shanxi University of Finance and Economics, China.

\* 2088475002@qq.com

**Abstract.** With the rapid development of China's digital economy, data competition disputes among internet enterprises have become increasingly diverse and complex. The theory of commercial data empowerment has been proposed by academics as the value of commercial data becomes more prominent. However, this theory faces the problem of insufficient legitimacy at the theoretical level, including property right theory, copyright theory, and new property right theory. Considering the current lack of clarity regarding data ownership, Chinese judicial practice mostly relies on anti-unfair competition laws to regulate competitive behavior. Legitimacy is determined through the use of 'general terms' and 'trade secrets'. However, these methods have certain limitations. Considering recent developments in the commercial data industry and judicial practice in China, Article 18 of the Draft Revised Anti-Unfair Competition Law (Draft for Public Comments) (Special Article on Commercial Data) aims to provide better protection for enterprise data.

**Keywords:** corporate data; anti-unfair competition law; empowerment protection model; institutional choice.

## 1. Problem Formulation

The global Internet industry has entered a new development stage centred on data-driven technology.[1] This assignment aims to explore this phenomenon and its implications for the industry. In this process, the significance of artificial intelligence, blockchain, and other technologies has become increasingly prominent. At the national level, data is considered the new oil and currency for future economic development. Data has become another core asset, in addition to land, sea, and air power.[2]

Against the backdrop of the 'empowerment fever,' academics have launched an in-depth discussion on how to protect enterprise data. Scholars have proposed different models for copyright protection. One model suggests that enterprise data rights and intellectual property rights are well-suited for protection. Another model advocates for the comprehensive and absolute protection of enterprise data rights by incorporating them into property rights, as outlined in Article 127 of the Civil Code.[3] Some scholars argue that enterprise data assets can be better protected by including data rights and interests in the category of property rights.[4] Others suggest defining enterprise data rights as a new category of property rights and granting data operation and asset rights to enterprises.[5] Additionally, an anti-unfair competition law protection model could be adopted to defuse conflicts with personal data rights.[6]

In summary, this paper will examine the methods of protecting enterprise data, including intellectual property protection law, property rights, new forms of data propertyization, and anti-unfair competition law. It will also investigate the potential risks associated with granting property rights to enterprise data. Additionally, by analyzing judicial cases, it will assess the effectiveness of anti-unfair competition law in safeguarding the rights and interests of enterprise data. This paper aims to offer practical recommendations and insights for safeguarding enterprise data in China, and to foster the sound development of the internet industry.

## 2. Scope of Enterprise Data Definition

### 2.1 Classification of data

Corporate and public data are the other two categories. This section analyses the three categories of data - personal, corporate, and public - from the perspective of their constitutive elements. Personal data is categorized based on its source and is identifiable to a specific individual. It is important to note that this analysis excludes subjective evaluations unless they are clearly marked as such. The protection of personal data rights and interests is based on the protection of individuals' privacy rights and interests. This statement is a fact and does not require any subjective evaluation. The original text is clear and concise, and the sentence structure is simple and logical. Therefore, no changes have been made to the original text.[7] Regarding the definition of personal data, although both the common law system and the civil law system use 'identifiability' as their criterion for judgement, there are still differences between the two in practice.[8]The United States adopts a restrictive interpretation of personal data, emphasising its relevance, as seen in the US Consumer Privacy Bill of Rights (Draft).[9]The General Data Protection Regulation (GDPR) has been enacted in Europe, which stipulates the legal obligations for the collection, processing, and transmission of personal data. In China, scholars have proposed classifying personal data into risk levels based on the degree of identification or sensitivity. This classification sets up corresponding compliance obligations for the utilization of personal data.[10]

The analysis of enterprise data can be broken down into four key aspects: legal attributes, economic value, technical characteristics, and management and protection measures. [11]The legal characteristics of enterprise data are primarily reflected in its intangible nature.[12] In contemporary business, data serves as the foundation for enterprise operations and a crucial source of competitive advantage. Legally, Article 127 of the Civil Code protects the rights and interests of enterprise data by preventing unauthorized use and ensuring reasonable compensation for data creators. However, the legal attributes of corporate data are not static. Their identification and scope of protection are influenced by the nature of the data, the manner in which it is used, and the development of the legal system.[13]

Enterprise data has gained attention due to its economic value. Therefore, it has become an essential part of the enterprise value chain.[14]It supports decision-making, optimizes products and services, improves operational efficiency, and creates new business models. The economic value of data lies not only in the data itself but also in the conclusions obtained through data analysis. These conclusions have reference value for enterprises, helping them to grasp market dynamics and accurately locate users' needs. This, in turn, allows them to occupy a favourable position in the fierce market competition.

Advanced information technology is integral to the generation, storage, processing, and analysis of enterprise data. These data are characterized by aggregation, scale, and complexity, and encompass not only traditional structured data like sales records and financial statements, but also semi-structured and unstructured data such as text, images, and videos. The technical characteristics are crucial for the ability to process and analyse data, including data mining and machine learning. These technologies can extract valuable information from large amounts of data and generate new revenue for the enterprise.

With the increasing significance of data, organisations must uphold a higher standard of data protection. Effective data management necessitates not only technical measures, such as data encryption and access control, but also institutional support, such as data protection policies and privacy compliance standards.[15] The purpose of data protection is to ensure data security, safeguard user privacy, and maintain a fair and competitive market order. The importance of data protection has also been recognized by executive and legislative authorities, such as the European Union, which has introduced the General Data Protection Regulation (GDPR).

The constituent elements of public data are universality, sharing, and free access.[16] Universality means that public data should be open and transparent, allowing unrestricted access to

any interested party. This element establishes the foundation for the use of public data and excludes non-public or confidential data from it. Additionally, shareability implies that public data should not be owned solely by individuals or organizations, but rather should be considered a public resource accessible to all members of society. Finally, 'free access' emphasises the right of each member of society to make reasonable use of public data according to their own needs and to benefit from the development of data, thereby achieving a better quality of life.

## **2.2 Characterization of enterprise data**

Enterprise data has both general and unique characteristics that together form the complete picture of enterprise data. The general characteristics of enterprise data refer to the features that are common to all types of data, including enterprise data. The characteristics of enterprise data are primarily reflected in the following aspects: Firstly, enterprise data is in electronic form, allowing for quick processing, transmission, and storage. Additionally, it provides the possibility of data reprocessing and mining. Secondly, enterprise data is intangible and requires a material carrier to exist, making it easy to copy and disseminate. However, this also poses challenges for data security and privacy protection.[17]Once again, enterprise data is non-exclusive, making it difficult to be owned by a specific subject. This requires enterprises to consider data sharing and collaboration. Finally, enterprise data is not lost physically and can be used and processed repeatedly, ensuring its long-term preservation and reuse.[18]

However, enterprise data is unique in two ways. Firstly, it is scarce due to its limited availability and the significant capital investment and labour required to collect, store, analyse and utilise it. Secondly, it is valuable due to the insights it can provide. Firstly, it is scarce due to its limited availability and the significant capital investment and labour required to collect, store, analyse and utilise it. The scarcity of enterprise data is created through legal means, rather than being an inherent property of the data itself, similar to the mechanism by which intellectual property rights are formed. This data has economic value due to its scarcity, making it an indispensable asset for enterprises to compete in the market. This economic value stems not only from the data itself, but also from the potential benefits that can be brought about through data analysis and application.[19]Secondly, enterprise data is used by the enterprises themselves and other businesses. The generation and accumulation of enterprise data is based on the operations and activities of the enterprise, requiring specialized knowledge, technology, and financial resources. Enterprises not only store data physically but also create its value. This holder status is unique in that the enterprise owns the management of the data, including the right to make decisions about its use, access, and sharing.

## **3. Theoretical Controversies in the Protection of Enterprise Data Empowerment**

Due to the unique nature of enterprise data, there are varying opinions among scholars regarding the appropriate model for protecting it. There are differing opinions among scholars regarding the protection of enterprise data. Some argue that it should be protected by copyright, [20]as it is similar to database or compilation works. Others believe that it meets the Lockean labor theory and should be protected by property rights.[21] Finally, some suggest that as a new product, enterprise data should be protected by a brand-new property right protection mode.[22] Some scholars argue that enterprise data, as a resource for market competition, should be protected by anti-unfair competition laws.[23]However, the first three models are all empowerment protection models, there are deficiencies, this paper will be on their respective falsification.

### **3.1 Questionable theories of the legitimacy of corporate data empowerment**

In the current legal system, the protection of information empowerment is primarily expressed through intellectual property law.[24]As the object of protection in intellectual property is

information, information property can be considered a broader concept than intellectual property. Statutory types of intellectual property, such as copyrights, patents, trademarks and trade secrets, undoubtedly fall within the scope of information property. However, the law selectively protects only part of the information by setting specific standards, rather than comprehensively covering it. The legitimacy theory of intellectual property provides a reference basis for the protection of corporate data empowerment due to the significant overlap between the object of intellectual property protection and the ontology of data and information.

### 3.1.1 Theory of labor property rights

The theory of labor property rights, originally proposed by John Locke, asserts that an individual can acquire ownership of natural resources through their labour input.[25] Applying this theory to the protection of corporate data means asserting that corporations obtain ownership of such data through their labour activities of collecting, processing, and analysing it. To some extent, this view provides moral and philosophical justification for the empowering protection of corporate data, arguing that corporate investment and labour in data should be recognized and protected by law.[26]

The labour property rights theory emphasises the natural attribution of a right, stating that the labour input of a firm into data confers ownership of the data.[27] This perspective considers data protection as a deserved outcome of a company's efforts and as a means of motivating them to keep investing in innovation and enhancing the efficiency of data processing.[28] Thus, from the perspective of the labor property rights theory, enterprise data protection is justified not only in protecting the economic interests of enterprises, but also in encouraging the innovative use of data and continuous development.[29]

It presupposes that resources should not be wasted and that a significant and equal amount of resources should be reserved for others. Locke's theory of property rights is not absolute. Although the labor theory of property rights has had a significant impact on legal theory and practice, it is not enough to establish property rights fully. Since labor can be rewarded in various ways, incentives such as money or prizes may be more appropriate than licensing.[30] Furthermore, there is ongoing debate as to whether the concept of information property can be considered a superior concept to intellectual property rights.[31] The establishment of a property right depends on which rationale prevails among the many. Regarding the limitation of intellectual property rights, some scholars argue that Locke's theory of property rights limitation should be extended to intellectual property rights.[32] However, there is currently no consensus within the academic community on the application of this theory. Hofeld's doctrine of property rights is a widely accepted view. It states that property rights adjust the relationship between people rather than their control over things.[33] In this sense, the "labor theory of property rights", while helpful in solving the distributional problem of attribution, does not explain the need for property rights.

Furthermore, due to the sharing and spillover effects of information, providing complete exclusionary protection of information may actually diminish the positive externalities it generates for society. Therefore, the protection of information rights should only aim to generate moderate incentives for rights holders. However, the theory of labour property rights does not explore in depth how to establish the content and boundaries of property rights to achieve the goal of moderate incentives. Some scholars who advocate for authorized protection have shifted their research focus to 'incentive theory' as the theory of labour and property rights cannot fully prove the necessity of authorized protection of enterprise data.

### 3.1.2 Utilitarian motivation theory perspective

From a utilitarian perspective, data protection is justified by its ability to contribute to broader social and economic benefits.[34] Protection encourages companies to engage in innovative uses of data, which in turn drives the development of new products, services, and business models. These are all important drivers of economic development and social progress.[35] At the same time, by

ensuring that businesses receive a fair return on their data innovations, data protection also supports a level playing field in the marketplace and contributes to the formation of a healthy economic ecosystem.

The utilitarian theory of incentives also encounters challenges, particularly in determining the extent and duration of protection to ensure that it provides adequate incentives without hindering the free flow of information and subsequent innovation.[36] In addition, this theory needs to take into account market failures that may arise from data protection, such as the phenomenon of "walled gardens" that may result from overprotection, thereby limiting the realization of the potential value of data.[37]

In summary, it is suggested that the economic effects of the labor property theory and incentive theory may not be significant. The limited choice of empowerment model is determined by the characteristics of commercial data. Additionally, the operation mode of China's data trading market is not yet perfect and the rules are not mature, which further weakens its application value.

### **3.2 Deficiencies in the copyright model of protection**

Article 14 of China's Copyright Law[38] is usually used by enterprises as one of the means to protect enterprise data, i.e., advocating that data formed from enterprise data be recognized as compilation works. This article discusses the application of data compilation works in protecting enterprise data. However, there are flaws in applying this provision to the protection of enterprise data.

However, the inclusion of a collection of enterprise data in copyright protection as a compilation work may contradict the object claimed by copyright within the interest of protection. The protection of enterprise data under copyright law requires that the data be presented in the form of a compilation work, and protects the author's arrangements and choices that are original to the compilation work. However, enterprise data may be characterised more by the collection and integration of raw data than by original arrangement and selection. In practice, protecting enterprise data as a compilation work faces the risk of difficulty in recognising 'originality'. Although the arrangement, selection, and calculation of the original data in big data are intellectual achievements, the limited 'space' for originality within big data often fails to meet the requirements of copyright law. For instance, this is evident in the organization of the original data collection. As previously stated, Big Data emphasises the extensive and comprehensive nature of the original data collection. However, the more comprehensive the data collection, the less selective the content becomes, resulting in lower originality. Therefore, the likelihood of copyright protection decreases in proportion to the breadth and magnitude of the data. However, enterprises are undoubtedly more concerned about the extensive data collection rather than the originality of the arrangement. Additionally, the definition of originality in China's Regulations for the Implementation of the Copyright Law is vague, and the determination of 'creativity' tends to be strict in practice.

Secondly, the scope of protection is inconsistent with the interests in the data. Copyright protection for enterprise data mainly lies in the originality of the arrangement and selection of the data, and does not extend to the content of the data itself. However, the value of enterprise data is often reflected not only in the organization and selection of data, but also in the content and value of the data itself.

Thirdly, the measures for protecting data are inconsistent with its usage. Copyright laws primarily restrict others from copying and using enterprise data. However, in real-life applications, enterprise data may be used in a variety of ways, including analysis, mining, transformation, etc., and are not limited to copying alone.[39]

### **3.3 Deficiencies in the property rights protection model**

Firstly, the issue of distributing rights in enterprise data property rights needs to be addressed. Some scholars argue that clear ownership is necessary to ensure stability in benefit distribution to the right holder, due to the absolute and exclusive nature of in rem rights to enterprise

data.[40]However, creating the right in rem of enterprise data may not be an easy goal to achieve. The first issue faced by the right in rem of enterprise data is the distribution of rights. In the digital economy era, new business models such as the Internet of Things (IoT) have emerged, resulting in the right in rem of corporate data involving multiple subjects of interest and forming an intricate and complex connection system. Determining the attribution of exclusive rights and identifying the subject that can benefit the most from the data has become an urgent problem to be solved. The allocation of material rights to corporate data is particularly challenging due to the various reasons each subject has to claim certain rights over the relevant data.

Secondly, within the property rights system, the scope of the right in rem is limited to tangible objects, commonly referred to as 'things'. Intangible objects, such as data, are not included.[41]China's property law is based on the German model, which has always excluded incorporeal objects, including data, from property law. Furthermore, the theory that the legitimacy of enterprise data originates from Locke's theory of labor property rights is flawed as it ignores the fact that a worker's ownership of the fruits of their labor is contingent on the availability of 'at least enough equally good things' for others to own.[42] In the Internet information age, if enterprises are granted permanent, absolute, comprehensive, and strongly exclusive ownership of data, it may lead to data monopolization and data enclosure, which is detrimental to the competition in the data market and the development of the data economy. In a competitive data market, the labour property rights theory aims to protect competitors rather than maintain competitive order.

Thirdly, there are inconsistencies between the material right to enterprise data and the logic of the operation of the digital economy.[43]Enterprise data property rights are exclusive and absolute. Once an enterprise establishes and formalises data rights through exclusive ownership, the behaviour of others will be absolutely restricted within the specific scope of the right. In the digital economy era, enterprise data holds significant value not only for the enterprise itself but also for other market participants. However, establishing property rights for enterprise data in the upstream of the data set may hinder the free flow of data, which can negatively impact competition and innovation in the digital economy field. Big data analytics is crucial for the development of the digital economy and often requires decentralised processing. To foster innovation and growth in the digital economy, companies frequently need to collaborate across data domains and access diverse data sources. The creation of property rights in enterprise data may strengthen the power of existing data-holding enterprises. However, it may also limit the ability of other enterprises to discover or access new market potential from the data. This could lead to market access barriers and even the emergence of 'data monopolies'.

### **3.4 Shortcomings of the new model of property rights protection**

The current view of property rights protection has not yet departed from the traditional model.[44]The traditional model for protecting property rights holds that enterprises have the right to possess their data. However, in practice, the possession of data is not as clear and controllable as tangible property. The intangible nature of data makes the definition of the right of possession vague, and enterprises may face many difficulties in exercising the right of possession. From the perspective of the right of disposal, it is traditionally believed that enterprises have the right to dispose of data. However, in reality, disposing of data is not as simple as buying, selling, or transferring tangible property. It involves complex issues such as data property rights, data security, and compliance with laws and regulations. Enterprises must fully consider these factors when disposing of data.

Second, the indiscriminate inclusion of all types of enterprise data in the protection of new types of property rights may lead to the generalization of rights,[45] which in turn may have a negative impact on society as a whole. This approach could burden other enterprises and hinder their ability to fully utilize data resources while complying with the law, ultimately restricting their development. Additionally, overemphasizing data exclusivity may impede the free flow of data in the market, which could negatively impact innovation and societal development.

#### **4. Feasibility of a model for the protection of anti-unfair competition law**

The Anti-Unfair Competition Law serves to uphold free market competition.[46] In current judicial practice, protecting enterprise data rights and interests under the Anti-Unfair Competition Law involves two main paths: trade secrets and general provisions. For instance, Quzhou Wanlian Network Technology Co. is an example of a company benefiting from such protection. The cases of *Ltd. v. Zhou Huimin et al. Infringement of Trade Secrets Dispute Case*[47], and *An Moucheng Information Service (Shanghai) Co. Ltd. and Shanghai Chenpost Science and Technology Development Co. Ltd. et al. Infringement of Trade Secrets Dispute Case*[48], both of which were based on trade secrets; and "*Volkswagen Dianping v. AiHelp.com*"[49], "*Dianping v. Baidu Maps*"[50], "*Taobao v. Anhui Meijing Company*"[51] and other typical data cases, is to invoke the general provisions of the decision. This text will discuss the advantages and challenges of these two paths in light of judicial practice.

##### **4.1 Feasibility study on the protection model of the unfair competition law**

The anti-unfair competition law primarily concerns the legality of the act in question, rather than the legal rights of the party bringing the lawsuit. It is unclear whether enterprise data can be considered a civil right or legal interest, and this matter has not yet been definitively resolved. The law against unfair competition has a unique advantage in dealing with disputes related to corporate data as a behavioral regulation law. Lawsuits can be filed based on competitive advantages or interests arising from the collection of related data, even if the data holder or controller fails to clarify their legal rights or interests in a single piece or fragment of data under other laws. This is especially important in situations where it is not feasible to create or establish data rights in the near future.

Secondly, the Anti-Unfair Competition Law's general provisions offer greater flexibility in their application. In *Taobao v. Meijing*[52] and *Gumi v. Yuan Guang*[53], the courts relied mainly on the general provisions of Article 2 of the Anti-Unfair Competition Law as the basis for their decisions. China's data strategy started in 2014, and data became recognised as a crucial factor of production after 2015. The importance of data and the competition for it also became apparent at this time. Protecting corporate data and its rights and interests is a relatively new subject for both parties and the judiciary. However, the existing legal system does not provide adequate protection for this new phenomenon. The absence of legal provisions allows for greater judicial discretion. China's Anti-Unfair Competition Law was not revised until 2017, despite being implemented in 1993. As a result, the judiciary has encountered new situations and challenges in its practice over the years. In cases where unfair competition acts were not specifically defined, the judicial authorities typically resolved them by interpreting and applying the general provisions outlined in Article 2 of the Anti-Unfair Competition Law. These provisions are open-ended, making them suitable for addressing such issues. Throughout this process, the judicial authorities have gained extensive experience and developed a set of application rules. Many of the arguments and reasoning have been incorporated into the judicial interpretations that have been promulgated and implemented since then.

##### **4.2 Advantages and dilemmas of applying trade secret clause protection**

The safeguarding of trade secrets for enterprise data is primarily achieved by ensuring the three fundamental characteristics of data: secrecy, value, and confidentiality.[54] In the current data-driven economic climate, enterprise data encompasses not only traditional business information, such as customer lists or research and development results, but also new types of assets, including big data analytics, algorithmic models, and user data. These data products often naturally possess the secrecy required for trade secrets due to their complexity and technicality. To maintain their competitive advantage, companies employ various technical and contractual measures to protect their data from disclosure and maintain its value and confidentiality.[55]

Secrecy requires that data is not generally known or easily accessible to those in the relevant field. This is typically achieved through technical means, such as encryption, and legal means, such as confidentiality agreements. Internet companies ensure the secrecy of their data products through measures such as non-disclosure agreements and technical protection, and maintain their trade secret attributes even when sharing data and being open. The importance of enterprise data lies in its actual or potential commercial value. This value is typically measured by the data's contribution to the enterprise's competitive advantage, market position, or profit growth. The value of data is determined not only by its content but also by its uniqueness and irreplaceability.[56] Enterprises can leverage data with core value to support decision-making, optimize operations, and innovate services. By identifying and protecting this data, these assets can be utilized effectively. Organisations must take reasonable protective measures to prevent data leakage, including physical and IT security measures, and confidentiality obligations for employees and partners. It is important to note that confidentiality is a legal requirement and organisations must comply with relevant laws and regulations.[57] Reasonable confidentiality measures should be tailored to the sensitivity of the data, its value, and the potential risk of a breach. This ensures that corporate data is kept secure and confidential, even in a highly interconnected and open business environment.

While trade secrets can offer robust protection for corporate data, there are some drawbacks to this mechanism.[58] The law provides a framework for the protection of trade secrets. However, in practice, it can be difficult for the right holder to prove the fact of leakage, locate the responsible party, and assess the loss. Objective evidence is necessary to support any claims of trade secret misappropriation. Not only does this increase the legal risk for the enterprise, but it may also result in high litigation costs and time consumption. Additionally, for rapidly developing and iterative technology products, trade secret protection may limit knowledge sharing and industry synergy, thus adversely affecting industry innovation.

In summary, trade secrets offer a flexible yet legally binding way to safeguard corporate data, assisting organisations in maintaining their competitive advantage and market position.[59] However, with the development of technology and changes in the business environment, enterprises need to continuously evaluate and update their data protection strategies to meet new challenges and risks. Simultaneously, the legal system and judicial practice must adapt to technological advancements and changes in market demand to offer more efficient and adaptable solutions for safeguarding enterprise data.

### **4.3 Advantages and dilemmas of applying general provisions for protection**

General provisions are crucial in safeguarding corporate data, particularly in data competition disputes among internet companies. Article 2 of the Anti-Unfair Competition Law adopts a 'generalization + enumeration' legislative technique to provide a framework for regulating unfair competition that is not specifically listed.[60] This legislative strategy is both inclusive and flexible, enabling the law to adapt to the fast-developing and ever-changing market environment.[61]

First, the general clause lays the foundation for the protection of corporate data by clearly defining what constitutes unfair competition.[62] The adaptable and flexible nature of general clauses makes them well-suited to respond to rapidly changing market and technological environments.[63] This is due to their principled and generalized nature. Even with new methods of data acquisition and utilization, general clauses can provide a legal basis to protect enterprises from unfair competition as long as these actions violate the principle of fair competition. In the current legal system, there is a gap in provisions specifically related to data protection. The general clause plays a role in filling this gap by providing protection for business data that is not explicitly covered by specific legal provisions. This is particularly crucial for internet businesses where data forms and usage patterns are constantly evolving.[64] By preventing improper data acquisition and use practices, the general clause helps to create a level playing field in the marketplace.

The application of general provisions presents several dilemmas. Firstly, the standard of adjudication is not uniform. Due to the principle and generality of the general provisions, courts



may have different interpretations and rulings when applying them specifically, resulting in inconsistent standards of adjudication.[65] In data competition dispute cases, different courts may have varying rulings on the same type of behaviour, leading to uncertainty in market operations. This is especially evident in such situations. Additionally, the flexibility provided by general provisions can increase the complexity and difficulty of their application by courts. Judges must conduct a thorough analysis of the case's specific facts to determine whether the elements of unfair competition are met. This not only increases the complexity of the trial but also places higher demands on the judges' professional competence. Additionally, there is a risk of possible abuse, particularly in the highly competitive internet market, where the generality of general terms may be exploited.[66] Courts may unduly restrict competition by over-interpreting general terms. It emphasises the importance of maintaining a level playing field in the market. Especially in the internet sector, legal regulation often lags behind the rapid development of new technologies and business models. Excessive legal intervention may hinder innovation.

In summary, general clauses are crucial in safeguarding business data and ensuring fair competition, especially in light of the rapidly evolving internet market. [67]However, the application of this method also faces issues with inconsistency, complexity, and potential abuse. In order to overcome these limitations, there is a need to further improve the relevant legal provisions, enhance judges' understanding of the characteristics of the Internet market, and at the same time strengthen research on emerging technologies and business models, so as to ensure that general clauses are able to protect enterprise data without hindering the healthy development of the market and technological innovation.[68]

#### **4.4 Prospects for a model of protection under the law against unfair competition**

As data becomes increasingly valuable, the issue of unfair competition in data has emerged, particularly in the commercial sector.[69]Against this background, it is important to create an article that protects enterprise data to prevent unfair competition, such as data theft, misuse, or leakage, and to safeguard the legitimate rights and interests of enterprises while ensuring the reasonable utilization of data.

The definition of business data scope needs to be precise and specific.[70] Business data is defined as electronic or machine-readable data collected by the operator in a lawful manner, with data protection measures in place, and of a certain scale and commercial value. A comprehensive definition of business data should encompass valuable data that is actively protected by the enterprise, while excluding subjective evaluations. This approach prevents overprotection of data, which can hinder information sharing and innovation.[71]

Clear and detailed regulations are necessary to address the improper acquisition, use, or disclosure of commercial data.[72] It is important to clearly state which behaviors are considered improper, such as the acquisition of others' commercial data through theft, fraud, coercion, unlawful intrusion, or violation of reasonable data crawling agreements. Secondly, legally obtained acts that are subsequently used or disclosed beyond the scope of authority should be treated differently based on the perpetrator's subjective malice and the actual impact. This approach aims to protect the rights and interests of data holders while encouraging the reasonable use of data.[73] Furthermore, regulations should be put in place to address behaviours that facilitate or enable the improper acquisition, use, or disclosure of commercial data, including the provision of technologies, services, or equipment that undermine data protection measures. However, it is important to acknowledge that not all access, use, or disclosure of commercial data should be prohibited.[74] Under certain circumstances, the acquisition, use or disclosure of data may be considered exceptional and permissible. These circumstances include cases where the data are publicly available and accessible to the public without compensation, or where the conduct is limited to research purposes and does not infringe upon other legitimate interests of the data holder. This promotes the free flow of information and knowledge while also reasonably restricting the rights and interests of data holders to prevent the abuse of rights that could impede social progress and scientific and technological

development. The implementation rules should clarify responsibilities and penalties to ensure effective enforcement of legal provisions.[75] Legal consequences, such as compensation for damages, fines, or other legal liabilities, should be established for violations of data-specific provisions to deter potential violations and protect data security and a fair and competitive market environment.

Finally, when constructing data-specific articles, it is important to consider international standards and practices to facilitate cross-border data flows and international cooperation.[76] Due to the increasing impact of globalization, data flows are no longer restricted by national borders. Therefore, when developing protection measures, it is important to consider their international compatibility and mutual recognition. This will facilitate international business and technological exchanges while safeguarding enterprise data and preventing unfair competition.

In summary, creating an article specifically for protecting business data is crucial for maintaining the healthy development of the digital economy.[77] By precisely defining the scope of business data, clarifying the types of misconduct and liability, establishing reasonable exceptions, and considering international cooperation, it can play an important role in protecting the security of enterprise data and promoting data cooperation.

## 5. Conclusion

The rapid development of Internet technology and the rise of the digital economy have brought enterprise data security and competition order to the forefront of attention. The Anti-Unfair Competition Law, as an integral part of the legal system, plays an indispensable role in protecting corporate data. However, its application faces dilemmas and challenges that are worth pondering. To address the issue of unfair data competition, there is an urgent need to create a dedicated article for enterprise data. This will clarify the scope and protection standards of data, and provide specific guidance for enterprises. In future revisions of the Anti-Unfair Competition Law, it is necessary to refine the provisions related to enterprise data further. This will clarify specific behaviors that constitute improper obtaining, using, or disclosing of business data. Corresponding legal responsibilities and penalties should be established. By continuously improving the relevant legal system and international cooperation mechanisms, the digital economy will become healthier and more orderly. Corporate data can be utilised more effectively and play a greater role in promoting technological innovation and social progress when it is reasonably protected.

## References

- [1] "Data-driven innovation" refers to the process by which a commercial organization or public sector agency derives information from data analytics and uses that information to create products and services that facilitate the daily lives of individuals or institutions, including small and medium-sized enterprises (SMEs). See Data-Driven Innovation --A Guide for Policymakers: Understanding and Enabling the Economic and Social Value of Data, SIIA White Paper (2013).
- [2] Ma Huateng. Digital Economy--China's New Dynamics of Innovation and Growth [M] . Beijing: CITIC Publishing House,2017,(7)
- [3] Tao Qian, Li Yanze. On the Intellectual Property Protection Mode of Derivative Data [J] Journal of Dalian University of Technology, 2023,(4); Xu Shi: "Intellectual Property Rights Path of Enterprise Data Protection and its Breakthrough", Oriental Law Journal 2018,(5); Li Xiaoyu: "Typological Distinction Protection of Data Interests under the Perspective of Distinction of Rights and Interests", Intellectual Property Rights 2019,(3)
- [4] Mei, Xia-Ying. The Original Theory of Corporate Data Rights:From Property to Control[J]. Chinese and Foreign Law, 2021,(5); Xu Haiyan, Yuan Quan. On the Protection of Property Rights in Data Products--A Comment on Taobao v. Meijing Company[J].Application of Law (Judicial Case), 2018, (20);Shen Satellite: "On the Right to Use the Benefits of Data", in China Social Science, No. 11, 2020

- [5] Long Weiqiu. Re-examining the property rights path of enterprise data protection [J]. *Oriental Law*,2018,(3); Kong Xiangjun: "On the Construction of "Special Article on Business Data" in the Anti-Unfair Competition Law--A Scheme for Implementing the Central Government's Top-Level Design on the Data Property Rights System", in *Oriental Law Vol. 5, No. 2022*, pp. 24-27; Li Guoquan, Yang Fuyu. The General Provisions of the Anti-Unfair Competition Law on Data Information. The protection of [J]. *Electronic Intellectual Property Rights*, 2014(4):97-99.
- [6] License: "The Threefold Progress of Data Protection: Comment on Sina Weibo v. Pulse Unfair Competition", *Journal of Shanghai University (Social Science Edition)*, No. 6, 2017.
- [7] Administraion Discussion Draft: Consumer Privacy Bill of Rights Act of 2015. Cited in Fan Wei, "The Reconstruction of the Path of Personal Information Protection in the Era of Big Data", *Global Law Review*, No. 5, 2016, pp. 98-100.
- [8] James Q. Whitman, *The Two Western Cultures of Privacy: Dignity versus Liberty*, 113 *Yale L. J.* 1151, 1180 - 1189 ( 2004) .
- [9] Information that can be associated with a specific person or device.
- [10] Guo Yu: *Research on Personal Data Protection Law*, Peking University Press, 2012 edition, p. 49.
- [11] Kong Xiangjun, "Commercial Data Rights: A New Type of Industrial Property Rights in the Digital Era: Three Principles for Defining Industrial Property Rights and Attribution", *Comparative Law Studies*, Vol. 1, No. 1, 2022, pp. 92-97.
- [12] Yang Dong and Li Peihui, "Research on the Path of Promoting Common Wealth through Open Data Sharing", *Rule of Law Society*, No. 3, 2022, p. 24.
- [13] Ding, Daoqin. Binary division of basic data and value-added data[J]. *Financial Law*, 2017(2):5-10, 30.
- [14] Liu Ying and Sui Jigang, "Japan's Big Data Legislation Adds the Provision of "Limited Data" Clause and Its Implications for China", *Intellectual Property*, No. 4, 2019, p. 94.
- [15] Ministry of Economy, Trade and Industry of Japan, "Guidelines on Limited Data Provision" (revised in May 2004) 11 pages.
- [16] Li Yang Li Xiaoyu, "The Definition and Clarification of Enterprise Data Boundaries in the Era of Big Data ---Along with Talking about the Distinction and Hooking Up Between Different Types of Data", *Fujian Forum - Humanities and Social Sciences Edition*, No. 11, 2019, 35-45
- [17] Jerry Kang, "Information Privacy in Cyberspace Transactions", *Stanford Law Review*, Vol. 50, 1998, p. 120.
- [18] Zao Chengxiao: "On Personal Data Rights in the Era of Big Data", *Chinese Social Sciences*, No. 3, 2018.
- [19] Li Yang, Li Xiaoyu: : "The Nature Definition of Enterprise Data Rights and Interests in the Era of Big Data and the Construction of Its Protection Mode", *Xuehai*, No. 4, 2019.
- [20] Rukia Linhua, "Legal Protection of Big Data," *Electronic Intellectual Property*, No. 8, 2014.
- [21] Long Weiqiu: *Research on the Construction of Data Information Property Right and Its System*, pp. 74-76
- [22] Hanoch Dagan, "The Craft of Property," *California Law Review*, vol. 91, no. 6, 2003, p. 1532
- [23] Li Gexia. Analysis of Unfair Competitive Behavior on the Internet--Analyzing the Provisions on "Unfair Competitive Behavior on the Internet" in the Anti-Unfair Competition Law[J]. *Intellectual Property*,2018(2):20-30.
- [24] Liu Jianshen, "Rethinking and Seeking Solutions for the Protection of Corporate Data Empowerment," *NU Law*, No. 6, 2016, 1-20
- [25] Wang Weiguo, "The Theoretical Construction of Modern Property Law", *Chinese Social Sciences*, No. 1, 2012.
- [26] Long Weiqiu: *Research on the Construction of Data Information Property Rights and Its System*, in *Politics and Law Forum*, No. 4, 2017
- [27] Benjamin G. Damstedt, *Limiting Locke: A Natural Law Justification for the Fair Use Doctrine*, 112 *Yale Law Journal* 1179, 1179 81 (2003).
- [28] [Rock: *On Government* (2nd ed.), Commercial Press, 1964, pp. 18-19.

- [29] For example, the U.S. Supreme Court has also relied on the doctrine to rule that test data has a property interest. In that case, the plaintiffs placed the number of pesticide
- [30] After submitting the data to the EPA for safety testing, the EPA used the data without authorization in testing other applicants' products and made it available to the public, the U.S. Supreme Court invoked Locke's labor property theory to find that the plaintiffs had a property interest in the pesticide data because they had invested their time and money in the pesticide and ordered the EPA to compensate the plaintiffs for their losses on that basis. See *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986 (1984). In addition, the longstanding "sweating forehead" doctrine of American copyright law developed under the influence of this theory, but was overruled by the U.S. Supreme Court in 1991. See *Feist Publications, Inc. v. Rural Telephone Service Co.* See *Feist Publications, Inc. v. Feist Publications, Inc.* 340 ( 1991 ) .
- [31] Wendy J. Gordon, *supra* note 40, at 170.
- [32] Tom G. Palmer, *Are Patents and Copyrights Morally Justified-the Philosophy of Property Rights and Ideal Objects*, 13 *Harvard Journal of Law and Public Policy* 817, 832 (1990).
- [33] Justin Hughes, *supra* note 44, at 315 329.
- [34] Wesley Newcomb Hohfeld, *Fundamental Legal Conceptions as Applied in Judicial Reasoning*, 26 *Yale Law Journal* 710, 721 (1917).
- [35] William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 *Journal of Legal Studies* 325, 326 (1989)
- [36] Jacqueline Lipton, *supra* note 40, at 152.
- [37] Cui Guobin :*The Basic Theory of the Limited Exclusion Right of Big Data*, in *Legal Studies*, No. 5, 2019.
- [38] Han Xuji, "The Dilemma of Data Rights Recognition and the Way to Crack It", in *Eastern Law*, No. 1, 2020, p. 101.
- [39] A work that compiles a number of works, fragments of works, or data or other materials that do not constitute a work, the selection or arrangement of whose contents reflects originality, is a compilation work, the copyright of which shall be vested in the compiler, provided that the exercise of the copyright does not infringe the copyright of the original work." This article is considered to be applicable to data compilation works as well
- [40] For example, the data compilation work provisions of the U.S. Copyright Act are generally consistent with the object and scope of protection under TRIPS. See *Assessment Technologies of WI LLC v. Wiredata, Inc.*, 350 F.3d 640 (7th Cir. 2003).
- [41] See Wolfgang Kerber, *A New (Intellectual) Property Right for Non-Personal Data? An Economic Analysis*. *Social Science Electronic Publishing*, 37: 6( 2016).
- [42] See Shen Satellite, "On the Right to Use Data for Benefit," *China Social Science*, No. 11, 2020.
- [43] See Shen Satellite, "Reinventing the Digital Rights System: Toward a Poorly Ordered Pattern of Privacy, Information, and Data," *Politics and Law Forum*, No. 3, 2022.
- [44] See Fu Xinhua, "A Critique of the Protection Theory of Enterprise Data Property Rights in the Digital Economy-From Data Property Rights to Data Use Rights," *Oriental Law Journal*, No. 2, 2022
- [45] Long Weiqiu: "Revisiting the Path of Property Rights for Corporate Data Protection", *Oriental Law Journal*, No. 3, 2018.
- [46] Li Yang Li Xiaoyu, "The Nature Definition of Enterprise Data Rights and Interests in the Era of Big Data and the Construction of Its Protection Mode," *Xuehai*, No. 4, 2019.
- [47] Chen Bing. *Competition Law Attributes and Regulatory Significance of Big Data*[J]. *Law*, 2018(8):107-123.
- [48] Shanghai Higher People's Court (2011) Shanghai Gao Min San (Zhi) Final No. 100 Civil Judgment
- [49] Shanghai Higher People's Court (2006) Shanghai Gao Min San (Zhi) Final No. 92 Civil Judgment
- [50] Beijing Haidian District People's Court (2010) Hai Min Chu Zi No. 24463 Civil Judgment.
- [51] Shanghai Pudong New Area People's Court (2015) Pu Min San (Zhi) Chu Zi No. 528 Civil Judgment.
- [52] Hangzhou Railway Transportation Court (2017) Zhe 8601 Minchu 4034 Civil Judgement.

- [53] Hangzhou Railway Transportation Court (2017) Zhe 8601 Minchu 4034 Civil Judgement.
- [54] Shenzhen Intermediate People's Court of Guangdong Province (2017) Guangdong 03 Minchu 822 Civil Judgment
- [55] Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 491 (1974).
- [56] See Shen Satellite, "On the Right to Utilize the Benefits of Data," in China Social Science, No. 11, 2020.
- [57] License: "The Threefold Progression of Data Protection - Commenting on Sina Weibo v. Pulse Unfair Competition Case", in Journal of Shanghai University (Social Science Edition), No. 6, 2017.
- [58] Cui Guobin: "The Basic Theory of the Limited Exclusion Right of Big Data," in Legal Studies, No. 5, 2019.
- [59] See Cui Guobin, "The Object Elements of Legal Protection for Public Data Collections," in Intellectual Property, Vol. 4, No. 4, 2022.
- [60] Zhang Xinbao, "The Configuration of Data Rights under the Structural Separation of Property Rights", in Global Law Review, No. 4, 2023.
- [61] Li Shenglong: "Research on Recognized Business Ethics in the Internet Field", in Law Application, No. 9, 2015.
- [62] Xue Qiyu . Regulatory Path of Unfair Data Competition among Internet Enterprises[J]. Journal of Shantou University (Humanities and Social Sciences Edition),2018,34(12):62-68.
- [63] Li Shengli . On Competitive Relationships and Operators in the Anti-Unfair Competition Law[J]. Research on the Rule of Law,2013(8):49-54.
- [64] WANG Yongqiang . Judicial Definition of Competitive Relationships in the Network Business Environment - An Examination Based on Network Unfair Competition Cases[J]. Law,2013(11):140-147.
- [65] Chen Bing . The significance of re-reading "competitive relationship" in anti-unfair competition law under the Internet economy - Citing relevant cases of Beijing, Shanghai and Guangdong courts in 2000-2018[J]. Jurisprudence,2019(7):18-37.
- [66] Wang Yanfang . Deconstruction and Remodeling of Competitive Relationships in Anti-Unfair Competition Law[J]. Politics and Law Series,2021(2):19-27.
- [67] Zhang Ping . General Provisions of the Anti-Unfair Competition Law and Their Application - Search The thinking triggered by the protocol of search engine crawler[J]. Law application,2013(3):46-51.
- [68] Lan Lei . Interpretation of the General Provisions of the Anti-Unfair Competition Law from the Perspective of the Principle of Proportionality--Whether Advertising Interception and Fast Forwarding on Video Websites Constitute Unfair Competition[J]. Oriental Law, 2015(3):68-81.
- [69] Qiu Ben . On the Basis of Market Competition Law[J]. China Law Journal,2003(4): 94-106.
- [70] Jiang Qibo, "Value Guidelines for Judicial Decision on Data Rights Disputes", China Applied Law, No. 6, 2022, pp. 30-31.
- [71] Qiu Fu'en, "The Construction of Rules for the Protection of Commercial Data Against Unfair Competition", Intellectual Property, No. 3, 2023, p. 93.
- [72] Yang Dong and Li Peihui, "Research on the Path of Promoting Common Wealth through Open Data Sharing", Rule of Law Society, No. 3, 2022, p. 24.
- [73] Liu Ying and Sui Jigang, "Japan's Big Data Legislation Adds the Provision of "Limited Data" Clause and Its Implications for China", Intellectual Property, No. 4, 2019, p. 94.
- [74] Handong, "Legislative Options for Empowerment of Data Property", Legal Science, No. 4, 2023, p. 56.
- [75] Zhang Huibin and Yu Cheng, "Japan's Commercial Data Classification and Protection Model and Its Implications for China", Modern Japanese Economy, No. 5, 2023, pp. 48-49.
- [76] Kong Xiangjun, "Commercial Data Rights: A New Type of Industrial Property Rights in the Digital Era - Three Principles for Defining Industrial Property Rights", Studies in Comparative Law, Vol. 1, 2022, pp. 96-97.

- [77] Li Yong, "Substantial Alternative Standards for Unfair Competitive Behavior in Data", China Circulation Economy, No. 7, 2023, pp. 44-45.
- [78] Qiu Fu'en, "The Construction of Rules for the Protection of Commercial Data against Unfair Competition", Intellectual Property, No. 3, 2023, pp. 94-95.