### Justification of the Legitimacy of Property Rights in Data

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Abstract: In today's digital economy, data plays an increasingly important role in society. However, modern with the widespread use of data, the issue of data rights has gradually attracted attention. As an object of labor, data can provide a reasonable argument for the legitimacy of data property rights based on the Lockean labor property theory. At the same time, data can also be regarded as the projected object of individual will, and Kant's theory of will projection provides a legal basis for data property rights. In addition, Rawls' theory of distributive justice can deeply explain and emphasize the justification of data property rights. This paper emphasizes the legitimacy of data property rights, analyzes the structure of the subject of the right of data property rights, argues the object of data property rights, which mainly includes information, data derivatives and services, and access rights and use rights of data. It also elaborates the content of the right of data property right, which covers four rights: the right to hold, the right to use, the right to protect and the right to compensation.

Keywords: Data Rights; Data Property Rights; Legitimacy Rights; Structure Competencies

#### 1. Introduction

"If you don't pay, you're not a consumer, you're a product being sold." For the giant online platforms in the Internet era, the collection, screening, analysis, and application of consumer habits and massive amounts of information, coupled with the platforms' unique algorithms, form the so-called "big data".1 Digital technology and digital assets are commonly regarded as high-value assets, and have become important strategic resources for a company or even a country. "[1] Digital technology and digital assets are commonly regarded as high-value assets and have become important strategic resources for an enterprise or even a country. As far as the protection of data rights is concerned, it is a comprehensive project, a common task for all legal departments, and requires the cooperation of both public and private law.[2] There is a saying in the data analysis industry that "data is the new oil."[3] In the data analysis industry, there is a saying that "data is the new oil," and many practitioners refer to it as "the most valuable resource."[4] So to whom does data belong? Who owns the rights to the data, or the rights to the data? The answer to this question is crucial, whether the data should be empowered is currently a hot issue in the legal profession, the academic community has "data empowerment affirmative" and "data empowerment negative" two schools of thought, the circulation of data is very strong, want to pass the physical sense of the barrier, the means is very limited, so it can only be achieved through the law. The circulation of data is very strong, and it is difficult to remedy the damage to the rights of the relevant stakeholders by means of physical blocking, as the means are very limited, and therefore the ownership of data can only be determined by legal means.

Scholars who hold the "negative view of data empowerment" believe that granting property rights to data will strengthen the exclusivity of data and impede its utilization and inter-subjectivity. For example, some scholars believe that if data is empowered, large corporate giants will use it to strengthen their control of the enterprise, artificially create exclusive "economic domains", and thus form a monopoly on corporate data.[5] This will cause great obstacles to the development of both individuals and enterprises, and will hinder the free flow of the corresponding data, causing stagnation in the operation of enterprises, which is incompatible with modern digital data. This is contrary to the

very nature of the modern digital economy, as it impedes the free flow of corresponding data and causes stagnation in business operations.[6]

Experts and scholars who hold the "affirmation of data empowerment" believe that data empowerment will not impede the flow of data, but rather promote the market-oriented flow of data, but scholars differ in the kind of rights or interests they assign to data, for example, Prof. Shen Weixing believes that data should be given a binary structure of ownership and usufruct, and that the allocation of data property rights should be balanced according to the subject's contribution to the data itself. For example, Professor Shen Weixing believes that data should be given a dual structure of ownership and usufruct, and under this rights structure, the allocation of data property rights should be balanced according to the subject's contribution to the data itself.[7] Professor Shan Xiaoguang believes that data should be empowered with rights under intellectual property rights.[8] Professor Wang Liming's view is that data should be protected in the form of "data rights and interests." [9]

Regarding the basic issue of data empowerment, the author supports the "affirmation of data empowerment", but in terms of whether data should be an interest or a right, or an intellectual property right, the author believes that it should be empowered from the perspective of data property rights. The author tries to provide justification for the theoretical dilemma faced by the creation of property rights in data with the theories of Locke, Kant and Rawls, and to prove them, and analyze the structure of property rights in data, in order to enrich and improve the legislation of the digital economy, and promote the high-quality development of the digital economy.

## 2. Justificatory Interpretation of the Property Right in Data

In order to give full play to the role of data as a factor of production in the production and market, to promote the standardized development of the digital economy, to balance the public and individual interests, and to prevent the occurrence of the "tragedy of the commons".[10] Labor can create the value of the data or add value to the data, and

accordingly the data as an object of labor should be empowered, which can be justified by Locke's theory of the property of labor. Locke's property theory of labor can explain its legitimacy; similarly data can also be used as an object for individuals to project their will for the sake of autonomy and development, and Kant's theory can also provide an explanation for obtaining legitimate property rights over it; Rawls's theory of distributive justice can also help to rectify the balance between public and individual interests that may be caused by the empowerment of data property rights. The purpose of data rights is to further determine the ownership of data assets, thereby stimulating related production and better utilizing data to promote the optimization of factors of production.

#### 2.1 Explanation of the Justification of Data Property Rights Based on Locke's Labor Property Theory

The English philosopher Locke held the view that the root of all things was God; he believed that God gave the land to mankind as a whole, not in small parcels to be given to individuals; therefore, no one had personal ownership of the original land to the exclusion of others. [11] Therefore, for the sake of mankind's own development it had to somehow divest them of the original commons, as in the case of data at this time. The complex nature of the land makes it difficult to identify it as the exclusive property of a single individual, and it is difficult for human beings to establish their ownership by unanimous consent, but to gain control of the resources in order to achieve their own personal development without first having to obtain the consent of any other person. In terms of the positive element, Locke argues that the unique attribute of human "labor" supports human beings' ability to take from the commonwealth and dispose of it. In terms of the negative element, the additional conditions of "sufficiency", "anti-spoil", and "charity" justify human beings' exclusion from the commonwealth.[12]

The positive element seeks to justify the right to data property through the linear logic of "Locke's public sphere-the centrality of labor-detachment from the public sphere." Locke argues that the "public domain" refers to a great treasure owned by no one, and that these materials were produced before all individual creators and all individual property were created and appropriated. [13] What is in the public domain does not belong to anyone unless someone is exerting labor on it and claiming a right to it. For data property rights, the public domain corresponds to the state of nature described in Locke's theory of property, where the public domain consists of most of the products of the intellect, e.g., inventions, literary creations, and mechanical creations. In the context of application to data, we can think of raw, unprocessed data as a natural resource, belonging to a kind of common domain, because they have not yet been given a specific economic value through individual labor. The "public domain" consists of the huge amount of data and information generated by the network platforms used by millions of individuals in the era of digital economy, including user data generated by individuals browsing web pages, blogs, apps, and network platforms, which are divided into two types: one type is generated unconsciously by users during the process of using digital services, and the other type is generated by users who are not aware of it. There are two types of user data: one type is passive data generated unconsciously by users in the process of using digital services, such as browsing and consumption history; the other is data generated intentionally and actively by users, such as posting, commenting, and browsing activities. [14] It also includes data generated by platforms at the front-end of the platform construction, at the initial end of the all-encompassing collection, at the mid-end of the anonymization, desensitization, and sample screening, and at the end of the construction of algorithmic models for in-depth mining and analysis. The data is also generated in various forms. Various forms of data. These forms of data should be in the "public domain" of data until ownership is determined. They should be owned by no one, not individuals nor online platforms, and they should be as freely available to the public as sunlight and air, even if "ownership" is, at best, a de facto "possession". The most obvious thing that these knowledge products have in common with data is that they can be used by more than one person at the same time, i.e., they are "non-competitive". [15] Some argue that since the data can be owned by more than one person at the same time, there is no need to

determine their ownership. Others argue that ownership should be established, and that empowerment of data to exclude others from using it reduces competition, otherwise it will result in dissipation of rental value. Some scholars have argued that the public sphere referred to by Locke should be constituted by physical substances. However, Locke's theory is equally applicable to innovations and non-physical data. The distribution of labor and property rights is crucial to human development and prosperity, which is at the core of Locke's thought. His theory of property rights goes beyond the idea that the physical matter on which labor is exerted should not be interfered with, and explains why individual ownership of these resources is beneficial to human survival and prosperity. [16] If my use of what you have created harms you and affects your self-governing development, then it should be penalized. Whether or not what you have created is a physical object is irrelevant. The "public domain" should therefore include inanimate objects such as data.

Locke's theory of the "centrality of labor" that individuals make argues the unappropriated resources of nature their property by investing their labor in them. This labor transforms the resources of nature and gives individuals ownership of those resources. For Locke, labor is the key to this. Locke's basic point is that an individual's labor can include activities such as gathering, clearing, cultivating, etc., and as long as these labors make the resources intimately connected to the individual's labor and create new value, they can serve as the basis for a property right. As to how much labor is required to ensure the legitimacy of a property right, Locke does not specify an exact standard, which may depend on factors such as the nature of the resource, the degree of labor invested, and social acceptance.

Locke's theory requires that labor must be combined with something. He argues that a person becomes a proprietor when "he has mingled his labor" into what he finds in nature. [17] Locke views labor as a sacred and solemn act that reflects the original work of God in creating humanity and the world. By incorporating this special, moral component into a resource that has not yet been attributed to anyone, labor is very different from merely mixing together old goods that have already been attributed to someone, and thus labor has a special character. [18] In addition, Locke argues that labor has an additional power because it derives from the individual's body. Because we own our bodies, labor is seen as a highly individualized form of appropriation. Labor itself is deeply rooted in personal traits that inspire individuals to extend their individuality into the external world and to realize their rights to property through the process of labor. [19] When labor is invested or incorporated, this usually suggests that the resulting union has distinct natural boundaries in either scope or degree. These boundaries are capable of clearly distinguishing the union from the rest of the resources not yet appropriated, and such a distinction is determined by the power generated by labor itself. In addition, we should also pay attention to Locke's articulation of the purpose of labor, as proposed by Nozick, as pouring a jar of tomato sauce into the sea, with the tomato sauce adulterating the sea in order to gain ownership of it, because in this case labor is invested with a meaningless goal that has no relevance to the survival or prosperity of human beings.

So when we bring Locke's property theory of labor into the justificatory interpretation of data property rights. Enterprises or individuals mix their property "labor" into the "public domain" of data, thus defining a "privatizable" property object. It has been argued that the value of personal data comes mainly from the labor input of the data processor, which is mainly reflected in two aspects: first, the direct use of mental and physical labor for data processing; and second, the input of data processing software and scenario construction. [20] These "labors," with their special personal attributes and sweat, seem to be like a "hand of God" that has taken over the "public domain" of data. These "labors" with special personal attributes and sweat are like a pair of big hands of God allocating the data in the "public domain" to private pockets, which draws a line like the Mariana Trench between the "public domain" and the "private ownership," and endows the right with a solemn sanctity. This hand draws a line like the Marianas Trench between "public domain" and "private ownership" and gives that right a solemn and sacred meaning that cannot be intruded upon

by anyone else, based on which the data laborer has the right to obtain the data in the first place. Secondly, enterprises should have rights and interests in the data that do not have economic value but have become data products with economic value through their labor activities such as handling and processing.

In terms of the negative element, Locke highlights the importance of the Ketzsch condition after his discussion of labor and the initial appropriation of property. First, he suggests that property should be appropriated in such a way as to leave "enough of the same good for others," i.e., that it is necessary to "bind" the right to property-because the appropriation of property to a particular person poses the possibility of harm to others. The right to property is "bound" - because the appropriation of property to one person creates the possibility of harm to others. Having considered the allocation of material in the "public domain" to individuals, we must consider that the remaining material will also satisfy the remainder. With rights come obligations, and with rights come limitations. There are two sides to the coin, and the rightful owner cannot be allowed to take too much of the material in the public domain for himself. After the appropriation of what has been added, others can still use the same starting materials, leaving "enough and as good" for others, that is, materials from which laborers can use. Bringing this into the context of the property right in data means that the mobility and accessibility of data should be facilitated in order to avoid creating a "tragedy of the commons", [21] a "data divide" and a "data monopoly". [22] First, the State should be able to provide the same information to the public as it does to the private sector, and the public sector should be able to provide the same information to the public. "First of all, the state holds a huge amount of public data, including data in important fields such as public health, science and technology, and education; data generated by organizations authorized by laws and regulations to manage public affairs, and organizations providing public services such as water supply, electricity supply, gas supply, and public transportation; as well as data generated by the state in the process of legislation, law enforcement, and judiciary; and data generated

by the state in the process of legislation, law enforcement, and judiciary, and data generated in the process of law enforcement. Scholars who hold the "state ownership theory" believe that "the government has full ownership of public data". [23] The interest in data is an important interest of the state, and has even evolved into the state's data sovereignty, and the leakage of data will cause great impact and damage, so public data is the "public data" in Locke's sense that it should be left for others. In Locke's words, "what is sufficient and good" should be left for others, and it should not be owned by anyone, but by the state or limited "possession" by private subjects. Second, in order to avoid "data monopolization" by large network enterprises, the flow and sharing of data should be facilitated, leaving more "things sufficient and good enough". According to Locke's theory, property rights in data that go beyond what is necessary and reasonable for the enterprise itself should not be protected but must be limited. [24]

The other additional conditions proposed by Locke, in particular the prohibition of "waste" arising from the excessive distribution of property, may pose a more important challenge than the principle of sufficiency. An example of intellectual property would be the Lockean waste of a creator who puts the core of his creative work, the idea itself, on a permanent shelf and does not use it in any way. Bringing this into the concept of data property rights, the head of the enterprise holds a huge amount of data assets, but does not put them into operation and use them, such as for the back-end big data analysis and the launch of the corresponding data products to provide consumers with the corresponding convenience of using the platform and the convenience of the product push, and puts these valuable data assets on the shelf. On the one hand, they do not use the data themselves: on the other hand, they "hide" the data assets to prevent others from using them. This is mostly the case when enterprises compete for the relevant market in an attempt to gain a monopoly position, and the resulting data waste coincides with Locke's "anti-spamming" condition. Secondly, among the millions of data held by enterprises, there are some secret data, which will lose its high value once leaked. The legal system should of course prohibit the acquisition, use and circulation of data by illegal technical means or other means, such as fraud or theft, that violate the principle of urban credit. The data market also has serious technical governance and security issues, not only the enterprise itself should strengthen the technical security measures to update and iterate, strengthen the data leakage regulatory measures, improve the responsibility mechanism. safeguard and protect data security. Relevant functional departments should unify and improve data trading standards, clearly position the role of trading institutions, improve supporting systems and regulatory systems, eliminate the geographical nature of data trading, and introduce clear. clear, unified national documents and supporting laws and regulations. Consistently eliminate the unnecessary loss of data assets and prevent the "spoiling" of data.

The Benevolence Condition aims to show that people in extreme poverty can make some kind of claim to property that is owned by the rightful owner. Locke argues that people in extreme poverty have a right to claim property owned by the rightful owner, and whether that property became owned by someone else through a lawful original distribution or was transferred through the original owner, the destitute have a right to a special right to what is necessary for their survival. [25] This simply means that when the exercise of your right may be a serious impediment to someone else's survival, then the person who is impeded will automatically acquire that part of the right. The Benevolence Plus Condition applies primarily in the area of intellectual property rights, especially when an intellectual property right actually prevents extremely poor people from accessing basic means of survival. For example, this condition may apply in the case of patents on certain medicines. [26] It may also apply when patents on foodstuffs clearly lead to a deterioration of agricultural conditions in poor countries. The author believes that the Benevolent Attachment Condition may tend to be more in the realm of data property rights between developed countries of the Internet for less developed countries of the Internet, between head Internet companies for micro and small businesses, and between head companies for the population. The more developed countries of the Internet use their powerful technical

means to obtain the data convergence between countries to form a "data high ground" and "data monopoly" for small countries. First, these data advantages may result in "data asset plunder" between countries in the Internet domain, causing "data poverty" among nationals of the plundered countries and even suppressing the growth and development of their data-related enterprises. Secondly, for leading enterprises that actually control a large amount of data, they have a de facto data monopoly and can gain benefits from it. However, if there is a lack of effective regulation, data utilization will fall into the "law of the jungle", [27] triggering competition among enterprises for data resources. inducing the undesirable phenomena of "capricious growth" and "horse-racing" in data collection, and even suppressing the growth and development of their data-related enterprises. This has induced the undesirable phenomenon of "arbitrary growth" and "enclosure" of data collection, resulting in the suppression and even monopolization of small and micro enterprises and threatening their survival. Finally, when individuals are confronted with the excessive collection of personal data by enterprises, it is difficult for them to take effective countermeasures, and at the same time, they are unable to obtain fair and reasonable economic benefits from their own data. In addition, the lack of adequate protection measures for personal data security by enterprises has led to a continuous increase in the risk of data leakage. Businesses internalize the profits from data, but externalize the negative impacts of data use (e.g., privacy breaches), making users the ultimate "scapegoats" for data breaches. [28]In Locke's view, these "plundered" and repressed In view. "plundered" Locke's these and suppressed rights must give way to the rights of the "data poor" to self-sufficiency in order to obtain the basic means of subsistence or necessities of life in the face of life-and-death crises faced by states, corporations, and individuals. In other words, these "plundered" subjects can claim certain data interests or rights of the "plunderers", or even incorporate them under their own rights.

#### **2.2 Explanation of the Justification of Data Property Rights Based on Kantian Theory**

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Kant noted that people have long tended to bring objects under their authority or control, and that in order to realize freedom, people must have the ability to set diverse goals and intentions for themselves. In order to achieve these goals, people need to have stable and sustainable claims on objects. According to Kant, people aspire to realize their personal plans on particular objects, and this gives rise to the concept of legitimate possession. In the Kantian concept of property, those who act according to their own will are at the center of it. [29] According to Kant, any object can be attributed to a person as long as that person projects his or her will on it. People aspire to extend their freedom and realize their desire to make plans in the world. Sometimes these plans require access to and control over external objects, and thus the concept of property is born.

Kant's understanding of property as a relation that is between a person and an object may come as a shock to modern scholars of property theory. The modern standard formulation of property is as an institution that regulates the relationship between persons. [30] The author argues that Kant's perspective is one that binds or centralizes the rights and duties associated with a given possession to a single person, the owner himself. He places individual plans and goals at the center of the whole process. Thus, placing his theory of property in the context of property rights is a creator's desire to fully impose his will on the objects he finds, and stable possession is essential. Working in a variety of media, such as canvas, white paper, and iPad, the artist gives form and life to the inspirations of his mind, and the artist needs to apply his own skills and judgments to the objects he discovers, stamping them with the will's own imprint on the objects and extending his right of possession, while these inspirations and images are intangible. Thus, Kant's theory of property rights applies equally to intangible objects. Kant aspired to maximize the space for individual free action and was convinced that this was the key to promoting the development of maximum human potential. This view led him to adopt a broad understanding of what can be assigned. As Kant himself expresses it, "the object of my will's choice is that which I am able to use physically." [31] Intangible objects should

therefore also rightfully be included within the possibilities of human appropriation, and data as incorporeal objects should also rightfully be included within that scope.

Drawing on Kant's ideas as the basis for modern data property rights, active property rights regimes enhance the independence of individuals with advanced skills, such as technologists in the fields of big data and artificial intelligence. This is because they provide a particular kind of technical input that is integrated into products produced by large companies, such as big data analytics tools, computer algorithms, and artificial intelligence applications. The innovation of these products is unprecedented, and they face an extremely broad market that can bring immeasurably large economic benefits. These types of highly skilled individuals working in independent businesses not only allow them to have more decision-making power over their own work, which leads to greater financial gains, but they also have greater control over their professional future, i.e., they realize a higher degree of autonomy. These data practitioners or large data organizations project their own will onto objects, i.e. data. They impose their own skills and judgments on the data, branding it with their own will. In order to be "autonomous", i.e., to develop and have greater freedom, to realize personal dignity and autonomy, these data practitioners or data enterprises need to have a stable and sustainable claim to the data, and from this is born the notion of lawful possession. Thus, they can realize legitimate rights over data, i.e. property rights.

#### 2.3 Explanation of the Justification of Data Property Rights Based on Rawls' Theory of Distributive Justice

Rawls designed moral principles to build a fair and just society. His ideas focused on the rights of each individual while emphasizing a just distribution of resources. Combining Kantian individualism with collective concern, Rawls proposed the following two main principles to define justice: first, everyone should have an equal right that enables them to have a similar system of liberties compatible with the broadest system of fundamental liberties enjoyed by everyone else. [32] Second, all people should have an equal opportunity to compete for positions and offices. These principles are designed to ensure that the distribution of resources and opportunities in society is fair in order to promote equity and justice in society as a whole. According to Rawls, such inequality is permissible only if it benefits the least beneficiaries. [33] This is often referred to as the principle of "maximal-minimal", or maximization of the minimum: inequality in society is acceptable only if it raises the minimum level, thereby benefiting the least happy.

Both principles contained in Rawls's theory are related to property rights. According to Rawls, in order to pursue one's particular life goals or broad life plan, an individual needs at least some degree of property. Thus, in his view, property is an integral part of what constitutes the fundamental freedoms that must be guaranteed in any just society. According to Rawls's first principle, property is considered fundamental and indispensable because it is intimately connected to the identity of the individual and is necessary for the realization of personal autonomy. While understanding property as part of Rawls's first principle may be seen by some scholars as a bit of a stretch, this understanding emphasizes the importance of property in an individual's realization of his or her self-goal. Yet even if not consistent with the first principle, data property rights are equally consistent with Rawls's second principle, which asserts that society should function in a way that maximizes the well-being of its poorest members. Many of the emerging data industries and their products actually provide direct benefits to the poorest members of society. Big data push and artificial intelligence technologies are highly valued by the lowest income groups because of the many benefits they bring to these individuals. These are the very people who are the least happy group that Rawls' second principle of fairness focuses on. [34]For example, data-driven shopping sites such as Taobao and Pinduoduo, where most of the merchants are direct producers of the products, often allow consumers to purchase products extremely cheaply under strong competitive pressure from the merchants, and these prices are often much cheaper than purchasing them from offline brick-and-mortar stores; and the rapid development of smartphones has the fragmented spawned The rapid

development of smartphones has led to the development of fragmented information applications, such as Jitterbug and Shutterbug, which allow many people in low-income brackets to enjoy certain entertainment products or benefit from certain technologies. Low-income people can quickly access the latest information and news on these down applications. which breaks the information barriers for them. This is quite convenient compared to the traditional television and newspaper industries. The exposure and response to social issues is also more rapid, when a new social issue is discovered, it is often first issued by the publisher of the short video platform and these issues are often quickly responded to by the relevant authorities once issued. Overall, these data industries and innovations bring a net positive value to the lives of the poorest, in line with Rawls' second principle of fairness, bringing indelible benefits to the poorest classes. fully embodying and the "maximization of the minimum". Thus, the granting of property rights to data is not only justified and highly rational, but also provides a significant contribution to the promotion of social distributive justice.

#### **3. Jurisprudential Perspectives on Property Rights in Data**

Although in the previous section we argued for the theory and practical legitimacy of data empowerment in terms of Locke's labor property theory, Kant's Germanic projection theory, and Rawls' theory of justice. However, it is still doubtful whether data possesses the characteristics that constitute property in traditional civil law. If it possesses the elements that characterize property, can it be elevated to the status of a right? If these conditions are met, what kind of property rights should be granted to data? These questions need to be further analyzed after the justification of data empowerment. With the evolution of the times, the meaning of property is also changing. In Roman law, property mainly refers to physical objects. However, with the industrial revolution and scientific and technological progress in modern Europe, intangible property such as intellectual achievements were gradually recognized as part of the category of property. The Intellectual Property Strategy Outline issued

by Japan suggests that information property and intellectual property are synonymous, and that it is an extension of intellectual property. Data, which is essentially information, is an extension of intellectual property and, unlike ideas and consciousness, is an object that exists objectively and basically has the characteristics of property: value, scarcity and disposability.

### 3.1 The Value of Data

The value of data refers to the importance and utility of the information contained in the data for achieving a particular goal or solving a particular problem. The value of data can be manifested in a number of ways. First, data has direct economic value as an asset and resource. For example, through insight services provided by data analytics, data-driven advertising, or by selling data directly. By analyzing and leveraging data, businesses and organizations can identify new business opportunities, optimize business processes, improve efficiency. and reduce costs. thereby maximizing economic value. Second, data also has significant value for decision making. Data provides organizations or individuals with fact-based decision support. By analyzing data, trends, patterns and correlations can be revealed to help make more informed decisions. Further, data also has significant value in driving innovation and growth. Data can be used to understand customer preferences and behaviors so that personalized products, services, or content can be offered to enhance user experience and satisfaction. Through data analysis and mining, new patterns, trends and patterns can be identified, thus providing reference and guidance for the development of new products and services. Finally, data has social value and can promote social development and improve people's lives. Through data analysis and application, social problems can be solved, public services can be improved, and the quality of life can be enhanced. For example, the use of big data analysis can achieve the optimization of urban traffic, monitoring of environmental pollution, and rational allocation of medical resources. thus promoting sustainable urban development and social justice. Value is the first condition for the material reality of nature to become a thing in civil law.

"In the civil law system, an object is defined as

an object that possesses a specific use value and satisfies a specific social need. This means that objects that have no use value do not qualify as thing's in the legal sense. [35] Extending from the characteristics of tangible objects to the identification of intangible property, data that do not have use value cannot become data in the legal sense. Not only domestic judicial cases have highly recognized the value of data. For example, in "Shanghai Hantao Information Consulting Co., Ltd.and Ai Gang Juxin (Beijing) Technology Co. The courts in Taobao v. Meijing held that the network service providers had invested a great deal of human and material costs in collecting, organizing and summarizing the data, and that the data had great commercial value and was crucial to their business strategies. And the valuable nature of the data itself may implicate larger economic tragedies that affect the whole world. For example, Yale University School of Management Professor of Economics Gary B. Gorton (Gary B. Gorton) provided to the insurance sector indicator enterprise American International Group (American International Group, abbreviated as AIG) on credit default swap (credit default swap, abbreviated as CDS) risk data analysis model failure is considered to be the cause of the occurrence of the 2007-2009 financial crisis. The failure of the credit default swap (CDS) risk analysis model provided by Gary Borton to American International Group (AIG), an indicator of the insurance industry, has been recognized as one of the major causes of the global financial crisis of 2007-2009 and the subsequent Great Recession. [36]

#### **3.2 Scarcity of Data**

Article 127 of the Civil Code uses the phrase "Where the law provides for the protection of data and network virtual property. In accordance with its provisions" will be a one-off, but at this stage of China's data is not legislation, enough to positively illustrate the data in the legal level of exclusivity has not yet been recognized, and due to the non-exclusivity and non-exclusivity of the data, most scholars believe that it does not have the characteristics of the scarcity of the author believes that its viewpoint there is a fallacy. Although data has become abundant and diverse in the digital age, data of a specific type or for a specific purpose may still be

scarce. Scarcity of data may come from a number of sources: first, for some specific research fields or industries, relevant data may be very limited. This may be due to the high cost of collecting such data, technical difficulties or poor accessibility of data sources. Second, patent data, trade secret data, etc. may be protected by laws and commercial contracts that prohibit access. Further. although the volume of data is huge, high quality, accurate and complete data are still scarce. The high cost of data collection and maintenance, coupled with the diversity and complexity of data sources, results in high-quality data not being easily accessible. Finally, in some cases, real-time or up-to-date data are important, but access to these data may be subject to technical limitations or cost constraints, making real-time data scarce. "In recent years, disputes over data ownership have begun to appear frequently in litigation and have attracted a great deal of attention from society, which may in fact reflect a challenge to the concept of "data scarcity". If data is not a scarce resource, then what exactly are the companies that sparked the controversy after?" [37] In a legal sense, the determination of data scarcity is primarily based on supply and demand. The conflict between supply and demand has become increasingly prominent due to factors such as differences in the data processing and development capabilities of various parties, the uneven distribution of data resources and the vast data divide. As a result, data are characterized by scarcity of property.

#### 3.3 Availability of Data

Data are disposable. Even though valuable and scarce, "if data, like the sun, the moon, the stars, etc., cannot be physically controlled and disposed of by human beings, it cannot be the object of a civil legal relationship", [38] but the development and emergence of means of controlling data has made the control and disposal of data a reality "and distinguishes it from data controlled by others, and becomes the object of property rights". [39] The development and emergence of means of controlling data has also made it possible for data to be controlled and disposed of by human beings. property, as distinguished from that controlled by others, becomes the object of a property right". For example, DTP programs created by internet service providers

such as Apple, Facebook, Google, Microsoft, and others enable individuals to have free reign over the transfer of data between online platforms. [40] First, different legal and policy frameworks have a direct impact on the disposability of data. For example, the European Union's General Data Protection Regulation (GDPR) enhances an individual's right to control his or her data, including the right to data access, deletion, and more. These legal frameworks define the rules for how data can be used, shared, and transferred. Secondly, the availability of data also depends on the authority and manner in which the data is used, covering a wide range of aspects such as analysis, processing, storage, and presentation of the data. Determining ownership and control of data is key to understanding data disposability. The data owner or user can freely use and apply the data according to his or her needs and goals, thus maximizing the value of the data. Third, data availability also includes the degree of data sharing. The higher the degree of data sharing, the more dominant the data is. From Locke's theory of labor and property, Kant's theory of will projection and Rawls' theory of justice, data meets the value, scarcity and disposability of the three sexes, and thus can become property, but because of its strong circulation more need to use the power of the law to control the property to be included in the scope of private law, and then realize the purely "legal possession "Legal Possession".

## 4. Rights Construction of the Property Right to Data

Based on the need for the protection of data property rights and its uncertainty, after arguing for the basis of its legitimacy and the nature of its rights, what needs to be answered further is how to exercise its rights, so as to implement the role of its power, and give full play to its function of safeguarding the rights and interests of individuals and realizing the freedom of data and information flow. From the standpoint of legal interpretation theory, it is necessary to clarify the elements of its rights, the subject, object and content of its rights, and to show the complete structure and power of its rights.

## 4.1 Subjects of the Right to Property Rights in Data

Regarding the subject of data property rights, the "data producer theory" holds that whoever produces the data is the right holder; [41] the "data controller theory" holds that whoever controls the data is the right holder; [42] the "data originator theory" holds that the rights should be vested in the data originator, proposing a dual structure of ownership and usufruct, and that data platform enterprises should be given ownership of personal data of data originating users; [43] and some hold that data platform enterprises should be given ownership of data. "that the rights should be attributed to the data originator, proposing a dual structure of ownership and usufruct, and that the data originator should be given the ownership of personal data, while some believe that the data platform enterprises should be given the usufruct of data; [44] "State Ownership" believes that public data belongs to the national government, [45] for the purpose of data utilization, and that public data is owned by the national government. The "State ownership theory" holds that public data should be owned by the State government for the sake of more efficient and rational data utilization and more secure data resources. [46]

In the field of data, the subjects of rights usually include the following: (1) Individuals, as generators and owners of data, legally and ethically enjoy ownership of the data they generate. The individual to whom the data relates or describes is usually referred to in privacy protection legislation. Data subjects have various rights over their personal data. (2) Businesses and organizations that generate large amounts of data assets through their operational and management activities legally enjoy property rights over the data they generate. In regulations such as the EU's General Data Protection Regulation (GDPR), businesses, as data processors or controllers. have primary responsibility for data processing activities and must ensure that data processing complies with relevant laws and protects the rights of data subjects. (3) Government agencies generate a large amount of data, including statistical data, administrative data, and public service data, in the course of performing their public management and service duties. As the generator and manager of data, government agencies have legal ownership and can manage and use the data in

accordance with laws, regulations and policy requirements. The property right of data cannot be simply attributed to the above subjects, however, it cannot be denied that some subjects hold the data, similar to "possession" rather than "ownership" in the civil law system. Based on the theory of labor and property and the theory of will projection, the subject of data property right can refer to the setting of the subject of intellectual property right, and take "intellectual workers" as the subject of data property right, that is to say, including the natural person, legal person or unincorporated organization, including the state, who invests the labor and capital in the process of data processing. On this basis, natural persons, enterprises and the State may acquire corresponding rights to the data and data products in which they have invested their sweat and capital, with a view to realizing a reasonable allocation of data rights and promoting the development of the data industry.

## **4.2** Objects of the Right to Property Rights in Data

The object of data property rights is essentially data: however, not all data constitute the object of data property rights, just as not all "knowledge" is the object of intellectual property rights, and "intellectual property". [47] The object of data property rights, called "data property", is different from tangible objects in the usual sense of property law. "Data property" is different from tangible objects in the usual sense of property law. It refers to information or data that is an intangible asset that, from a legal perspective, is separate and distinct from the original form of personal information. More accurately, it refers to those data collections or data products with specific functions or utilization value, which become the object of legal protection due to their uniqueness and application potential. [48] Specifically, it refers to the property rights and interests formed by data workers in the production of their labor through use, processing, etc., including data resources and data products.

Firstly, data, as the object of the right to data property rights, is the core object of data property rights. Data can be structured or unstructured information, covering a wide range of forms such as text, numbers, images, sound, video and so on. The importance of data lies in the fact that the information it contains can be processed, analyzed, and applied to generate value. Firstly, personal social media activity data can be used for user profile analysis, providing the basis for personalized recommendations and having commercial value. Secondly, the object of the right to data property rights also includes products and services derived from data, i.e. data derivatives. It belongs to or is generated, collected or held by a business, organization or government agency, which may include internal reports, financial data, operational data, etc., and whose protection is aimed at maintaining commercial confidentiality and operational efficiency. They are new products and services based on processing, analyzing, mining and other treatments of the original data. Further, data-related information is one of the right objects of data property rights and refers to metadata and additional information associated with the data itself. This information includes those more sensitive information about an individual's ethnicity, religious beliefs, health status, sex life, biometric or genetic data, etc. Sensitive data is usually subject to stricter legal protection, requiring higher levels of processing and protection measures. Finally, the objects of the right to data property rights also include data generated by government or public bodies and potentially open to the public, such as laws, policies, public records and statistics. Open access to public data is intended to promote transparency and democratic participation. These rights are usually controlled and managed by the government to ensure the security and legitimate use of the data. The value and benefits of data can be maximized through the sale, licensing and collaboration of data.

# 4.3 Content of the Right to Property Rights in Data

Due to its unique "non-competition" and "incorporeality", there is a great deal of debate in the academic community as to what kind of rights should be included in the content of data property rights. Most scholars believe that the right content of data property rights should be designed with reference to the property rights system. For example, some scholars believe that data property rights should be designed with reference to the right structure system of ownership, and that "data laborers" or data operators can exercise the four major rights of possession, use, income and disposal of the data and data derivatives in which they have invested their money and time; [49]other scholars classify the rights of data property rights into positive and negative rights, and further divide the rights of data property rights into two categories: positive and negative rights. and from the perspective of the two powers, further proposed the right to control, storage and utilization, revenue, data property defense claims [50] and other rights.

The content of the right to data property rights is multifaceted, the author believes that it includes the right to hold, the right to use, the right to protection and the right to compensation in four aspects: (1) the right to hold, also known as the right to control, is the right of the right holder of a particular data property actual control and exclude others from interfering with the power. Since data cannot be physically "possessed" like physical objects, but can be "held" by technical means, the data holder has the right to decide how to use, manage and dispose of the data. The essence of the right of control is to ensure that the use and processing of data can be in line with the owner's wishes and interests, is the basis and premise of the data property right, to maintain the data property right holder's ability to control a particular data property. (2) The right to use the property, allowing it to use, process and utilize the data within a certain scope. The right of use includes operations such as accessing, viewing, downloading, modifying and disseminating data, which need to be exercised under the premise of legal compliance. The right to use gives the data owner the ability to utilize his or her data for a variety of activities, which may varv depending on the nature of the data, legal constraints or other relevant agreements. The right to use shall also include the right to authorize others to make use of the data. The data owner may authorize the use of his or her data to other persons or organizations according to his or her wishes and needs. including both paid and unpaid authorization. (3) The right to protection, the right to protection of data is an important safeguard to ensure the security and legitimate use of data, storage, involving data transmission,

processing and other aspects of the need to take appropriate security measures and management measures to protect the integrity, confidentiality and availability of data. Protection rights include, but are not limited to, contractual protection, technical protection, protection of intellectual property tools, and when data property rights are infringed upon, the data owner shall have the right to pursue compensation or indemnification through legal means. (4) The right to compensation, the right of the right holder to pursue responsibility and compensation from the infringing party. The right to compensation of data is an important means to protect the legitimate rights and interests of data, which can be defended through civil litigation, arbitration, mediation and other means to safeguard their legitimate rights and interests. The right to compensation compensation, includes just punitive compensation, and restitution. The exercise of the right to compensation helps safeguard the legitimate rights and interests of data owners and users and promotes the effective and protection of implementation data property rights.

#### 5. Conclusion

In this era of big data, the value of data is incomparable, and even becomes the key to the survival of an enterprise. Data is increasingly becoming an important asset, and in the information society with the Internet as the base and digital technology as the core carrier, the importance of data has been widely emphasized by all parties. Data property rights as a with new type of property rights, under the guidance of the Civil Code can be certified. Personal autonomy can only be realized when individuals are clear about their data ownership. The protection of data property rights still faces many challenges and difficulties, and needs to further strengthen the research and exploration, and constantly improve the relevant laws and regulations and policy measures, to promote the healthy development of the data industry and innovation and prosperity. So far, we should continue to pay attention to the latest developments and development trends in the field of data property rights and their legal protection, deeply explore the theoretical and practical issues of data property rights, promote the in-depth development of data

property rights protection, and make greater contributions to the sustainable development of the data industry and the prosperity of the society and economy.

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