

# Восстановление регистрации прав собственности на данные: практические проблемы и институциональная адаптация на основе аналогии с интеллектуальной собственностью

## Reconstructing Data Property Rights Registration: Practical Challenges and Institutional Adaptations Based on Intellectual Property Analogy

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**Аннотация.** В статье рассмотрены проблемы построения инфраструктуры данных. Приняв за основу логику управления системой регистрации интеллектуальной собственности, авторы предлагают перестроить систему регистрации данных по следующим основным направлениям: четкий охват объектов, иерархическая эффективность, различия в сценариях и динамическое обновление.

Авторами разработаны три типа механизмов повышения эффективности, а именно: тип депонирования, тип защиты и тип создания прав, которые адаптированы к различным этапам использования и цели требования. В то же время система управления способствует переходу от децентрализованной локальной регистрации к единому национальному праву на реализацию взаимного признания системы и функциональной совместимости платформ в ответ на реальную дилемму управления и обеспечение эффективного потока элементов данных в цифровой экономике. В то же время с точки зрения системы управления это способствует переходу от местной децентрализованной регистрации к национальному унифицированному подтверждению прав для достижения взаимного признания и функциональной совместимости платформ, чтобы решить реальную дилемму управления и обеспечить эффективную циркуляцию и высвобождение ценности элементов данных в цифровой экономике.

**Ключевые слова:** регистрация данных, эффективность регистрации, возможность регистрации, права собственности на данные, регулирование поведения

**Abstract.** In the construction of data infrastructure system, data registration assumes the basic function of improving the effectiveness of governance and promoting the circulation of elements. In the pilot and exploration of data registration system in different places, the rules of intellectual property registration are often directly applied, ignoring the non-homogeneity, dynamics and scene-dependence of data, which leads to insufficient adaptation of the system.

*Taking the governance logic of the intellectual property registration system as reference, it is proposed that the data registration system should be reconstructed with the following core paths: clear scope of objects, hierarchical effectiveness, scenario differences, and dynamic updating.*

*The data collection is the only eligible object, and three types of effectiveness mechanisms are constructed, namely, deposit-type, defence-type and right-creation-type, which are adapted to the different stages of use and the purpose of the claim; at the same time, the governance system promotes the move from the decentralised local filing to the national unity of the right to realise the mutual recognition of the system and the interoperability of the platforms in response to the reality of the governance dilemma, and to achieve the efficient flow of data elements in the digital economy. At the same time, in terms of governance system, it promotes the transition from local decentralised filing to national unified right confirmation to achieve mutual recognition and platform interoperability, so as to respond to the real governance dilemma and achieve the efficient circulation and value release of data elements in the digital economy.*

**Keywords:** data registration, registration effectiveness, registration capacity, data property rights, behavioural regulation

## 1. Introduction

In December 2022, the Central Committee of the Communist Party of China (CPC) and the State Council issued the Opinions on Building a Data Base System to Better Play the Role of Data Elements<sup>1</sup>, which explicitly put forward the establishment of a system covering the whole life cycle of data, with “data property rights, circulation and trading, benefit distribution, and security governance” as the core. Among them, “data registration” has been mentioned many times as an important part of the basic system construction, aiming to improve the level of data governance and the efficiency of factor circulation through the registration mechanism.

In recent years, local intellectual property offices, data management organisations and other departments have been actively exploring data registration models that meet the development needs of their respective regions, including data asset certificates, data resource notarisation, data intellectual property rights registration and other forms. Among them, the use of data intellectual property rights registration mode is relatively more<sup>2</sup>, through the data analogous to patents, copyrights, trademarks and other intangible property objects, directly invoke the intellectual property rights system in the entity, the procedure and the effectiveness of the specific rules of the data registration<sup>3</sup>, this “first analogical” path has the reality of convenience, but in practice This “first analogy” path is convenient in reality, but in practice, it exposes a lot of problems: first, the reg-

istration system is mostly based on the centralised authorisation operation mode, without distinguishing the circulation characteristics of different types of data, which makes it difficult to support flexible and diversified use scenarios; second, it is a direct copy of the rules of the property or intellectual property system, which ignores the non-substantiality, reproducibility and multi-subjective sharing characteristics of data, resulting in the registration of empty content, ambiguity of the definition of tenure, and difficulties in the articulation of transactions.

In the face of the complex needs of the new stage of data elements market construction, the construction logic and goal of data registration should be clarified from the system function. On the basis of identifying the systematic dilemma existing in practice, exploring the registration system with data characteristics as the core, helping to construct a more scientific, reasonable and effective data registration system, in order to promote the efficient circulation of data elements.

## 2. Data property rights with reference to the basic institutional logic of intellectual property registration

In the intellectual property rights registration system in the long-term development, the formation of the intangible property to confirm, mark and circulation of the use of a whole set of mechanisms, which for the formation of the data registration system provides an

<sup>1</sup> Central Committee of the Communist Party of China and the State Council: ‘Opinions on Building a Data Base System to Better Play the Role of Data Elements’, issued on 19 December 2022, Article 3 // Chinese government website. URL: [https://www.gov.cn/zhengce/2022-12/19/content\\_5732699.htm](https://www.gov.cn/zhengce/2022-12/19/content_5732699.htm) [accessed: 12 April 2025].

<sup>2</sup> The State Intellectual Property Office (SIPO) mentioned in a press conference on 29 March 2024 that 17 provinces and municipalities across the country have carried out pilot work on data intellectual property rights (IPRs), and that another non-pilot province, Hainan Province, has also promulgated the Measures for the Administration of Data Intellectual Property Rights Registration (for Trial Implementation) // URL: <http://cnmzppw.com/tv/20240329175659.html>.

<sup>3</sup> Zhang Suhua. Systematic Construction of Data Intellectual Property Rights Registration System [J] // Global Law Review. 2025. № 47 (04). P. 53—70.

important reference. And reference to the key does not lie in the form of application, should focus on the system goal, summarised to support the basic logical principles of data rights and circulation, and will be throughout the subsequent registration system in the specific construction.

### 2.1. Cracking the obstacles of ownership ambiguity and circulation

The reference of data registration to intellectual property registration system is essentially a functional migration of intangible property governance tools rather than a mere application of rules. Returning to the legislative origin, whether it is the intellectual property system or the proposed data registration mechanism, both of them to crack the “ownership ambiguity and circulation barriers” as the starting point of the original demand. At a stage when intangible objects have not yet been formally recognised by the law, the lack of legal form often means that exclusive claims cannot be established, thus exacerbating order uncertainty and inefficient resource allocation<sup>4</sup>.

Taking the evolution of the patent system as an example, from being a licensing tool to the modernisation of the property rights system, at all times, its original purpose was not to directly protect the technology itself, but to guide the fruits of invention into a governable legal track through institutional arrangements. As Boyster points out, “The modern patent system was established to create a dynamic balance between knowledge sharing and market incentives, allowing innovations to be granted exclusive use rights for a certain period of time, while facilitating their return to society”<sup>5</sup>. The core of the system is to give legal recognition to inventions by registering them, transforming them from abstract knowledge to “objects of rights” with exclusivity and circulation<sup>6</sup>. In the context of data governance, Article 127 of the Civil Code lists “data” as a new type of object in the abstract, but does not make substantive provisions on its ownership, types and boundaries, which makes it difficult for data to enter the transaction system as a clear legal object, and leads to a lack of security expectations and exclusivity for users. From this point of view, although different objects are orientated, their system functions and value objectives are highly consistent.

### 2.2. Achieving the balance between private rights and public interests

According to Locke’s classic argumentation path of “obtaining the right of property by labour”, all the fruits produced by human beings intervening in nature with their own labour can be claimed as legal property domination<sup>7</sup>. Although the data is an objective information expression carrier, but from the collection, cleaning, labeling to integration, analysis of the whole process, almost invariably cohesion of human capital and technical resources of the composite input, which also constitutes the right to claim the right of the right of the right holder of the right to a legitimate basis<sup>8</sup>. In the case of Shanghai Hantao Information Consulting Co., Ltd. v. Beijing Baidu Netcom Technology Co., Ltd. and Shanghai Jetto Software Technology Co., Ltd. v. Beijing Baidu Netcom Technology Co., Ltd. v. Beijing Baidu Netcom Technology Co., Ltd. and Shanghai Jetto Software Technology Co., Ltd. v. Beijing Jetto Software Technology Co., Ltd. and Shanghai Jetto Software Technology Co., Ltd. v. Beijing Jetto Software Technology Co., Ltd. and Shanghai Jetto Software Technology Co. In the judgement, the court specifically pointed out that if others were allowed to use the data without compensation, it would “undermine the return mechanism of legitimate market input” and would not be conducive to “encouraging commercial input, industrial innovation and honest operation”. The logic of this judgement is highly consistent with the basic idea of “achieving incentive effects through exclusive protection” in the intellectual property system.

## 3. Practical Dilemmas of Data Registration with Reference to Intellectual Property Registration

### 3.1. Object of Registration: Mixed Objects and Confusing Definitions

In the current practice of data registration, the confusion of the scope of registered objects is the primary obstacle to the realisation of its functions. In some areas, no distinction is made between original data, processed data and derived results, and all types of results are included in the unified registration system, resulting in the mixing of objects and the blurring of boundaries. For example, in the

<sup>4</sup> Handong W. U. General Introduction to Intellectual Property Rights [M] // Renmin University of China Press. 2013. № 08. P. 504.

<sup>5</sup> Boehm Franziska. Information Sharing and Data Protection in the Area of Freedom, Security and Justice Towards Harmonised Data Protection Principles for Information Exchange at EU-level [M]. Springer, 2012.

<sup>6</sup> Bently Lionel & Sherman Brad. Intellectual Property Law [M]. Oxford University Press, 2011.

<sup>7</sup> Yang Dong, Li Zishuo. The Functional Logic and Institutional Construction of Data Registration Based on the Perspective of “Interest-Rights” Symbiosis [J] // Journal of Renmin University of China. 2024. № 38 (05). P. 114—127.

<sup>8</sup> See: Shanghai Hantao Information Consulting Co. v. Beijing Baidu Netcom Technology Co. and Shanghai Jetto Software Technology Co. unfair competition dispute case, Shanghai Intellectual Property Court (2016) Shanghai 73 min final 242 judgement.

“Pilot Registration of Data Elements in Wuxi City, Jiangsu Province”<sup>9</sup>, the platform accepts the registration of data resources, data products and algorithmic services as a whole, without distinguishing between raw data and processed data, and without clarifying whether it is the data itself that should be registered or the associated rights to use, process, process, or other data that should be registered. There is no distinction between raw data and processed data, nor is it clear whether the data itself or the specific rights and interests attached to it, such as the right to use and the right to process, are to be registered, resulting in the registration results not being able to clearly reflect the basis of ownership and the lack of a clear basis for the subsequent claims. In contrast, intellectual property registration systems set clear limits on the type of object, such as patents, which require novelty, creativity and utility of the technical solution, and copyrights, which emphasise the original expression of the work. The typology and logical arrangement of the basic characteristics of the “object of registration” is a prerequisite for ensuring the identification, exclusivity and circulation of rights. If data registration lacks a typology of objects and a hierarchy of rights, the registration system may be reduced to a formal filing tool.

### 3.2. Registration Effectiveness: Single Mechanism, Lack of Type Adaptation

At present, data registration around the general adoption of a unified registration effectiveness path, not according to the type of data differences and changes. Taking “Sichuan Data Exchange Registration Platform”<sup>10</sup> as an example, the act of registering all types of data is regarded as “confirming the right”, but it is not clear whether the registration has the effect of defence, whether it excludes others from using it or whether it constitutes the publicity to the third party, which leads to the legal effect of the registration. The legal effect is ambiguous. In contrast, the intellectual property system at is designed to have different effects. Registration of copyrights is voluntary and the effect is in favour of proof, while registration of patents and trademarks is based on a system of effective registration, with both exclusionary and defensive effects. Data resources themselves are characterised by multiple types and complex circulation methods, covering different dimensions such

as original data, derivative data and public data, etc. If uniform procedures are used to give homogeneous legal effects, it is easy to cause false confirmation of rights, repeated claims and even abusive registration. Especially in open application scenarios such as data sharing and authorised use, forcible confirmation of rights may, on the contrary, fetter the flow of data.

### 3.3. Registration standards: different platforms and different standards

The current management of data registration is decentralised and lacks a unified and coordinated institutional structure. There are many registration platforms with different standards, forming a typical situation of “multiple operations and overlapping responsibilities”<sup>11</sup>. On the one hand, some local government authorities have set up administrative platforms, such as the “Data Rights Establishment and Registration Platform” set up by the Beijing Municipal Data Bureau in cooperation with the Beijing Property Rights Exchange<sup>12</sup>, which focuses on the rights establishment and asset management of state-owned data; on the other hand, a number of local data exchanges and technology platforms have also set up their own registration systems, such as “Guangdong, Hong Kong and Macao Greater Bay Area Data Element Registration Platform” (Shenzhen)<sup>13</sup> and “Yangtze River Delta Data Registration Platform” (Shanghai Data Exchange)<sup>14</sup>, which are geared towards regional circulation and market transaction needs respectively.

Due to the lack of unified registration specifications and mutual recognition mechanism, there are differences between the platforms in terms of registration content, review process, effectiveness design, etc., resulting in duplicate registrations, conflicting standards, and difficulty in interoperability of registration results, which affects the unity of the data element market. It not only affects the credibility of the registration system, but also is not conducive to the cross-regional data circulation and the application of the results of the confirmation of rights. In contrast, intellectual property registration has the system advantages of the establishment of a national competent authority, the registration effect of the national application, the data field needs to learn from this centralised coordination model, to build a unified registration structure and platform interoperability mechanism.

<sup>9</sup> Regulations on Data in Wuxi City // Xijiang Reg. 2025. No. 7.

<sup>10</sup> Measures for the Registration of Data Intellectual Property Rights in Sichuan Province (for Trial Implementation) // Sichuan Municipal Supervision and Development. 2024. No. 8.

<sup>11</sup> Yang Dong, Li Zishuo. Op. cit.

<sup>12</sup> Beijing Municipal Intellectual Property Office. Notice on the Issuance of Administrative Measures for the Registration of Data Intellectual Property Rights in Beijing (for Trial Implementation) [Z]. 2023-05-31.

<sup>13</sup> Interim Measures for the Administration of Shenzhen Data Property Rights Registration // SZDRR. 2023. No. 5.

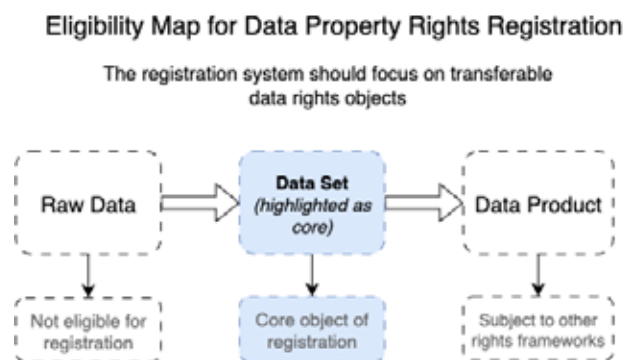
<sup>14</sup> Shanghai Municipal Data Regulations // Shanghai People’s Congress Standing Announcement. 2021. No. 94.

## 4. Dilemmas of Data Registration and the Development of Applicable Rules

Although the aforementioned intellectual property registration system provides an important reference for data registration in terms of governance logic and path, the practical dilemmas revealed in Part III indicate that the diversity, dynamism and strong scene dependence of data make it difficult to directly reuse the logic of the original system. The basic rules and application direction of registration should be redesigned according to the way of using data and the division of rights.

### 4.1. Object classification: clarifying the boundary of circulating data

The current data registration in the object of mixed, unclear boundaries, there is an urgent need to clarify what kind of data has as the object of registration eligibility<sup>15</sup>. From generation to circulation, data can be broadly divided into three forms: raw data, data collection and data products (see Figure)<sup>16</sup>.



Raw data is the basic information after preliminary processing in the collection process, with the characteristics of single article, unstructured and value dispersion, etc. It does not have the ability to circulate in the market, so it is difficult to be the object of independent registration. Data collection is made on the basis of raw data through screening, cleaning and structuring, and is the most suitable core object for rights registration. Data products are tools, models or information services derived on the basis of the collection, which should be protected according to the nature of the existing system of copyright, patents, trade secrets and other systems, and it is not appropri-

ate to set up another type of registration. Therefore, data registration should focus on the data collection as the only eligible object for registration. Being at the center of the data value chain, it can be used for circulation transactions and is also the focus of disputes over ownership, so its registration can help to guarantee the stability and security of data use.

### 4.2. Effectiveness Adaptation: Constructing a Layered Registration Mechanism

At different stages, the legal functions and usage objectives carried by “data collections” are not entirely consistent<sup>17</sup>. In order to change the status quo of one-size-fits-all design of registration effectiveness, a tiered effectiveness system oriented to the data life cycle should be constructed<sup>18</sup>. First of all, deposit-type registration is mainly applicable to the data collection is still in the “confirmation of attribution” stage of the scenario, such as scientific research data, the platform initial collection of data, etc., the purpose is to provide time stamps to prove attribution, to provide credible proof for the subsequent claim of ownership, and does not directly give the exclusivity of the effect. Defensive registration applies when the data collection has entered the market circulation such as authorisation, sharing or trading, and the registration act can be regarded as the “presumptive basis” for the right attribute at this stage, so that the registrant can have lawful confrontation effect in the face of third-party disputes, and enhance the market trust and transaction security. The right-creation type registration focuses on structured data collections with certain creativity and technical value, such as algorithm training sets, standardised data interfaces, etc., which can be granted the exclusive right of use after meeting the examination threshold, and set the term of protection, so as to promote the input of data innovation.

### 4.3. Registration system: centralised architecture and mutual recognition mechanism

Given the current fragmentation of data registration platforms, the lack of uniform registration standards, and the difficulty of mutual recognition of the results of confirming rights, it is necessary to establish a unified and coordinated management mechanism at the national level<sup>19</sup>. It is recommended

<sup>15</sup> Zhang Long, Jiang Yue. On the Construction of Data Asset Registration System [J] // Yangtze River Forum. 2024. № 6. P. 57—66.

<sup>16</sup> Wu Teng. Rational Utilisation of Data Resources and Property Construction [J] // Tsinghua Law. 2023. № 17 (01). P. 154—171.

<sup>17</sup> Sun Ying. Study on the basic problems of data property rights registration [J] // China Jurisprudence. 2025. № 1. P. 150—169. DOI:10.14111/j.cnki.zgfx.2025.01.007.

<sup>18</sup> Liu X. The normative rationale and institutional structure of data intellectual property rights registration [J] // Journal of Huazhong University of Science and Technology. Social Science Edition. 2025. № 39 (02). P. 90—98. DOI:10.19648/j.cnki.jhustss1980.2025.02.10.

<sup>19</sup> Deng Shemin, Wang Zhiwen. Institutional Reconstruction of Data Intellectual Property Registration in Authorised Operation of Public Data [J] // Journal of Shenzhen University. Humanities and Social Sciences Edition. 2024. № 41 (06). P. 93—102.

that a national data bureau or intellectual property authority take the lead in formulating unified registration specifications covering object classification, validity types and process standards, and setting up a centralised data registration platform<sup>20</sup> to serve as the institutional hub and authoritative carrier. In terms of operation structure, the mechanism of “centralised formulation-local acceptance” in the field of intellectual property can be taken as reference, whereby the central government specifies the examination rules, tenure classification and technical standards, and the local government establishes a registration window according to the characteristics of the industry, accepts the applications and summarises the results to the nationwide unified database simultaneously. Strengthen the interconnection and mutual recognition mechanism between different platforms to avoid the backlog of “duplicate registrations” and “conflicting standards”. In terms of technical means, blockchain can be used to realise tamper-proof certification of registration information, and smart contracts can be embedded in the compliance obligations and transaction boundaries of data use, so as to enhance the traceability and automatic verification of registration information. From “local filing” to “centralisation”, the data registration system will be unified and sustainable.

## 5. Conclusion

In the context of the new era of data factorisation and governance, the establishment of a scientific, reasonable and dynamic data registration system is not only the core task of the construction of the data foundation system, but also a prerequisite guarantee for the promotion of data assetisation and marketisation. The intellectual property rights registration system provides an important reference and reference for the registration of data property rights, but the direct transplantation is difficult to meet the needs of data characteristics. Based on the ontological characteristics and governance needs of data, this paper proposes the solution path of “object typology, hierarchical effectiveness, and system centralisation” to respond to the non-homogeneity of data objects, the plurality of governance goals and the dynamics of the technological environment. In the future, we should promote unified data registration legislation at the national level, build a cross-platform, cross-scene and cross-border registration and mutual recognition system, and realise the synergistic evolution of the nested system, so as to realise the lawful and orderly circulation of data resources, and to promote the data elements to truly play the “multiplier effect” in the era of digital economy.

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<sup>20</sup> *Tang Zhenyou*. Institutional logic and improvement of data intellectual property registration [J] // Intellectual Property Rights. 2024. № 3. P. 34—53.