WEP Warwick Evans Publishing

International Journal of Social Sciences and Public Administration

ISSN: 3005-9836 (Print), ISSN: 3005-9585 (Online) | Volume 5, Number 1, Year 2024
DOI: https://doi.org/10.62051/ijsspa.v5n1.18
Journal homepage: https://wepub.org/index.php/IJSSPA/index

The Legal Dilemma and Coping Path of Satellite Navigation Data Transaction

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ABSTRACT

With the improvement of navigation technology, the navigation system has become an important spatial infrastructure in China. Navigation systems are also widespread in all aspects of our lives. Satellite navigation data has become an important driving force for Chinas economic development. The emergence of more and more satellite navigation data, but also increases the difficulty of satellite navigation data protection. Shanghai has proposed to establish a satellite data trading platform. However, the legal protection of satellite navigation data transaction still faces many obstacles. One is that the current legal system does not have clear provisions on the protection of satellite navigation data. Second, the restriction of commercial behavior and practice on open satellite navigation data. Therefore, through the analysis of Chinas current legislation, it is put forward the type protection of satellite navigation data, and to clarify the structure and responsibilities of the satellite navigation data.

KEYWORDS

Satellite Navigation Data; Data Transaction; Data Property Rights.

1. INTRODUCTION

The Global Navigation Satellite System (Global Navigation Satellite System, GNSS) is an advanced space-based radio navigation and positioning system that provides users with all-weather three-dimensional coordinates, speed and time information on the earths surface or at any point in near-Earth space.

At present, there are four satellite navigation systems in the world: Chinas Beidou Navigation Satellite System (BDS), Russias Glonas Navigation Satellite System (GLONASS), the United Statess Global Positioning System (GPS), and the European Unions Galilo Navigation Satellite System (Galileo). Among them, GPS in the United States has the earliest development, the highest maturity, and the deep development of commercial applications. Glonas satellite navigation system in the 1990s to realize the global network, but due to the influence of the collapse of the Soviet union and the Russian recession, once have not enough money for satellite complement network, at least orbit satellite, 20 10 years gradually restore global service ability, due to the unique coding system, system overall anti-interference, stronger emergency has potential security advantage. The Galileo satellite navigation system is still in the process of construction, the civil accuracy is good, but the system stability and reliability is poor.

With the completion of the Beidou satellite, Chinas mass consumption, sharing economy, social life and other fields have been widely used. New models, new forms of business and new economy have been emerging, having a profound impact on the way of production and life of human beings. However, the current laws and regulations in our country is not sound, and has a general binding

regulations for principle and ambiguity clause, in practice, foreign satellite navigation data protection legislation is also for domestic space industry, directly applied to the scope of our country is difficult. Therefore, it is one of the feasible legal mechanisms of satellite navigation data to discuss the protection in the legal field.

2. SATELLITE NAVIGATION DATA AND ITS APPLICATIONS

The use of data was used as the classification criterion. It can be divided into navigation data, scientific research data, timing data and other application data. Navigation data refers to the information required by the satellite navigation system to provide users with location and navigation services. Beidou data has high precision, is not affected by terrain, environment and other factors, can obtain all-weather, uninterrupted data, and has important application value in civil aviation, land transportation, navigation, and other aspects. Time data is data for high-precision clock synchronization. The satellite system providing navigation and positioning services, which we call the GNSS system (Global Navigation Satellite System). The three core capabilities of GNSS, usually simply PVT, are Position (location), Velocity (speed), and Time (time). On each GNSS satellite, an atomic clock is equipped. This allows the transmitted satellite signal to contain precise temporal data. These signals can be decoded by a dedicated receiver or GNSS timing module to quickly synchronize the device with the atomic clock. Compared with long wave, short wave, network and other timing technologies, satellite timing technology accuracy is higher. Take Beidou for example. The time of the Beidou navigation satellite system is called the BDT. When BDT is an atom, it can be traced back to UTC and time difference with UTCThe preparation accuracy is less than 100ns. Scientific research data refers to the application of satellite navigation data used for scientific research, using satellite navigation data for data accuracy analysis, data quality analysis and orbit determination. Other data are other information applied in other fields, such as earthquake prevention and disaster reduction, and weather forecast.

Navigation data is divided into public data and authorized data. Public data is free and open data directed around the world. Authorized data refers to the customized data provided for a customer in need. Users around the world can access public data for free. Authorized data has a higher quality in terms of accuracy and reliability. So he needs to be authorized to use it. On the one hand, whether it is public data or authorized data, it is involved in national security, personal privacy and other legal issues, so it must be legally protected, otherwise, if data leakage, data theft, illegal use and other situations occur, it will bring great losses to the national interests. On the other hand, in the collection and processing of satellite navigation data, it costs a lot of manpower and material resources, and the cost is relatively high. Therefore, the illegal acquisition or use of satellite navigation data is an important content to ensure the security of satellite navigation data.

3. NECESSITY FOR SATELLITE NAVIGATION DATA

In 2022, the overall output value of the global satellite positioning system was about 500 billion yuan, an increase of about 6.8% over 2021. Among them, the core output value of chips, equipment, algorithms, software, navigation data, terminal equipment, infrastructure and other industries related to the development and application of satellite navigation technology increased by 5.05% compared with the same period last year, to more than 152 billion yuan, accounting for 30.50% of the total output value. Compared with the same period last year, the related output value driven by satellite navigation and services increased by 7.54 percent to more than 340 billion yuan, accounting for 70 percent of the total output value. At present, there are more than 14,000 enterprises and institutions in satellite positioning, with more than 500,000 employees. By the end of 2022, China had 92 A-share listed companies (including listed companies), among which the output value of satellite navigation and positioning related industries was about 9.02%.

In 2022, the overall scale of the application is still growing, the promotion mechanism is further improved, the infrastructure is further improved, the standardization construction is further deepened, the inspection and certification system is further strengthened, the work in key areas is further strengthened, and the international cooperation continues to deepen. Its large-scale application has opened up a new situation for Chinas marketization, industrialization and internationalization.

On October 24,2023, The General Office of the Shanghai Municipal Peoples Government issued the Shanghai Municipal Action Plan for Promoting the Development of Commercial Space and Building a Highland of the Space Information Industry (2023-2025). It is proposed to promote the collaborative sharing of satellite data. We will give full play to the functions of existing satellite data resource platforms, promote the construction of storage and computing power resources, and explore the establishment of a regular data sharing mechanism. We will improve the capacity of public services such as the storage, processing, distribution and application of satellite data, promote the establishment of satellite big data centers, and explore the establishment of an integrated platform for satellite data trading, data sharing, data analysis and application.

However, for the vast satellite navigation data market, China has not yet had a complete law to regulate, which is very unfavorable to the stable development of the satellite navigation data market. In addition, it is very important for Shanghai municipality to take the lead in proposing to explore the establishment of a satellite data trading platform and explore the legal protection of satellite navigation data trading.

4. THE LEGAL DILEMMA OF SATELLITE-NAVIGATION DATA TRADING

4.1. Traditional Property Rights Can Not Well Protect Satellite Navigation Data

First, satellite navigation data cannot be the object of traditional ownership. Satellite navigation data is usually an intangible asset. It can be copied and shared, and it is not exclusive. Second, the satellite navigation data is invisible. He cannot use the traditional principle of public trust. Because satellite navigation data is an electronic information, it is difficult to register and publicize it. Therefore, the individual of ownership should be an independent carrier that can be actually controlled by the stakeholders and is independent of the interests of other stakeholders. However, because the data itself is invisible and potential, it does not have the possibility of being used as the object of real right. Third, because the exchange of these data is not disclosed to the outside world, when satellite navigation data is mastered by others, some satellite navigation data may form trade secrets, which is an important asset of satellite companies. Once disclosed, it will be a great loss for enterprises. In this case, if the traditional property right relief approach is adopted, it is not conducive to the data protection. Property right is an absolute right, which itself has an effect on the world. If the satellite navigation data is simply regarded as a kind of property right, it will lead to the protection of satellite navigation data is too strong, which is not conducive to the circulation and sharing of satellite navigation data, and the circulation and distribution of satellite navigation dataExhibition plays a restrictive role, and may even cause enterprises to the satellite navigation data ridge.

4.2. Trade Secrets Do Not Protect Satellite Navigation Data Very Well

Trade secrets refer to technical information, business information and other commercial information that is not known to the public, has commercial value and has taken corresponding confidentiality measures by the right holder. Trade secrets are of value, confidentiality and non-disclosure. It is clear that satellite navigation data is valuable. Whether the trade secrets can be used to protect the satellite navigation data, the key point is to judge whether the satellite navigation data is confidential and non-public. Liquidity is a natural attribute of satellite navigation data, and although companies have control over the data they have to a certain extent, this control power is not absolute.

Satellite navigation data is not confidential, legal protection is only a small part of the secret data, when the legal action to maintain the data secret, this to some extent hindered the flow of data, satellite navigation data only through constant free flow, to create greater value, the satellite navigation data secret, then will cause the public is difficult to access to satellite navigation data. So a certain degree of public satellite navigation data is completely necessary.

4.3. Satellite Navigation Data is Not Yet Well Protected by the Intellectual Property System

The satellite navigation data through the intellectual property protection model has always been a hot topic of academic discussion. Because the satellite navigation data is an invisible material, it cannot have the absolute exclusivity and exclusivity on the entity like the traditional property. Satellite navigation data can be copied and used repeatedly. Satellite navigation data will not reduce its value because of the continuous replication and use. Due to the intangibility and other characteristics of satellite navigation data, it is most similar to the object of intellectual property rights. Lawmakers have also considered incorporating data in areas of intellectual property for protection. In the first draft of the General Provisions of the Civil Law adopted in 2016, "data and information" was listed as the object of intellectual property rights. However, the Civil Code of the Peoples Republic of China, issued in 2020, deleted data information from the object of intellectual property, but separately stipulated the protection of data and online virtual property in Article 127. Such an arrangement by legislators also shows that although data and intellectual property are common in common, they are also very different. One of the important reasons is that there are many satellite navigation data products that are not "original" characteristics. Second, from the perspective of the protection period, because intellectual property belongs to the legal monopoly right, Chinas intellectual property law stipulates the protection of intellectual propertytime limit. The reason why the legislators make this regulation is that intellectual property owners are not allowed to monopolize intellectual property for a long time, otherwise knowledge will fail to spread and hinder the innovation and progress of technology. Therefore, after the end of the legal protection period, intellectual property rights will enter the public domain and be used by the public. However, satellite navigation data can be permanently preserved, and the most important feature of satellite navigation data can be repeatedly copied and continuously utilized. Satellite navigation data, these characteristics, it breaks through the geographical and time constraints. Moreover, intellectual property rights are a legal monopoly right, which emphasizes that the monopoly of intellectual property rights by intellectual property owners encourages intellectual property owners to invest more time and cost in their creation. However, while protecting satellite navigation data, we should also promote the circulation and sharing of satellite navigation data, which is completely different from the concept of intellectual property rights protection.

4.4. Restriction of Business Practices and Practices on GNSS Data Trade

In order to make up for the protection defects of the current law on satellite navigation data, commercial entities often restrict their acquisition and use through commercial activities and practices, and better safeguard their own interests.

In the field of satellite navigation, the rights and obligations of the licensor and the licensee are mostly reached in the form of contract. Such protocols are specific in the purpose, scope and method of use, especially with stricter restrictions on the data use of licensees. Although this method is more flexible and meets the requirements of commercial satellite navigation data providers to protect their rights and interests, it has an obvious defect in the general trend of open satellite navigation data. First of all, satellite navigation data providers are in a dominant market position, and there are often standard terms between them and licensees, and there are dangers of unfair competition such as abuse of intellectual property rights and dominant market position.

Because the traditional contract model is not consistent with the development trend of open satellite navigation data, many commercial satellite navigation data suppliers have adopted a standardized authorization method to limit the rights of users. The standardized licensing system is established by different institutions, among which knowledge sharing (CC) and the Open Knowledge Foundation (OKF) are two SKS. Such as CC4.0 license agreement has 6 kinds of common copyright agreement: signature (CCBY), signature-the same way sharing (CCBY-SA), signature-no deduction (CCBY-ND), signature-commercial use (CCBY-NC), signature-commercial use-the same way sharing (CCBY-NC-SA), signature-non-commercial use-no deduction (CCBY-NC-ND), but the system only applies to copyright, for satellite navigation data is not applicable.

5. IMPROVEMENT OF CHINAS SATELLITE NAVIGATION DATA TRADING SYSTEM

5.1. Graded Protection of Satellite Navigation Data

National geographic information bureau of surveying and mapping geographic information and map department released in 2016 on the specification of satellite navigation and positioning base station data classification and management notice, the notice will satellite navigation data clearly distinguish between classified state secrets, secret state secrets, do not belong to state secrets but belong to the content of the controlled management. Different management methods should be adopted for different kinds of data, in which involving state secrets or related to state secrets cannot be made public and a certain threshold should be set for their access. Other data are further subdivided into ordinary data and sensitive data, and they are protected differently. The hierarchical protection of satellite navigation data can be divided into two layers. First, according to the importance of the data, different punishment measures will protect the data accordingly. Second, it is the data access control, setting the data access control with different access rights for different users. With the strictest protection for information concerning national security and important interests, the adverse effects of theft and illegal use of such information will also increase, and heavier penalties should be imposed. Satellite navigation data is an important part of national security information, which is strictly protected by law. In the process of economic construction of our country, must be natural capitalSource of the information has a comprehensive and accurate understanding and grasp. If information about natural resources is improperly known and used, it could create a crisis of economic and development security in the tested countries, adversely affecting future resource surveys in two countries or more countries. Trading should be banned for such data. For the general data, it can be delivered in the data trading market according to the principle of "data is available and not visible".

5.2. Type the Protection of Satellite Navigation Data

With the value of the satellite navigation data generation mechanism as the standard, the data can be divided into original satellite navigation data, satellite navigation data collection and satellite navigation data products three types, the original data refers to the unprocessed original data, and satellite navigation data collection refers to the original data processing, processed into the satellite navigation data set. Satellite navigation data product refers to a product formed by the processed data and in-depth analysis and mining. The construction of the property rights of the satellite navigation data collection can be constructed from the following aspects. The data controller processes a massive single piece of data to form a data set. At this time, the data controller is the owner of the data set and enjoys an exclusive property interest. In addition, the establishment of property rights in satellite navigation data collection should also meet the conditions of having substantial investment and reaching the corresponding scale. Substantial investment means that the data controller needs to invest considerable manpower and material resources to process and organize the data to form a data set. Substantial scale means that the data can only have market effect when it reaches a certain scale.

Only in this way can we build the system and protect it. Data product is a kind of intellectual result formed by processing and processing on the basis of data collection. In terms of content, data productionThe data in the product has been separated from personal information, and in essence it is a new property, thus necessary to the property rights granted by it. If the satellite navigation data meets the conditions such as "originality", it can also be used as the object of intellectual property rights, and can apply for legal protection within the scope of its protection. In this case, the right of satellite navigation data can be guaranteed to the greatest extent only by combining it with special laws.

5.3. Clarify the Structure of the Satellite Navigation Data Licensing Contract and the Responsibilities of Both Parties

In the satellite navigation data licensing contract, the licensee first bears the debt law obligation. If the licensee breaches the obligation in the debt contract, it constitutes a breach. The validity of such a debt contract may include: (1) the prohibition of competition, such as the production or sale of competitive alternatives; (2) purchase constraints, such as only obtaining data or auxiliary equipment from specific suppliers; and (3) price constraints, if only selling data products at a reasonable price as agreed.(3) According to the mainstream view, if the content of the sales constraint is to prevent the licensee to supply some buyers, it will not only have the effect of debt law, but also other legal effect.

In the licensing contract, the scope and scope of control of the data of the licensee shall be clarified, so as to avoid the abuse of data and protect the interests of the licensor, which is more conducive to the standardized operation of the data trading market. The Licensor shall assume the responsibility for guaranteeing the defects in the quality of the satellite navigation data, and ensure that the satellite navigation data products do not have any defects in their own attributes affecting their application, and the satellite navigation data provided shall comply with the norms of public law. Due to the particularity of satellite navigation data, the license is only responsible for the implementability or applicability of the technology, but not for the profit or economic success, and there is uncertainty in the economic effect of the operation.

In the process of contracting, the parties shall make a detailed explanation of the scope of obligations in accordance with the principle of good faith. For satellite navigation data products, the licensee has the right to request the licensor to make repeated improvements in the analysis and application of satellite navigation data, so that it can be applied under normal conditions.

5.4. Clarify the Rights and Obligations of the Intermediary Institutions for Satellite Navigation Data Trading

Article 33 of the Data Safety Law stipulates: " An institution engaged in data transaction intermediary services shall require the data provider to explain the source of the data, review the identity of both parties in the transaction, and keep the audit and transaction records."This provision provides a legal basis for the determination of the legal status of a service provider in data transactions. The Opinions on Data Basic System also proposes to cultivate third-party professional service institutions such as data brokerage in an orderly manner, and improve the service capacity of the whole process of data circulation and transaction. In essence, data transaction intermediary service is a specific situation of the intermediary contract stipulated in Chapter 26 of the Contract of the Civil Code, which is usually a specific situation of "technical intermediary" stipulated in Article 887 of the Civil Code. Data trading intermediary service provider has positive obligation of investigation, data transaction intermediary service providers should investigate satellite navigation data legitimacy, for the purpose of improper, in violation of good faith access to satellite navigation data, illegal into classified sites and computer information system for satellite navigation data shall be prohibited, and such data provider industry punishment. The data transaction intermediary service provider shall have the obligation to record and preserve the transaction situation of satellite navigation data, so as to make

the transaction process controllable, the risk controllable and the satellite is guaranteedNavigation data transaction security close.

6. EPILOGUE

With the rapid establishment and development of the data trading market, the development of satellite navigation data trading will inevitably enter the fast lane. By clarifying the types of satellite navigation data, the satellite navigation data will be protected by classification. The trading scope of satellite navigation data should be clarified, and different laws should be adopted to protect it according to the different types of satellite navigation data, so as to better promote the transaction and sharing of satellite navigation data and ensure the steady development of Chinas navigation satellite industry.

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