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Protection of Network Virtual Property by Criminal Law: Legal Attribute, Status Quo and Corresponding Solution

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Abstract

Network virtual property is a new product born with the growing development of network economy and the rapid expansion of online game industry, which occupies a pivotal position in modern society. However, due to the variety of network virtual property and the lack of necessary legal supervision, the vigorous development of network virtual property has brought a series of problems, for examle, how to identify its value, how to supervise the trading market and how to unify standard of conviction and punishment of the crimes. To meet the urgent needs of the development of the Internet industry and the era of big data, properly handle the real disputes caused by network virtual property, and promote relevant legislation, this paper intends to combine the specific legal provisions of criminal law, judicial interpretation and legal practice, clearly explain the legal attributes and characteristics of network virtual property, systematically analyzes the deficiencies and defects in the current criminal law, and puts forward feasible paths of criminal law protection.

Keywords

Network virtual property; Legal attribute; Status Quo; Criminal law protection.

1. Introduction

With the rapid development of computer communication technology and the commercialization of Internet technology, the application of emerging technologies such as artificial intelligence, big data, cloud computing and blockchain in various industries continues to deepen. Also, online accounts, online game equipment, online stores and other network virtual property comes into being. Obviously, the problem of legal recognition and protection of network virtual property has become a new task and a new subject of legal research.

It must be pointed out that the legislative subject has not made a clear definition of the core issues such as the definition of nature, the identification of value and the determination of the protection path, but only made principle provisions. Besides, the academia has not made a positive response to the above theoretical differences and judicial disputes. This paper believes that the root cause lies in the lack of existing legal provisions. For example, Article 127 of the Civil Code is only a general norm. This kind of principled guidance is too concise to be not operable in judicial practice. The Criminal Law only relies on the crime of theft (Article 264) and the crime of illegally obtaining data from computer information systems (Article 285) to regulate activities related to network virtual property. In addition, other legal provisions concerning network virtual property are scattered in administrative regulations and departmental rules. These regulations are not only low in rank and weak in effect, but rarely stipulate the rights and obligations of the parties, which undoubtedly reflects the major defects in systematization and scientization of network virtual property legislation.

In the era of digital economy, the study of legal issues, for instance, disputes over rights and interests, legal ownership and protection countermeasures of network virtual property is not only of great benefit to the development and supplement of traditional theories of real right,

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creditor's right and intellectual property, but conducive to settling civil and commercial disputes and criminal cases caused by network virtual property in judicial practice. [13] Based on this, this paper starts from the concept and legal characteristics of network virtual property, focusing on clarifying its fuzzy legal attributes, the absence of legal protection, and the limited solutions of dispute cases. At the same time, this paper puts forward a series of restriction methods of network virtual property, including making a clear definition, strengthening the systematization and specialization, and establishing the arbitration mechanism.

2. The Concept and Characteristics of Network Virtual Property

The generalized network virtual property refers to all the specific virtual property existing in the specific network virtual space. Network virtual property in the narrow sense refers to the information resources being stored, processed and transmitted in the digital form, which exists in the network world and has real transaction value. It only includes the virtual goods that online players acquire by paying fees, and has the possibility of obtaining real benefits through trading in the offline trading market. The typical performance is virtual equipment, game gold and game character ID in online games. [2] Network virtual property has the following four significant characteristics:

(1) Network virtuality

The network virtuality, also known as informability, is mainly reflected in the fact that all images, words and sounds in the network are expressed, transmitted and stored through binary codes based on electronic information data, and these codes cannot be seen or touched.

Different from tangible objects in reality, network virtual property is the dematerialized property form of virtual network composed of various dynamic system data on the servers. Traditional physical property can be protected by physical means such as changing the lock core and installing alarms, which are not suitable for network virtual property. Network virtual property can only exist and run through computer information system, so its security mainly depends on network security technology and security protocol. Because of the complexity and variability of the network environment as well as the fragility and openness of the information system, network virtual property is often more vulnerable to attack and damage than the traditional physical property.

The intangibility of network virtual property is also reflected in the difficulty of evaluating its value. The value evaluation of traditional physical property often refers to the market price, production cost, historical value, etc., while the value evaluation of network virtual property takes more consideration of its scarcity, use value, circulation and so on.

(2) Carrier dependency

The carrier dependency of network virtual property is mainly manifested in that its production, transfer and elimination are highly dependent on the network as a specific media information carrier, and externalized into virtual currency, virtual goods, virtual services and so on. This dependency not only limits the value and usage of network virtual property to specific platforms or applications such as games, social media, and e-commerce platforms, but increases the uncertainty of network virtual property circulation and transactions. Apart from cyberspace, it cannot exist and loses its own value and meaning. This is also the reason why it is extremely difficult to adjust and regulate effectively according to the current law.

In addition, its dependence is also manifested by its binding to a specific user account or identity information. Virtual currency, virtual goods, virtual services, etc. are closely related to the identity information of specific users, and this correlation is based on the user management and security protocols of specific platforms or applications. The dependency makes the security and use of network virtual property limited by specific accounts or identity information, and in the meantime increases the risk of network virtual property being illegally stolen.

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(3) Transaction value

Network virtual property has the value attribute of digitalization, which excludes the property that purely exists in the virtual space. It can be controlled, occupied and transferred, and can also be exchanged and traded with the equivalent items in the real society, which has the value significance in economics. Further, whether it is through the exchange method stipulated by law or through the transaction form of the game platforms, both network virtual property and real property have a specific conversion way and transaction mechanism, and the conversion ratio between the two is determined by the operator or the exchange markets. [12] Taking virtual currency and virtual goods in games as examples, the transaction subjects are mainly concentrated among players, game service providers and official websites, and the most common form of transaction is the transfer of players in the form of cash payment or exchange for other network virtual property.

Network virtual property also has investment attributes. Its value is affected by many factors such as market supply and demand, network environment changes, policies and regulations. To a large extent, mining computing power and mining difficulty determine the price of network virtual property.

(4) Technical restriction

Network virtual property is electronic data presented by programming. This kind of code is designed to act more like land or chattel than ideas. It pervades the internet and comprises many of the most important online resources. Often, this kind of code makes up the structural components of the internet itself. [15] On the one hand, users can not arbitrarily change the parameters and performance of the network virtual property during use. On the other hand, for operators, although network virtual property can be created in large numbers and unlimited quantities at the technical level, technical limitation also maintains the scarcity of network virtual property in order to ensure their monopoly position.

(5) Differences among other similar concepts

Network virtual property is different from data and information. In the computer system, data is a tool to record and store information. It is not information itself, but the presenting mode of information in the virtual network environment. Information can only be recorded and stored in the code of a computer programming language, and the representation of this code is data. However, network virtual property is essentially information, which not only needs to be recorded and stored by data code, but needs to be presented digitally. Leaving information, data and network virtual property on the web has no legal meaning. [6]

Network virtual property is also different from digital property. Digital property is another way of existence of physical property, rather than another independent property type outside of physical property. Taking electronic money as an example, both electronic money and the material currency exist in the real world, and it replaces all or part of the function of the material form of money with an electronic way. [7] An increase or decrease in the physical form of money will result in an equal increase or decrease in the amount of electronic money in the account. But the network virtual property itself is not another form of physical property, and there is no one-to-one correspondence with the property in material form. It is an objective existence of property independent of material form, and does not take the existence of property in material form as the premise.

To sum up, the network virtual property has the characteristics of network virtuality, carrier dependency, transaction value and technical restriction, which conforms to the basic requirement that property is assets with economic value in criminal law. Although some network virtual property such as data is not in the form of real money, it can interact with real world property interests. Therefore, this paper believes that the network virtual property should be characterized as a kind of property that should be protected by law.

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3. The Actual Situation and Existing Problems of The Criminal Law Protection of Network Virtual Property

Compared with traditional forms of property, network virtual property covers more diverse and complex situations in terms of specific connotation, expression form, value identification, and types of suspected crimes. However, at present, China has not yet built a comprehensive and perfect network virtual property criminal law protection system, resulting in a large number of “the different verdict in the same kind case in judicial practice”. It not only greatly affects the credibility of judicial judgment and the effective play of judicial authority, but brings professional risks and work pressure to judges. The following, the author analyzed the reality of the criminal law protection of network virtual property one by one.

(1) The legal significance and legal attributes of network virtual property are not clear enough

Judging from the judge's trial logic, the determination of the legal attribute of network virtual property directly determines the application of the final charge. According to the traditional criminal law theory, whether a certain act constitutes a specific crime should be judged according to the constitutive elements of the crime. The object of crime referred to in the field of criminal law is usually "assets", covering non-physical objects, physical objects and property interests. Therefore, when determining whether the network virtual property crime constitutes a specific crime, it is necessary to judge whether the network virtual property can be included in the scope of "assets" in the general sense.

In the first chapter, this paper summarized the four characteristics of network virtual property, and explained the reasons why network virtual property should be included in the scope of legal "property" instead of just staying in the level of "data". However, in the specific judicial practice, there are still major differences and disputes on the legal attribute of network virtual property, which is closely related to the complexity and scope of influence of real cases. More importantly, the legal attribute of network virtual property is directly related to the application and punishment of specific charges. If the ruling is not clear, it will undoubtedly confuse the rights and obligations between the victim and the perpetrator, which will bring great challenges to the regulation and handling of subsequent network virtual property crimes.

Some scholars believe that the reason why the network virtual property is interpreted as "data" is mainly because the network virtual property does not have a clear basis for identifying as "assets", but also lacks a unified value evaluation standard. The legal issues involved in network virtual property span many legal departments, such as property law, contract law, criminal law, and so on. It is necessary to realize the effective integration of legal resources for its legislation, but obviously the current legal resources have not formed a joint force. However, it is undeniable that with the application trend of big data becoming more extensive and in-depth, property in criminal law has gradually expanded from physical objects to non-physical objects and property interests, so it is particularly important to treat the connotation of property in criminal law from a progressive and developmental perspective. In addition, the network virtual property and assets have many homogenous characteristics, and there is no difference between them in essence. It is an extremely irresponsible performance to simply avoid the judicial problems and directly define the network virtual property as "data" and apply the computer crime conviction and punishment.

In addition, due to the controversy over the characterization of network virtual property in criminal law, judges generally choose to directly apply existing legal provisions to adjudicate cases in judicial practice. Of course, this is also closely related to the easy modification, easy damage and imperceptible evidence in the network virtual property crime. Compared with the traditional physical form of property, the relevant evidence of the criminal behavior occurred in the computer system is generally in the form of electronic evidence, the cost of tampering or destruction is greatly reduced, and it is difficult to effectively compensate and completely

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recover in a short time. After multiple rounds of overwriting and updating, the electronic information stored on the server side can easily lead to information theft, fraud or loss. Judicial staff will have great difficulties in obtaining, presenting and cross-examining evidence, and the argument of the applicable law is too simple and brief. It is not surprising that the reasoning is not enough and unclear. The lack of comprehensive and reasonable exposition in the judgment documents has caused the scientificity, objectivity and impartiality of the judiciary to be questioned to some extent.

(2) Conviction and sentencing of computer crimes have huge penalty drawbacks

At present, the crime determination of network virtual property cases mainly focuses on property crimes and computer crimes. However, there are great differences between property crimes and computer crimes in terms of punishment intensity and punishment purpose. The identification of network virtual property crime as computer crime has the following shortcomings:

First, there are serious defects and drawbacks of criminal punishment. Compared with property crimes, computer crimes are more complex and strict in terms of constitutive elements and identification standards, and have higher requirements for technical level. If we judge the network virtual property crime according to the computer crime, the criminal law evaluation standard of this kind of crime will be improved, and the penalty loopholes caused by the traditional theory can not be effectively blocked, but the illegal and criminal behaviors related to the network virtual property will be strictly suppressed.

Second, it is quite easy to cause a guilt of the crime of torture within the incompatible situation. The judge's choice of charges directly determines the space of discretion, and also determines the cost of the perpetrator. On the one hand, compared with property crimes, sentencing guideline range, punishment intensity and illegal cost of computer crimes are lower, for example, illegal acquisition of computer information system crime is much lower than the maximum legal penalty of theft. If the legal attribute of network virtual property is determined as data, the crime of illegally obtaining computer information system data will be directly convicted and punished, which not only reduces the crime cost of the perpetrator, but ignores the constituent elements of the crime, making it increasingly a kind of pocket crime. [11] On the other hand, there are essential differences in the criteria for determining the seriousness of circumstances between the two. Property crime is judged by the amount, while computer crime is judged by the amount of information. If the perpetrator's criminal behavior is convicted and punished as a computer crime, it is difficult to be convicted and punished according to the highest statutory penalty.

As stipulated in Article 285 and Article 286 of China's Criminal Law, the conviction and sentencing for the act of illegally acquiring network virtual property is based on the charges of computer crimes. It not only differs in operability from the perspective of theft theory, but results in significantly different outcomes in the court's judgment. As shown in Table 1, in the case of "Zhou's Illegal Acquisition of Computer Information System Data," which occurred in Bengbu City, Anhui Province, the defendant, Zhou, used the Pcshare computer virus to steal "Face-to-Face 365" online game coins and made a profit of 70,000 yuan from sales. The first-instance court sentenced Zhou to 11 years of fixed-term imprisonment and fined him 10,000 yuan for the charge of theft. However, in the second-instance trial, the court reclassified the case as "Illegal Acquisition of Computer Information System Data" and changed Zhou's sentence to 1 year and 7 months of fixed-term imprisonment, along with a fine of 10,000 yuan. In the "Zhang Lei's Theft Case", the defendant Zhang Lei accessed the data server of Suzhou Jinyou Company, and manipulated the data to increase his virtual currency by 4 billion silver coins. He then resold the virtual currency, making a profit of over 160,000 yuan. Eventually, he was sentenced to 10 years of fixed-term imprisonment for theft.

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Table 1. Comparison of Sentencing between Theft and Computer Crimes in Cases of Stealing Network Virtual Property

Case Title	Involved Amount	Suspect's Sentence
Meng Dong、He Likang Theft Case	Around 26,000 RMB	Meng Dong: Sentenced to 3 years of imprisonment with a 3-year probation period, and fined 3000 yuan. He Likang: Sentenced to 1 year and 6 months of imprisonment with a 1-year and 6-month probation period, and fined 2000 yuan.
Zhang Lei Theft Case	Around 160,000 RMB	Sentenced to 10 years of fixed-term imprisonment, and fined 10,000 yuan.
Xia Theft Case	Around 760,000 RMB	Sentence to 12 years of fixed-term imprisonment, deprivation of political rights for 1 year, and fined 30,000 yuan.

Case Title	Involved Amount	Suspect's Sentence
The Case of Zhou Illegally Obtaining Computer Information System Data (convicted as Theft Crime in the First Instance)	Around 70,000 RMB	Sentenced to 11 years of fixed-term imprisonment, and fined 10,000 yuan (First Instance)
		Sentenced to 1 year and 7 months of fixed-term imprisonment, and fined 10,000 yuan (Second Instance)
The First Case of Illegally Obtaining Computer Information System Data in Zhejiang: The Tao Feng Case	Around 330,000 RMB	Sentence to 1 year and 6 months of fixed-term imprisonment, with a 2-year probation period, and fined 100,000 yuan.
The Case of XU Wenhao Disrupting Computer Information Systems	Around 465,000 RMB	Sentence to 3 year and 6 months of fixed-term imprisonment

In contrast, in the "First Case of Illegal Acquisition of Computer Information System Data in Zhejiang Province," the defendant Tao Feng stole 6 billion "Zhapi" items from the game "Tong Chi," resulting in illegal gains of nearly 190,000 yuan and causing economic losses of over 330,000 yuan to the victim. He was sentenced to 1 year and 6 months of fixed-term imprisonment, with a 2-year suspension of the sentence.

For cases involving similar amounts of network virtual property theft, the sentencing outcomes between theft and computer crimes differ significantly. The sentences imposed for theft are 6 to 7 times heavier than those given for computer crimes, resulting in an enormous disparity in the deterrent effect of the law. [14]

Third, the protection of private sphere and private rights and interests is ignored. The legal interest of computer crime is the public network order, which belongs to the public legal interest, but the illegal acquisition of network virtual property often infringes more on the personal legal interest of citizens. If we determine whether a criminal act infringes on the legal interests of citizens according to public order, it not only fails to fully resolve the basic contradictions in judicial cases, unilaterally evaluate the objective impact caused by criminal acts, but fails to fully consider the maintenance and protection of the legitimate rights and interests of citizens, not to mention the education and warning significance for the perpetrator. In addition, if the computer crime is convicted and punished, the proceeds of computer crime as a criminal procedure should eventually be turned over to the State Treasury, and the victim's property loss is difficult to be compensated through criminal incidental civil litigation.

Fourth, computer crime is not enough to reflect the real purpose of those who illegally acquire network virtual property. In fact, many links involving electronic data are only the necessary

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means and important basis for the perpetrator to carry out a series of subsequent acts, not the fundamental purpose and final effect of engaging in criminal acts. The perpetrator illegally intrudes into others' network space, in order to seek the value of network virtual property, rather than the purpose of "control", "destruction", "interference", "illegal invasion" and "illegal acquisition" emphasized by computer crime. If the network virtual property crime is characterized as computer crime, the criminal purpose of the perpetrator is not comprehensively referenced and evaluated, and even ignoring the more important purpose of acquiring property.

(3) The lack of unified standards for the identification of the amount of crime of network virtual property

First of all, the market fluctuation of network virtual property affects the value. In short, the value of network virtual property changes with the market and the supplier. On the one hand, the value of network virtual property is affected by the preferences of the audience. When the network virtual property is favored, its value continues to rise, and even breaks through the normal value fluctuation law. Taking Bitcoin as an example, its value soared several tens of times from a peak of $1,000 in 2016 to incredible heights within just five years, and even experienced significant fluctuations in trading prices within a single month.

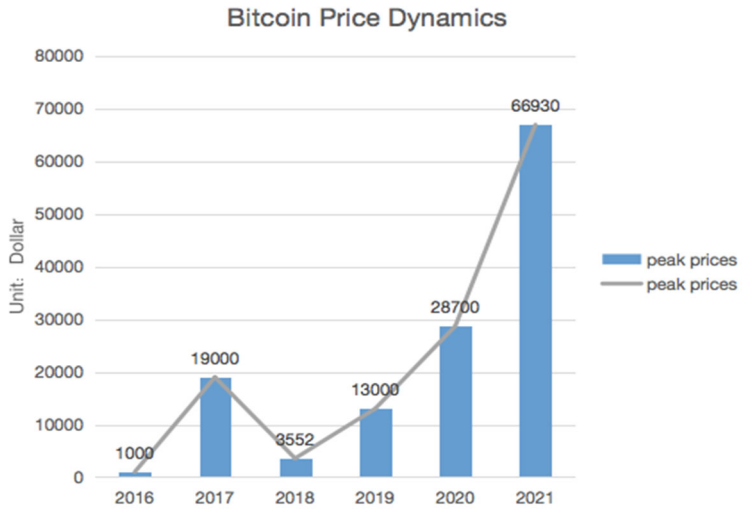

Table 2. Bitcoin Peak Prices from 2009 to 2021

If the amount involved in the case is calculated according to the market value or the actual loss of the victims, the abnormal phenomenon of sentencing is particularly prominent. If the amount of illegal profit of the perpetrator is taken as the calculation standard, it is difficult to coordinate and balance between the perpetrator selling the network virtual property at a low price and the loss recovery of victim's property. On the other hand, the value of network virtual property is controlled by network operators. In fact, it is not scientific, applicable and operable to determine the value of network virtual property through network operators. The purpose of network operators is to make profits, and in the process of public security organs obtaining relevant data from operators, network operators need to spend a lot of manpower, material resources and financial resources. Forensics personnel are also easily exposed to the internal business secrets of operators, causing immeasurable losses to the company. Therefore, network operators face great difficulties when cooperating with the relevant work of public security organs.

Then, the real value and safety margin of network virtual property are not easy to infer. The value evaluation of network virtual property is the result of many factors. The price determined

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by the evaluation system provided by network operators often cannot accurately reflect the real value of network virtual property, and the price of players' private transaction is more autonomous and arbitrary. If the judgment of the network virtual property is wrong, it will eventually become an economic bubble and lead to serious property losses of the right holder, and even impact the national financial and monetary system.

Last but not least, the calculation method used in judicial practice has obvious defects. At present, there are five main methods to determine the amount involved: according to the actual loss of the victim; according to the transaction price of the property involved; according to the market value at the time of the incident; according to the amount of illegal profits made by the actor; in the way of entrusting appraisal center, the value of the network virtual property in the case is appraised. However, these five methods actually have their own drawbacks, and it is difficult to solve the confusion that the amount involved is not uniform. The instability of market prices, coupled with strong speculative factors in the process of trading, is not conducive to protecting the legitimate rights and interests of actors and victims.

4. The Network Virtual Property Criminal Law Protection Path

Network virtual property is electronic data based on computer program, which carries inherent technical risks. With the development of the network application field and the evolution of new cybercrime methods, and the virtual society on which the network virtual property is based is not exactly equivalent to the real society, the potential criminal legal risks are increasingly severe.

To solve the disputes arising from the imbalance of conviction and sentencing in criminal trial practice, based on the multiple legal attributes of network virtual property, the legal regulations on infringement of network virtual property under the current criminal law framework in China mainly follow the two paths: First, based on the virtual attributes of computer system relying on its existence mode, the crime of illegally obtaining computer information system data is applied to protect it. This path focuses on the maintenance of computer information system management order, so as to protect network virtual property; Second, with the development of modern network society, network virtual property is endowed with economic value and property attributes, and it is included in the protection category of traditional property, that is, theft is applied to regulate.

However, the provisions in China's criminal legal system neither clearly define the legal nature and scope of protection of network virtual property, nor systematically establish the responsibility system for infringing on network virtual property, which makes the legitimate rights and interests in disputes involving network virtual property cases unable to be effectively remedied, thus making legal norms lose educational and compulsory role. This is also a worldwide challenge. As discussed above, the history of U.S. laws on virtual property is short and limited.The only existing statute to be considered a potential fit for virtual property protection is the Computer Fraud and Abuse Act (CFAA). [16] Although the legislative process is complicated and time-consuming, and the law inevitably lags behind, there are many methods for lawmakers to improve the quality of legislation and promote the implementation of laws. For example, the existing legislation should be clearly interpreted, and the guidance on the handling of the same type of cases should be strengthened by guiding cases, so as to eliminate or reduce the phenomenon of different judgments in the same case from the source. Therefore, it is urgent to actively construct the system design of criminal law protection guide of network virtual property.

(1) Clarify the legal status of network virtual property and the legality of transactions from the legislative point of view

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It is quite necessary to face up to and acknowledge the legal attributes of network virtual property, and realize the leap from the protection of "computer information system data" to the protection of "property". At present, some judges still define network virtual property as computer information system data, and apply the crime of illegally obtaining computer information system data for protection, but it is a temporary fix. [1] According to the current development of law in our country, it is difficult to overcome the shortcomings of computer crime conviction. This paper argues that, the data economy is an irreversible trend in the long run, and the network virtual property should be given the civil object status and property attributes, rather than the computer information system data. The criminal law is the most reasonable way to regulate the infringement of network virtual property cases. Although it is difficult to carry out large-scale effective legislation and law revision on network virtual property in a short time, it is necessary to expand the extension of "property" protected by the existing criminal law through judicial interpretation, and clarify that network virtual property is assets protected by the criminal law. Only in this way can we accurately evaluate the social harm of network virtual property crimes in judicial practice, alleviate the contradictions of different sentences and inadequate evaluation of the same case of network virtual property crimes, timely play the function of criminal law to protect individual rights, public safety and social order, and escort the era of data economy.

The crime of illegally obtaining computer information system data should not be applied to the cases related to network virtual property. On the one hand, the crime of illegally obtaining computer information system data is the data stored, processed and transmitted by the computer information system in use. The objective manifestation of criminal acts is to obtain data without authorization or beyond authorization, and "access" means to possess or hold data. [4] The actors can only use two direct methods to copy and download the data, and do not need to use viruses to invade, modify, delete and other ways to destruct or damage the data. On the other hand, the legal interest of the crime of illegally obtaining computer information system data protection is mainly the confidentiality of computer information system data, which enables system data to remain private according to the will of the right subject, not to be known by others, and not to be illegally obtained, copied and downloaded.

Formulate basic laws on online games, and make relevant issues dynamic, comprehensive and systematic. Most of network virtual property is the product originating from integration of the network industry, the game industry, the information industry and the entertainment industry, so the legislation should explicitly prohibit the use of "external" to obtain network virtual property, or through other illegal means to accumulate network virtual property, as well as through theft, fraud and other illegal ways to obtain network virtual property. Theft of others' network virtual property constitutes a crime and may be sentenced to fixed-term imprisonment. When the user's virtual goods are lost, the users can investigate the responsibility of the network operators, and at the same time network operators can further investigate the responsibility of the thieves. If the circumstances are serious, they may be required to bear administrative responsibility or directly bring criminal incidental civil proceedings against them in accordance with the Regulations on Public Security Administration Penalties. [3]

(2) Distinguish specific types of conviction and sentencing of crimes involving network virtual property

For different types of network virtual property, it is theoretically suggested that different criminal law norms should be applied for protection, so as to achieve the purpose of fully protecting network virtual property. Moreover, network virtual property rights, including virtual land and avatars, will also need to be protected by law. There will also be a need to protect virtual property rights against cyber-criminals who may try to hack or steal virtual currency or virtual assets. [17] On the basis of the legal theory that pays attention to the

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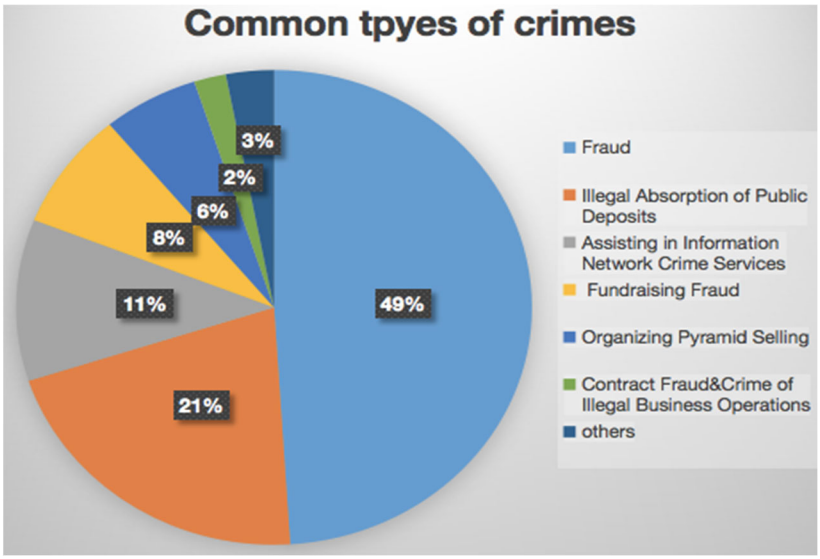
evaluation of the worthless behavior and the worthless result of the criminal behavior, this paper believes that it is more appropriate to divide the crimes related to network virtual property into two situations, that is, the equipment virtual property and the currency virtual property shall be regulated by the crime of property infringement, and the account (identity information) virtual property shall be punished according to the crime of illegally obtaining computer information system data.

From the perspective of network virtual property protection and victim rights protection, equipment virtual property and currency virtual property should be included in the scope of "assets", and property crime provisions should be applied to regulate, and the treatment according to property crime is more in line with practical needs. Taking virtual currency as an example, among the 389 criminal cases in which the key words of "virtual currency" were searched retrieved from the Peking University Law Database (PKULaw) , the majority of cases are related to economic crimes, with a strong emphasis on protecting public interests, while neglecting the necessary protection of private domains and private rights. There is no doubt that from the theoretical level, criminal law contains norms of data crimes, and from the practical level, similar acts are mostly treated judicially as crimes of illegally obtaining computer data. However, according to the theory of plural crimes, it cannot be denied that it also conforms to the constitutive elements of property crime. [9]

Table 3. Proportion of Criminal Cases Involving Network Virtual Currency



It is worth mentioning that although network virtual property in the form of account also belongs to electronic data, it should not be classified as network virtual property, and should be regulated by the crime of illegally obtaining computer information system data. Because the specific functions and sources of the accounts network virtual property value are diverse, the legal characterization is more complicated, and it can be divided into three categories: the value of the account itself, the value brought by the activities such as traffic, reading volume and fans of the account and the value derived from the existence of related network virtual property within the account.. However, the opening and operation of the accounts, without exception, requires the provision of personal real identity information, which is essentially the data of the users' operation authority in the computer information system, and represents the privacy of data transmission in cyberspace. [10] According to the theory of criminal law, the personal information of the citizen in the crime of violating the personal information of citizens should have the attribute of identifying specific individuals. Therefore, to punish the criminal activities endangering the security of computer information system according to the law, the criminal

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behaviors of network virtual property in the form of identity information need to fully consider the subjective purpose of the criminals. In summary, if the purpose of stealing network virtual property in the form of account is illegal possession, it should be identified as the crime of theft, if the purpose of stealing network virtual property in the form of account is to resell personal information, it should be identified as the crime of infringing citizens' personal information. However, although ordinary social software accounts have the possibility of management and transfer, they do not have the inherent value of network virtual property, so they cannot be identified as "assets" in criminal law. [5]

To distinguish the specific types of network virtual property crimes, it is necessary to improve the value evaluation and establish a reasonable value recognition mechanism of network virtual property. In the case that it is difficult to accurately identify the value of network virtual property with a single calculation method, it is preferable to integrate multiple methods to calculate. This paper believes that network operators, representative users and professional price evaluation departments should be brought together to establish a special social evaluation agency and provide users with a unified price standard corresponding to the real value form in the market and a reference basis for determining the amount of compensation after disputes combining the development difficulty, input cost and popularity factors.

(3) Comprehensively clarify the rights and obligations of network operators and users

Whereas an interest in land or chattels may be entirely acquired and assigned, Internet users acquire and access virtual property as a result of service providers' initial and continuing investment in computer hardware, software, intellectual property and so on. Thus, network virtual property law must not only balance the interests of users against the interests of other users, but balance the interests of users against the interests of service providers. [18]

Network operators and users are important subjects of the infringement of network virtual property, and the determination of their specific rights and obligations is helpful to further curb the occurrence of the infringement of network virtual property. On the one hand, the responsibilities and obligations of operators are specified in Article 8 of the Network Security Law. On the other hand, when network users use relevant network services provided by operators, they will sign a license agreement with operators, and the specific obligations of operators are also reflected in the usage agreement. However, in actual operation, the operator has not assumed its responsibilities and obligations, which are embodied in the following three points:

First of all, operators are in a monopoly position, controlling the specific changes of the network virtual property content, debugging and deletion of information, and users can not actively choose, but only passively accept. This puts network users in a very disadvantageous position, and sometimes network operators even erase user accounts in order to gain their own profits. Secondly, in order to increase profits, network operators often violate users' right to know and privacy. Finally, in some cases of network virtual property being infringed, some network operators have not fulfilled their duties of notification and care. However, when cases of infringement of network virtual property occurs, the network operator, as the main body of the control operation, should have the responsibility and obligation to take corresponding measures to remedy it, and inform the users in a timely manner.

This paper argues that, as far as the obligations of network operators are concerned, it is common for network operators to circumvent their responsibilities by using standard clauses, and they should set up strict responsibilities and obligations for network security protection. The network needs to provide complete transaction services, provide standardized virtual goods trading format contracts, confirm transactions, etc., [8] so that network users can complete transactions on the transaction web page, and record and save the electronic data of network users' transactions. Network operators also need to provide a secure network

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environment to manage, maintain and ensure the normal operation of the website. When investigating virtual property crime cases, public security departments should provide technical assistance and support as far as possible. Operators that fail to fulfill their obligations and responsibilities for network security protection should be punished in accordance with the law. As far as the obligations of network users are concerned, users should obey the proper management and abide by the code of conduct, should not engage in illegal acts such as "private service" and "external connection", should not spread any speech that contradicts the existing laws and regulations, and other information that violates the balance of the system, should not spread any speech that insults and slander or malicious attacks on legal persons, organizations or natural persons, should not delete, modify or add functions of the network virtual space, and should not engage in activities that endanger network security.

5. Conclusion

Although the network virtual property is born in the network, it is not limited to the network, it crosses the network space and the real world, and makes them intersect. Under the background of interweaving risk and network society, it can be predicted that the infringement of network virtual property will become more and more complicated. Therefore, in the application of criminal law protection related legal interests, it is of great necessity that starting from the characteristics of the network virtual property itself instead of avoiding adopting a "one-size-fits-all" approach, and clarifying the protection path of the criminal law to virtual property.

In view of the criminal law protection of network virtual property, this paper holds that its legal attribute and status should be clarified, and it should be included in the category of "property" in Article 92 of the Criminal Law. At the same time, the protection of citizen property must be the core, divided into two types of network virtual property crimes. The purpose of stealing money shall be identified as theft; The purpose of damaging computer information system shall be identified as computer crime. In addition, it is also crucial to standardize the calculation method of relevant amounts in such cases and clarify the specific rights and obligations of network operators and users.

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