Research on Legal Protection System of Personal Information in Big Data Era

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Abstract. In the era of big data, the problem of leakage of personal information is becoming more and more serious. With the citizens' increasing legal awareness, people pay more and more attention to the protection of personal information. In the context of big data, this article is based on the impact of big data on the protection of personal information. By studying the current status of the domestic and international legal protection of personal information, this paper puts forward some proposals for the protection of information, combined with the current status and existing problems of the legal protection of personal information.

1. Introduction
In the era of big data, the development and utilization of data has brought huge challenges to citizens' personal information. There are great security risks in the collection and use of personal information, and the information subject is in a weaker position than the information manager in terms of litigation ability. In daily life, when personal information is unreasonably commercialized, it has brought great trouble to our lives. Some personal information has even been used for illegal and criminal activities, which is extremely harmful to society and affects social stability. However, China does not currently have specific legal provisions to deal with this dilemma, so the issue of how to effectively protect personal information in the era of big data needs to be resolved.

2. Overview of the legal protection of personal information in the era of big data

2.1. Features of the Big Data Era
Big data is a collection of information. The collection and management of big data are not achieved through ordinary software, but through a new management model. Only in this way can the processing capacity of information resources be improved. In the past, traditional data processing methods have failed in the storage and processing of big data, because of its large volume, rapid growth, and many types. They exist in the Internet in various forms. The era of big data is a modern era of informationization that relies on big data and integrates data collection, processing, and decision-making. In the process of using big data, it is possible to collect information at a higher speed, process the information to make scientific and reasonable decisions, and apply it to production and life, bringing significant economic and scientific value to society.
2.2. Impact of the era of big data on personal information protection

The Internet has brought convenience to our lives and made it easier for us to collect information, but it is also often used by criminals, bringing huge losses to the lives and work of citizens. As shown in the Figure 1 of the leakage of personal information, websites, including e-commerce platforms, search engines, portals, etc., is considered to be the most likely to leak personal information, which accounts for 14%; followed by Apps on personal information terminals such as mobile phones, PAD, smart watches, and sports bracelets, which accounts for 13%; the third is the automotive industry, such as 4S shops and telecommunications service providers, both reaching 12%; the fourth is communication software such as e-mail, WeChat, QQ, etc. And real estate industry, including real estate industry and communication software, reaching 11%; the fifth is express companies, accounting for 9%; the sixth is the banking and insurance industry, with 8%; the seventh is medical, education, electricity, water, gas, etc. The public service industry takes up about 5%; the other industries are considered to be 3%, and the least is airlines and administrative agencies including air ticket agents and train ticket agents, each about 1%.

![Figure 1. Personal information leakage channels](image)

2.3. The importance of legal protection of personal information in the era of big data

Big data brings a lot of convenience to people's production and life, and also brings people's personal information into the public eye. The content of this information is very extensive and is closely related to the identity, property and security of citizens. If this information is leaked, it will cause significant damage to citizens' personal rights and property rights. In the era of big data, the Internet can be said to run through all aspects of our lives, work and study. Any one of us can do nothing without the Internet. While the Internet brings convenience to our lives, it also puts us on the brink of danger. When people browse the website or shop online, the website will remember our relevant information. Even if you do not log in to the website, you can also remember the user's preferences. If this information cannot be kept secret or is used by criminals, it would cause us losses.

In the context of economic globalization, there are more and more opportunities for exchanges between countries. The exchanges between various organizations and enterprises have also exhibited diversified characteristics. In the cooperation, it is inevitable that with the dissemination and exchange of information, the cross-border transmission of information brings new challenges to the legal protection of personal information. The cross-border transmission of information makes the diffusion of information larger. The people who contact the information may be multiple uncertain people, which makes information protection more difficult[1].
At present, China does not have a unified personal information protection law, and personal information protection work has passed specific laws. Although China has a "Network Information Security Law," it is mainly aimed at network security considerations, and the protection of personal information is not specific enough. It cannot protect personal information in all aspects. The Internet has the characteristics of convenience and speed. Traditionally, relying on social norms such as morals to protect the personal information of citizens is far from enough. In this way, it is even more urgent to protect the personal information of citizens.

3. Status and Defects of Legal Protection of Personal Information in China in the Big Data Era

3.1. Lack of targeted legislation
Although China's "Civil Law", "Criminal Law", "Constitution" and other laws have stipulated the content of personal information protection, but these laws and regulations are lack of pertinence, and many laws stipulate the content of personal information is roughly equivalent, the content Complete, and the protection is not comprehensive enough. In civil law, the right to personal information is considered as a separate civil right. The protection of personal information is not clear and specific. The protection of privacy seems to be too narrow and not comprehensive enough. In criminal law, there are specific provisions on the crime situation, but the provisions on the grasp of the crime are too vague and there are great problems in their application; China's Constitution stipulates the personal information of citizens as a right of personality, and personal information is not only personal information, but also an interest related to the person, but this regulation is still relatively broad, lacking specificity and guidance.

3.2. Imperfect judicial remedy system
When our personal information rights are violated, we may first think of infringement damages. The issue of compensation is divided into material compensation and spiritual compensation. China's laws provide specific provisions for material compensation, but the provisions on spiritual compensation are too vague, and the conditions that constitute spiritual compensation are very high. This is very unfavourable to the protection of personal information. If you encounter a crime as stipulated in the provisions of the criminal law, you need to bear criminal responsibility. Article 253 of the Criminal Law makes specific provisions on this, but it is still difficult to apply. Formatting author affiliations

Please ensure that affiliations are as full and complete as possible and include the country. The addresses of the authors’ affiliations follow the list of authors and should also be indented 25 mm to match the abstract. If the authors are at different addresses, numbered superscripts should be used after each surname to reference an author to his/her address. The numbered superscripts should not be inserted using Word’s footnote command because this will place the reference in the wrong place—at the bottom of the page (or end of the document) rather than next to the address. Ensure that any numbered superscripts used to link author names and addresses start at 1 and continue on to the number of affiliations. Do not add any footnotes until all the author names are linked to the addresses. For example, to format[2].

3.3. Difficulties in the protection of a single domestic law
In the era of big data, the speed of dissemination of personal information is unprecedented, and personal information can easily be transmitted abroad in a very short period of time. However, the legal regulations on the protection of personal information at home and abroad are different, which has led to the difficulty of transnationalization of personal information Protection.

3.4. Citizens' legal awareness is weak
In recent years, China attaches great importance to the construction of the rule of law, and many units have carried out law popularization activities. These activities cover a wide range of areas. However, due to the large population of our country, the education level of different citizens varies greatly, and
the law popularization work is not completely covered. Therefore, some citizens do not have a strong legal awareness and will not take precautions when they ask for personal information. This poses a major threat to the security of their personal information.

4. Legal protection of foreign personal information in the era of big data

4.1. Legal analysis of EU personal information protection
The EU has earlier protection of personal information, forming a unique EU model. With regard to the protection of personal information, the European Union protects all aspects of the collection, processing and use of personal information through laws. The law applies uniformly to the public and non-public sectors, protects personal information through various links, and sets up a comprehensive supervision by the regulatory authorities. The EU's Personal Data Protection Directive has been recognized by many countries, and its unique legislative model and advanced legislative technology have made it widely applicable in Europe. The EU’s personal information protection model has an early origin, strong applicability, and clear enforcement mechanisms. This law raised the EU’s protection of personal information to a new level, and this law entered foreign companies, played an important role and was widely disseminated, making Europe a model for global personal information protection.

4.2. Legal Analysis of Personal Information Protection in the United States
The protection of personal information in the United States is mainly based on the right to privacy. Not only decentralized legislation, but also corresponding industry self-regulation. In the public domain, the United States takes the right to privacy as the basis of the Constitution and administrative law, and adopts a decentralized legislative model to legislate one by one. In the private sector, the United States relies on self-regulatory mechanisms to protect personal information, and according to the specific content of personal information, it is supervised by the corresponding regulatory authority. Although the United States has a unique protection model, the protection based on the right to privacy is not comprehensive, and it is also a question for contemporary personal information protection[3].

4.3. Legal Analysis of Personal Information Protection in Japan
Japan's legal protection of personal information started late and was made by drawing on European and American legislation. Japan attaches great importance to the legal protection of personal information. Japan passed the Personal Information Protection Law in 2005. After the implementation of this law, personal information will be fully protected. For the protection of personal information in the era of big data, Japan also pays attention to industry self-regulation and community participation. A multi-pronged approach has formed a unique personal information protection model in Japan.

4.4. The experience of foreign personal information legal protection in the era of big data and its inspiration to China
With the development of China's Internet technology, modern information technology in the era of big data has brought challenges to the protection of personal information in China. In the public sector, many industries are collecting personal information, but related departments have not fulfilled their obligations of confidentiality, resulting in the leakage of personal information of many citizens; in the non-public sector, personal information leakage is more common, and many industries are on the Internet Platforms conduct transactions, and these platforms do not protect customer information, and even some platforms collect customer information through this channel, and use it for advertising or sales. Although the relevant laws of China have also provided relevant provisions for the protection of personal information, there is no special law on personal information protection, nor has a complete legal system been formed, and the protection of personal information is not comprehensive. Therefore, on the basis of existing laws, China should fully draw on foreign experience to form a personal information legal protection system that is in line with China's national conditions, and implement
targeted and comprehensive legislation on the protection of personal information. Personal information is most effectively protected.

5. Suggestions on China's Personal Information Legal Protection System in the Big Data Era

5.1. Accelerate the legislation of personal information protection
China needs to fully absorb and draw on the legislation of the European Union, the United States, and Japan. Model, formulate the Personal Information Protection Law and improve the relevant legal system. In the context of the era of big data, it is necessary to adopt a more flexible jurisprudence system based on the civil trust law, in order to complete the construction of the order for the use of personal information during continuous adjustment and adaptation, and to give full play to the last of the criminal law under the principle of moderation. Protective effects. Based on the existing laws, it should be based on the top-level design. The protection of personal information must be made specifically for the big data environment. The problem of lagging legislation should be solved, and a systematic and targeted law should protect personal information. Play a greater role.

Under the big data environment, data collection, processing and publication are more convenient, which is both an opportunity and a challenge for the protection of personal information. In the context of the era of big data, the law should also make corresponding provisions on the methods and methods of collecting data information. First, the collection of personal information must be lawful and proper. It must comply with both laws and policies, respect social morality, observe business ethics, and be honest and trustworthy. Illegal collection, use, processing, and transmission of personal information of others are all inconsistent with the law. The purchase, sell, or disclose of personal information must be within the permits of the law. Secondly, when collecting and using personal data of citizens, the data information collector needs to indicate to the collected person the purpose of collecting personal information. It is best to leave a written certificate. This can properly restrict the scope of use of the collector. On the one hand, it also leaves a basis for the later rights protection, in case the information is used by others. It is convenient for citizens to safeguard their rights. Especially for the purpose of collecting data information for the purpose of commercial transactions, the user's personal data cannot be used without the consent of the user. Employers, state agencies, etc. should clearly understand the purpose of collecting personal information. If the collected person does not know the purpose of the information, and may adversely affect the collected person, or the collector has no right to collect, it is a manifestation of violation of personal information. When collecting data and information, it is necessary to tell the citizens who have collected the information whether the information is required by state agencies, is used for commercial activities, or is used in teaching and research. In particular, those engaged in Internet business must fulfill their obligation to keep customers confidential. The collected customer information cannot be used for purposes other than service. Institutions such as schools and hospitals cannot use the collected personal information for profit-making purposes. Otherwise, it will not only infringe, but also affect the credibility of these units and cause significant adverse effects. Finally, the collectors and users of information should keep the information secure, and they should protect the security of the information. They must not leak the information to others or cause the information to be lost due to their own reasons. The integrity of collected personal information should be protected, and cannot be added, deleted, or modified at will.

5.2. Improve judicial protection procedures and judicial remedies
Although China has relevant legal protections for personal information, there are still many problems in its implementation. This requires further improvement of judicial protection procedures and judicial relief measures. The government should strengthen the timeliness of supervision and law enforcement, and establish an authoritative and efficient law enforcement agency. So far, China does not have a specialized data protection agency. When people's personal information is violated, it is relatively difficult to remedy it. The state shall set up a special personal information protection agency to manage personal information and issue strict policies to maintain information security. In China's
future personal information protection law, personal information should be standardized and embodied as a separate right.

If the legislation is simple and the implementation is not emphasized, then the legal provisions will be a dead letter. On the basis of legislation, we must strictly enforce the law and strengthen supervision over all aspects of law enforcement. If personal information is infringed, legal remedies can be taken to resolve the problem through litigation procedures. Therefore, judicial institutions and social organizations are required to monitor the market environment and strive to reduce the leakage of personal information at the source and in all aspects of information collection and processing, rather than seeking solutions and approaches after the leakage[4].

5.3. Deepening International Personal Information Security Cooperation
The security of personal information is closely related to the life of each citizen, and also related to the security of the country and the stability of society. In the era of big data, the collection and dissemination of information have become more convenient. Information is not only disseminated within a country, but also easily spread abroad. Because the social nature and laws and regulations of different countries are different, it is difficult to protect personal information across countries. It is no longer possible to meet the needs of society simply relying on domestic power to protect personal information security. Under such circumstances, it is necessary to deepen state cooperation, strengthen communication between countries, establish institutional mechanisms to protect information security, jointly protect information security, and maintain social harmony and stability.

5.4. Raising awareness of citizens' legal protection of personal information
As an ordinary citizen, we should also have the awareness of protecting personal information security. Pay attention to the use of social tools, avoid the annotation of personal information as much as possible, and block the key information when drying photos on QQ space, friends circle, microblog and other platforms. Don't use or use irregular websites or apps. Don't fill in the questionnaire or vote at will online or offline. Be careful to click the link of free gift collection or free fortune telling. When installing mobile software, choose "allow" carefully. Try not to set the mobile phone software as automatic login, and set the password every time you log in; the password should be changed regularly, with high security factor, and do not use a simple number group.

6. Conclusion
Compared with traditional personal information protection, it is more difficult to determine the subject of tort in the era of big data, for the acts of tort are more diverse, and personal information is more likely to be illegally obtained and sold. However, China's personal information protection is obviously insufficient. There are problems of scattered laws, poor operability, vague scope of personal information, imperfect informed consent rules, immature rights relief mechanism, insufficient administrative protection, and insufficient criminal law protection. In view of this, it is necessary to improve the legal protection of personal information in the era of big data by accelerating the legislative work on personal information protection, improving judicial protection procedures and judicial remedies, and deepening international personal information security cooperation, raising the awareness of citizens' legal protection of personal information, etc.

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