

Research on Logistics Information Risk Management and Control based on Mobile E-commerce

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Abstract

Firstly, this paper combs the research status at home and abroad. Secondly, this paper classifies the types of information risk. Thirdly, this paper infers the ways and reasons of information risk. Finally, this paper puts forward optimization measures from five aspects: Law, information technology, supervision system, information protection awareness and information supervision system, in order to provide theoretical guidance for the sustainable development of mobile E-commerce industry.

Keywords

Mobile E-commerce; Logistics Information; Risk.

1. Literature Review

Mobile E-commerce is more and more used in our daily activities, which brings the rapid development of logistics enterprises and E-commerce enterprises. In fact, E-commerce and logistics enterprises integrate with each other and promote each other's development [1]. In the big data society, the commercial value of personal information in logistics activities is rapidly amplified, so cases of personal information leakage occur from time to time. According to relevant data statistics, more than 70% of Internet users' identity information in China has been leaked, and the leakage of logistics personal information provides an opportunity for various criminal activities [2]. Due to the large number of transaction objects in mobile E-commerce activities, there are many potential risks of logistics information in the process of logistics distribution management [3]. Peng Dong proposed that the logistics and express delivery industry contains a large amount of information such as consumers' name, contact information, address, identity information, and commodities traded, which will cause risks [4]. Wenqiang Qi points out that the first E-commerce seller deals with express tracking numbers in order to improve store reputation, and the lack of professional quality of some staff in the second logistics industry aggravates the risk of consumer information disclosure [5]. Lina Shu added other points of view. At present, the management and technology of logistics enterprises are underdeveloped, and the business of express delivery by others is developing continuously [6]. Xiuli Tan added that the level of regulations in related industries is too low [7]. Tengfei Ju expressed that sensitive information leakage is one of the biggest risks of applications on mobile devices, and user data is directly stored on the device during users' use, which poses a great risk [8].

As for risk prevention and control, China mainly protects information through Internet of Things technology [9]. For example, the image can be encrypted for many times and two-dimensional code can be used to replace address privacy information [10]. Some scholars start from the law to improve the internal supervision system of logistics enterprises, so as to ensure the professional quality of logistics practitioners [11]. In order to strengthen the protection of personal information, laws should be flexible to match reality with reality [12]. However, the

information protection provisions in the criminal law must be improved in order to restrain the behavior of using the law to commit crimes [13].

Constantly strengthen the monitoring and control of E-commerce logistics and express delivery enterprises in various aspects, and on this basis, promote the implementation of real-name registration system [14]. It is necessary to make clear who is responsible for information leakage, pay more attention to relevant professional qualifications and requirements of professional ethics when determining subcontractors, and sign confidentiality agreements with relevant companies [15]. In addition to formulating privacy policies, E-commerce platforms should acquire as little user information as possible and emphasize that businesses should effectively protect user information [16]. Huiqing Wu proposed that the method of pick-up can be improved, such as using biological pick-up technology and building a comprehensive platform for unified management of logistics information [17]. Information security is publicized in daily life, and the risk of information disclosure and the importance of information security protection are increased through the media to guide the whole society to attach importance to the awareness of information protection [18].

Foreign scholars define personal data as any one or more information related to natural persons that has been determined or can be determined [19]. Therefore, the method adopted by the United States is to use the social security number to ensure that the information of each employee is searchable [20].

2. Relevant Theories and Concepts

2.1. The Concept of Mobile E-commerce

Mobile E-commerce refers to B2B, B2C and C2C business models implemented through mobile smart devices, PDAs and PDAs. Internet, mobile communications, short distance communication technology and other organic integration of information technology, make people can carry on the various business activities anywhere, anytime, anywhere, anytime, anywhere at any time and can carry out shopping deals, mobile payment online, all kinds of financial industry, trading, business negotiation, theme activities and all kinds of form a complete set of business events.

2.2. The Concept of Logistics Information Risk

2.2.1. The Concept of Risk

In fact, risk can be defined differently according to our differences. At present, risk is widely defined as the variability of damage generation. In fact, the non-impact of logistics information network is mostly seen in the old network, but it is very different from the general network risk in terms of presentation, intensity or degree of harm. Overall, the characteristics of logistics information network security risk are concealment and diversity. Concealment comes from asymmetric encryption of data. At the same time, in the logistics information network, the risk is not a single, but a whole, which greatly increases the difficulty of risk prevention.

2.2.2. The Concept of Logistics

Logistics is the whole process of planning, implementation and control of supply chain management operation in order to meet the needs of users and establish efficient and cost-reducing positive and reverse liquidity and storage of goods, services and personal information between the place of production and the place of market sales.

2.2.3. The Concept of Logistics Information Risk

With social and economic development, the Internet technology has become an essential part of every household, and electrical business logistics also presents a trend of rapid development, in the mobile electricity logistics development trend of today, it represents the future of trade

mode and consumption mode, operation mode of independent innovation and diversification of the logic thinking, has become the key part of modern logistics industry. The definition of "logistics information risk" varies according to our understanding. The specific content is risk damage. Although the risks generated in logistics information network are common in traditional network, they are different from traditional network risks in terms of expression form, intensity or harm category. To sum up, logistics information network security risks are the adverse effects caused by logistics information in mobile E-commerce activities, which are characterized by concealment and diversity.

3. Analysis on the Causes of Logistics Information Risk Management and Control of Mobile E-commerce

3.1. Imperfect Laws Related to Logistics Information Management and Control

The protection of personal information is concentrated in the existing laws in the Criminal Law and the Law on the Protection of Consumer Rights and Interests. Although there are clear provisions of punishment, the protection of personal information is still only focused on the surface, and it is difficult to make a more substantive explanation.

3.1.1. Single Responsibility Form and Low Illegal Cost

Even if the express company steals and uses the consumer's personal information, its legal liability is usually limited to stopping the continuous infringement, asking for the restoration of the consumer's reputation and making a certain apology. In fact, it is difficult to use the personal information to cause the personal or property losses of consumers in the actual process. Therefore, the legal liability of compensation for losses is almost difficult to play its real role.

3.1.2. The Relative Backwardness of Personal Information Protection Legislation

At present, there is no special law for the protection of personal information security in China, and all relevant legal provisions are generally scattered in various legal provisions, administrative regulations and judicial interpretations. Although China's criminal law is indeed mandatory, its initiation conditions are difficult to establish, and the costs involved are very high, so it is difficult to protect ordinary information disclosure or infringement. In addition, at the level of civil law, although The Law on the Protection of Consumer Rights and Interests and The General Principles of Civil Law have formulated relevant civil legal liability and legal liability, there is no overall planning for the specific punishment system.

3.1.3. The Difficulty of Consumers' Rights Protection and Proof

China's express industry is developing continuously, but the working system and working standards in this field are still unqualified. The service standards of each private express company are different. For the flow of customer information content, there are indeed too many channels available, and it is difficult to cross examine the data leakage. In addition, when customers find that their private information has been leaked, they cannot take out the national legal weapons and equipment to protect their legitimate rights and interests.

3.2. Inadequate Supervision of E-commerce and Logistics Business Platforms

At present, the domestic logistics industry generally shows the characteristics of many work processes, fine division of responsibilities, strong personnel mobility, scattered business outlets and so on. Therefore, the management of express companies is more complex than other industries, and the regulations are more strict and higher. However, in China's current large companies, it is not easy to achieve consistent training management in the training and management of bottom distribution personnel. The management philosophy and corporate culture of different companies have not reached consistency. At the same time, the company's own control and incentive system also needs to be improved. The company's internal

monitoring is not in place, and the company's internal employees are also very lack of security awareness of customer network information security. The franchise process of regional franchise agent logistics outlets can be said to be relatively simple, and the supporting franchise agent management scheme is not perfect. Therefore, the staff of freight logistics providers and express companies who join the agent have great randomness in the actual delivery process, have less constraints on them, and the risk of customer information disclosure is also greatly increased.

3.2.1. Hidden Dangers of Information Leakage in Logistics Business Transfer

The consumers of online shopping are very scattered geographically. There are imbalances in the circulation of goods in different regions. Nowadays, in order to reduce costs or improve business optimization, express enterprises usually subcontract various businesses. This leads to the situation that the express business is usually subcontracted at all levels, so that the private information of consumers can be obtained in many links and is relatively complete. In this way, it is impossible to find out what link the consumer information is leaked from, to greatly increase the potential risk.

3.2.2. Information Leakage Risk Caused by Low Quality of Employees in Logistics Industry

Firstly, the awareness of consumer information protection has not been highly valued by all staff in the express industry. In the final analysis, their literacy is not qualified and they are not aware of the risks that may arise from information leakage. The threshold set by express companies who want to enter the market is not high enough. In addition, driven by a variety of profits, business network operators across the country are likely to inadvertently or deliberately disclose or use consumer information. This is also because the self-operated express enterprises have not strictly certified the qualification of their subsidiaries' freight logistics companies, and have not set clear employment regulations for their employees. This makes operators have no awareness of positive protection of consumer information.

Secondly, the current staff have not carried out professional moral education in the field, and customer information is easy to become a special tool for profit. 90% of the employees of private express enterprises are all front-line field operation staff. Their daily work is basically hard physical work. Due to the labor force, these people are mainly rural workers or laid-off workers. They are not clear about the relevant provisions on professional ethics and competence. Therefore, the staff's sense of responsibility is not strong. In order to better obtain temporary benefits, they usually carry out personal behavior of consumer information trafficking, which has become an urgent problem for the private enterprise express industry to maintain a healthy development trend.

Thirdly, in order to better maximize the operating revenue and profit, China's private express enterprises usually adopt the crowd tactics. In particular, the collection and distribution of express packages also have transportation and other operations, which all rely on continuous replacement of human capital in the short term to reduce costs. This causes the staff of the express company to change very frequently, which may lead to some uncontrollable hidden dangers. Coupled with the rapid development trend of the express industry, more and more companies compete with each other, and the profits of some enterprises drop sharply. The welfare treatment of employees in most private express enterprises cannot be handled, resulting in a much higher turnover rate than in general fields, which will also promote the improvement of the risk of consumer information disclosure.

3.3. Consumers' Weak Awareness of Logistics Information Protection

Firstly, it is difficult to cross-examine the disclosure of customer information. As a result, most customers are unwilling to go too far into the protection of consumer rights and interests after

the data leakage, and most of them choose to change their purchase methods and logistics companies. This mentality, not only cannot repair their own harm, but also let the criminals more rampant.

Secondly, due to the blindness and simplicity of online consumption, some customers do not pay much attention to the maintenance of their own information when shopping online or mailing by express companies, and will input important information for record. The express tracking number containing information will be discarded casually, increasing the risk of information disclosure

3.4. Driven by the Interests of Logistics Information Market

In recent years, the field of E-commerce logistics has risen rapidly, and online shopping has become one of the specific ways for contemporary families to buy things. When shopping and selecting products online, people pay more attention to the reputation level and total sales volume of E-commerce businesses. In other words, a large number of stores will leave a deep impression on customers. Therefore, some merchants want to improve the level of stores and increase the transaction volume of goods, and falsely report the transaction volume by ordering some logistics order numbers. In the whole process, in order to avoid the monitoring and punishment of its service platform, E-commerce businesses must actually have a logistics order number that can be found and used. These order numbers have real order records, effective delivery time and delivery address. Therefore, there are various websites on the Internet where technical professionals sell logistics order numbers to make profits, which provides an Internet platform for E-commerce businesses to buy logistics order numbers. Even the sales of express order numbers have formed a huge gray industry, resulting in the increasing leakage of customers' private information.

3.5. The Negative Impact of Real-name Logistics Information System

According to a document released by China's Post Bureau, the national express delivery must implement the real name system. Resist some illegal personnel to use express information to implement illegal behavior. The requirement stipulates that sender must provide their id cards or personal information on their ID records to ensure that the correct sender's name, contact number, home address and items of the express company can be collected truthfully and accurately. This protects the stability and uniformity of information sources to a certain extent, but also hinders the security of buyers' personal information. Sometimes due to the imperfect confidentiality management system, the collection of real information content will lead to the leakage of customers' personal information, so that customers are completely exposed in the eyes of criminal suspects. Because of this, many buyers refuse to verify their real names with delivery companies. However, the real name system and personal information security are not in opposition. Although real-name express delivery system in some cases will increase the risk of data leakage, but as long as the establishment of good personal information security rules and regulations, real-name express delivery system and personal information security can promote the protection of the effect.

4. Countermeasures for Improving the Risk Management and Control of Mobile E-commerce Logistics Information

4.1. Improve the Logistics Information Protection Law

Laws and regulations have always been the most powerful means to curb criminal behavior. With the development trend of modern society, the economic benefits of private information are expanding, and everyone is gradually concerned about the maintenance of their own information content. However, there are no professional laws and regulations on privacy information and personal privacy protection in the activities of logistics express industry in

China. In particular, the laws and regulations on personal information security cannot keep up with the pace of the new era. Relevant policies and regulations are scattered everywhere, the punishment requirements are uncertain, and the total number is very small. It is extremely difficult to formulate a series of perfect legal norms to maintain the protection of personal information. Relevant laws on logistics information protection should be issued as soon as possible to avoid the leakage of customers' personal information due to unreasonable operation steps of logistics express industry or unreasonable acts of operators.

In terms of customer personal information security, China should implement the implementation plan to solve the privacy information. The personal information security system and audit system should be continuously improved, the pace of scientific research should be accelerated, and the introduction of the personal information protection law should clearly establish private information as one of the rights of personal freedom. The comprehensive maintenance of user information system software can provide legal protection for customers when they complain about data leakage, so that customers can have law and reason to follow when they sue for data leakage.

At present, we should optimize the current laws and regulations to maintain customer privacy information. So that customers can have corresponding laws and regulations to protect their legitimate rights and interests when privacy information is leaked and violated, so as to standardize the personal behavior of employees in the logistics industry and make the logistics industry a healthy and rational development trend.

4.2. Strengthen the Research and Development of Logistics Information and Data Security Technology

The user's real identity has been evaluated for technicality for many times. In the whole process of cloud computing, the operator carries out multiple evaluations and verification of the user's identity information. The operator can establish your true identity and ensure that the user's use is routine, so as to achieve the purpose of maintaining the customer's identity information. Technically, it is necessary to update the server firewall. Two sets of monitoring systems must be installed to supervise the internal structure and external Internet technology communication system respectively. While avoiding criminals from invading from the outside to obtain customer network information security information according to various ways, they can also limit the total number and quality of system software at the same time to a certain extent, it has high statistical analysis characteristics, so it is a feasible way to update intrusion detection technology.

Using intrusion detection technology. When the cloud computing service platform uses intrusion detection technology, it can maintain the reliability of customer information faster, block the invasion of computer viruses, and produce the highest level of security measures.

4.3. Improve the Supervision System of E-commerce and Logistics Industry

In China, logistics and express industry has the characteristics of large quantity, small scale and chaotic competition, which makes the operation behavior of logistics and express industry more chaotic. Express companies should strengthen the construction and improvement of internal management system, strengthen professional ethics education and improve the professional quality of employees. The operation and management should be more rational and standardized, and the daily standardization and supervision of lower level franchisees should also be strengthened.

Business operators must strictly abide by relevant laws and regulations on personal information protection. Improve the punishment system for the disclosure of consumers' personal information. This should start from the two aspects of technology and punishment, technically construct an effective express transportation system of the bank, and make the

punishment mechanism more clear. In the past, transport documents were written or printed by hand, which was easy to identify and used for other purposes, but this can be improved. The user's personal data is processed with password technology, so as to achieve the purpose of keeping the user's key data confidential. A secret private information circulation channel is formed between express enterprises and users.

Industry associations should establish a punishment mechanism for information disclosure. The association shall make corresponding confidentiality provisions for all express companies. Once found out, it will need to be severely punished and included in the blacklist of the express industry. At the same time, major E-commerce platforms should also strengthen the supervision of online businesses. Businesses that forge transaction records should also be blacklisted. On this basis, corresponding punishment measures are also taken for those who violate the confidentiality system, so as to achieve the purpose of prevention and deterrence. In express delivery enterprises, we should clearly investigate the information leaked in transportation, establish a special customer complaint team to accept consumers' complaints and opinions, and punish those who leak information.

4.4. Improve Consumers' Awareness of Self Logistics Information Protection

Consumers should enhance their personal safety awareness and learn how to avoid risks. Learn more relevant knowledge, understand the adverse consequences of personal information disclosure, and constantly strengthen the self-generated awareness of prevention, to avoid risks. It is urgent to improve the self-prevention awareness of citizens. We can skillfully use Internet technology, television and other news media to correctly guide everyone to attach great importance to private information and always be vigilant against violations of their own identity information. When filling in the recipient's information, the sender shall try to choose the office location and office telephone, and some express bills shall be properly kept to avoid being used for proof in case of disputes. After taking the pieces, we should eliminate the left information in time. In the face of the infringement of personal information rights, we should dare to protect our rights, and when necessary, we should use legal weapons to safeguard our legitimate rights and interests.

4.5. Establish a Multi-party Supervision Logistics Information System

Protecting users' personal information is inseparable from the internal governance of express enterprises. The government, industry associations and society are also key regulatory subjects, and the express industry should be supervised and managed from many aspects. In terms of government supervision, all departments should perform their respective duties and responsibilities, jointly promote the normal and orderly development of the express industry, and establish a user information security protection evaluation system. The Administration for Industry and Commerce shall strictly implement the relevant provisions of the state, control the market access card of express enterprises, and eliminate the risk of information disclosure in the bud. Trade associations should set up special information infringement dispute resolution institutions, formulate practical dispute handling rules, and implement preferential protection for users in a vulnerable position by means of litigation, to make up for the lack of litigation relief and improve the enthusiasm of users to protect their rights. Radio and television, newspapers and magazines, the Internet and other media are the main part of social supervision. They should shoulder the burden of social responsibility, dare to expose the industry chaos of users' personal information disclosure, criticize and condemn illegal operators, so as to arouse the industry's vigilance and reflection, promote the express industry to continuously realize self-improvement and development, and pay more attention to the protection of users' personal information.

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