The Practical Dilemma and Method of Personal Information Protection in the Era of Big Data

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Abstract. The era of big data brings us not only an opportunity given by the development of the era, but also a challenge. To improve Chinese citizens' quality of big data application is also an inevitable internal requirement for the social and economic development of various countries and regions in the era of big data economy. In the era of big data development, the security leakage of personal information has become more and more serious, which has aroused people's high attention and increasing concern. The purpose of this paper is to provide countermeasures and Suggestions for the reasonable protection of personal information by deeply analyzing the practical dilemma and solutions of the reasonable protection of personal information in the era of big data. In this paper, first of all, this paper expounds the dialectical nature of the current era of big data network information search on the personal information security in our country the major risks and opportunities for development, and the in-depth analysis of the current our country network information search security risk main origin, on the basis of focus from legal ideological cultivation, inspection du regulatory legislation, application technology and so on three aspects put forward to speed up the building of the personal information security management system in our country strategic thinking. And then comb through studying related literature review of network information security evaluation index system, using the evaluation index system of comprehensive level calculation analysis method for network actual weight of each evaluation index in the relationship between level computation, the result shows that composite reliability were greater than 0.7, which eventually concluded that a more reasonable and practical index system of network weight calculation.

Keywords: Data Security, Personal Information Protection, Big Data Era, Security Indicators
1. Introduction

With the rapid development of our global network information, personal information security has gradually become the focus of attention. It has gradually become an important task for the administrative supervision department of network information security to do a good job in the security control and management of network security information system and ensure that personal information and related data are not disturbed, changed, damaged or maliciously disclosed by any outside malfeasant organizations. Huge amounts of data in the field of the current human society industries are growing at an annual rate of explosive growth, large data real-time transmission and storage, and other information exchange way can completely across the giant of the limitations of time or space, the massive databases and other information systems security dependence is becoming more and more high. However, in order to bring convenience to people's life, the existence of big data also puts forward higher technical requirements for the security control and management of national network security information system.

In an era when the discussion of information privacy has become the mainstream media, the study of network security education shows that teachers and staff of primary and secondary schools are very concerned about the information privacy of schools, and they want to know more about how to protect the online personal information of students and themselves. Privacy topics are usually introduced into one or two categories of k-12 members; Cyber security/cyber security. Shellie Hipsky assessed the level of cybersecurity training received by k-12 teachers in schools in Allegheny county, Pennsylvania, and assessed the privacy topics that teachers and staff consider important and beneficial to their work and personal lives [1]. The contemporary digital world, based on network communication, globalization and information sharing, presents important new objectives in the field of privacy and personal data protection, reflecting the application principles of secure access to the proposed information structure. Safe use of all resources in an e-learning environment is therefore a very important objective and appropriate technical and organizational measures must be taken to verify, authorize and protect personal data. Strong security procedures should be put in place to protect users' data, designed after successful registration, and collect all personal information through the education process. Radi Romansky combines traditional e-learning technologies with new opportunities for mobile applications, cloud services, and social computing. These technologies can compromise data security because they make it possible to access resources remotely and share information among participants through network communication [2]. Recently, when updating products for windows-based agents, the integrity of malicious files is broken or abnormal behavior of products occurs frequently due to the intentional modulation/deletion of products by users. Based on products such as computer antivirus, personal firewall (integrated PC security), data loss prevention, secure USB, and network access control, the products themselves will attack and become neutralized or bypass the existence of security vulnerabilities. To prevent this from happening, Kisoo Kim wanted to help in the development process by organizing the measurement of the self-protection capabilities required for windows-based information security products [3].

This paper elaborates the background of the era of big data, expounds the urgency and necessity of network information security control under the background of big data, and puts forward three elements of network information security control mechanism, namely network controller, environment and technology. Starting from the relevant control strategy and security control technology, the
network information security control evaluation system is established, and the network information security control evaluation system is applied to provide reference standards for the network information security control work. Finally, on the basis of the above, the relevant strategies of network information security control are proposed to provide necessary Suggestions for network information security work.

2. Proposed Method

2.1. Big data

(1) Characteristics

1) The data structure of big data is very diverse, and the data types are very complex and changeable. It can not only include a variety of conventional structured massive data processed by computers, but also include a large number of unconventional structured data processing information such as audio, video, text, audio and massive pictures. The distribution source of Internet information data has three characteristics of its own. Moreover, with the continuous improvement of information technology supporting platforms such as cloud computing and Internet of things, the distribution source of information system data gradually develops towards the general trend of information diversification, and the distribution source of Internet information data gradually increases. Emerging in recent years the use of the Internet of things of all kinds of signal data acquisition and image sensors and detection devices, such as the intellectualization and medical monitoring equipment of industrial application characteristics of various natural life science observation data, such as astronomical telescope produced by a large number of all sorts of all sorts of astronomical meteorological observation, and related information processing data, etc. [4-5].

2) Traditional big data technology has the basic characteristics of high application value and low density. Although big data can have a huge amount of decision-making data, the specific information and decision-making data resources that can provide beneficial guidance to the government's decision-making work are limited, which requires us to conduct effective analysis and mining. If the relatively limited research value is divided by the huge mass data collection base, it is equal to making the current big data research form another important feature with large value and low density. Need special stressed the point that, low density value structure of the data is not necessarily a no intrinsic value, but emphasizes the intrinsic value of the out of the big data density directly by using more sophisticated data algorithm technology further analysis on big data mining can be reflected, the technology for large data processor development puts forward a new technical requirements.

3) Fast information processing and fast speed are the main characteristics of big data. Because of the huge amount of big data resources in the world, collecting and extracting effective information from them has become an important key to promote the role of big data resources, so the speed and requirements of the transmission and information processing of big data resources have been greatly improved [6-7].

(2) Function

1) The application of the new generation of information fusion technology mainly lies in the comprehensive processing and analysis of enterprise big data. Technologies such as Internet of things,
mobile intelligent Internet, social media network and mobile e-commerce are important applications and new forms of the current generation of mobile information basic technology. These information applications have gradually developed and generated massive big data in the process of our operation. Cloud computing for these species diversity, a large number of enterprise data resources provides integrated computing and data storage platform, through the system integrated with large data processing, analysis, management, optimization of the whole process of cloud computing platform to apply the results of these data after processing real-time feedback to the upper layer of the applications of information technology services, you can directly make the whole human from the large-scale data can obtain greater economic and social and other economic application value [8].

2) Big data has become a new growth path for the upgrading and development of China's information technology industry. With the continuous innovation and development of big data and other related application technologies in China, new technological products, new application technologies, new service forms and new technical services are gradually emerging in the big data application market in China, and the market is developing rapidly. In the field of electronic information technology service software, big data will also accelerate the continuous improvement of data mining and analysis technology, data acquisition and processing capacity and analysis and calculation speed, as well as the rapid development of information software-related product technology development industry [9-10].

3. Experiments

3.1. Experimental Background

With the comprehensive and deep penetration of the Internet and the integration of the Internet involved in the daily life of each era, study, work and interpersonal networking, network security is more and more prominent. If there is no a secure network environment, the safety of people is impossible. Along with the development of network information has become the main tool and means of information collection and transfer, the popularity of the network information security technology and the rapid development and progress is rapid, at the same time, however, for the comprehensive control of network information security is often misunderstood by people for the society and neglect, caused the network information security technology of loopholes and problems mount, the threat to national security also adversely and influence. Therefore, the governance of network information security has become an important aspect that countries have to strengthen.

3.2. Experimental Design

The evaluation index system of personal information security control is a complex, interrelated and highly integrated system, which involves both hardware and software, and has both external and internal influences. All kinds of factors affect and restrict each other, so the evaluation index should reflect the whole content of information security from each side. This paper proposes a network information security control mechanism based on the big data background of "network controller", "environment" and "technology". In order to verify the influence of these three factors on network information security, this section constructs an evaluation model of network information security control.
In view of the research hypothesis, the author designed a research questionnaire for empirical research. Form of questionnaire is 7 likert scale, in view of the research model of "environment" "network control personnel" "technology" and "personal information security" four variables related questions, and work in the network information security related departments, such as enterprise information security management department, social network information regulation unit and so on carries on the questionnaire, a questionnaire 200, recycling questionnaire 194, received 185 valid questionnaires after rejecting invalid questionnaire, questionnaire recovery rate was 92.5%, the results are shown in Table 1.

| The dimension | Item | Estimated model parameters | Reliability and validity |
|---------------|------|-----------------------------|--------------------------|
|               |      | Non-normalized factor load  | C. R (T-Value)          | SMC | AVE |
| Network       | Q1   | 1                           | -                        | 0.513 | 0.569 |
| controller    | Q2   | 1.084                       | 8.476                    | 0.646 | 0.767 |
|               | Q3   | 1.097                       | 8.257                    | 0.438 | 0.463 |
|               | Q4   | 1                           | -                        | 0.762 | 0.262 |

4. Discussion

4.1. Analysis of the Practical Dilemma and Methods of Personal Information Protection in the Era of Big Data

As shown in Figure 1, the absolute value of the critical ratio was all greater than 1.96 and all P values reached the level of 0.001, proving that the correlation significance of each observation variable with its dimension reached the standard. SMC is the multivariate correlation square of observed variables, indicating the degree to which observed variables are explained by their underlying variables, that is, the reliability of observed variables. All SMC in the table are greater than 0.36, which proves that the reliability of the model meets the standard. CR is the combinational reliability, which is greater than 0.7, which proves that there is a good credibility between the observation variables of the same dimension, indicating the intrinsic quality ideal of the model. AVE is a sampling quantity of mean variance and a convergent validity index. The larger AVE is, the more effectively observed variables can reflect the underlying characteristics of their common factor dimensions. Generally, AVE is required to be greater than 0.5.
Figure 1. Analysis of survey results

To establish the weight coefficient of evaluation system of network information security control, can provide certain guidance for the work of network information security, the index weight of different in the network information security work can reflect the focus of work, focus on resources focus on the key work, give full play to the evaluation system of the network information security control. From the weight of each level of indicators, it can be seen that the weight of the three elements of the network information security control mechanism are technology, personnel and environment in order, and the index weight determined by the expert scoring method is consistent with the data reflected by the questionnaire survey, which enhances the scientificity and credibility of the evaluation system.

4.2. Suggestions Based on the Practical Dilemma and Methods of Personal Information Protection in the Era of Big Data

First Internet users of Internet information security work is under the background of the Internet and big data era the core and focus of personal information security management work, only the practical safeguard and maintain the network users of the Internet information security, to network users in the psychological fully creating credible wayward correct understanding to the network, can effectively promote the other user's use of the Internet information network management and behavior. Second, Internet users as object, the maintenance and management of network information security of network information security behavior of managers should be on the necessary knowledge of network education and safety consciousness cultivation, which can ensure that they are fully understand and participate in the use of network information security management activities, on the basis of regulating the behavior of the use of network, from the Angle of network management object, to safeguard the network information security.

5. Conclusion

This paper is based on the summary of domestic and foreign research, combined with the actual investigation of network personal information security, the use of relevant knowledge and methods
written. Articles from the big data under the background of network information security control theory, this paper use qualitative analysis method is put forward under the background of big data of the three elements of the network information security control, and proposes the network information security surrounding the three elements of control mechanism, to analyze the main line, through the network information regulatory investigation and interviews, using empirical analysis methods validation AnQuanSan factors impact of network information, and by using hierarchical analysis method to build big data under the background of network information security control evaluation system.

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