

# An analysis of the legislative Choice of Personal Information Protection in the era of Big data

Zihan Liu

Beanstalk international bilingual school

17685516365@163.com

**Abstract.** In the background of the rapid development of modern science and technology, artificial intelligence, the Internet of things, blockchain, cloud computing and other advanced technology has been widely used in social construction and economic aspects of life, our social economy has also entered the era of big data. Nowadays, governments and enterprises of all countries, after clearly recognizing the rich value of personal information, begin to combine their own needs with the use of information technology software mining application and storage management, but because the security of personal information is not perfect, so often personal information security suffered incidents, which not only threatens the personal privacy of the information subject, Also reduces the level of information security in every, has a direct influence to social stability and development. Therefore, on the basis of understanding the current research status of legislation on personal information protection in the era of big data, and according to the management framework of big data network operation platform, this paper focuses on the effective measures for the selection of legislation on personal information protection based on the online behavior analysis ability of a university, so as to make full use of rich information resources.

**Keywords:** Big data; Personal information; The legislative protection; Operation structure.

## 1. Introduction

With the rapid development of information technology, the processing efficiency of information resources is getting higher and higher, and great economic benefits will be generated during processing and mining. Nowadays, big data has been applied in many fields. For e-commerce, it is easy for users to leave personal information on the trading platform, such as age and gender, logistics transactions, etc. Merchants can quickly know the brand's market share, purchasing groups, preferred groups and other business information by analyzing these information. Based on these contents, sales decisions and management plans can be made as soon as possible. For example, American discount retailers collect women's and past consumption records and score pregnancy products after studying specific related items, so that relevant coupons can be pushed more accurately. In the field of film and television, American enterprises collect and analyze users' preferences for watching videos, then use big data analysis to master the audience's preferences and develop relevant film and television works. In the field of daily travel, American air ticket booking websites can accurately predict the trend of air ticket prices through integrated analysis after mastering a large number of air ticket price records, so as to help users buy low fares. It can be seen that the collection of data information in the era of big data can have a huge impact on people's life and work. Due to personal information contains rich application value, so often appear in the modern society development information such as stealing, illegal buying and selling illegal activities. [1-3]According to the research of practice, every year because of personal information leakage caused by the economic loss of countless, one of the most common is harassing phone calls, serious cases are telephone fraud. Although the development of the era of big data has brought convenience to people's life and work, and created more wealth for the development of Internet enterprises, facing increasingly severe problems of personal information security protection, scholars in various fields should comprehensively consider how to protect personal information according to the requirements of practice, strengthen the prevention and abuse of personal information, and formulate more perfect legal provisions.

Nowadays, Chinese scholars have put forward a number of measures to study big data technology and personal information security. For example, in the Personal Data Protection Law published by Xu Wenyi in 2001, the protection of personal information under the name of personal data was studied; In the Research on the Frontier Issues of Personal Information Protection published by Zhou Hanhua in 2006, the author mainly discussed the legislative situation of other countries in the world and the basic system of Chinese legislation, and grasped the problems in the implementation of laws in various countries through comparative study. In Liu Deliang's book on the Protection of Property Rights of Personal Information published in 2008, he mainly studied that the property right is the attribute of the right to the right of personal information, and the protection of personal information should be based on the system related to property rights. In the Legal Protection of Personal Data Privacy published by Kong Lingqi in 2009, the right to personal information and the right to privacy were compared and analyzed. In 2012, Guo Minglong published Tort Law Protection of Personal Information Rights, the author discussed the main issues of personal information protection from the perspective of tort law. Although the relevant theory of personal information protection in our country is not perfect, and the legislation is immature in fact, the information resources mastered in practice exploration are more and more, with the continuous improvement of the social economy and science and technology, it is bound to protect personal information resources comprehensively in the future. Therefore, in order to understand the problems and research status of personal information protection in the era of big data, this paper focuses on the legislative measures and effective countermeasures of personal information protection in the era of big data, according to the structure and basic function of big data operation management information system, taking the online behavior analysis and management system of a school as an example. This will provide foundation strength for the application of information resources and social economic construction.[4-6]

## **2. Methods**

### **2.1 Big data operation management information system**

In the era of big data, network operation platforms, master a large amount of personal information, such as wechat, Alipay, many information platforms need face recognition. In order to avoid the network operation platform from obtaining and selling personal information by means of network registration and directly infringing users' personal privacy, some scholars have proposed to build a big data operation and management information system, strengthen the system operation and management, fully demonstrate the supervisory role of government departments, and formulate a sound privacy protection regulation for Internet platform users. When creating a big data operation management information system, ensure that the overall system follows the following principles: First, integration. Support horizontal centralization and vertical integration from the architecture and function design, truly realize the effective sharing of data and positive interaction of applications; Secondly, advanced nature. In terms of system architecture, the enterprise data center should be scalable and advanced, and the processing of the data center should be reasonably deployed to truly meet the development needs of the enterprise in the future for a long time, and to create a harmonious and stable application framework for data application and application construction. Third, intelligent. Gradually change the traditional data application and service mode based on reports, pay attention to improve the application effect of data analysis and processing, fully show the driving role of data information; Finally, openness. The service object coverage of data centers is wider, so different openness levels should be set according to data security standards, service content, application level, etc. The overall architecture is shown in Figure 1 below:[7-9]

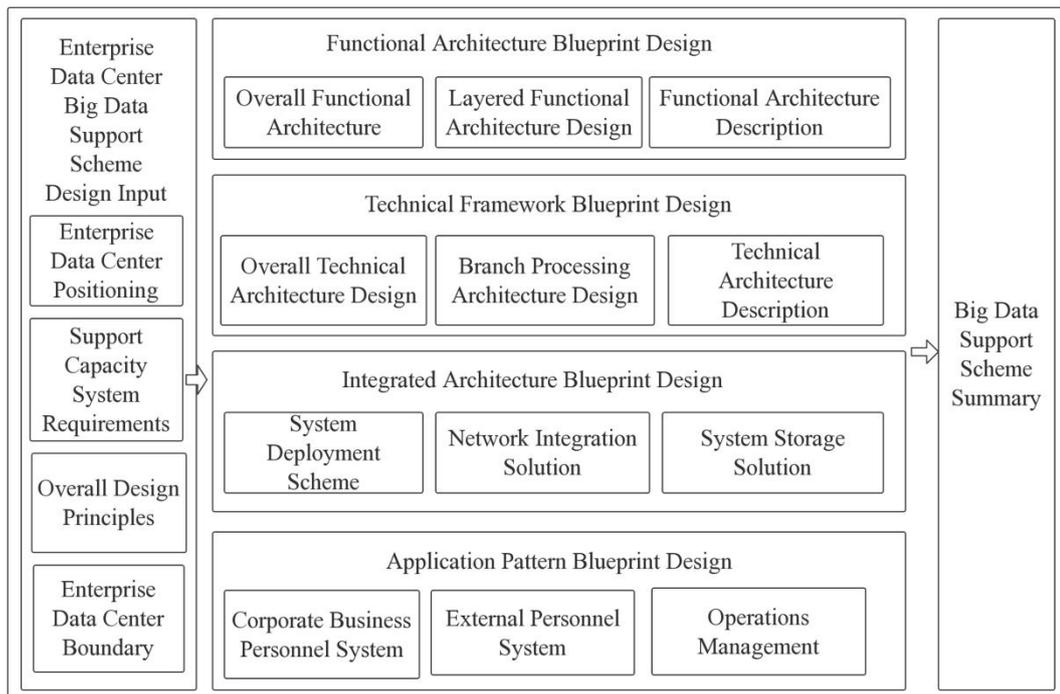


Figure 1 Architecture diagram of big data operation management information system

Based on the analysis of the figure above, it can be seen that the overall functional architecture of the big data support scheme includes data collection, external interface, data set, data application, management portal, service personnel, external cooperation and other functions. The specific design is shown in Figure 2 below:

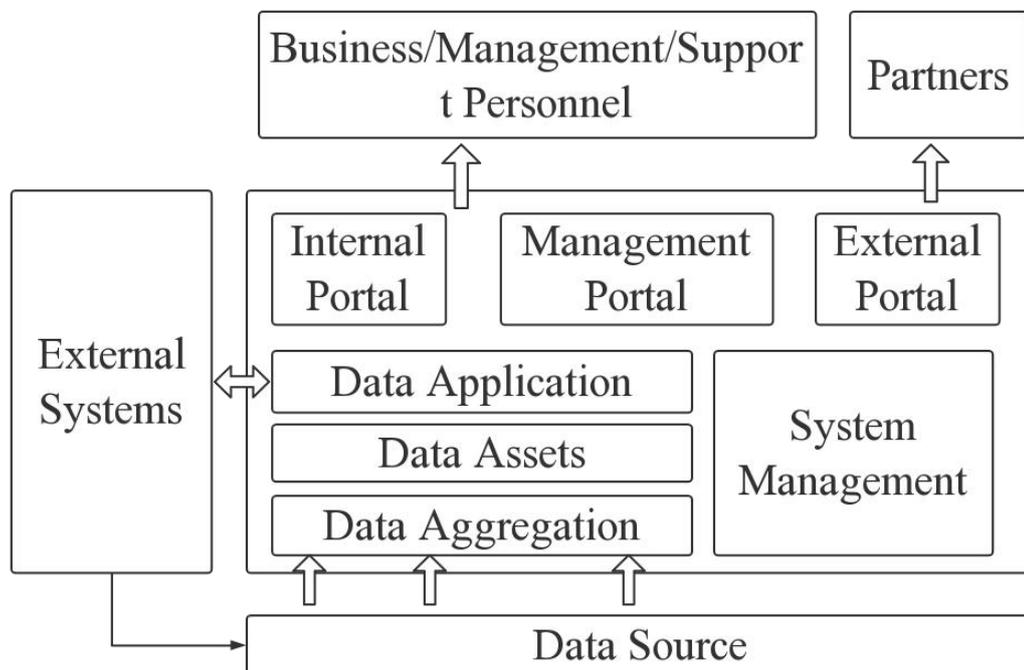


Figure 2 Functional framework of big data operation management information system

Based on the above analysis, we can see that the overall system operation is mainly reflected in the following aspects: First, all the internal and external data of the company are aggregated to form data assets; Second, analyze data assets, mine data values and encapsulate them into data services, which are mainly used to support practical applications; Third, provide data service capability for various business systems and business platforms within the company; Fourth, provide data analysis

and business decision support for business personnel; Fifth, provide intelligent data value products for external users such as partners and customer groups to help external enterprise users realize intelligent operation and management; Sixth, provide basic functional architecture support for integrated system operation.[10-12]

### 2.2 Big data analysis management system

According to the analysis of the structure of the big data operation management information system studied in this paper, it can be seen that a university will use regression analysis method to conduct data research management when building the online behavior analysis management system in the big data environment. It is mainly used to analyze the relationship between two or more variables of the same level, which is one of the data analysis and statistical methods proposed by the development of artificial intelligence in the new era. In this analysis process, the correlation between variables and variables has non-mandatory dependency. If the correlation coefficient R is used to represent the correlation between X and Y, the specific formula is shown as follows:

$$R_{xy} = \frac{S_{xy}}{S_x S_y}$$

$$S_{xy} = \frac{\sum_{i=1}^n (X_i - \bar{X})(Y_i - \bar{Y})}{n-1}$$

$$S_x = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n-1}}$$

$$S_y = \sqrt{\frac{\sum (Y_i - \bar{Y})^2}{n-1}}$$

Meanwhile, relevant data were calculated according to the regression formula, as shown in Figure 3 below:

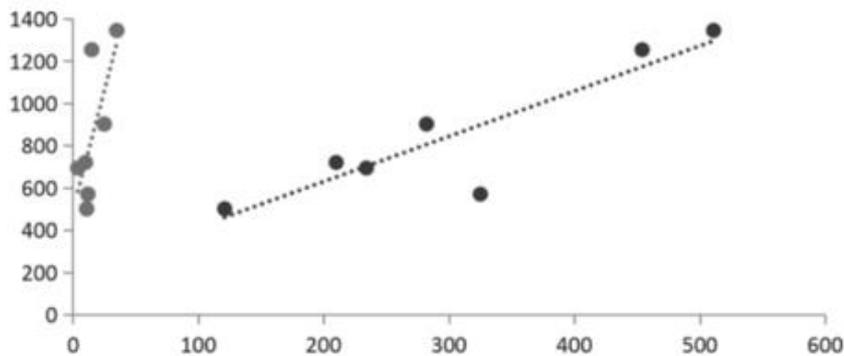


Figure 3. Data curve based on regression formula

According to the analysis of the figure above, a strong correlation trend between the two can be obtained according to data changes during the study period, which can provide effective basis for practical management decisions. In the traditional log-centric online behavior management system, a large amount of data needs to be processed every day. Although the log data is extracted and analyzed quickly, it is difficult to eliminate the information differences between the data. The HADOOP ecosystem is equipped with a large distributed file system HDFS and a data-driven MapReduce engine for the underlying file system, which can scientifically solve the problem of mass storage and management of distributed log files. Therefore, it is crucial to solve the problem of personal information protection. At the same time, the system design will also study the presentation of the data analysis of the web, using the traditional chart expression techniques, although it saves the system development cycle, but can not vividly express the needs of managers and users online information, so it is necessary to add the optimized network heat map, time period radar map and so on on the traditional basis. Take the network radar map as an example, form the

corresponding network radar map according to the content shown in Table 1 below, as shown in Figure 4 below. In this way, not only can the data be mastered as soon as possible, but also can provide effective basis for the subsequent data research and application.[13-15]

Table 1 Data collection and sorting

	PC end	Mobile terminal
Social communication	1205	2756
Life shopping	958	2345
video display	1580	1498
Game entertainment	2873	2205
online learning	1985	1004
other	1148	1980

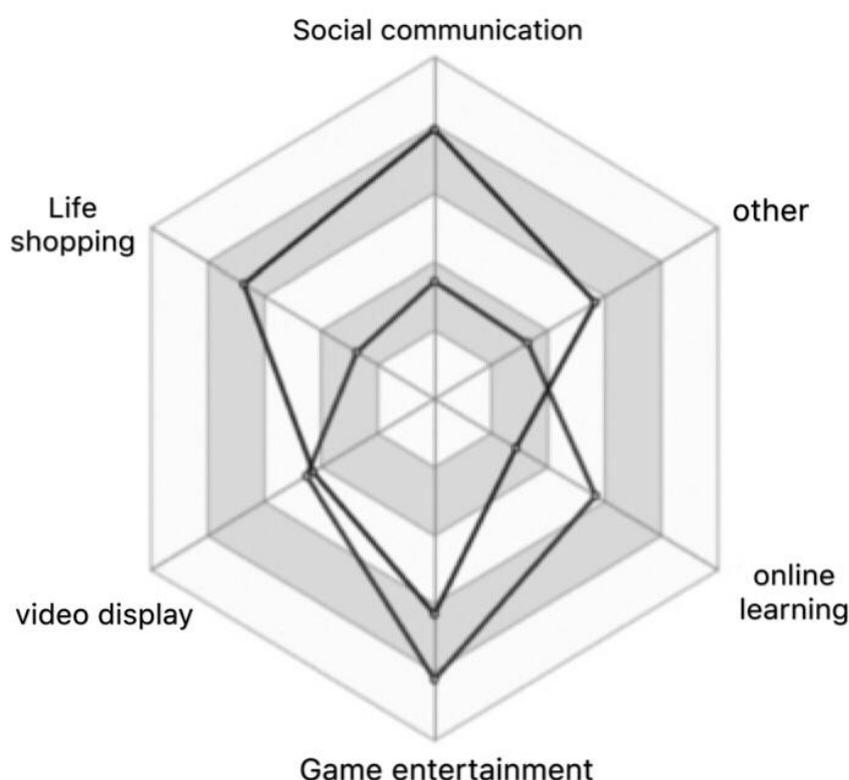


Figure 4 corresponds to the network radar map

### 3. Result analysis

In the era of big data, network data operation mode and data analysis and application requirements, to the personal information protection objectives, to formulate perfect legal provisions. Through analyzing the advantages and disadvantages of various legislative modes, scholars propose that the United States, mainly self-regulation industry and loose personal information protection mechanism, obviously can not meet the global personal information protection trend, so we should consider the main content of personal information right from the following aspects based on the basic national conditions of our country comprehensively: First, information right to know. Among the personal information collected, used and stored, the natural person shall have the right to know the relevant contents. If the information subject does not know which personal information has been collected, processed and effectively applied, then the information subject cannot control the personal information at all. Second, the right to oppose. The information subject has the right to object to the information controller's use or processing of

personal information for commercial purposes. Especially in the era of big data, personal information has rich commercial value. At present, the protection of personal information is far lower than the consideration of commercial profits. Finally, the right to information justice. For uncertain personal information, the subject of the information has the right to request timely correction. Such right should include two contents: on the one hand, it refers to the personal information that is inconsistent with the objective facts at any time; on the other hand, it refers to the personal information that is not completely wrong but inconsistent with the reality. Only by truly recognizing the importance of personal information protection power, setting up professional supervision and management organizations, strengthening the big data network data operation and management mode, and increasing practical relief channels and procedural provisions, can we solve the problems faced by personal information from the basis.

#### 4. Conclusion

To sum up, the protection of personal information is closely related to the free development of human beings, which directly affects the steady development of social economy and science and technology in China. Therefore, it is very important to study the legislative choice of personal information protection in the era of big data.

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