

# Development and Application of Big Data Technology in Aviation

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## Abstract

As the society gradually tends to modernization, big data has laid a solid foundation for further improvement and optimization of management mechanisms and operating modes in various fields, and aviation is no exception. At present, the aviation industry has ushered in unprecedented fierce competition. Therefore, a new round of reforms in connection with big data technology has also become one of the topics that airline stakeholders have jointly studied. Based on the above factors, this article discusses the development and application of aviation in the era of big data. It aims to fundamentally promote the development process of aeronautical business and provide a reference for the development and application of current aviation big data technology. The comprehensive study can lay a stable foundation for the sound development of China's aviation industry.

## Keywords

Big data era; Aviation; Integration; Development.

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## 1. Introduction

Under the current background that socialism is a market economy and the level of science and technology has achieved stable development, aviation companies must also constantly innovate in technology, operation mode, and other aspects[1]. At the same time, the application of big data technology has laid a solid foundation for further consolidating and consolidating the important position that aviation has occupied in social development, but it also makes the aviation industry face many challenges in the actual development process. Therefore, in order to effectively use the positive role of big data technology in aviation, existing relevant management departments should focus their work on the era of big data and the development and application of aviation[2].

## 2. Basic Concepts of Big Data Technology

To conduct a comprehensive study based on aviation development and application in the era of big data, we must first clarify the basic concept research of big data technology. We can mainly summarize the research content into the concept of big data era and the main characteristics of the era of big data. The specific research content can be summarized as follows[3].

### 2.1 The concept of the big data era

Big data mainly means that it is difficult to regulate, collect, manage, and analyze mass data within a certain period of time and within existing software. At the same time, these massive data need to use more advanced processing methods and data analysis capabilities to realize these massive amounts of data. Efficient use of resources within the data.

## **2.2 The main features of the big data era**

For now, the era of big data has the following characteristics: First, agglomeration. Refers to the continuous accumulation of different types of data in different forms resulting in quantitative aggregation; second, diversification. Mainly reflected in the diversity of data types, at this stage the relevant academic people according to the different degrees of structure will be roughly divided into three types of big data, images, video, audio and other such unstructured data occupy the vast majority of big data. Some resources; third, speed up. It means that the time spent in the process of data generation, processing, and analysis is gradually reduced. At the same time, the data has a high degree of timeliness. Based on the rapid development of network technology, it reflects the development trend of things at the first time.

## **3. Development and application of aviation big data**

With the rapid development of network technology, based on the big data derived from it has been recognized in various fields, while these areas will be used in the actual production of big data to enhance their overall strength. The excellent results obtained after the use of network technology in aviation have also accumulated a large number of substantive experiences in the era of big data[4]. For now, how to make the big data era fully play its active role in aviation has become a topic of common concern among relevant staff, and thus promote the sustainable development of aviation. Specifically, the application of big data technology in smart aviation services can make reasonable planning for the effective storage of information resources for aviation services, and rationally integrate and analyze these information resources in a more objective manner, making them intelligent. The content promoted by aviation services is more in line with popular preferences. Due to the large number of user groups in aviation, the use of big data technology to accurately classify and record the needs of users can also provide important reference for intelligent aviation services in the process of later upgrade and improvement.

## **4. Insufficient development and application of aviation big data**

A comprehensive study on the insufficiency of development and application of aeronautical big data can mainly sum up the research contents as high cost, shortage of talents, low level of sharing, and lack of system planning points. The specific research contents are summarised as follows:

### **4.1 The cost is higher**

In the process of developing and building informatization of the aviation industry, the construction of aviation organizations must be updated with the development of the society. This will allow aviation organizations to gradually increase their development costs. Even if some aviation organizations whose information construction has been relatively sound, they must follow the constant advancement of information construction and introduce new scientific technologies and equipment so as to ensure that this kind of information development meets Social and people's needs. This has led to the continuous strengthening of the cost of regional aviation informationization, which has reduced the interest income of aviation organizations and is not conducive to the long-term development of related institutions.

### **4.2 Talent shortage**

With the continuous advancement of the development and construction of aviation organizations' information, the demand for talents in aviation organizations is no longer limited to the proficiency of health services. It also requires the corresponding staff to master certain computer skills, to be familiar with the development structure of the Internet, and to be able to master the two. To promote the development of aviation informationization. However, judging from the direction of national talent

development, the country is now extremely lacking in this area of talent. This shortage of talent has severely restricted the pace of development of the industry.

#### **4.3 Low level of sharing**

The fundamental purpose of aviation information development is to share aviation information, improve aviation standards, and promote the efficiency of medical treatment. However, in the actual development of many aviation organizations, not only can they not effectively promote the sharing of aviation information, but in the process of building an information-based development platform, they are also building on their own needs. Coordination between the agencies, not to mention the connection between the agency and the agency as a whole and between individuals. This has caused the phenomenon of island formation in aviation information to a certain extent, which is not conducive to the construction and development of the industry. It is also difficult to realize the informatization development of regional aviation construction from a real sense.

#### **4.4 Lack of system planning**

In the process of the construction of regional aviation organizations, many organizations cannot focus on the information system and plan concretely and systematically. It is often only when a certain department has an exact demand that they begin targeted construction according to needs. Not conducive to the overall development of the industry, and to some extent, it caused the waste of corporate resources, hindered the pace of development of institution building.

### **5. Development and Application of Aviation Big Data**

At present, technological innovation has laid a solid foundation for the development of society. It has not only fundamentally enhanced the increasing demands of the general public and various fields, but also has made the field of technology always oriented towards marketization and commercialization. For example, with the rapid development of network technology, some of the resulting network information exchange platforms have emerged one after another. For big data technologies, their impact on aviation is also not negligible. Develop a comprehensive study on the development and application of aeronautical big data. The research content can be summarized as the impact of big data technology on the development of aviation industrialization, the impact of big data technology on the aviation enterprise chain, and the impact of big data technology on aviation society demand. The specific research contents are summarised as follows:

#### **5.1 The Impact of Big Data Technology on the Development of Aviation Industrialization**

As an important part of the socialist market economy, enterprises will bring certain economic service benefits in the production process, and the aviation industry is no exception. At the same time, in the era of big data, companies in the production process through research and deep mining of valuable data in big data can prompt enterprises to find market opportunities as soon as possible, so when applying big data technology in the aviation industry development process, Relevant staff should also fully display the practical application of big data technology, thus greatly enhancing the social benefits and service benefits of aviation. For example, the number of audiences of an information exchange platform is large, and the exchange platform can reasonably judge public preferences through the number and frequency of public browsing pages, and timely update and upgrade the push information of the webpage interface. , raise the public's satisfaction with this software. Similarly, in the context of the era of big data, aviation companies are also faced with tremendous reforms in their operational models and their value creation, and they have emerged from a single information exchange channel in the past to form a diversified chain service platform. While the commercial and economic value produced by the aviation company itself is embedded in big data technology, it can also encourage aviation companies to adapt to the trend of the times and achieve sustainable development.

The value of aviation companies is mainly divided into internal and external. External value mainly refers to the public's satisfaction with their products and services, and this external value has also become an important competitive direction for all companies. In order to better obtain the user's feelings about the products, the aviation companies at this stage have also integrated big data technology in the process of designing new products.

The internal value of aviation companies is mainly the refined operation of the company. It combines the big data technology to construct a new type of system that meets the development and management of the company itself, so as to better and faster find the problems and loopholes in the actual production process. , And timely implementation of related solutions to effectively promote the development of aviation industry industrialization.

### **5.2 Impact of Big Data Technology on Aviation Business Chains**

With the widespread application of big data technology in the aviation industry, its impact on the aviation enterprise chain is gradually reflected. Specifically, in the former aviation enterprises, there was a lack of close contact between companies. In the era of big data, some information resources are even more shared and open, prompting a stable and cooperative relationship between enterprises. Relationship. Similarly, during the creation of a successful aviation brand, companies should focus on the systematic integration of the public's activity data in the network, and excavate valuable information from these data to continuously improve and expand aviation products. In order to achieve a virtuous cycle between mass and aviation products and big data.

Similarly, in the application of big data technology in the aviation industry, the deepening of the aviation industry can also be achieved through the specific preferences of the public and the focus of attention, and can lay a solid foundation for the development and widening of the surrounding businesses of aviation, such as in aviation. In the process of cooperation between enterprises and tourism enterprises, it is possible to make use of big data technology to systematically investigate and understand user needs, so as to extend their own industrial chain and effectively realize the development goals of maximizing their own economic benefits.

### **5.3 Impact of Big Data Technology on Aviation Society Demand**

The application of big data technology is also the key to whether aviation is truly recognized by the public. Big data technology can be combined with the user's overall judgment on the behavior of aviation products, thus improving the original aviation industry service issues. Not only that, but also the use of big data technology can also be based on the original user behavior data more comprehensive statistics, and the causes of these data and the subsequent influential factors of aviation products in-depth excavation, so as to maximize To meet the increasing demand of users and society for aviation products.

## **6. Conclusion**

In a nutshell, through discussions on aviation convergence, development, and roads in the era of big data, it is not difficult to find that with the wide application of Internet technology and the era of big data, aviation-related staff should also focus their current work on The reform of all aspects of aviation, combined with its own development characteristics and the existing economic development characteristics and laws, has established a series of sound aviation management mechanisms to provide the public with the best viewing and listening experience, thus furthering aviation's sustainable development.

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