Research on Furniture Design System Based on Big Data and Information Technology

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Abstract: With the rapid development of my country's real estate and other pillar industries and the acceleration of urbanization. The furniture industry is also showing a trend of rapid development. At present, Chinese traditional furniture has long been unable to meet the needs of consumers in some functional designs. Based on this, this paper proposes a furniture design system based on big data and information technology. Make full use of the existing network environment, hardware equipment, and software technology to build a furniture product big data cloud platform that can meet the needs of business development on the basis of ensuring that the core business structure is advanced, efficient and stable. This paper studies the huge changes that the home design system will face under the influence of big data, and conducts an in-depth analysis of the industrial environment, operation mode, information transmission security and other characteristics of the home system under the background of the big data era. Research shows that under the background of the era of big data, the establishment of a big data platform for furniture products is facing new development opportunities. The development of electronic information technology provides strong support for platform construction. Utilize electronic information technology to continuously aggregate furniture product information from various channels, deeply analyze the status of furniture products, and explore furniture product quality risks, thereby building a furniture product big data cloud platform.

Keywords: Big Data, Information Technology, Furniture Design, Cloud Platform

1. Introduction
The amount of data generated during the era of big data [1-3] is huge, and the requirements for data processing are more stringent. The application of information technology based on big data in various fields of life has encouraged the innovation and development of enterprises, while the furniture industry [4] has introduced large-scale information technology to achieve the growth of family connectivity. Different from traditional design, modern designers use designs and tailor-made designs that can meet market demand and market demand, and guide the entire furniture industry in a large
market and use big data thinking.

Furniture design [5-7] as a specific man-made activity, the process of design thinking is the process of material production. It must follow the market method, and use design to guide the market trend of furniture, adjust and explore new furniture design. The big information that helps designers meet the needs of the entire market enables designers to smell product shortages and where people are dissatisfied with products. The changes in all aspects of modern society and the improvement of content duplication are very rapid, and these big data can be sensitively reflected. In fact, with big data, people no longer need to rely on their own experience to do things on their own. Rich and effective information from data can determine the future development of things and make decisions. This will greatly reduce blindness in doing things and greatly increase the success rate. In short, big data, wide coverage, reliable implementation and great value are the four most important aspects of big data. In fact, big data, including some traditional industries, now plays an important role in productivity.

This paper studies the huge changes faced by the furniture design process under the influence of big data, and conducts an in-depth analysis of the industrial environment [8], operation mode [9], information transmission security [10] and other characteristics of the home system under the background of the big data era, and compare and compare with traditional furniture design. According to this research, big data can bring huge benefits to the furniture industry and the entire furniture industry. As long as it is used properly, the entire industry will be a brand new industry, and every consumer can enjoy a higher quality of life through high-quality furniture.

2. System Construction of Big Data and Information Technology in Furniture Innovation

2.1 The Main Construction Content of the System

1. Customer service platform: Customers register furniture-related information online through the service platform and query historically registered reports;
2. Data docking of the inspection system: the furniture-related information of inspection and inspection can be uploaded to the furniture big data cloud platform;
3. Unified external data interface service: develop interface standards to receive furniture information reported from different channels: get through the customs interface to obtain customs imported furniture related data, and through standard interfaces, you can receive e-commerce furniture related sales, including furniture Name, sales area, etc.;
4. Data aggregation cloud platform: aggregate data from the customer service platform, testing system docking, existing database docking data, and unified docking interface service docking data to create conditions for statistical analysis and external provision of interfaces;
5. Enterprise portal: through the visual portal interface, you can quickly retrieve relevant furniture information, including furniture classification retrieval;
6. Statistical analysis: Carry out relevant data statistics of different types of furniture by year, month, etc., and use Excel to freely choose the combination of data to export statistical data.

2.2 System Function Solution

1. User login the user logs in by clicking the login module, and the first login needs to be registered.
2. Account registration When registering, users need to fill in their name, mobile phone number, sliding verification code, mobile phone number verification code, password, etc. After successful registration, they need to bind the unit.
3. Through the visual portal interface, the enterprise portal can quickly access relevant furniture information, including furniture placement search, sales area search, and fuzzy queries based on organization name, location, time, category and other keywords.
4. Furniture information reporting Users can self-report furniture information. When reporting, they can classify furniture, including sofas, mattresses, wooden cabinets, etc., upload relevant business information, and support uploading furniture-related photos, accessories, etc.
5. Existing database docking with the existing database system of the furniture center, automatically storing the required data on the furniture cloud platform.

6. In order to create an integrated external service interface, some external data can be provided through the integrated interface to provide access to management institutions, scientific research institutions, etc., just connect it to the integrated external service interface.

3. Experimental Thinking and Design

3.1 Experimental Ideas
This paper provides a kind of furniture design system research based on big data and information technology. Traditional bamboo furniture design is taken as the control group, and bamboo furniture design based on big data and information technology is taken as the experimental group for comparative research. This paper makes an in-depth analysis of the industrial environment, operating conditions and information security under the background of big data era.

3.2 Experimental Design
High-impact big data information processing technology has profoundly affected the furniture design industry. Different from traditional design, modern designers use design information to meet market demand and market demand, and guide the entire furniture industry with a large amount of information to find people's choices and market entry points.

The purpose of this study is to study the furniture design system based on big data and information technology. Taking traditional bamboo furniture design as the control group and bamboo furniture design based on big data and information technology as the experimental group, this paper conducts a comparative study from the aspects of humanization, intelligence, comfort, environmental protection, coordination and sustainability of bamboo furniture design. According to the function of furniture design and home furnishing system based on big data and information technology, the design of bamboo furniture needs to follow the principles of ergonomics, sustainable development, humanized design and environmental coordination, public aesthetic principle, etc. From the perspective of system functions, a four-tier architecture should be designed, as shown in Table1.

Table1. Home system construction based on big data

| System module                        | System functions                                               |
|--------------------------------------|----------------------------------------------------------------|
| System monitoring equipment and      | Integrate camera, gas sensor and sound sensor technology       |
| sensing equipment                    |                                                                |
| Central control platform             | Heterogeneity between shielding system components              |
| Middleware layer                     | Integrate all information and data in a large database         |
| Application layer                    | Refers to the graphical user interface                         |

4. Discussion

4.1 Discussion on Furniture Design System Technology Based on Big Data and Information technology
Due to the computer's powerful storage capacity and computational analysis capabilities, effective real-time data on market characteristics has been improved, and this information is "big information." A market, an industry, and a society are composed of many elements, so the information contained therein is very large and very rich. In addition, big data is very real-time. The changes in all aspects of modern society and the repetition of content improvements are very rapid, and these big data can be reflected in emotion. In fact, with big data, people no longer need to rely on their own experience to do things on their own. The rich and effective information from data can determine the future
development of things and make decisions, which will greatly reduce the blindness of doing things and increase the success rate. In short, big data, wide coverage, reliable implementation and great value are the four most important aspects of big data. In fact, big data, including some traditional industries, plays an important role in productivity. The information processing technology of big data has profoundly affected the furniture design industry. Different from traditional design, modern designers use designs and tailor-made designs that can meet market demand and market demand, and guide the entire furniture industry in a large market and use big data thinking.

Figure1. Comparison of bamboo furniture design functions between the experimental group and the control group

In this paper, a simple scale was used to evaluate the design functions of the two groups. 10 points was the upper limit, and the higher the score, the better the performance. As shown in Figure1, the functional indicators of personalization, coordination, intelligence, pluralism and sustainability were significantly higher in the experimental group than in the control group. There is little difference between the two in terms of practical functions. It can be seen that the experimental group has a variety of other functions while giving consideration to the practicability of bamboo furniture products. It can be seen that while taking into account the practicability of furniture products, the experimental group also has other functions. It interacts with people in the form of simple intelligent simulation, excluding other external factors, and directly engages in dialogue between people and products. Personalized customization of home design systems based on big data must be the mainstream of future home design. Different space environments and industries of different nature require corresponding changes in smart home design for different categories and different focuses. The customization of diversified integrated furniture system products provides more secure services to users who need them.
Figure 2. Comparison of application functions between experimental group and control group

It can be seen from Figure 2 that the convenience of the experimental group was higher than the control group in design sense, low cost, light quality and market recognition of bamboo furniture design system. It can be seen that the development and application of the home design platform meets the analysis needs of a large amount of furniture data, improves the efficiency of enterprise furniture information services, and reduces the cost of furniture, especially in the current situation of large and complex furniture information. Under this premise, the cloud accounting platform is used to achieve the speed of acquiring, storing, managing, sharing and analyzing furniture information to ensure the timeliness of enterprise furniture data analysis.

4.2 Furniture System Experience Based on Big Data Design

In the traditional economic era, too much attention to product usability is no longer enough to gain a foothold in the market. Products emphasizing appearance, function, and profit cost are just superficial phenomena. In-depth mechanical automation and mass customization of products have brought about the alienation of people in the traditional economic era, and the humanized design eases the alienation between people. Good home system design requires not only the usability of product functions, but also the emotional experience design of users.

1. Interactivity of emotional experience

Emotional experience is produced by the "communication" between people and furniture and equipment, and it is also the emotional comfort obtained through sensory acceptance of the product during the interaction between people and the product. At the same time, the emotional change of consumers will also be the pain point of the product, and the inner emotion Experience is the characteristic of the interactive emotional experience between products and people.

2. Intelligent communication

The diversified forms of digital transmission of information have changed the traditional practical thinking. The traditional human-computer interaction is gradually shrinking. The home design based on big data should be more flexible and changeable. In the past, people used products based on product-specific models. This relationship undoubtedly added more burdens. It interacts with people in the form of simple intelligent simulation, and eliminates other external factors, directly engages in the dialogue between people and products, and obtains simple input and output intelligent operations.

3. Diversified customization

Personalized customization must be the mainstream of future home design. Different space
environments and industries of different nature require corresponding changes in smart home design for users of different categories and different focuses. The customization of diversified integrated furniture system products provides more secure services to users who need them. A healthy, ecological and humane ecological space environment can truly meet the spiritual and physical requirements of users.

5. Conclusions
In the research on the furniture design system based on big data and information technology, this paper studies the huge changes that the home design system will face under the influence of big data, and has a great impact on the industrial environment of the home system under the background of the big data era. The characteristics of operation mode and information transmission security are analyzed in depth, and the traditional furniture design is used as a comparative study. Research results show that in the traditional economic era, too much focus on product use is no longer enough to gain a foothold in the market. The product's excessive appearance, function and profit are superficial. In the traditional economic era, deep mechanical automation and mass customization of products have caused the distance between people, and the home design system based on big data can alleviate this alienation humanely. It can be seen that the creation of a large-scale information platform in the context of big data is a new development opportunity, and the development of information technology based on big data will strongly support the construction of this platform. For the furniture industry and the entire furniture industry, important information is very useful. As long as it is used properly, the entire industry will be a brand new industry, and every consumer can enjoy a higher quality of life through high-quality furniture.

Acknowledgements
Bamboo Diseases and Pests Control and Resources Development Key Laboratory of Sichuan Province, ZLKF20-06

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