Research on Traditional Costume Design and Application Based on Cloud Computing

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Abstract. At present, China has implemented the strategies of "Created in China 2025", "Structural Reform of Side Supply" and "internet plus", etc. In order to keep pace with the national development strategy, the traditional garment industry needs to rethink and innovate in design methods and innovation paths. Traditional clothing industry should constantly improve and improve the overall dynamic competitiveness and innovation ability, and clarify the concept and model of traditional clothing design supply chain collaboration and the corresponding evaluation index system standards. With the help of cloud computing technology and collaborative model, a collaborative platform of traditional clothing design supply is built to realize the full monitoring of the whole traditional clothing design supply chain. That is to say, starting from the industrial sources such as fashion trend information and surface accessories information, through the collection, analysis and storage of big data related to traditional clothing design resources, the platform can provide information sharing and dynamic distribution related to the whole business process of traditional clothing design at any time, greatly improving the overall operation efficiency of the industry. Therefore, the traditional clothing design has also changed, that is, changed into a "big design concept" that runs through the upstream and downstream of traditional clothing product design. The knowledge generated by sharing design resources not only promotes the innovation ability of traditional garment industry, but also verifies the effectiveness of collaborative theory model.

Keywords: Cloud computing, Traditional costume design, Personality design

1. Introduction
The market demand of traditional garment industry is complex and changeable, and the resulting shortening of product popularity cycle puts forward higher requirements for the core competitiveness of traditional garment enterprises such as design. Diversified design forms such as crowdsourcing R&D, collaborative innovation, and personal manufacturing, which effectively utilize resources outside the enterprise, flourish [1-4], and upstream enterprises of traditional garment industry such as flour accessories suppliers strengthen communication and cooperation with trend R&D and traditional garment design. Traditional clothing design began to transition to the concept of "big design" linking the upstream and downstream of the traditional clothing industry chain, and fashion trend information became the product of interaction and integration between the whole industry and the market, thus increasing the
added value of the whole industry chain of traditional clothing and forming a complete industrial chain advantage [5]. Big data, cloud computing technology and cloud computing service platform can instantly gather, manage and analyze the big data resources generated in the process of research, development, production and sales of traditional clothing, provide data and technical support for trend prediction, and solve the resource sharing and collaboration problems faced by the current cross-organization, cross-industry and cross-regional traditional clothing industry chain operation mode. The network traditional garment enterprises or virtual traditional garment enterprises which only operate the headquarters and have no production workshops are flourishing, which profoundly changes the manufacturing structure, manufacturing methods and business processes including the traditional garment industry. At the same time, the intellectual property protection and security problems caused by the sharing of all kinds of fashion creative resources on the global Internet platform have attracted attention. Based on the requirements of personalized design and cloud computing and collaborative theory, a collaborative cloud platform model of personalized traditional costume design is proposed. Through the application mode of software as a service operated by Internet service, the workflow and realization of each role are given in combination with the practical application needs of personalized traditional costume design. Cloud computing environment is mainly divided into three levels: infrastructure as a service, platform as a service and software as a service. The personalized traditional clothing design cloud platform is a typical software-as-a-service cloud service usage mode, that is, the traditional clothing design collaborative cloud platform provides users with all the services needed to draw personalized traditional clothing styles online. The data mining program is shown in Table 1 below.

### Table 1 Data Mining Program

| Code |
|------|
| boolean merge=false; |
| for(int index=0; index<b.size();++index) |
| if(a.contains(b.get(index))) |
| merge = true; |
| break; |
| if(merge) |
| for(int index=0;index<b.size();++index) |
| if(!a.contains(b.get(index))) |
| a.add(b.get(index)); |
| return merge; |

### 2. Traditional clothing design collaborative cloud platform

The collaborative cloud platform model of personalized traditional clothing design is shown in Figure 1. The system mainly provides a unified communication, sharing and design portal for the interaction among traditional costume managers, designers and tourists. According to the above objectives and functions, the system is based on cloud platform and B/S architecture, and a personalized traditional costume design collaborative cloud platform with simple operation and powerful functions is constructed. Cloud platform portal is mainly divided into four modules: design center, exhibition center, management center and personal center. The main function of the design center is the personalized design of sketches and the splicing of components. The design of style recommendation pays more attention to the collection of personalized behaviors, which improves the personalized characteristics of traditional costume design in the platform and enriches the functionality of the platform.
There are two types of personal center: designers and demanding users. Users can add, delete and check personal data, personal works and task information through this module, and save their personal preferences. Users can also modify their preference types through the preference adjustment function. The main functional modules of this system are shown in Figure 2. [6-7]
The process in which designers in the platform store resources such as sketches and design data into the cloud is shown in Figure 3. The designer enters the platform after authentication and has legal data uploading authority. After submitting the local resource path and the path in the cloud, the platform does not allocate space immediately. Instead, at the beginning, his local file system uses the data buffered in the temporary file. Only when the sketch resource data amount reaches a block size, the platform notifies the naming node to allocate storage space. After confirmation, the platform writes the data to the block on the corresponding data node.[8-12]

![Fig. 3. sketch resource storage process flow chart](image)

The user obtains the shared resource information stored in the sketch warehouse in the cloud, as shown in Figure 4. Users log in to the interactive platform of the system through the browser, and have the right to legally read the resources in the sketch warehouse after passing legal authentication.

![Fig. 4. Information storage and access process of sketch resources in cloud](image)

Using the evaluation feedback recommendation mechanism, the user's behavior is extracted from the evaluation according to the user's preference, and the user's favorite sketch is inferred and the preference
library is established. According to the corresponding functions and structures of different users, users are divided into three categories: system administrators, designers and ordinary users. The overall structure of the three types of user interaction processes of the Design Center module is shown in Figure 5.

Through the sharing of sketch resources and collaborative design on this platform, it will help to solve the problem that the traditional fashion design system can't reflect individual colors.

![Fig. 5. Overall structure design of user interaction](image)

3. Conclusion
This paper puts forward a traditional clothing recommendation system based on cloud platform, which adopts Internet technology, modern communication technology, cloud computing and other cutting-edge technologies to establish a collaborative technology platform based on traditional clothing design. The style recommendation scoring module in personalized traditional clothing design collaborative cloud platform based on individual differences is designed to collect user behavior, improve the platform's functionality and friendliness, and help highlight individual style.

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