



# Study on the Application of Big Data on the Development of Cultural and Creative Industries

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**Abstract.** In recent years, the vigorous development of the cultural and creative industries reflects the importance that the country attaches to the important role of cultural and creative industries in economic transformation. With the rapid development of information technology, cloud computing, Internet of Things and other technologies dominated by big data have been put into the cultural and creative industry, which has become an opportunity for the rapid development of the cultural and creative industry. Based on the current development status of big data in the cultural and creative industry, this paper focuses on analyzing the characteristics of big data in the cultural and creative industry and the opportunities that big data brings to the cultural and creative industry, and discusses the development direction, strategic layout, industrial management, cultural marketing and other information development paths of the innovation industry under the background of big data.

**Keywords:** big data · traditional culture · cultural and creative industry · industrial development

## 1 Introduction

General Secretary Xi Jinping has stressed that “through the ages, the reason why the Chinese nation has a status and influence in the world is not on belligerence, not on external expansion, but on the appeal and attraction of Chinese culture [1].” Therefore, the country to vigorously promote the development of cultural industry is undoubtedly the affirmation of the great value of traditional culture at the strategic level, and the cultural and creative industry is also the catalyst for the national economic transformation, and an important indicator to measure the national economic strength and the competitive potential of the future. The technological development of big data undoubtedly adds new impetus to the rocket of this cultural and creative industry. On August 30, 2015, the State Council issued a Platform for Action to promote the development of big data. The outline proposes that big data has become a new driving force for economic transformation and development. With the support of various national policies, more and more cultural and creative enterprises or institutions attach importance to the concept of “big data” and its

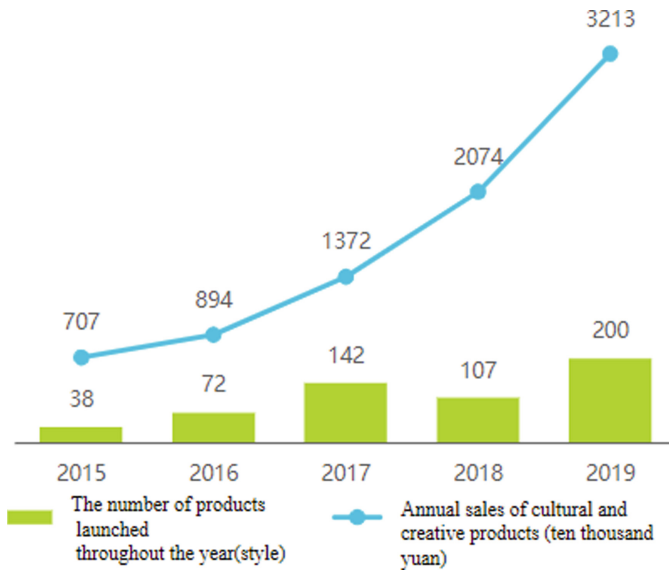


Fig. 1. 2015–2019 Big data of China Subo Cultural and creative product development [2]

related technologies, and tap the important value of big data. This paper will analyze the form and characteristics of big data in the cultural and creative industry, and explore the key to the development of the cultural and creative industry (Fig. 1).

## 2 Big Data in the Cultural and Creative Industries

The cultural and creative industry itself is an industry that collects and analyzes and excavates its connotation element data of traditional culture. It has a significant big data gene [3]. The big data in the cultural and creative industry comes from the cultural and creative industry activities in the production, dissemination, promotion and consumption of traditional culture. In the process of these activities, the physical symbols generated by the load information recorded can be digital, text, image, or computer code. From the perspective of data content, the big data resources of the cultural and creative industry can be divided into content data and behavior data [4].

### 2.1 Content Data

The cultural and creative industry takes traditional culture as the original data for industrial development, constructs the traditional cultural content, and innovative dissemination in the ways and carriers provided by the cultural and creative industry, so as to realize the effective dissemination of traditional culture and the innovative dissemination and extension of traditional culture. Therefore, it is also known as the content industry, and the traditional cultural content is the core of its industrial development. Traditional cultural content refers to “the symbol and connotation of traditional culture”, which is

the abstract embodiment of traditional culture. Thousands of years of Chinese culture has accumulated numerous rich traditional cultural content resources. With the support of information technology and the joint action of economic development, these content is presented to the public in a digital form. With the further development and promotion of big data technology, the content of traditional culture is transformed into a standardized, perceived and analytic application form, forming the content big data.

## **2.2 Behavior Data**

Culture is the product of the development and progress of human society. Culture records the trajectory and behavior of human beings. With the progress of science and technology and the development of society, with the help of various interactive terminal equipment and networks such as mobile phones, computers and sensors, we can record the production of traditional culture, the spread, consumption, feedback and movement of traditional culture in our life in real time and continuously. These data are behavior data in the cultural creative industry.

From the characteristics of data, the characteristics of big data of cultural and creative industries also inherit the general characteristics of big data: Volume, Variety, Value, Veracity. But in the process of practice, its whole industrial chain will also be constantly changing, highlighting the following points.

## **2.3 Data Fragmentation Characteristic is Obvious**

There are a wide range of channels for the production and collection of big data in the cultural and creative industry. In addition to the basic content data of the cultural and creative industry, it also includes a wide variety of large and huge behavior data, such as time, place and audience. These data are scattered across various terminals of the user, and human activity behavior is cumulative, the fragmentation of data is more significant. The big data management platform collects and statistics the relevant data of the users, and then carries out more efficient management according to the user needs.

## **2.4 Strong Combination of Data**

With the continuous strengthening of information technology, the digital process of traditional cultural content has been promoted rapidly, and various information platforms and database software and hardware facilities have been upgraded and improved. The trend of multimedia integration of data sources and expression channels has been enhanced, and it has strong compound characteristics. The data sources in the cultural industry mainly involve terminal facilities, software, design and production fields, museums, games, advertising, exhibition halls, and film and television fields. Data resources are mainly in the form of text, audio, video, image, system log, RFID data, time data, location data and even telemetry data.

## 2.5 High Commercial Value of Data

Big data of each link of the cultural and creative industry covers all fields of the cultural and creative industry. Big data provides the use of the industry's response to the market and scientific prediction, conducts quantitative calculation of cultural and creative industry services with accurate data, and estimates the investment income to adjust all links of the cultural and creative industry. The results of data analysis directly affect the development of later marketing schemes and derivatives, providing an important basis for the content creativity and planning of traditional culture, the development direction and marketing strategy of the industry. The value of data resources can be directly converted into commercial value. At the same time, the big data in the cultural and creative industry can also conduct cross-border integration with other industries, realize the mutual support between data, solve new market problems, and create a new commercial value.

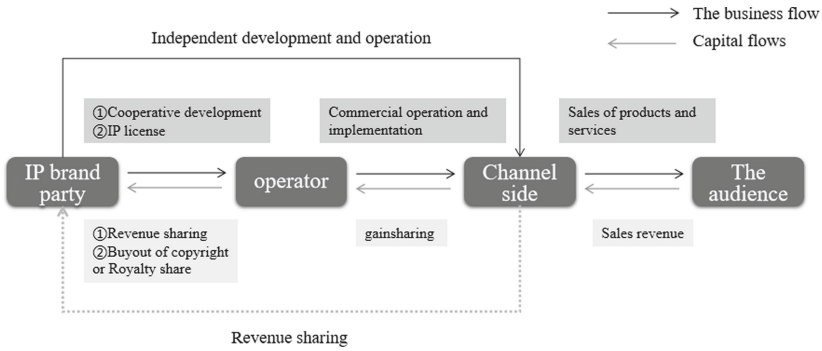
## 3 Opportunities Brought by Big Data to the Cultural and Creative Industries

In recent years, new technologies represented by big data have had a profound impact on the development of the cultural industry. The organic combination of big data and cultural and creative industry can promote the development of traditional culture under the background of the Internet and become an important way to meet the people's growing needs of spiritual civilization.

### 3.1 Provide a Value Chain Basis for the Industry

The concept of "value chain" was proposed by Michael Porter in *Competitive Advantage* in 1985: "Every enterprise is a collection of activities in the process of designing, producing, selling, sending and assisting its products [4]." In the era of data scarcity, most of the decisions in each link of the value of the cultural industry chain rely on the subjective judgments and decisions of producers. In the background of big data, the content data and behavior data in the cultural and transmission industry cover every link of the value chain of the cultural and creative industry, providing creative planning and product opening for cultural and creative products and service providers. Production, commercial promotion and consumption communication links provide the basis for decision-making. Big data can help accurately reflect the market demand in real time, market demand including product positioning, positioning of target audience, the number of potential users, user purchase behavior, user preferences, the number and price of users to buy similar goods, etc. These data can timely obtain effective data and analysis from the massive content data and behavior data in the cultural and creative industry, reducing the market risk of the cultural and creative industry.

For consumers, big data analysis of the existing user resources for behavior data can more accurately capture the needs of consumers, explore consumers' purchase tendency, so as to accurately push their favorite goods to users. Nowadays, many platforms meet



**Fig. 2.** Analysis chart of cultural and creative industry chain

the personalized and customized information needs of users, and accurately push information to customers according to consumers’ browsing records and content correlation analysis.

And big data provides a reference for the choice of marketing strategies. Through accurate market positioning and user portrait, the providers of the cultural and creative industry can choose appropriate marketing strategies according to different users to further realize precise marketing. In the process of marketing and promotion, the integration and dissemination of different media and terminals are also selected according to the users’ behavior data, which can better spread the traditional culture (Fig. 2).

**3.2 Promote the Disclosure of Information**

The cultural and creative industry is a consumption-driven industry. The development of the cultural and cultural industry is restricted by the cultural market mechanism. The cultural and creative industry is in the stage of rapid development. Improvement and improvement of the cultural market mechanism is conducive to the sustainable development of the cultural and creative industry. Big data to some extent to solve the cultural and creative industry market information unequal and price chaos, it enhances the degree of information, the information based on big data information platform, provide consumers and enterprises with an objective, fair, national information space, relative to the previous more closed and static trading mode, gives the transaction related market subjects to know more power about information, as far as possible to collect and analyze more valuable data. Big data also reduces the cost of obtaining information. In the past, enterprises had to obtain user information through tracking visit and questionnaire survey, and consumers had to blindly shop around if they wanted to buy satisfactory. The emergence of big data saves the public a lot of time and energy.

**3.3 Help with the Media Integration**

Big data technology gives a deeper connotation of media convergence, effectively integrates media resources of different dimensions and levels, and strongly promotes media convergence. Media convergence is divided into three different ways of integration, first,

the integration of media technology resources. At present, big data is huge and complex, so the value density of data is low, so there are more requirements for data processing speed. Under the trend of media convergence, it is necessary to integrate with the Internet to build a resource sharing platform and real-time data transmission. Second, media content integration. The integration of content is an important purpose of media convergence, and it is also the application condition of multidimensional media. Big data analysis optimizes the integration and distribution of media content resources. Its integration is not simply the addition and subtraction, but the optimization of the media system, and the sharing of content resources such as text, pictures, video and audio data of traditional culture. Therefore, in the context of big data, according to different customer needs, select different media, to maximize the effectiveness of communication. Third, integrate media organizations. Under the background of big data, media organizations are developing towards full media. Relying on big data technology, the operational efficiency and resource allocation efficiency of the organization have also been continuously improved, and the fully media organizations have established a unified database. Personnel from different parts of the entire organization and different media can allocate content from the database for creation and dissemination. Big data integrates data platform resources for all media organizations, greatly saves manpower and time costs, and improves the efficiency of media organizations.

## **4 The Development Strategy of Cultural and Creative Industry Under the Inspiration of Big Data**

### **4.1 Cultivate Big Data Thinking**

Big data is used to assist the producer analysis and judgment of cultural and creative products producers, so that product producers can better meet the needs of users. But it is not only an auxiliary to the product, but it becomes a high-value cultural product itself. Big data at the moment, can become a product, direct service for users. Provide the consumer behavior of cultural products to advertisers, who can push related ads through specific users of these behavioral data. Providing these consumer behavior data to enterprises, enterprises can optimize their products. And the “intelligence, wisdom” in big data thinking is also its characteristics. Big data thinking also changes from natural thinking to intelligent thinking. Big data gives the machine and the system to automatically retrieve the relevant data information, and then it can intelligently screen, classify, judge and analyze, so as to obtain valuable information. The trend of using the thinking of big data is unstoppable.

### **4.2 Continues to Take Traditional Culture as Its Resources to Promote the Content Innovation of the Cultural and Creative Industry**

The creativity and innovation of cultural production are the most core and the most difficult content in the cultural and creative industry. Data analysis is no substitute for ideas and creativity, and the unique human spiritual civilization world cannot be simulated by data logic. Creative industry should pay attention to the inheritance of traditional culture,

and the pursuit of innovation and creativity as always, respect cultural products unique cultural value and humanistic care, to meet the market demand at the same time, but also creative into the application of big data, produce cultural value, leading, innovative, can reflect the traditional cultural connotation of cultural products and services.

### **4.3 Branding: Super IP Innovation and Value-Added Sustainability**

The new cultural and creative innovation reconstructs the IP development mode in the way of “cultural + industry” and is committed to the sustainable value appreciation of IP development brand. In addition to the commercial value that has been attracting much attention, the cultural and creative industry began to explore the cultural connotation of IP itself, take the traditional cultural value as an important consideration standard, support the industrial chain with the cultural core, and break up the barriers of relevant industries. With the support of big data technology, the foothold of cultural and creative branding lies in the development of derivative goods and multi-scene extension. In terms of product content, the cultural and creative industry continues to innovate the products, making the derivatives intellectual, interesting and practical. In terms of product promotion, big data and other technologies are used to obtain the public demand, and expand the brand influence through the network and big data push, so as to enhance the value of the brand itself.

### **4.4 Strengthens the Platform Brand Cooperation, Online and Offline Three-Dimensional Marketing**

In the context of big data, the cultural and creative industry is already integrating the media, but it is not comprehensive enough. In order to innovate and develop the development of the industry, cultural and creative enterprises also need to deepen cross-border integration with the Internet as the main platform. In addition to the existing cooperation, they can also form a cultural and creative industry with strong combination and compatibility through film and television, literature, games, animation, etc. At the same time, the relevant personnel of the cultural and creative industry should clearly realize that offline sales are still an important part of industrial development, and they should influence offline and surround online with offline. That is, while online marketing affects offline, offline immediately distribution network, penetrate into the life of consumers, and expand the consumer population. Although the domestic cultural and creative industry is developing rapidly, everyone’s impression still stays around the museum or on tourist souvenirs, even if the cultural and creative products have carried out cross-border cooperation with many brand products. Therefore, product sales should be carried out through pragmatic offline channels to improve brand culture perception, quality perception, service perception, etc., so as to improve the sales volume of cultural and creative products.

### **4.5 Actively Introduces Big Data Talents in the Cultural and Creative Industry, and the International Publicity Goes Abroad**

Talents in the content data and behavior data in the cultural and creative industry are quite scarce. These talents must have a certain social science foundation, but also have a

certain artistic accomplishment and aesthetic design ability. It has a high sensitivity to the cultural industry data, is good at discovering, collecting and using the data reasonably, and has a certain ability to understand, organize and analyze the data. There is also need to reflect on data and judge its value from a scientific perspective of big data. The cultural and creative industry cannot be separated from the support of fresh blood. The pioneers or leaders of the cultural and creative industry should actively provide convenient talent introduction services for the talents in the industry.

At the same time, the domestic cultural and creative industry should broaden its vision, focus on the international market, on the basis of grasping the market, combined with its own core advantages to build a strong brand [6], let more people understand the traditional Chinese culture, so as to spread Chinese culture to the world.

## 5 Conclusions

Under the background of big data, text and the rapid development of development get the attention of the society from all walks of life, but in the process of development, we always need self-reflection and ascension, of wen gen industry from the world's advanced countries found in the development of their own shortcomings, such as cultural development and innovation is still in a state of relative lag, the development of traditional culture to us haven't complete system. And the cultural industry chain is relatively simple. Only by constantly facing up to their own situation can we find the direction in the development of cultural innovation in the next stage.

In the process of developing the cultural and creative industry, we should seize the significant advantages of the Internet and big data. In order to realize the deep integration of big data and cultural and creative industry, we should complete and improve the cultural and creative industry chain, actively introduce big data talents, so that big data can further help the development of cultural and creative industry. On the one hand, cultural creativity should be integrated into the application of big data to create content products with cultural and economic value to meet people's spiritual needs. On the other hand, from the perspective of the cultural and creative industry chain, a data sharing platform for the cultural and creative industry is built. On the basis of information sharing, cross-border integration of online and offline media is strengthened to achieve three-dimensional sales. Finally, create the super IP of cultural and creative products, expand the influence of the brand, set the development sights on the international, and let more people understand Chinese traditional culture.

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