



# The Production and Operation Path of Net-generated Documentary High-Quality Development Based on Big Data

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**Abstract.** Relying on the application and analysis of big data technology, the current mainstream video platforms have opened up a new situation for producing and marketing online documentaries. The video platforms take big data as the guide, boutique production of online documentary content, relying on big data accurate user profiling, grasping the market trend of online documentary, ladder-ing, differentiated layout to meet the needs of different online documentary user groups, diversified exploration of online documentary selection resources. With the support of big data, The video platforms optimize the operation strategy of an online documentary, solve the problem of "financing difficulty", dig deep into the category of an online documentary, promote the development of high-quality content and content upgrading of an online documentary, and make use of the big data to accurately network marketing, advertise the potential customer groups, and generate new marketing products. The technical mining and information integration and analysis functions of big data have promoted the quality development of online documentaries and rewritten the development direction of domestic documentary production and marketing path.

**Keywords:** net-generated documentary, big data, production and operation

## 1 Introduction

The big data era has brought many significant changes to various industries. In the era of big data, the ideas and methods of traditional documentary production and dissemination are also changing, and new innovative service ideas supported by data analysis are influencing the production and dissemination of documentaries. At present, many domestic video platforms have begun to lay out upstream in the documentary field and intervene in content production, gradually perfecting their content production, building their content teams, and creating their net-generated documentary brands under the drive of their flexible mechanism and system, sharp market sense, inclusive production mode, and massive capital. As a new type of documentary production, the net-generated documentary reflects that documentary production and dissemination have completed

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the transformation from experience to market, during which the application and analysis of big data technology plays a crucial role.

The application and analysis of big data technology play a crucial role in the process. How big data technology plays a role in producing and disseminating documentaries needs to be improved in both the depth and breadth of domestic and international research. The current situation of research on big data for documentaries at home and abroad shows that scholars' research content is mainly about the impact of big data on the media environment, mostly surrounding the current situation of the media environment, documentary content subjects, and corresponding countermeasures, et cetera. The research results show that the impact of big data on the media environment can not be ignored; however, few scholars have made a corresponding study on the specific impact of big data on the development of documentaries, especially net-generated documentaries.

With the arrival of the big data era, documentary production methods and dissemination channels are gradually transforming, and the impact of big data on the development of the documentary industry should involve all aspects of documentary production and operation. Under the changing media environment, the development of China's documentary industry urgently needs new innovative documentary production and dissemination. Based on such considerations, this paper focuses on the new documentary genre of net-generated documentary and studies how it relies on big data technology and analysis and rewrites the domestic documentary production and marketing path. The study aims to provide some reference for the subsequent research on big data and the development of the documentary industry <sup>[1]</sup>.

## 2 Current development status of net-generated documentary

Network documentaries can be divided into broad and narrow senses, the broad sense of online documentary includes the movie and television documentary broadcast on the Internet platform and the network platform self-produced (co-produced) documentary two types, webcasting documentary and net-generated documentary. The object of study in this paper is narrowly defined network documentaries, i.e., documentaries mainly invested or co-produced, self-produced, customized, and broadcasted by Internet platforms, with Internet users as the primary audience, i.e., net-generated documentaries. At the 6th Network Audio-visual Conference in China on November 30, 2018, Ni Li, vice chairman and COO of the Bilibili Barrage video website, said that most of the documentaries since 2016 are new forms driven by Internet platforms produced for Internet users and broadcast and disseminated on Internet platforms, which is defined as "net-generated new-school documentary" by Bilibili. The emergence of online documentaries is due to the network's ability to disseminate, and the second is the need to develop documentaries themselves. Among China's video platforms, Tencent Video, Youku, Mango TV, iQIYI, and Bilibili have all laid out self-produced documentaries. In comparison, Tencent and Bilibili have invested more in self-produced documentaries.

On February 10, 2022, the State Administration of Radio, Film, and Television (SARFT) issued the Opinions on Promoting the High-Quality Development of Documentaries in the New Era, which puts forward new ideas and countermeasures for the high-quality development of documentaries in the new era. In 2022, network documentaries did not continue the rhythm of the previous years' high-speed and massive new releases. Instead, they slowed down and shifted into the deepening stage of high-quality development with an attitude of careful cultivation. In 2022, the whole network had a total of 318 online network documentaries, 59 fewer than in the same period of the previous year, a year-on-year decline of 15.65% (see Fig. 1).

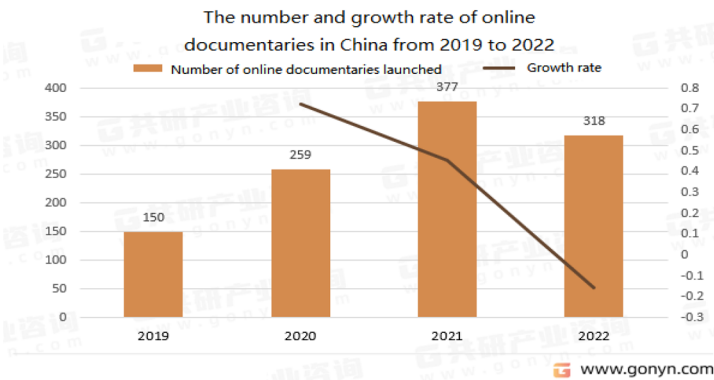


Fig. 1. The number and growth rate of online documentaries in China from 2019 to 2022

In 2022, there were 57 feature-length documentaries, 122 short documentaries, 139 micro-documentaries, 166 documentary series, 47 sequel documentaries, and 19 derivative documentaries; 115 documentaries produced or produced by network audio-visual platforms, and 31 documentaries cooperated by audio-visual platforms and TV stations, which can be seen that major domestic video network platforms are accelerating their efforts in the field of documentaries, giving full play to the advantages of capital and self-production, and further Integrate resources to realize the quality of net-generated content (see Fig. 2).

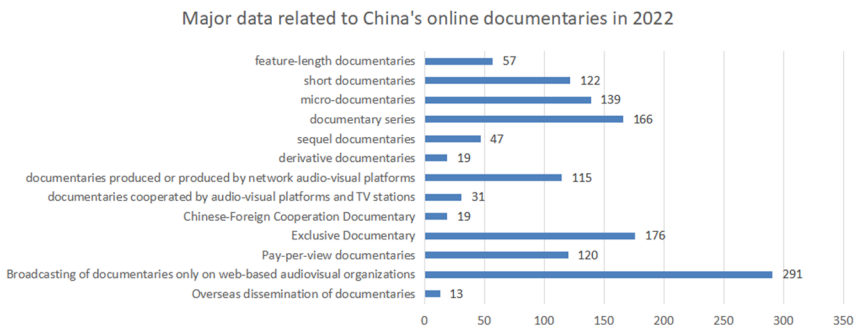


Fig. 2. Major data related to China's online documentaries in 2022

The deepening of the quality development of net-generated documentaries requires the help of big data. McKinsey Global Research believes that big data is a collection of data that is so large that it greatly exceeds the ability of traditional database software tools in terms of acquisition, storage, management, and analysis, and has four primary characteristics: massive data scale, rapid data flow, diverse data types, and low-value density. Big data can promote the high-quality development of net-generated documentaries from market environment and evaluation, planning and improvement, audience interaction and participation, ratings measurement and assessment, and accurate advertising placement.

### **3 Big data-oriented, boutique production of net-generated documentary content**

#### **3.1 Accurate user profiling with big data to grasp the market trend of net-generated documentaries**

In the era of digitization, how platforms can accurately find target customers and establish a close connection with them has become the key for platforms to gain market share. Moreover, on the road to customer acquisition, the construction of user profiles has become a crucial task. The user profile comprehensively describes the target customers, including their basic information, interests, purchasing behavior, social media activities, et cetera. In constructing user profiles, platforms must find and establish close contact with them. In the construction of user profiles, platform big data plays an important role, and platform big data has the following advantages: (1) Rich data source: big data contains multi-dimensional data such as users' communication records, online behavior, consumption habits, et cetera. The data source is rich and can provide a more comprehensive user profile. (2) Accuracy of data: Since big data comes from users' actual behavior, its data has a high degree of accuracy and authenticity and can more accurately reflect the characteristics and preferences of users. (3) Strong real-time: big data is generated in real time, which can promptly capture the changes and trends of users, helping the platform grasp the market dynamics and make timely decisions.

Constructing a platform user portrait is a systematic process through data collection, data cleaning and integration, data analysis, user classification, and finally, constructing a user portrait model, which comprehensively describes users' different characteristics and behaviors to form a user portrait. By accurately constructing user profiles of net-generated documentaries, platforms can better understand the needs and behaviors of target customers and grasp market trends<sup>[2]</sup>.

The primary audience of online platforms shows a youthful trend, and these young groups have grown up along with the popularization and development of China's Internet. Young groups are happy to form close community relationships with strangers with the same preferences in the virtual world of the Internet, have a rich online virtual life, can express themselves in free cyberspace, and have a strong sense of self-awareness and entertainment spirit. For example, the user profile of Tencent video documentaries

shows that post-90s users account for nearly half of the documentary audience, and post-00s users are growing the most. By the end of 2022, Tencent's young users under the age of 30 accounted for 70% of Tencent Video's documentary channel. The pan-90s population of headline documentary works (such as *Blue Planet 2*) was as high as 78%. Young people are looking for a higher-quality and more diversified consumption of cultural content, and while maintaining high-quality products and quality, documentaries need to be recognizable to young people to achieve sustained healthy growth. Tencent Video is expanding its content horizontally. For this reason, Tencent Video expands its content horizontally and digs deeper into content quality vertically to lead the audience and market demand.

### **3.2 Ladderized and differentiated layout to meet different online documentary user groups**

The audience has become a known individual from an unknown group through the large amount of audience behavioral data generated by net-generated documentaries broadcast on the platform, such as viewing trajectories, search preferences, behavioral habits, et cetera. The audience's search information and broadcasting behavior have been further localized. Then using big data technology for data mining and analysis, the audience's potential consumer demand can be directly grasped to establish a more accurate consumer positioning and build a targeted consumer communication mechanism. Targeted consumer communication mechanism, through ladderizing, differentiated layout to meet the needs of different user groups documentary<sup>[3]</sup>.

For example, Tencent Video Documentary 2022 Annual Summary shows that 54% of Tencent Video's documentary users are male and 46% are female, which shows that the male user group is the primary consumer of net-generated documentaries; from the age point of view, the users of net-generated documentaries are mainly concentrated in the age of 25 to 39 years old, which accounts for 56.9% of the entire net-generated documentary consumer group; The per capita viewing time of "senior intellectual" users is 42.5% higher than that of "non-senior intellectual" users; the scale of "history, food, military" documentary users is extensive, and "adventure" documentaries are more popular among young people.

Currently, the head network platforms of iQIYI, Youku, Tencent, and Bilibili consider the panoramic distribution of long, medium, and short documentary volumes. In contrast, streaming media platforms such as Kwai and Tiktok are characterized by "new audio-visual, new communication, and new ecology" and sound the new pattern of APP-integrated production oriented to the users. Network platforms have launched distinctive documentary brands with differentiated positioning. iQIYI has launched "Food in the Rivers and Lakes", "The Magical Capital Luoyang," and "The Soul of Countryside Rice"; Youku has produced "Shine! Chinese Civilization", "This Decade - Happy China", "Serving! New Year", "Jianghu Restaurant", et cetera; Tencent Video, has also produced branded projects such as "Late Night Jianghu (Season 2)", "Taste of Shandong", "A Long Journey", "The Great Mom", "Sixty Thousandths of Life", and so on. Bilibili has "Land of the Gods", "Guardian Liberation West (Season 3)", "Wake Up from Sanxingdui", "But There Are Still Books", and "Duel in the Wilderness (Season

3)", among others. Tiktok and Watermelon Video launched "Life Shines 2022", Kwai produced its Olympic documentary "Twenty", and Watermelon Video co-produced "Ancient Books Through Time and Space" with other platforms.

### **3.3 Diversity to explore the topic selection resources of net-generated documentaries**

In recent years, archaeology, non-heritage, and food documentaries constitute the main direction of documentary selection. However, the phenomenon of "a swarm of bees" often results in a mixture of good and evil; the phenomenon of convergence of the creative model, part of the same kind of documentary market saturation is high, deepening the audience's aesthetic fatigue. To eliminate the phenomenon of serious homogenization, the diversity of selected topics and resources is an essential strategy. Net-generated documentaries should use the advantages of big data to work on the richness and diversity of topics, and the networked attributes of the platform can make the topics broad and the coexistence of niche genres and popular topics.

The data center of the platform establishes a user preference database by collecting users' ratings and evaluations of the documentaries they watch. It records each user's actions in detail, including the period of viewing, the type of video watched, and even the pause node information and fast-forward clip information in collecting users' viewing habits and actions for huge data collection. It is, moreover, based on the massive data for the relevant algorithms, which create a net-generated documentary subject matter in line with the audience's tastes. Tencent video launched the "Tide City", "victory drone," and so on in the big data analysis results under the guidance of the market hotspot for accurate positioning and the creation of the net generation documentary; after broadcasting, it achieved good results.

## **4 Optimize the operation strategy of net-generated documentaries based on big data**

### **4.1 Crack the problem of "financing difficulties" and promote the development of quality content of net-generated documentaries**

"Financing difficulties", "slow financing", "financing troubles," and other situations have always been a headache for documentary filmmakers. The vast market of net-generated documentaries cannot rely entirely on documentary studios to invest, nor can it rely solely on platforms to invest, and the introduction of extensive capital participation can promote the prosperity of the network documentary industry. In the era of big data, data has become the bargaining chip of net documentary in the market bargaining, and its role is becoming more and more prominent <sup>[4]</sup>. Through the calculation and reasoning technology in computer technology, the primary data of the audience and the data of the intention to consume services can be classified and extracted and then converged into an extensive database, which is of great commercial value, and can provide a scientific basis for the financing of the net-generated documentary <sup>[5]</sup>. The risk of

investing in the net-generated documentary can be more controllable for the capitalists. Coupled with the platform can monitor the user's viewing data in real-time, each net-generated documentary, each type of net-generated documentary can be formed into a set of databases, then for the same type of new project, prior assessment and wind control are traceable, more conducive to the intervention of financial instruments.

The platform can invest in high-quality projects and joint investments based on big data. The platform database can allow net-generated documentary investors and creators to predict how likely it is that the content will be realized and how many people will watch it, as well as make clear to whom they should create the content and how much it should cost to create it.

Tencent Video's June 2020 launch of a split-account cooperation model based on big data has achieved a win-win situation for the partners. Tencent Video's documentary breaks the industry's grading tradition, returns to user orientation and content value, and uniformly uses the "unit price of the number of times a member can effectively play" as the only unit price, handing over the right to choose to the user. At the same time, Tencent Video has set the threshold for counting the number of times a member can effectively play a movie in 3 minutes. In this split-account cooperation method, "user preference" becomes the only criterion for revenue. With a guaranteed income, financiers and partners can produce quality net-generated documentaries on a risk-controlled basis.

#### **4.2 Digging deeper into the category of net-generated documentaries to realize content upgrading**

In the era of network change, information dissemination has shifted from the "mass portal" mode to the "personal portal" mode, and the value of individual network users has been significantly enhanced. The subject matter and even the content of net-generated documentaries start to match with users based on "algorithms", and the personalized algorithms take the specific personality of each user as the core variable, attaching importance to the value of individual user preferences. Network video platforms with the advantages of search engine resources and algorithms have opened up vertical classifications for producing net-generated documentary content. They are committed to fostering users' brand stickiness.

Currently, each platform has incorporated net-generated documentaries into the strategic layout of content production, completing the construction of documentary channels or documentary channels and further subdividing the subject matter of the content sections under the channels. iQIYI, Youku, Tencent, Bilibili, and other platforms have set up many sections in their respective documentary channels, including history, nature, military, and science. The construction of professional channels and content sections caters to user groups with an increasingly clear division of circles, and users are also able to choose to watch documentaries on their own on the platform to meet their personalized needs because of the improvement of their right to choose. Regardless of the direction, the exploration of vertical content based on big data mining and analysis has always been to dig deep into the vertical circle and seek new changes.

### **4.3 Big data technology realizes accurate online marketing of net-generated documentaries**

Big data can mine users' preferences and potential demand for netbook documentary content by analyzing user behavior and relationship, automatically collecting and generating netbook documentaries that meet users' needs through information aggregation to realize accurate netbook documentary content recommendations. This precise push needs to rely on algorithms to determine audience interests and user needs and ultimately decide the content to be pushed to the target users, thus reducing the time and cost of users' access to information<sup>[6]</sup>.

For example, Tencent Video, according to the user audience at the moment to watch online documentary video content, subject matter, and other data, in the viewing of the video will appear below the "recommended for you" section to facilitate the user to watch the favorite content. At the same time, the user clicks to watch; the video platform will increase the number of clicks and then contribute to the traffic; the platform also achieves the purpose of obtaining revenue.

iQIYI also relies on extensive data analysis to achieve a fully personalized content recommendation of "thousands of people, thousands of faces." The content on the user's homepage will be differentiated and accurately pushed according to the user's profile. The advertisements or information of interest can be recommended according to the user's viewing preferences, thus reducing the time cost of the user's content selection.

### **4.4 With the help of big data analysis technology, advertisements are targeted to potential customer groups**

Based on big data analysis technology, advertisements can be targeted according to users' needs through accurate profiling of users. In the data collection stage, the platform can collect users' behavioral data through various channels, including users' browsing records, search keywords, and clicking behaviors on various products on the platform, and at the same time, it can also obtain users' demographic information through user authorization. The collected user data are processed and analyzed in the data analysis stage. Through machine learning and data mining algorithms, the user's characteristics and interests and other information are extracted, including the user's age, gender, geographic location, interests, and consumption habits. In the target audience screening stage, according to the target audience requirements set by the advertiser, eligible user groups can be screened; for example, the advertiser can set to advertise only to female users aged 18-30 and located in Shanghai. In the final stage of advertisement placement, after screening the target audience, the platform's advertisement system will place the advertisements to qualified user groups, and the placement methods can include displaying advertisements on the platform's products, search engine advertisements, and social media advertisements.

Tencent's advertising and promotion platform provides advertisers with more accurate promotion services by applying big data and artificial intelligence algorithms with its robust background intelligent targeting function.



#### 4.5 Generate new marketing products based on big data

The traditional documentary marketing method mainly adopts promotion meetings, on-site activities with direct interaction with the audience, advertising, et cetera. This traditional marketing model has limitations for documentary products from promotion to success. In the era of big data, data has become the bargaining chip in the market bargaining for the marketers of platform net-generated documentaries, and its role is becoming more and more prominent. Through computation and reasoning technology in computer technology, the audience's primary data and the intention to consume services are categorized and extracted and then converged into an extensive database, which has significant commercial value<sup>[7]</sup>. At the same time, by analyzing and mining the value of the information resources, it is fused with the commodity data to form a class of marketable commodities. It can be used in marketing organization and planning activities by analyzing and mining valuable information resources and integrating them with commodity data.

Yuqi Ning, director of the Documentary Center at iQIYI, said that iQIYI has accurate user data and user profiles so that the content team can judge a general market trend based on the historical performance of related subjects in the income and traffic dimensions. Although we cannot fully grasp the direction of the explosion, we can judge the market potential of specific subjects, what kind of story structure and creative team to use, and what the target user preferences or user types are. With the help of big data research and analysis of users, it can do some of the net-generated documentary pre-content judgment to invest in the user's favorite content accurately.

Tencent Video uses innovative production methods to adapt to the audience's personalized expectations of different content categories based on collecting and analyzing big data in the early stages. For example, taking into account that many users watch content on mobile screens, "Once Upon a Bite" uses ultra-micro filming to present the process of change at the molecular level of food; the epic historical blockbuster "Dunhuang: Born to Be Legendary" uses 4K filming to restore the grandeur of this cultural treasure; and "Perfect World", which is about filming the Earth from a global perspective, combines natural history and Earth science through the most advanced satellite technology to reveal the workings of the planet. All of these works have received good market feedback without exception.

## 5 Conclusions

The rise and development of big data technology have brought new changes to the development of Chinese documentaries. As a new type of documentary relying on big data, net-generated documentaries have gained a good market effect and reputation. How to optimize the production, operation, and marketing of net-generated documentaries relying on big data technology and analysis and how to rewrite the new situation of domestic documentary production and operation are the focuses of this paper and its research.

On the issue of how big data affects the production and production of netbook documentaries, this paper finds that video platforms take big data as the guide, boutique

production of netbook documentary content, relying on big data and accurate user profiling, grasping the market trend of netbook documentaries; laddering and differentiating layout to meet the needs of different netbook documentary user groups, and diversifying to explore the topic selection resources of netbook documentaries.

In terms of how big data affects the operation and marketing of net-generated documentaries, this paper finds that the platform, relying on big data, optimizes the operation strategy of net-generated documentaries, solves the problem of "financing difficulties", digs into the net-generated documentary category, promotes the development of high-quality net-generated documentary content and content upgrading, and uses big data to carry out accurate network marketing and advertisement targeting for potential customer groups.

Overall, big data's technical mining, information integration, and analysis functions have promoted high-quality net-generated documentary development and rewritten the development direction of domestic documentary production and marketing path.

Of course, opportunities and challenges exist side by side; big data brings excellent opportunities to the documentary field but also comes with significant challenges. The use of big data in the documentary industry is still in its infancy<sup>[8]</sup>. The scientific and accurate data sources have yet to be solved. There are significant limitations in relying on more than just the market, ratings, clicks, et cetera. to evaluate documentary works. The number of clicks does not reflect the psychological state of people, nor does it reflect the degree of people's love for documentary work, let alone the artistic value of a documentary film<sup>[9]</sup>. The quantitative thinking of "quantifying everything", "quantification rather than qualification", and "correlation rather than causality" are not healthy thinking that integrates technology and humanity<sup>[10]</sup>. Inevitably, there are misunderstandings. In addition, with the support of big data and market-oriented, there may also be problems such as the polarization of word-of-mouth and controversial value orientation despite the heat and profit. Net-generated documentaries are not only products but also have multiple value functions of society, culture, and aesthetics in addition to market value, which is related to spiritual pursuit, and single market orientation is not enough to be the only criterion to measure the superiority of a documentary.

The most significant advantage of this paper is that it takes care of the new documentary type of platform, net-generated documentary, researches how to take advantage of Internet big data and algorithms, and takes the market as the goal, presenting the characteristics of Internet documentary production and operation that are differentiated from those of traditional media. However, the issues above have not been addressed. Therefore, how to give full play to the advantages of platform providers and avoid the shortcomings, and how to deal with the balance between content quality and market returns, value orientation, and data analysis will be the challenge to be met for the quality development of net-generated documentaries, and also a topic worthy of continued attention and research.

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