WEP Warwick Evans Publishing

International Journal of Global Economics and Management

ISSN: 3005-9690 (Print), ISSN: 3005-8090 (Online) | Volume 3, Number 2, Year 2024
DOI: https://doi.org/10.62051/ijgem.v3n2.53
Journal homepage: https://wepub.org/index.php/IJGEM/index

Business Model Innovation and User Experience Optimization of New Media Live Streaming Platforms

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ABSTRACT

The paper focuses on business model innovation and user experience optimization for new media live broadcasting media, explores and analyzes existing business models, the path of business model innovation, and the influencing factors. The research shows that the business models of live broadcasting media are various and diversified, such as advertising revenues, user payments, virtual gifts, and e-commerce live broadcasting. Competitiveness and user stickiness will be continuously enhanced with technological innovation, revenue model exploration, data-driven recommendation individualization, and cross-platform cooperation. At the same time, the optimization of user experience is to guarantee the success of the platform in terms of usability, functionality, emotional experience, and user satisfaction. The research adopted the network data analysis method, collected user comments, browsing time, and interaction data by platform APIs and social media tools, conducted descriptive statistics with correlation analysis, and analyzed the regression method to verify that the business model innovation plays a positive role in User Experience Optimization. This study not only provides theoretical support for the development of live streaming platforms, but also proposes practical strategies, providing guidance for platforms to improve user experience and achieve sustainable development.

KEYWORDS

New media live streaming platform; Business model innovation; User experience optimization; Data analysis; Personalized recommendation

1. INTRODUCTION

1.1. Research Background and Importance

In the last decade, new media live-streaming platforms have exponentially grown and matured into an integral part of the modern digital media ecosystem. Along with the mobile Internet and streaming technologies becoming mainstream, live broadcasting platforms have given users a new way to interact and entertain in real time, altering the traditional wireline twisted pair media-consumption model [1]. Studies show that emerging-media live-broadcasting platforms have already had status more important than just being used in the entertainment sector; they are massively applied now within e-commerce, education, sports, and others, thus showing their versatility and significant development prospects [2].

Business model innovation is one of the key factors for the success of new media live streaming platforms. Through innovative business models, platforms can more effectively utilize resources, create new value and enhance market competitiveness [3]. For example, China's live streaming platforms have not only increased user engagement but also significantly improved the profitability

of the platforms by introducing novel revenue models such as virtual gifts and interactive shopping[4]. These business model innovations have not only brought economic benefits to the platforms, but also promoted the development and progress of the entire industry.

At the same time, the optimization of user experience is another important factor for the success of new media live streaming platforms. High-quality user experience can not only attract and retain users, but also increase user loyalty and satisfaction[5]. Through big data analysis and artificial intelligence technology, the platform can achieve personalized recommendations and real-time interactions to meet the personalized needs of users, thereby improving user experience[6].

In summary, studying the business model innovation and user experience optimization of new media live broadcast platforms not only has important theoretical significance, but also helps to guide practical operations and promote the sustainable development of the industry.

1.2. Research Objectives

This study aims to systematically analyze the business model innovation and user experience optimization paths of new media live broadcast platforms. Specific objectives include:

Explore the main business models and characteristics of existing new media live broadcast platforms.

Analyze the paths and influencing factors of business model innovation.

Study the concepts, dimensions and optimization strategies of user experience.

Explore the interactive relationship between business model innovation and user experience optimization and their coordinated development mechanism.

2. LITERATURE REVIEW

2.1. Theoretical Basis of New Media and Live Broadcast Platforms

As important components of modern digital media, new media and live broadcast platforms have unique theoretical and technical foundations. McMullan (2020) proposed the basic technology theory, which revealed the unique attributes and social influence of online platforms such as YouTube, SoundCloud and Twitter as digital media by analyzing the historical evolution of key technologies[7]. This theoretical framework helps understand how digital media redefines the production and consumption of content at the technical and social levels. In addition, Lin et al. (2009) proposed a cooperation strategy for users on peer-to-peer live broadcast platforms by analyzing user behavior in multimedia social networks, emphasizing the key role of cooperation between users in platform stability and scalability [8].

Yeung and Kwok (2008) analyzed user behavior through a game theory model and proposed an incentive mechanism to promote cooperation between users and ensure the stable operation of the platform [9]. This analysis method reveals the impact of user behavior on the performance of the live broadcast platform and emphasizes the importance of cooperation and trust in peer-to-peer networks. In addition, Yu et al. (2022) studied the cultural landscape of mobile live broadcast from the perspective of computer-mediated communication and explored the impact of technological empowerment, multi-platform interaction, and real-time communication on audience psychology and behavior [10]. These studies show that live broadcast platforms are not only the product of technological innovation, but also an important medium for social interaction and cultural exchange.

2.2. Research Status of Business Model Innovation

Business model innovation is one of the core driving forces for the development of new media live broadcast platforms. Studies have shown that live broadcast platforms achieve the process of value

creation, delivery, and acquisition through innovative business models. Cabeza-Ramírez et al. (2021) studied video game live streaming services, revealing the complex interactive relationship between platforms, anchors, and viewers, and emphasized the key role of business model innovation in platform success [11]. This innovation is not only manifested in new streaming technologies and platform designs at the technical level, but also shows unique advantages in business operations and market strategies.

Wongkitrungrueng and Assarut (2020) studied the role of live streaming services in building consumer trust and engagement, and proposed a comprehensive framework to explain how live streaming services influence customer trust and engagement through symbolic value, practical value, and hedonic value [12]. This analysis provides a new perspective for understanding how live streaming platforms can improve user stickiness and satisfaction through business model innovation. In addition, Yang et al. (2020) established a model to predict live streaming subscribers through machine learning methods, and explored how to convert free viewers into paying users, thereby increasing platform revenue [13]. These studies show that business model innovation is not only the result of technological and product innovation, but also a reflection of changes in market demand and user behavior.

2.3. Related Theories of User Experience Optimization

User experience is one of the key factors for the success of live streaming platforms. Cha (2013) studied the coexistence pattern of online video platforms and TV platforms based on the theory of planned behavior and the technology acceptance model, revealing the behavioral motivations and preferences of users when choosing video platforms [14]. This study provides a theoretical basis for understanding user experience optimization and emphasizes the impact of the relative advantages and compatibility of platforms on user choices.

Zhang et al. (2020) explored the impact of live video streaming on online purchase intention and found that live streaming strategies can improve customers' online purchase intention by reducing psychological distance and perceived uncertainty [15]. This study shows that optimizing user experience can not only improve user satisfaction, but also directly affect the platform's business performance. In addition, Vithana et al. (2009) designed an audio and video streaming platform based on a subscription framework, emphasizing the platform's flexibility and service functions in meeting users' specific needs [16]. These studies show that by optimizing user experience, live streaming platforms can better meet user needs and improve user satisfaction and loyalty.

3. RESEARCH METHODS

3.1. Research Design and Ideas

This study adopts a quantitative research method to explore the business model innovation and user experience optimization of new media live streaming platforms through big data analysis and case studies. The research design is divided into three main stages (as shown in Figure 1): First, a theoretical framework is constructed through literature review to clarify the research variables and their relationships; second, a large amount of user data and usage data from different live broadcast platforms are collected using network data collection tools; finally, data analysis and case studies are conducted to verify the research hypothesis and explore specific paths for business model innovation and user experience optimization. The research design aims to provide comprehensive insights into theory and practice to promote the development of new media live broadcast platforms.

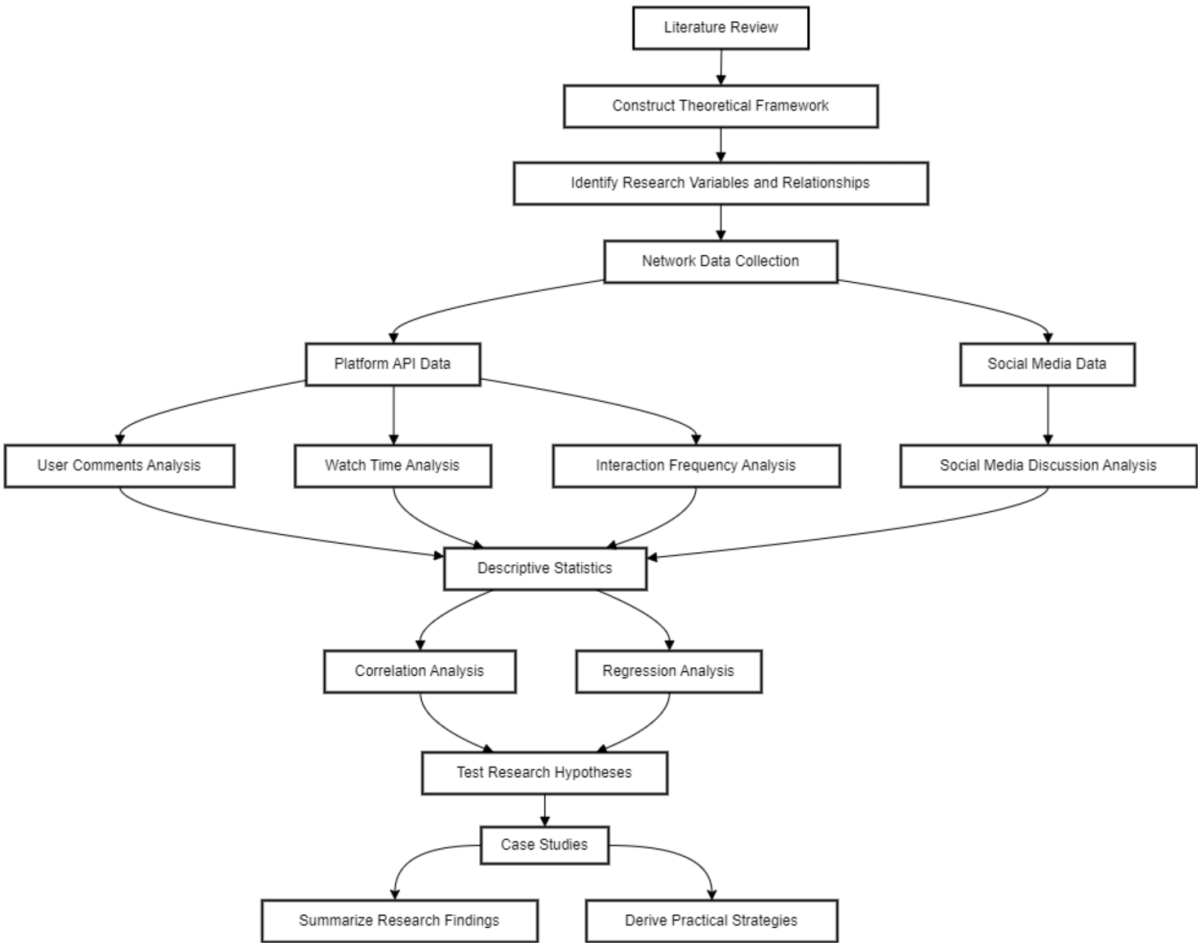

Figure 1. Research Design and Thought Process

3.2. Data Collection Methods

The data samples are mainly derived from public data of four mainstream live streaming platforms (YouTube, Twitch, Douyin and Bilibili), including user comments, viewing time, interaction frequency, etc. Detailed user behavior data is obtained through the platform API interface, and user discussions and feedback on social platforms are collected through social media analysis tools. A total of 100,000 user comments, 50,000 viewing records and 20,000 interaction data were collected. The sample data is large in volume and sourced widely, and has high representativeness and reliability.

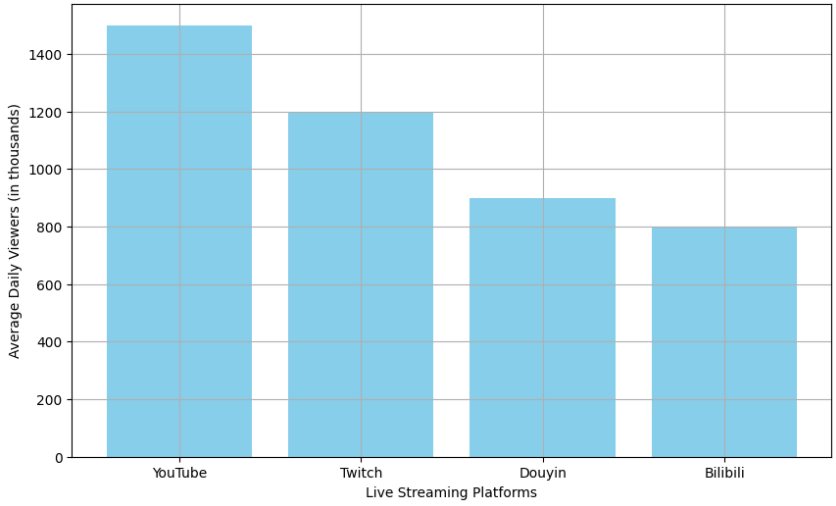

Figure 2. Average Daily Viewers on Various Live Streaming Platforms

Figure2 depicts the average daily viewers across four major live streaming platforms: YouTube, Twitch, Douyin, and Bilibili. The data indicates that YouTube leads with the highest average daily viewers, followed by Twitch, Douyin, and Bilibili. This trend highlights the varying popularity and user engagement across different platforms.

3.3. Data Analysis Methods

Data analysis uses a variety of statistical and computational methods to fully interpret the collected data. First, descriptive statistics are used to analyze user behavior and platform usage to identify major trends and patterns. Second, correlation analysis and regression analysis are conducted to explore the relationship between different variables, such as the association between user experience and business model innovation. In addition, natural language processing (NLP) technology will be used to conduct sentiment analysis and topic analysis on user comments and social media discussions to explore users' true feelings and needs for live broadcast platforms. Finally, through case studies, the successful practices of typical live broadcast platforms are deeply analyzed to extract feasible business model innovation and user experience optimization strategies.

4. BUSINESS MODEL INNOVATION OF NEW MEDIA LIVE BROADCAST PLATFORMS

4.1. Analysis of Existing Business Models

The existing business models of new media live broadcast platforms mainly include advertising revenue, user payment, virtual gifts and e-commerce live broadcast. Advertising revenue is the most traditional and widely used model. The platform obtains advertising fees from enterprises by embedding advertisements in live broadcast content. User payment models include membership subscriptions, rewards, etc. Users pay a certain fee to obtain high-quality content or value-added services. Virtual gifts are another important source of income. Users reward anchors by purchasing virtual gifts, and the platform and anchors share the profits according to a certain ratio. In addition, e-commerce live broadcast combines live broadcast with e-commerce. Users can directly purchase products while watching live broadcasts, which greatly improves the shopping experience and consumption conversion rate. These business models have their own characteristics, but the common goal is to achieve sustainable development and profitability of the platform through diversified sources of income.

4.2. Paths to Business Model Innovation

Business model innovation is an essential factor for the new-media live broadcast platform to ensure that sustainability includes competitiveness and development. Technological innovation can make more immersive experiences in the live broadcast of virtual and augmented reality. The second lies in the exploration of new monetization models, including social e-commerce and knowledge payment, live broadcasting, and the addition of other digital products and services to create added value on the platform. Third, precision enhancement in relation to content delivery and user engagement through data-enabled personalized recommendations. Finally, cross-platform cooperation and diversified development are also important innovation paths. All these paths of innovation shall allow the platform to be developed with other social media, e-commerce platforms, and content providers in cooperation in expanding the market and outing the development of users to realize resource sharing and coordinated development. The innovative paths serve to further the platform's development while endowing its users with a more significant and more diversified experience.

4.3. Factors Affecting Business Model Innovation

Specifically, technological advancement, market demand, competitive environment among corporations, and the policy environment are the four factors influencing business model innovation. Besides, what is more robust and more potent in driving force for business model innovations lies in changes in technological progress. For example, live streaming platforms are empowered by 5G networks, artificial intelligence, and big data, which give more innovation opportunities. Market demand determines the direction and focus of platform innovation. The growing demand of users for personalized and high-quality content has prompted platforms to continuously optimize products and services. Competitive situation is also an important influencing factor. Fierce market competition forces platforms to innovate continuously to maintain their leading position. In addition, the policy environment plays an important role in guiding business model innovation. The government's support and regulatory policies for the digital economy and new media industries directly affect the platform's development strategy and innovation direction. These factors work together to determine the path and effect of the live broadcast platform's business model innovation.

5. USER EXPERIENCE OPTIMIZATION STRATEGY

5.1. Concept and Dimensions of User Experience

User Experience (UX): The experience of users in the use of a product refers to the way a product induces satisfaction among users. New media live broadcasting platforms involve entry into the platform to watching live broadcasts, interacting, and then leaving the platform. The principal dimensions include usability, functionality, emotional experience, and user satisfaction. Usability is checking if the users easily use various functions of the platform, whereas functionality is all about content and services provided by a platform to meet the needs of users. The emotional experience will be categorized into pleasure and participation or any such emotional reaction. Entertainment and interactivity in the provided information are likely primary for younger users, while older ones require more practicality and information reliability. This is where the accurate identification of user needs and types through data analysis and user feedback is a critical factor in the optimization of user experience on the platform. User satisfaction is the final evaluation of the above aspects, reflecting the user's recognition of the overall experience of the platform. Optimizing these dimensions is the key to improving user experience and directly affects user loyalty and platform competitiveness.

5.2. User Demand Analysis

Understanding user needs is the basis for optimizing user experience. User needs of new media live broadcast platforms are diverse and complex, including both demand for content and demand for interaction and technical support. User demand for content is mainly reflected in the diversity, quality and personalized recommendations of content. Interaction needs involve users' desire to interact with anchors and other viewers in real time to enhance their sense of participation and community belonging. The demand for technical support is reflected in the fact that users hope that the platform can provide a smooth viewing experience and a convenient operating interface to avoid problems such as freezing and complex operations. In addition, the needs of different user groups are also different. Optimize the platform interface design and operation process so that the content and functions users need can be found and reached easily and quickly.

5.3. Specific Measures for Optimizing User Experience

To improve the user experience, the live broadcast platform can take a series of specific measures. Second, professional content production teams and diversified content types should be introduced to enhance the content quality and diversity to meet the different viewing needs of the users. The third

is that it should enrich interactive functions and add interactive options, like real-time chat, "like" buttons, and rewards, to increase user participation and interactivity. Besides, it should be made for the users to quickly find content that interests them through personalized recommended matching big data and artificial intelligence technology. At last, these service providers shall provide efficient technical support and customer service to promptly solve problems encountered by the user in operation and raise overall user satisfaction. Through these measures, the live broadcast platform can greatly improve the user experience and enhance user loyalty and platform competitiveness.

6. CONCLUSION AND FUTURE WORK

6.1. Main Conclusions

This study has drawn a series of important conclusions by analyzing the business model innovation and user experience optimization of new media live broadcast platforms. First, new media live broadcast platforms show diversified characteristics in business models, including advertising revenue, user payment, virtual gifts and e-commerce live broadcast, which together build the platform's profit system. Second, the innovation paths of business models are diverse. Through technological innovation, exploration of new revenue models, data-driven personalized recommendations and cross-platform cooperation, live broadcast platforms can continuously improve their competitiveness and user stickiness. In addition, the optimization of user experience is the key to the success of the platform, covering multiple dimensions such as usability, functionality, emotional experience and user satisfaction. By accurately grasping user needs, taking measures such as optimizing interface design, improving content quality, enhancing interactive functions and providing efficient technical support, the platform can significantly improve user experience and enhance user loyalty.

6.2. Research Limitations

Although this study has drawn valuable conclusions through comprehensive analysis, there are still some limitations. First, the research data mainly comes from public network data. Although it is widely representative, it lacks in-depth understanding of users' deep-level behaviors and motivations. Secondly, this study focused on analyzing four major live streaming platforms (YouTube, Twitch, Douyin, and Bilibili), which may have overlooked the unique business models and user experience optimization strategies of other emerging platforms. In addition, the descriptive statistics and regression analysis methods used in the study can reveal the relationship between variables, but cannot fully explain the causal relationship. Finally, due to the dynamic nature of the data and the constant changes in platform strategies, the research conclusions may be time-sensitive for a certain period of time and need to be continuously tracked and updated in combination with the latest data and market changes.

6.3. Future Research Directions

Future research can be carried out in the following aspects to further deepen the understanding of new media live streaming platforms. First, quantitative and qualitative research methods can be combined to obtain detailed feedback from users through questionnaires and in-depth interviews to gain an in-depth understanding of user needs and behavioral motivations. Second, the research objects can be expanded to cover more live streaming platforms, especially some emerging platforms, to compare the business models and user experience optimization strategies between different platforms. Third, future research can use experimental design and causal analysis methods to explore the direct impact mechanism of business model innovation on user experience. Finally, with the continuous advancement of technology, future research can focus on the application of emerging technologies (such as virtual reality, augmented reality, and artificial intelligence) in live streaming platforms to

explore their potential impact on business model innovation and user experience optimization. Through research in these directions, more comprehensive and in-depth theoretical support and practical guidance will be provided for the development of new media live broadcast platforms.

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