

Research on Operational Strategy Optimization of the Traditional Game Live Streaming Platform -- Take Huya Live Streaming as an Example

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Abstract. The Internet live broadcast platform is one of the key topics in today's research. The researchers found that the decline in benefits is a common phenomenon in the traditional live broadcasting industry. However, there is still a lack of unified explanation for the research of Internet platform operation strategy and how to break the game. Therefore, to make up for the research gap in the decline of benefits of traditional live streaming Internet platforms and put forward targeted insights. This study took Huya Live streaming as an example to explore the optimization of traditional game live streaming operation strategy. The research methods of this paper are as follows: Taking the Huya Live streaming platform as an example, this paper describes its business model, platform attributes, and differentiated competitive strategy, and uses SWOT analysis to analyze the competitive environment of the Huya live streaming platform. The study found that the Huya live-streaming platform faces challenges such as incomplete realization of traffic, single revenue channels, and fierce market competition. Therefore, two kinds of optimization strategies are proposed. That is the continuous optimization of content ecosystem construction, and firm adoption of mobile and diversified development strategies, and hope to provide valuable references for research in this field.

Keywords: Huya; operation strategy; SWOT analysis; optimization research.

1. Introduction

Huya Live Broadcast is a bullet-screen interactive live broadcast platform based on the game live broadcast. It provides live streaming of popular games, live streaming of e-competition events and game events, and live streaming of mobile games. It is a leading interactive live streaming platform in China, focusing on providing a high-definition and smooth live streaming experience for netizens. The platform covers a number of fields with rich and diverse content and has attracted the attention of a large number of users. On November 14, 2023, Guangzhou Huya Information Technology Co., LTD. (hereinafter referred to as "Huya") announced its financial statements for the third quarter. Among them, Huya's income and net profit have suffered a more serious decline. The drastic reduction of income and the loss of ace anchors are the phenomena. These phenomena exist simultaneously in all traditional game live-streaming platforms in China. Studying the causes of this phenomenon and proposing solutions can help reduce costs, improve efficiency, enhance innovation, improve customer experience, and enhance brand image and reputation. It plays a crucial role in the long-term development of most Internet platforms. To study this phenomenon, the Huya Live streaming platform will be taken as an example to analyze its differentiated competitive strategy, platform attributes, and business model, to have a deeper understanding of the reasons for such phenomena.

2. Huya's Business Model

The business model of Huya is a commercial framework centered around the creation and acquisition of value [1]. Unlike Douyu's comprehensive "live + industry" expansion, Huya has focused on in-depth content cultivation, technological innovation improvement, and the development of a content ecosystem and e-sports partnerships. This has resulted in the formation of a diversified integration business model for Huya Live, driven by "content and technology-driven payment" [2].

2.1. Integration of Cloud Gaming and Live Streaming Technology

Huya has innovatively combined cloud gaming with live streaming technology to create a new user experience. Cloud gaming allows games to run on remote servers accessed via the Internet, providing instant gameplay experiences without requiring high-end local hardware. This integration enables viewers not only to watch live games but also to directly participate in them through the live interface without needing to download or install the game, achieving seamless transitions between viewing and participation.

2.2. Ecological Platform Guild Anchor Model

Huya has established a mutually beneficial tripartite win-win model where the platform empowers guilds, guilds drive anchors, and anchors contribute to the platform. The platform provides technical support such as live broadcasting technology, traffic distribution, advertising tools, etc., creating an optimal working environment for guilds and anchors. Guilds serve as management organizations responsible for discovering and nurturing talent among anchors while providing training, promotion support, and operational assistance to help improve their popularity and income levels. Anchors play a crucial role as content creators who directly impact platform activity and revenue by attracting audiences and increasing interaction levels.

Through this approach, Huya can rapidly adapt to market changes, enlist more anchors and viewers, and enhance platform vitality and competitiveness. Huya's rich and diverse content and anchors combine with a high degree of interactivity. At the same time, it also increases user stickiness and improves user retention.

3. Huya's Platform Operation Mode

Huya's operation mode can be summarized as "content acquisition-traffic acquisition-traffic monetization".

3.1. Content and Traffic Acquisition of Huya

The game live broadcast platform provides users with a large number of electronic sports events, attracting many users. The live broadcast platform adopts a diversified broadcast strategy for electronic sports events [3]. First of all, Huya mainly relies on the high-quality content generated by the anchors on its platform to attract users and interact with them. The anchors attract a large number of users to watch and interact by showing various content in the live broadcast. Users can obtain the content they are interested in by searching, browsing the recommended list, or following their favorite anchors, and enhance their sense of participation by barrage, comment, gifting, and other means. Secondly, Huya's traffic acquisition also relies on social media promotion. Huya Live uses social media platforms for extensive publicity and promotion. By releasing live previews, highlights, anchor interaction, and other content, it attracts more potential users to click on the live broadcast. The positive feedback loop of the whole process is shown in Figure 1.

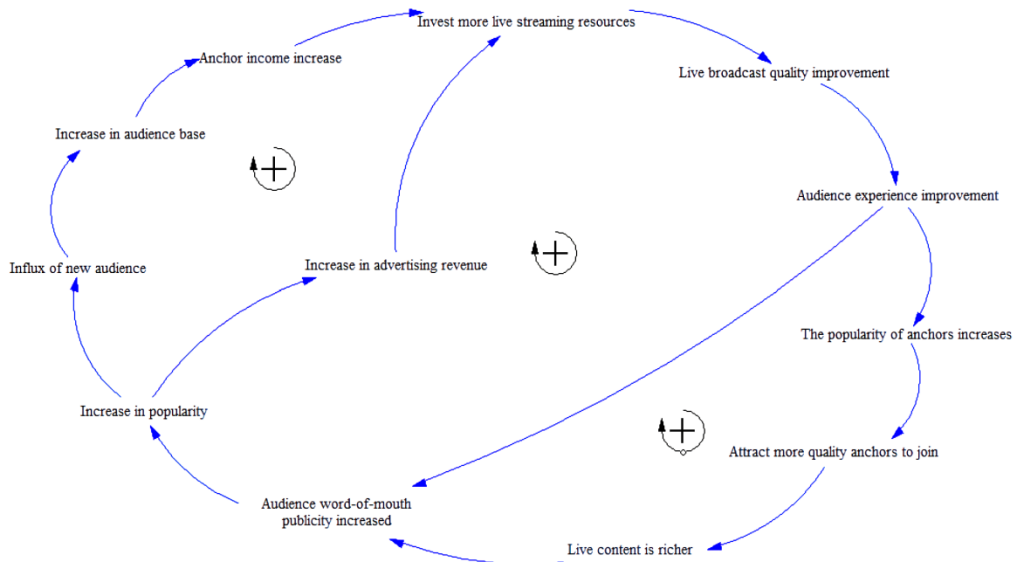


Figure 1. Positive Feedback Loop Diagram of Huya Live Streaming Platform

3.2. Traffic Monetization of Huya

Huya's main income sources include three parts: tip income, advertising income, and combined transport income.

First of all, fan gifts and tips are one of the main ways to monetize the live broadcast traffic of Huya [4]. This way of realization not only increases the income of anchors but also improves the sense of participation and loyalty of audiences.

Secondly, as a platform with a large user group, Huya Live attracts the attention of a large number of advertisers. Advertisers can place various forms of advertisements on the platform, including advertisements in the live broadcast room, advertisements on the platform's homepage or recommendation position, etc. By providing advertisers with accurate user positioning and analysis of advertising effects, Huya Live maximizes advertising revenue.

Finally, Huya Live obtains revenue through the joint operation of games with partners such as game developers. Through the cooperation with game developers, Huya Live attracts audiences through live broadcasting game content and guides audiences to enter the game for consumption, thus obtaining corresponding share income. At the same time, game developers also expand the popularity and user scale of the game with the help of the traffic and user base of Huya Live.

3.3. Cost Structure -- the Cost of a Live Broadcasting Platform

The cost of the Huya Live broadcasting platform is composed of content cost and bandwidth cost. The content cost of Huya includes the contract fee of anchors and the copyright fee of the game and game paid to the e-sports organization and game developer. The bandwidth cost is the technical cost paid to maintain the quality of live broadcasting. To maintain this operation mode, Huya Live enhances its core operation ability by upgrading user experience through leading technology and creating a benign ecology through the guild system. The continuous improvement and improvement in broadcasting technology and product design has become an important reason for many users to choose to use this platform to watch live broadcasts.

4. The Competitive Environment Analysis of Huya

4.1. SWOT Analysis

In this study, a SWOT analysis is used to carry out a detailed analysis of the Huya live streaming platform. SWOT analysis is a commonly used competition analysis method. SWOT analysis is a

means of comprehensive analysis and research on the strengths, weaknesses, opportunities, and threats of an enterprise. It is also the main way for enterprises to understand their marketing situation. SWOT, as an important part of the enterprise marketing analysis, can sort out the advantages and disadvantages of the current marketing strategy [5].

SWOT analysis of Huya's live streaming platform can help it understand its internal environment and external environment comprehensively, systematically, and accurately. Thus, more effective strategic decisions can be made to improve competitiveness. By identifying these strengths and weaknesses, it is possible to clarify where Huya's core competencies lie and what needs to be improved or avoided. Table 1 can be obtained by combining the above contents of the project report.

4.1.1. Strengths.

Firstly, Huya is technology-oriented. Huya ensures an excellent user experience through technological innovations. For example, the clarity and fluency of live broadcasting are improved, and the interactive function is increased. At the same time, to improve the user experience, Huya continues to invest in high-definition video streaming, interactive technology, and artificial intelligence. For example, it can implement advanced coding techniques to reduce latency and enhance the clarity and smoothness of live broadcasts. Technology is used to personalize recommendation systems to provide content more in line with users' interests. It is one of the core competencies in the live-streaming sector.

Secondly, Huya provides high-quality content supply and continues to invest in copyright e-competitions and self-made entertainment programs to provide users with a rich variety of viewing options and enhance user stickiness.

Finally, Huya has a certain confidence to grasp the quality anchor and copyright resources. In terms of anchor resources, Huya actively excavates and cultivates potential anchors, and helps them grow rapidly on the platform by providing rich resources and support. At the same time, Huya also pays attention to cooperation with well-known anchors and attracts more users to the platform by signing exclusive anchors and holding large-scale events. This strategy not only enriches the content ecosystem of the platform but also enhances the viewing experience of users.

In terms of copyright resources, Huya also shows a strong sense of competition and forward-looking thinking. For example, Huya successfully obtained exclusive live streaming rights for popular events such as the League of Legends Professional League (LPL), which have high attention and commercial value. By broadcasting these events, Huya not only attracted the attention of a large number of esports fans but also enhanced the platform's influence and market share.

4.1.2. Weaknesses.

Firstly, the cost control space of Huya is small. The high cost of acquiring content and investing in technology development can squeeze margins, especially as competition intensifies. As a leading live broadcast platform, it needs to invest a lot of money in content production, anchor signing, copyright purchase, technology research and development, marketing, and other aspects. These costs form the basis of Huya's operations and are key to its competitiveness. However, with the intensification of market competition and the constant change in user demand, Huya is facing more and more challenges in cost control. For example, investment in technology research and development is a cost item that cannot be ignored. To maintain the leading position in technology, Huya needs to continuously invest in technology research and development and innovation.

However, technology research and development is characterized by high risk and high investment. Once the research and development fails or the technology is updated quickly, these investments may not be translated into effective returns, further reducing the space for cost control. For another example, marketing expenses are also an important expenditure in Huya cost control. To expand the scale of users and enhance the brand influence, Huya needs to carry out a lot of marketing activities. However, the effect of marketing promotion is often affected by a variety of factors, including market

environment, competitive situation, user preferences, etc. It invests in marketing promotion costs uncertain and increases the difficulty of cost control.

Secondly, Huya is highly dependent on copyright, and the remuneration of anchors and copyright fees are important components of Huya's cost structure. To attract and retain high-quality anchors, Huya needs to pay high salaries; At the same time, to obtain the copyright of popular events and exclusive content, Huya also needs to pay huge copyright fees. These costs are increasing with the intensification of market competition and the improvement of copyright awareness which brings great pressure to Huya's cost control. A high reliance on big events and well-known anchors could be at risk. The loss of certain key rights or anchors could harm the audience base.

Thirdly, the content of Huya's output is seriously homogenized [6]. Huya's main revenue still comes from the live-streaming business [7]. The content on the platform is similar to other game streaming platforms and lacks uniqueness. With the rapid development of the network broadcast industry, major platforms have increased their investment in anchors and content to compete for market share. However, there are a lot of repeats and similarities in live broadcast content because of the limited resources of anchors and the strategy of imitating and following adopted by some anchors to attract viewers. At the same time, the innovation of live content is more difficult, and some new and interesting content often needs to invest a lot of time and resources for research development and promotion.

However, in the current market environment, many live-streaming platforms are more inclined to copy and promote content. Because it has proven popular in reducing costs and risks. In addition, audience preferences and needs also affect the homogenization of live content to a certain extent. Due to the relatively fixed tastes and needs of the audience, some popular content and topics tend to attract more viewers. Therefore it also leads to some platforms being more inclined to choose this popular content for live broadcast [8].

Finally, Huya has a single profit model. At present, Huya's main sources of profit mainly include advertising income, virtual gift income, paid membership income, and event broadcast rights income. Advertising revenue is one of Huya's important profit channels. However, due to the fierce competition in the advertising market and changes in the advertising strategy of advertisers, advertising revenue will be greatly affected. Over-reliance on advertising revenue also has certain risks. Once the advertising market changes or the advertising effect is not good, Huya's income will be greatly impacted. At the same time, the competition in the virtual gift market is becoming increasingly fierce. Other live-streaming platforms are also actively developing similar functions, which will distract users' willingness to consume, thus affecting Huya's virtual gift income. In addition, the growth of the paid member market also faces certain challenges, such as the fluctuation of users' willingness to pay and the intensification of market competition [9].

4.1.3. Opportunities.

First, Huya can expand its market. Through its mobile strategy and internationalization strategy, Huya has the opportunity to further expand its user base. In particular, the expansion of overseas markets can attract more international users and advertisers.

Second, by accelerating technological innovation. Continuous technological innovation, such as the application of AI technology in live streaming, can provide new viewing experiences and enhance user engagement.

Finally, Huya can build more partnerships. By building relationships with partners in different fields, Huya can enrich its content ecology. For example, cooperation with game developers can obtain exclusive game broadcast rights to attract a large number of game fans; Cooperation with e-sports teams and well-known anchors can introduce more high-quality live content and improve user experience. The partnership helps Huya expand its market share. Through cooperation with major media and social platforms, Huya can expand its brand exposure and attract more potential users.

At the same time, the partners can also help Huya to enter new market areas and open up a broader space for development. In addition, the partnership can also bring Huya opportunities for technological innovation and resource integration. Through cooperation with technology companies, advanced live broadcasting technology can be introduced to improve the stability and picture quality of the platform; Cooperation with upstream and downstream enterprises in the industrial chain can realize resource sharing and complementary advantages, reduce costs, and improve efficiency [10].

Building more partnerships will also help Huya cope with market competition. In the fierce market competition, it is often difficult to gain an advantage by fighting alone. By jointly developing market strategies and sharing market resources with partners, we can form a joint force to jointly cope with market challenges and jointly expand the market.

4.1.4. Threats.

Huya is facing fierce market competition. Other large game live-streaming platforms have strong competitiveness in terms of market share, user scale, content resources, and so on, and they directly compete with Huya for user resources and market share. At the same time, emerging game live-streaming platforms are also emerging. It adopts more innovative technologies and models, posing new challenges to Huya.

In addition, social media, short video, and other platforms such as TikTok are also gradually involved in the field of game live streaming, with their huge user base and strong traffic advantages, posing a potential competitive threat to Huya. Moreover, Huya faces ongoing technical challenges. Users' expectations for live streaming quality are also increasing. This requires Huya to continuously invest significant resources to maintain its technological leadership. Huya's copyright costs are also rising. With the rapid development of e-sports and game live broadcasting industry, the competition for copyright resources has become increasingly fierce.

At the same time, as users' demand for high-quality, exclusive content increases, live-streaming platforms such as Huya need to invest more money to obtain high-quality copyright resources to attract and retain users. Specifically, Huya's copyright investment in the field of e-sports is particularly significant. To obtain the right to broadcast popular e-sports, Huya often needs to pay high copyright fees. These events not only include large esports at home and abroad but also involve professional leagues and competitions of many popular games. In addition, Huya also needs to cooperate with game developers, teams, anchors, etc., to purchase or cooperate to develop exclusive content to enrich the content resources of the platform.

4.2. SWOT Analysis Results

After the SWOT analysis of the internal strengths and weaknesses of Huya and external opportunities and threats, in the use of advantages to seize opportunities, Huya should continue to adhere to the technology-oriented strategy and actively play the role of AI in live broadcasting technology. At the same time, extensive establishment of partners such as all kinds of well-known game manufacturers, to achieve resource sharing and complementary, expand market coverage;

In terms of using opportunities to reverse weaknesses, Huya should actively explore win-win cooperation with the upstream and downstream of the industrial chain, pay attention to industry dynamics, and increase support for original content and other strategies;

In terms of how to use advantage areas to avoid or reduce threats, Huya's investment in technology research and development should be further increased. Its professional technical teams should be established. At the same time, establish a reasonable copyright cooperation mechanism to encourage the production of original content, and enhance the awareness of copyright protection;

In terms of how to minimize weaknesses and threats, Huya should strengthen brand positioning, highlight Huya characteristics, enhance user willingness to pay, and provide high-quality content and services. At the same time, it also should actively open source and reduce expenditure, adopt

advanced technology and management to reduce operating costs, and expand revenue channels, as shown in Table 1 below:

Table 1. SWOT matrix analysis table of Huya Live streaming platform

Internal factor External factor	Strengths	Weakness
		Be technology-oriented Quality content supply Quality anchor and copyright resource control
Opportunities	SO	WO
Market expansion Accelerate Technological innovation Build partnerships	Establish a wide range of partners, such as well-known game manufacturers, to share and complement resources and expand market coverage Actively play the role of AI in live broadcasting technology. Focus on developing technologies such as AI virtual anchors and emotion engines	Actively explore the cooperation and win-win mode with the upstream and downstream of the industrial chain to achieve cost allocation and reduce operating costs; Pay attention to industry dynamics and technology development trends, timely adjust and optimize their own business model and cost structure Increase support for original content and encourage anchors to innovate and try; At the same time, it combines with the upstream and downstream industry chains to jointly develop and promote new live broadcast models and content Expand e-commerce cooperation, innovate IP, carry out offline cooperation activities, broaden revenue sources, and reduce dependence on traditional profit channels
Threats	ST	WT
Fierce market competition Ongoing technical challenges Rising copyright costs	Further increase investment in technology research and development, establish a professional technical team, and cooperate with scientific research institutions and universities to continuously improve the platform's technical strength and user experience Establish a reasonable copyright cooperation mechanism, encourage the production of original content, and enhance the awareness of copyright protection, while using technical means to reduce copyright costs	Strengthen brand positioning, highlight Huya's characteristics through unique brand positioning, attract and stabilize user groups Improve users' willingness to pay, provide high-quality content and services, enhance users' willingness to pay and loyalty, formulate a reasonable payment price system, and ensure that users can accept and are willing to pay for paid content Expand revenue channels through fine management, such as optimizing human resource allocation, using advanced equipment and technology to reduce operating costs, carrying out manufacturer cooperation, holding online and offline activities, and implementing a membership system

5. Huya's Differentiated Competitive Strategy

Currently, the proportion of mobile games in China's gaming industry has exceeded 2/3, making it the main component of the gaming landscape. Additionally, mobile smartphones have become the primary means for contemporary Chinese netizens to access the internet. Huya adheres to a mobile strategy and recognizes the potential for development among mobile terminal users. The advantage in utilizing fragmented time drives user stickiness and monetization ability, with monthly active users contributing over 80% to live broadcast revenue. Furthermore, Huya continues to invest in content diversity, image quality improvement, and product function upgrading to provide users with abundant game live resources and enhance user stickiness through diversified experiences.

6. Improvement Strategy

6.1. Continuously Optimize Content Ecosystem Construction

As a platform with content payment at its core, Huya Live should steadfastly implement a content-driven strategy and strive to build a complete content ecosystem that provides diverse value ports. This includes deepening cooperative relationships with game developers and publishers as well as anchors and associations to enrich live content categories.

6.2. Firmly Follow the Mobile Terminal and Diversified Development Strategy

Huya should leverage user fragmentation time characteristics by strengthening strategic layout on mobile terminals while tapping into paying potential of existing users through optimized operational strategies such as product function design.

Additionally, expanding diversified businesses such as boutique advertising and game intermodal transportation will help form a more robust income structure while implementing cost-expenditure strategies based on investment return will enhance platform profitability.

7. Conclusion

In conclusion, Huya should persist in its technology-oriented strategy and establish collaborative partnerships across various sectors. To address weaknesses, Huya should actively seek mutually beneficial cooperation with both upstream and downstream partners in the industry chain. To mitigate threats and capitalize on strengths, increased investment in technology and a reinforced mobile development strategy will enhance competitiveness. Additionally, implementing a rational copyright cooperation mechanism will bolster awareness of copyright protection. Lastly, to minimize weaknesses and threats, emphasis should be placed on strengthening brand positioning and unique characteristics, employing differentiation strategies to boost user engagement, optimizing content ecosystem construction, as well as leveraging advanced technology and management for cost reduction and profit expansion.

The study also exhibits several limitations. Although it discusses advanced technology and management means for enhancing brand positioning, emphasizing characteristics, and reducing costs through open source, it lacks specific implementation details. The analysis predominantly relies on literature review, SWOT analysis, and other theoretical research methods, which possess inherent constraints. Utilizing additional theoretical analysis methods may facilitate the derivation of more rigorous conclusions that closely align with the actual situation.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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