



# The Market Changes and Causes of Game Live Streaming Industry from 2019 to 2020 by Case Study of HUYA

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**Abstract.** It is an indisputable fact that COVID-19 has hit offline traditional industries, and whether it will bring opportunities or challenges to online industries has not been evaluated in detail. Taking HUYA as the research object, this paper analyzes the impact of COVID-19 on game live streaming. By comparing the financial statements of HUYA 2019 and 2020 and the annual average monthly live users and paying users officially released by HUYA, we can judge the changes of the game live streaming industry in the context of the epidemic. By contrastive analysis, this research discovered that the epidemic did have a beneficial impact on live games. Compared with 2019, the gross revenue, gross profit, net profit, total assets, and liquid assets of HUYA in 2020 have expanded considerably, and monthly active users and paying users have furthermore increased. In addition to COVID-19, the improvement of laws and regulations, business innovation and content diversification are also contributing factors. In the post-epidemic era, this paper predicts that the live game industry may fall back to some extent. Overall, this paper verified that COVID-19 has brought opportunities to the game streaming industry, and indeed other factors, such as policies, business innovations and diverse contents. As for the possible decline after the end of the epidemic, this paper believes that the only way to retain users is for live streaming platforms to strengthen content diversification and encourage creators.

**Keywords:** Contrastive analysis · Game Live Streaming · HUYA · COVID-19

## 1 Introduction

China's live streaming network initiated in 2005. 9158 was the first to create video chat business, with the emergence of young people, YY, Liu Jianfang and other followers, forming the rudiment of live streaming mode. From 2014 to 2016, the mainstream video websites have laid out live streaming business. After 2017, the industry was reshuffled under the dual pressure of policy and capital, and the old PC port live streaming progressively declined. With the continuous development of network technology and the increasingly fierce market competition environment, the live streaming ecological industry chain is steadily becoming mature and is continuously upgrading and modifying. As

as a result, the live streaming industry is slowly subdivided, such as games live streaming, live commerce and so on. From the perspective of the live streaming industry chain, the live streaming industry can be divided into five modules according to the overall function and role: content provider, platform operator, communication channel provider, service support provider and live streaming service provider. China's live streaming market has entered a mature period since 2017. With the development of communication technology, the live streaming market gradually extends every year. At the end of 2019, an unanticipated pandemic swept the globe, killing millions of people and forcing governments to adopt different quarantine or curfew policies to prevent people from contracting COVID-19. As a result, many conventional offline industries have been hit hard by the epidemic. China, as the first country to detect the coronavirus, has suffered a notable impact on its economy. Based on this, this paper is concerned about whether the live streaming industry, particularly the game live streaming market, can develop due to the epidemic while the offline industry is hit, and is committed to exploring whether the game live streaming industry can have a positive impact on the economic recovery. This paper principally proposes the company HUYA and analyzes the changes of the game live streaming market in 2019–2020 by comparing the statistics of HUYA between 2019 and 2020. Moreover, this paper outlines the causes behind the changes and predicts the future development of the game live streaming industry and offers the corresponding suggestions.

## 2 About HUYA

HUYA Corporation is a technology-driven content firm that takes game live streaming as its core business and is committed to building the world's leading live streaming platform. Its products include the well-known game live streaming platform HUYA Live, and the game live streaming platform NimoTV, which is popular in Southeast Asia and South America, covering PC, Web and mobile. In August 2016, Guangzhou HUYA Information Technology Co., Ltd. Was established and developed independently. In May 2018, HUYA went public on the New York Stock Exchange under the ticker "HUYA", becoming the first listed game live streaming company in China. In June 2019, HUYA shifted its headquarters and announced the use of a new company-level LOGO, signifies that it will continue to produce better and richer live content for a broader range of users with a more diversified strategic layout. In April 2020, Tencent became the controlling shareholder of HUYA [1]. After attaining the listing milestone, HUYA company continuously consolidate and expand the market territory. In 2018, HUYA launched its overseas product Nimo TV to enter the international market, including Southeast Asia and Latin America. As of March 31, 2020, the number of overseas MAU has surpassed 24 million. As the flagship product of the company, HUYA Live is a danmaku interactive live streaming platform mainly featuring live games, covering more than 3,800 games, and has gradually covered diversified danmaku interactive live streaming content such as entertainment, variety shows, education, outdoor and sports. As of March 31, 2020, HUYA Live has more than 151 million MAU (monthly active users) and 74.7 million MAU on mobile [2]. By reviewing the basic information of HUYA corporation, HUYA is a large enterprise with rich experience in the game live streaming

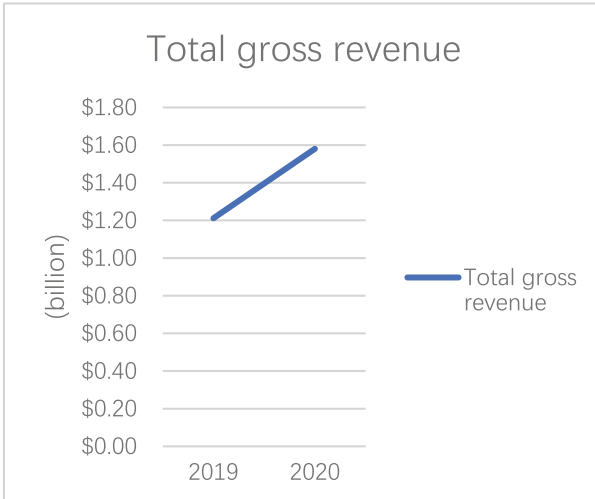
industry. HUYA expands actively in different fields based on game live streaming and successfully listed with funding from Tencent, which leads it to extend business abroad. Overall, selecting HUYA as the object of research since it is the leading company which better represents Chinese game live streaming platform, and the data coverage is more comprehensive compared to other game live streaming platforms since the users are large.

### 3 Statistics of Live Streaming Industry in 2019 and 2020

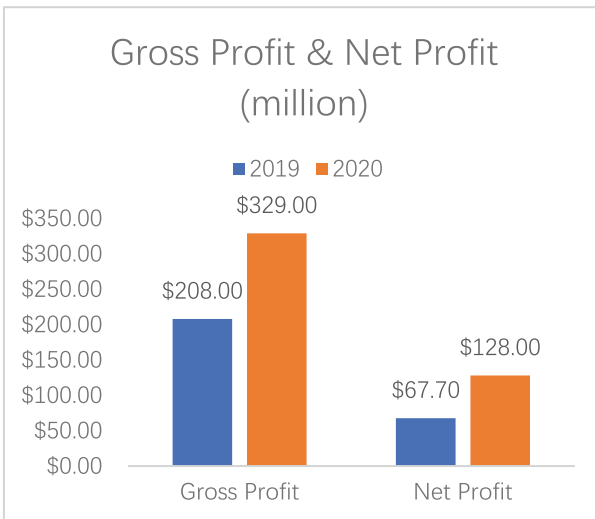
While the epidemic causing troubles to many traditional industries, the online live streaming industry has ushered in a development opportunity, showing the accelerated development of the game industry and the game live streaming industry, as well as the trend of the diversification of live streaming content. The statistics reveal the development during pandemics. The market size of China's online performance (live streaming) industry reached 193.03 billion yuan in 2020 [3], a significant increase from 2019. Within all live-streaming platforms, compared with 2019, the number of live games live streaming in 2020 increased by 9%, the number of gifts increased by 14%, the number of people giving gifts increased by 13%, the number of danmaku increased by 26%, and the length of live games increased by 22% [4]. The statistics indicate that users are up significantly, and more users are willing to pay than the past. In 2020, the total gift revenue of game live streaming across the platform reached 11.552 billion yuan, successfully accesses the ten billion, with a year-on-year growth of 34%, showing a strong momentum of development. In 2020, the total revenue of live game gifts accounted for 21.58%, or about 1/4; The gift income of other entertainment categories accounted for 78.42% [5]. From the perspective of revenue model, rewards are still the main source of income for livestream platforms and anchors. Rewards on livestream platforms account for about 75% of the industry income and 35–45% of the income of anchors, while rewards on pan-entertainment livestream platforms account for over 90% of the total income. In terms of anchors, by the end of 2020, China's network performance (live streaming) industry has accumulated more than 130 million anchor accounts (according to the summary data of 23 platforms), with more than 43,000 new anchors per day [4]. Continuously new anchors flood into market brings more options to users and higher competition to the market, but it is undeniable that live streaming industry enters the period of prosperity. Specifically in game anchors, although the number of game anchors increased by nearly 60,000 compared with 2019, the proportion of TOP100 game anchors decreased by nearly 2% year on year [4], which means that many small and micro guilds are also gradually growing in the exploration mode, training, and recruiting a new generation of game hosts with a certain scale. Hence, due to the continuous expansion of the live streaming market, many small and micro guilds are also thriving, and the game live streaming industry develops diversified.

### 4 Statistics of HUYA in 2019 and 2020

As shown in Fig. 1, HUYA's total gross revenue for 2019 was \$1.212 billion. For the full year of 2020, HUYA's total gross revenue was \$1.581 billion. There is an increase of 23.3% [6].



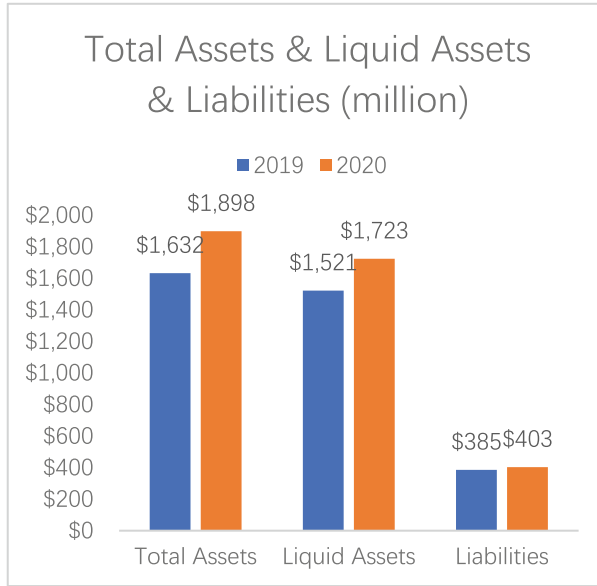
**Fig. 1.** The total gross revenue of HUYA from 2019 to 2020.



**Fig. 2.** The gross profit & net profit of HUYA in 2019 and 2020.

As shown in Fig. 2, in 2019, HUYA reported a gross profit of \$208 million and a net profit of \$67.7 million. In 2020, HUYA recorded gross profit of us \$329 million, which is 36.7% higher than 2019, and net profit is \$128 million, up 47% [6].

Referring to Fig. 3, as of December 31, 2019, HUYA had total assets of \$1.632 billion and liquid assets of \$1.521 billion; and the total liabilities are \$385 million. As of December 31, 2020, HUYA had total assets of \$1.898 billion, liquid assets of \$1.723 billion and total liabilities of \$403 million [7].

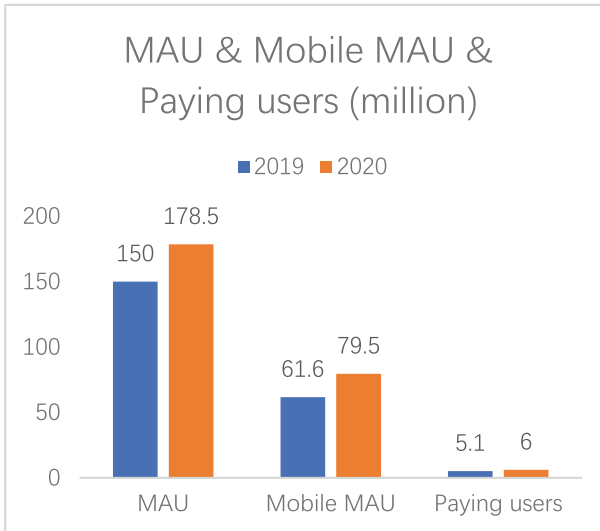


**Fig. 3.** The total assets & liquid assets & liabilities of HUYA in 2019 and 2020.

Figure 4 show that as of the end of the fourth quarter of 2019, HUYA had 61.6 million mobile MAU, 150 million monthly active users and 5.1 million paying users [8]. By the end of the fourth quarter of 2020, HUYA had 79.5 million monthly mobile users, up 29.1% year on year and 178.5 million monthly active users, up 18.8% year on year. The number of paying users of HUYA also rose 17.6% year on year to 6 million [9].

In terms of revenue composition, in the fourth quarter of 2020, HUYA's income from live streaming was 2.815 billion yuan, up 20% year on year [9]. Part of the increase was due to an increase in the number of paying users and the average spending of paying users. "The increase in the number of paying subscribers is mainly due to overall platform user growth, with the increase in average spending of paying subscribers driven by year-end marketing activities, as well as enrichment and optimization in content, products and services," the report reviewed [10]. In addition to live streaming revenue, HUYA's revenue from advertising and other businesses was 176 million yuan, up 44.6% from the same period in 2019, mainly due to the increase in the number and diversification of advertisers. Reviewed the statistics between 2019 and 2020 [9], there is a prominent increase in normal users and paying users, which results in remarkably growth in profits.

From January to mid-March in 2020, HUYA users watched a total of 1.88 billion hours of live streaming, or about 210,000 years, up 35% year on year. Users were also remarkably active in using danmaku, up 34% year-on-year, 2.95 billion danmaku [11]. Many netizens in Hubei province, the epicenter of the epidemic, including Wuhan, were quarantined to their homes during the period, and many daily necessities were delivered by community workers. In this case, the total viewing time of users in Hubei exceeded 64.23 million hours, an increase of 52% and nearly 20 points higher than that of the whole country. The number of users and per capita viewing time also increased by 18%



**Fig. 4.** MAU & mobile MAU & paying users of HUYA in 2019 and 2020.

and 29% year-on-year [12]. According to the report, in Hubei province alone, King of Glory saw a 161% increase in viewing time, Peace Elite saw a 139% increase, and console games saw a 90% increase. Non-game categories such as Food, Quadratic yuan and Star Show also saw a 55%, 46% and 28% increase in live viewing time [12]. It seems that during the special period, watching HUYA live streaming has become one of the main ways of entertainment for netizens in these isolated areas. Since the increase in the number of hours that netizens spend watching live streaming every day, it laid the foundation for the explosion of the “Otaku economy”, especially in the game category.

## 5 Reasons

### 5.1 The COVID-19 Epidemic

The sudden spread of COVID-19 across the world has almost hit the pause button for all industries of society, but people’s demand for entertainment still exists, which also makes online entertainment consumption represented by live streaming becoming the first choice for people to kill time and expand their knowledge. As an online pan-entertainment industry, the live streaming industry is less affected by COVID-19, and especially in the severe epidemic period, people cannot go out. According to the data from HUYA above, both the number of viewers and the number of rewards has increased, indicating that more people are watching the live streaming. This may be because many entertainment venues were closed during the epidemic and people needed to stay at home, so live streaming became one of the few tools that people could use for entertainment and communication. Though the impact of the epidemic on the head anchors is relatively low, as the duration of live streaming of head anchors is relatively long and the attendance rate is relatively stable under normal circumstances. However, with the gradual strengthening

of epidemic control, according to the monitoring data, the audience activity in the live streaming room of the head anchor also has a continuous rising trend, and the new users account for most of the growth. From the perspective of the per capita number of bullet subtitles, the newly added active audiences are often enthusiastic and even have a certain stimulating effect on the old audiences, thus driving the daily per capita number of bullet subtitles to increase. Research data in China all reflect the promotion of the novel coronavirus to the online culture and art industry. Based on mUserTracker, the daily number of unique devices for video apps has been on the rise since the outbreak began, reaching 770 million during the Spring Festival, and has not declined as usual after the holiday. In terms of short videos, according to xiaohulu's monitoring data, the number of new works released by Top100 TikTok hosts has also remained stable at 200 + pieces per day since January 19, which is in sharp contrast to before the outbreak [13]. Therefore, it can be inferred that such changes in the live streaming industry are related to the impact of COVID-19 on the online industry and people's lifestyles.

## 5.2 Policy and Regulations

When anchors' copyright is protected, their desire to create and produce videos will be stimulated, which also brings prosperity to the live streaming market. Since 2019, substantive breakthroughs have been made in the standardization of game live stream copyright. The game manufacturers represented by Tencent and NetEase actively defend their rights against the infringement of live streaming industry, while NetEase v. YY live streaming and Tencent v. Toutiao, a platform case, won the lawsuit, which shows that the judicial circle recognizes the copyright protection of live video games at the legal level. In view of the frequent occurrence of copyright disputes over live games, the academic circle has held many seminars to discuss the copyright ownership of live games and suggested promoting industry autonomy and improving laws and regulations related to copyright protection of live games. On September 15, 2019, a seminar hosted by Narada Big Data Research Institute was held in Beijing, focusing on topics such as copyright disputes over live video games, the scope of fair use and unfair competition in the industry. At the conference, the Compliance Risk Report of Game Live Streaming Industry was released [14]. The report suggested to improve laws and regulations related to game live streaming copyright, actively promote industry autonomy, checking and balancing game giants, and establish a transparent, reasonable, and fair game live streaming authorization trading platform and system. On April 12, 2020, Guangdong Provincial High People's Court issued the first local judicial regulation for online games in China, providing reference for game live stream copyright and anchor breach. According to the guidelines, game images transmitted by video are regarded as quasi-movie works, and their copyright shall be protected according to law [15]. Any act involving game video content, whether live stream or recording, shall be regarded as the scope of copyright protection. Therefore, the increase of anchors analyzed in the statistics partly results from the copyright protection.

## 5.3 Business Innovation

As live streaming content has always been the core competitiveness of live streaming platforms, game live streaming platforms continue to build content ecology, to

explore innovative business models and to strive for a global market layout. According to HUYA's revenue in 2019 financial report, HUYA's live streaming revenue from Q1 to Q4 accounted for 95.2%, 95.6%, 95.2% and 95.1% respectively, accounting for 95.3% in the whole year [16]. In the face of a very single revenue structure, live streaming platforms continue to explore, innovate, and develop new business models such as play-accompany which provides with opportunities for users to play with anchors, cloud game which offers fans platforms to have fun with anchors together directly, and live streaming e-commerce as well. According to the statistics of live streaming industry between 2019–2020, total market size reached 193.03 billion yuan in 2020, which is much higher than 2019 [17]. Meanwhile, after going to the southeast Asian market in 2018, the head game live streaming platform further expanded its overseas business in 2019 [18]. For example, HUYA entered the Brazilian market which also prompt HUYA to take a big step in the international markets. Therefore, the innovations of business model and expansion of business scope are successful steps for HUYA company which worth continuing to develop, because these strategies are not only attracting much more new worldwide customers who are interested in the novel services but they also motivate user who have already registered to keep the enthusiasm and improve customer loyalty, and as a result, improve the company's total profit.

#### **5.4 Diverse Contents**

With the development of the industry, the content competition of game live streaming platform has changed from the competition of game anchors to the competition of content ecology. In addition to the traditional games and game competitions, the head game live streaming platforms have continuously expanded diversified content forms such as self-held events, self-held competitions, and self-held shows. During the epidemic, HUYA have made more exploratory attempts at social welfare, online education, e-commerce shopping and other fields. The decline of offline channels has made online traffic an important source of customers, and live-streaming e-commerce has therefore become an important way to boost economic recovery. During this special period, HUYA launched live-streaming activities to help many brands and agricultural products which affected by the epidemic to increase their sale volumes and facilitate the resumption of their operations [19]. In the traditional 618 e-commerce Festival, game live streaming platforms also launched platform-specific e-commerce festivals to develop new channels for sales. It can be predicted that “6.18” (June 18th), “11.11” (November 11th) and other e-commerce festivals will be normalized on game live streaming platforms and becoming an important business model of game live streaming platforms. These steps of content diversity bring a result of customer diversity for HUYA company. No matter who the customers are, audiences, anchors or merchants, the needs of those different people will all be met by the platform. Finally, HUYA will become an indispensable bridge for its customers and will gain more benefits and reputations through more paths.



## 6 Predictions

During the Spring Festival of 2020, due to the epidemic, most users were confined to their homes for a long time, which promoted the considerable growth of China's pan-entertainment market in user activity, revenue flow, online duration and other aspects. However, it should be noted that this growth is mainly due to the epidemic and belongs to "passive growth". When the market enters the "post-epidemic era" and users gradually return to their daily lives, the time and willingness of online entertainment will decline significantly, which may lead to significant fluctuations in China's pan-entertainment market. In view of the possible decline of the live streaming industry after the epidemic, this section will give some suggestions based on the characteristics of the live streaming industry.

According to the user survey, the number of anchors that most users pay attention to for a long time is not large. On the positive side, the small number of anchors indicates that users are more loyal and have greater potential to become paying users. However, on the negative side, in the post-epidemic era, if the time when users watch live streaming is difficult to coincide with the live streaming time of the anchors they follow, this may lead to the gradual loss of users. More than 80% of users expressed that they would continue to watch live streaming in the post-epidemic era [13], which shows that live streaming has a relatively low "psychological burden" on users, which is in line with the characteristics of watching live streaming without too much concentration. The most attractive part of live streaming lies in the biggest feature of live streaming platform, that is lively to interact with anchors (danmaku), which also shows that the stickiness of live streaming platform for users is closely related to whether it meets users' demands for content. In the post-epidemic era, to maintain user retention rate, whether it is to keep users fresh by recommending diversified anchors, or to meet users' unique needs by recommending the same type of anchors, it will be a greater test for the ability of live streaming platforms to make personalized recommendation to users. The number of users and user activity in the game live streaming area occupy an absolute advantage in the whole live streaming market.

## 7 Conclusion

In conclusion, there is a positive correlation between the epidemic and game live streaming. Due to the COVID-19 effect, and the improvement of laws and regulations, as well as the platform's own business innovation and pursuit of content diversification, the game live streaming industry received much more attention. After the epidemic progressively recovers, there will be a brief delay in the development of game live streaming as people who have been quarantined at home return to work. Consequently, continuous pursuit of content improvement can better retain users. Based on the research of HUYA, this paper explores a slight analysis of the impact of the epidemic and other probable reasons on the game live streaming industry, and provides superficial suggestions for further research on the game live streaming industry in the future. The limitation of this research is that there is no unified comparison between financial statements and monthly live user data of more major live streaming platforms, so more objective and rational conclusions cannot

be retrieved. In addition, this paper does not specifically subdivide game live streaming into diverse games, so that differences in data cannot be well assessed due to differences between games. Furthermore, this paper did not conduct further analysis and processing of HUYA's financial statements in 2018 and 2021, so it was hard to rule out the error of objective data growth. In future studies, more rigorous and objective data will be introduced and all aspects will be subdivided to demonstrate a more comprehensive game live streaming market, which better sorting out potential opportunities and threats, and figuring out better strategies for game live streaming in the post-epidemic era.

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