

Strengthening Unique Strengths: A Qualitative Research on Platforms Diversification Mechanism Based on the Internet Perspective

Zhihan Ge^{1, *, †}, Yingjing Shi^{2, †}, Xiayu Wang^{3, †}

¹Vrije University Amsterdam

²Hua Zhong University of Science and Technology Wuchang Branch

³Lund University

*Corresponding author: xi0075wa-s@student.lu.se

†These authors contributed equally.

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Abstract: In today's internet economics environment, the platform strategy, which could help companies gain competitive advantages and even dominate the market, has become a key for companies to achieve sustainable development. However, the development of the platform requires processes. Especially for platforms that initially focus on a single content area or business, the way to layout other industrial chains and attract more users to achieve diversification has become a question worth exploring. We took the Chinese video-sharing website Bilibili, a platform whose development is always based on the content fields of animations, comics, and games as an example to answer the above research question. Through a qualitative single case study, we formulate a framework to explain the diversification mechanism of the platform, which includes three phases, identification of diversification feasibility, development of sustainable competitive resources, and application and reinforcement of network effects and learning effects. The framework also summarizes some critical conditions and key actions the platform needs to be equipped with at each stage and the rationalities behind it. Based on an internet perspective, this study provides a qualitative empirical framework, enriches research related to platform development, and contributes to guiding management practices.

1. Introduction

As early as 1993, Jack Ma, who was in the United States, was exposed to the internet for the first time. He was shocked by the wealth of information on the internet, which made it possible for him to create legendary stories regarding the establishment of CHINAPAGES and Alibaba. Today's situation is even more so, in the internet economics environment, resources are no longer scarce [1]. Information is abundant, and almost anyone can obtain and share it [1]. In this context, the platform strategy, which could help companies gain competitive advantages and even dominate the market, has become the key to innovation economics [2]. The platform provides building blocks, helps to connect buyers with suppliers so that they could transact directly [3], and offers a place for complementary products and services [4, 5]. The platform strategies are applied by many enterprises in a variety of industries and realize different functions, such as carpooling platforms, payment networks, and operating systems [6]. Many existing companies have achieved significant performance improvements while successfully implementing platform strategies [7]. For instance, strong platform strategies allowed Amazon, Alibaba, Facebook, and Uber to continuously increase their influence in the international market and obtain extremely high market value [7], which may even lead to the "winner takes all" dominance situation. However, the development or expansion of the platform requires a process, especially for the platform initially involving a single content field or business, the way to formulate and implement corresponding strategies to jump out of the original field or circle, get the recognition

from users and markets outside the field, and achieve diversification development is a topic worth exploring.

The powerful effect and wide implementation of platform strategy have also attracted widespread attention from academia. Many scholars and researchers have explored platform characteristics and related strategies, and published high-quality works covering different fields, including economics, management and organization, information systems, and marketing. As early as 1999, Muffatto introduced the viewpoint and method of involving platform strategy into new product development [8]. The research clarified the definition and connotation of a platform and some related core concepts, such as standardization, modularity, and product architecture [8]. Moreover, based on the technical and the organizational perspective, the study also discussed the potential positive impact of the platform strategy implementation [8].

Later, with the further improvement of the platform's functions and the gradual widening of its applications, a large number of researchers have explored the category classification and relevant strategies of platforms. Gawer proposed a classification system that can connect the economic perspective and the engineering design perspective, which pointed out that technological platforms can exist in different organizational forms, including within enterprises, across supply chains, and across industries [9]. From another point of view, Thomas, Autio, and Gann summarized four types of platforms in the management literature [10], including platforms based on the organizational stream, which is an organizational structure that can store the core capabilities of organizations, platforms based on the product family stream, which is the common asset in the center of the product family, platforms based on the market intermediary stream, which is an intermediary that enables two or more parties to interact [11], and, lastly, platforms based on the platform ecosystem stream, which is a set of complex components [12], however, with no dominant definition so far [10].

Furthermore, regarding platform strategy, Kristjansson and Hildre defined platform strategy as a method of using a set of core assets to gain competitive advantages [13]. They pointed out that the implementation of such strategies has both positive and negative effects [13]. They also put forward the factors affecting the platform strategy are related to four aspects, including the company's core competitiveness, the industry situation, the market conditions, and the company's competitive strategy [13]. Iansiti and Lakhani also explored platform analysis methods [14]. According to their points of view, the analysis of a platform and its competitiveness needs to take into account some factors that help or can be used to create and capture value, including network effects, learning effects, clusters, multihoming, disintermediation, and network bridging [14]. Additionally, some researchers have studied the governance model of internet platforms [15]. They pointed out that the rapid rise of the platform economy is having a huge impact on the traditional dual governance structure of "government and enterprise", and explained the advantages and disadvantages of different platform governance models [15].

These studies, however, are a bit macroscopic, and there is little literature on the research topic of how to design and implement corresponding diversification strategies for a platform that initially focuses on a single content field or business. On one hand, for a platform-based company, the simple platform structure caused by over-focusing on a single business could lower the threshold of competition as well as increase the difficulty of profitability for the player, which will further negatively affect the sustainability of the platform that applies such business models [14]. On the other hand, diversification, meaning that the change of the characteristics regarding the company's product line or market [16], could help companies occupy more current markets or open up new markets, and help them avoid the risk of operating a single business [17]. Therefore, to fill up the research gap and provide references and suggestions regarding diversification development for platforms involving a single content field or business, we formulated the research question to explore the platform's diversification mechanism.

We use the qualitative single case study method as the key method of this research, and choose Bilibili as the sample platform for analysis. The reasons for sample selection and specific data collection sources and methods will be elaborated detailly in the second section. In the third section, we will take Bilibili as an example to explore the platform diversification mechanism and explain its

principles. Finally, based on the internet perspective, we will outline a framework for formulation, analysis, and implementation of platform diversification strategies, and provide a potential direction for future research.

2. Method and Data

2.1. Research Approach and Design

Since the purpose of this study is to explore the diversification mechanism of platforms, we adopted a qualitative approach to discover and understand those related elements. Within the scope of qualitative research design, we chose a single case study to conduct an in-depth exploration of the research question. There are two main reasons for this choice. First, instead of testing the significance, our research topic and purpose are exploratory, and the nature of the platform and diversification could be complex. Therefore, the analysis of the business context is appropriate and critical. According to Yin, the importance of context should be emphasized because it is closely related to phenomena [18]. The single case study ensures that findings formed by the research analysis are generated within a system with boundaries [19], and makes the necessity of context highlighted in this research. Second, the existing literature has limited exploration of the formulation and implementation of the platform diversification strategy. Thus, the exploratory case study of our research is suitable for this type of academic field as it lacks sufficient exploration and is at the exploratory stage [20].

2.2. Case Platform Selection

Regarding case selection, we chose Bilibili as the sample platform to conduct in-depth research on our research question. Bilibili is a mainland China video-sharing website that focuses on ACG (Animations, Comics, and Games)-related content. It can also be considered a platform that carries ACG-related content. Its predecessor, Mikufans, was founded in June 2009 to provide a stable video-sharing website and was officially renamed Bilibili in January 2010. Since then, through the implementation of a series of diversification activities, Bilibili gradually jumped out of the ACG interest circle it originally belonged to, involved in entertainment, food, automotive, and other content topics. Along with such progress, Bilibili also developed live broadcast, e-commerce, advertising, and other new businesses to enrich its business structure and gain profit based on its expanding user base and brand influence in different content fields. The platform acquired a large number of non-ACG fans and was listed in the United States and Hong Kong in March 2018 and March 2021 respectively, meaning it gradually "broke the original circle" (breaking through a certain small circle the platform was initially affiliated and being accepted and acknowledged by more people). Today, Bilibili is not only a leader in China's ACG-related fields but also known as an iconic brand for the Chinese younger generation and a leading video community with a highly active atmosphere. The main users of Bilibili are the "Generation Z+" in China (Chinese born in 1985-2009), among which the "Generation Z" (Chinese born in 1995-2009) accounted for a significant proportion.

Bilibili was selected as the sample platform mainly based on the following reasons and considerations. First of all, the case of Bilibili is representative [21]. As a platform starting from the niche area, ACG-related videos, Bilibili has expanded its content to entertainment, knowledge, and other interest circles, attracting many loyal new users and opening new services such as live broadcast and e-commerce. The implementation of its diversification strategy has achieved remarkable results, setting a model in the industry and providing a reference case for the development of other platforms. Second, we have considered theoretical sampling. Although previous studies have analyzed the development strategies of platforms, many of them are theoretical explanations. Our research takes the diversification development process of Bilibili as the research object, trying to explore and explain the diversification mechanism of the platform, which will help to improve the existing related theories and provide a new internet-based perspective. Therefore, the selection of Bilibili as the sample platform is based on the need to improve the relevant existing theories regarding the platform development strategy, rather than based on statistical sampling [20]. Third, the case of Bilibili ensures the consistency of theoretical and practical goals. The platform has achieved great success in

implementation of the diversification strategy, which is closely related to its precise user positioning and reasonable use of internal competitive resources. Such behaviors are consistent with the theoretical goals of the platform or enterprise development.

2.3. Data Collection

Data collection began in July 2021. The entire process lasted for four months, including literature review, data collection and analysis, and formulation of a framework.

At the initial stage of data collection, we mainly use secondary data obtained from external sources for analysis. Specifically, relevant information from the official website of the company that the sample platform belongs to, the exchanges in the areas where the company is listed, news and articles, analysis reports, and books are referenced. We also conducted preliminary exploratory interviews with a lot of Bilibili users to get a preliminary understanding of the platform [22]. In addition, we reviewed the relevant literature mentioned in the first section, and determined the theoretical lens for this study (Fig. 1) [23]. The value creation and capture dynamics of platforms, mainly based on network effects and learning effects, proposed by Iansiti and Lakhani, laid a foundation for subsequent screening and analysis of the useful data [14]. The results of data collection at this stage have improved our understanding of the sample platform and provided guidance for the following primary data collection process.

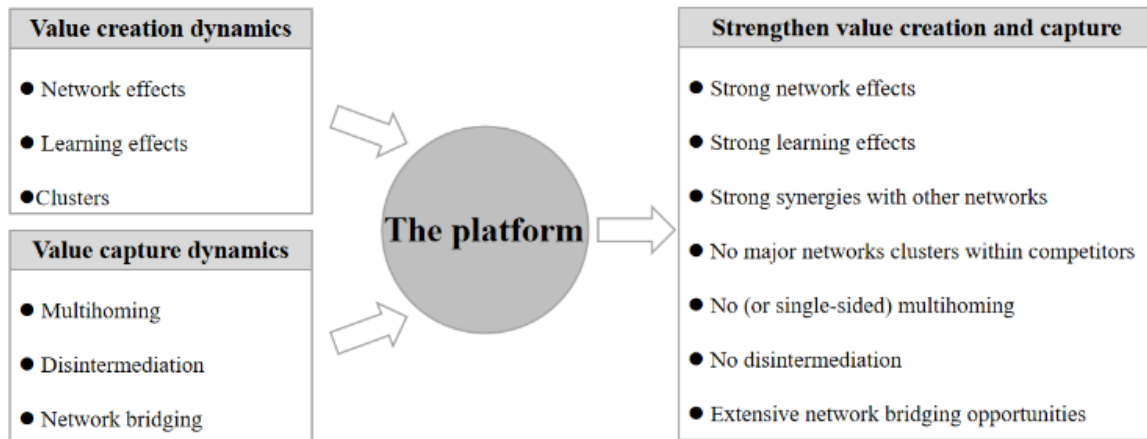


Figure 1 Theoretical lens of the study- platform network analysis

The primary data is obtained from semi-structured interviews. The flexibility of this method helps us to create more communication with interview respondents under the premise of ensuring clear interview topics and directions, so that we could obtain open and honest answers. We set up an interview panel with three researchers to participate in the interviews. Regarding the interview respondents, we selected three groups of interviewees with different roles, including four video content creators of the sample platform, four viewers of the sample platform, and two strategic and operational consultants who can provide an external perspective. Among them, the first two groups are composed of two regular users (users who have used the platform for more than five years) and two new users (users who have used the platform for less than one year) respectively. The interviewee selection is shown in Table 1. Due to data confidentiality issues and ethical considerations, all interviewees were anonymous. As mentioned, we used semi-structured guidelines with open-ended questions, focusing on topics related to the diversification strategy implementation process and effects of the sample platform, and generated targeted questions and questioning methods according to the roles of different respondents. The interview guide was sent to all interviewees one week before the formal interview so that they can be well-prepared. Interviewees have the right to refuse to answer any questions that make them feel uncomfortable. However, such a situation did not actually happen during all interviews. One single interview lasts about 30 minutes, conducted through ZOOM, and the whole process is recorded and transcribed.

Table 1. Interview respondents

Discription of the role	Role	Duration	Main topics	
Users who upload original videos through the sample platform, the content covers interest circles including mobile games, food, automotive, and pets. They also use the sample platform to watch videos posted by other uploaders.	Video content creators 1	Regular users	32 min	Motivation to reach and use the sample platform Reasons for retention Content posted Interaction with viewers Use of other services on the sample platform Consuming habits on the sample platform Overall evaluation of the sample platform
	Video content creators 2		35 min	
	Video content creators 3	New users	24 min	
	Video content creators 4		31 min	
Users who only watch videos or live broadcasts through the sample platform while never publishing content, the content viewed covering various interest circles such as mobile games, daily life, entertainment, sports, pets, food, and many others.	Video viewers 1	Regular users	26 min	Motivation to reach and use the sample platform Reasons for retention What to watch Interaction with uploaders Use of other services on the sample platform Consuming habits on the sample platform Overall evaluation of the sample platform
	Video viewers 2		33 min	
	Video viewers 3	New users	28 min	
	Video viewers 4		25 min	
Consultants from the strategy and operation department of top consulting firms. They have no previous project experience directly related to the sample platform, but have researched other video platforms and have in-depth insights into the operation logic of this type of platform.	Consultant 1		29 min	Diversification strategy of the sample platform
	Consultant 2		35 min	The feasibility of diversification for sample platform Consequences of sample platforms diversification Differences between sample platform and other platforms in the same industry

			Platform diversification strategy implementation
Total:	10 interviews	4h 58 min	

The acquisition of secondary data and the interview answers from users of the sample platform and external consultants, ensuring the richness of the data sources, could be used for triangulation. Views based on different perspectives make the research conclusions more accurate and convincing.

2.4. Data Analysis

Data analysis and data collection are carried out simultaneously to ensure the flexibility of the case study method [20]. We use the template approach proposed by King as the data analysis method [24]. Firstly, we reviewed the literature on platform development strategies and identified keywords such as network effects and learning effects as possible codes. This step ensures that our research has a clear and logical relationship with previous literature [24]. We randomly selected one interview transcript from each group of interviewees for analysis and developed a pre-defined framework. Furthermore, we analyzed the other transcripts regarding the sample platform and appropriately modified the pre-defined codes to overcome a main possible drawback of the template approach of defining the template too loosely or too complicated [24]. With all possible codes were recognized, the final template was formed [24].

3. Results and Discussion

3.1. Case Background

At first, Bilibili was known as an ACG community, while after several years of development, it has become a platform ecosystem. The core resources shared internally, including the network anchors, video content creators, and viewers, support various interest circles and businesses to improve the performance through specialization and complementarity [25], and to achieve value co-creation [10]. Such a change makes the functions of Bilibili continue to improve, its business is more diversified, and the labels in people's minds are gradually varying, including but not limited to the ACG community, game platform, live broadcast platform, video creation community, and even a learning platform.

Through the live broadcast of "Zhihu Salt Knowledge Club" in 2015, the announcement of the exclusive agency for mobile game "Fate/Grand Order" in 2016, the launch of the Discovery Zone and the introduction of more than 100 documentaries in 2018, acquiring China's sole broadcasting rights of LoL (League of Legends) S series in 2019, signing a contract with Timo Feng in the same year, and producing a series of variety shows such as the rap music program "Rap for the New Generation" in 2020, Bilibili continues to expand the interest circles and related new businesses, attract more users with different interests and consuming preferences, enrich the content of the resource pool, promote user interaction, layout the upstream and downstream industrial chains, increase revenue, and improve the revenue structure. Its brand and culture have been so widely disseminated that Bilibili could be considered as achieving diversification and successfully "breaking the original ACG circle".

Although the CEO of Bilibili didn't propose the plan regarding shifting from strategic defense to strategic offense and focusing more on users increasing and revenue growth until 2019, the occurrence of a series of diversification strategy implementation activities at Bilibili can be traced back to 2015 or even earlier, meaning it is difficult to clearly define when the diversification-related behaviors begin to occur. Therefore, we only analyze the mechanism and principle of the diversification strategy implementation, instead of comparing the platform's financial performance before and after the diversified development.

3.2. Case Analysis

3.2.1. Identification of Diversification Feasibility

In the digital age, many resources are no longer scarce, meaning that video platform users have a wide range of choices and have a wealth of information to support them in making viewing decisions [26]. Especially for Bilibili, even though it started from animes and gradually introduced various documentaries and variety shows, there is still an important part of the content that cannot be ignored on the platform, the videos created and uploaded by users themselves, which mainly include UGC (User Generated Content) and PUGC (Professional User Generated Content) videos. Such videos have entertainment and social attributes. They do not provide viewers with a complete plot or closed content experience but focus more on social interaction experience based on the fragmented content. Users do not have clear expectations when watching this type of content, therefore most users will not choose to rely solely on one video platform. Moreover, for platforms that provide and integrate such content with entertainment and social features, it is difficult to attract users for a long time if they only rely on the quality of the content.

According to the long tail theory [27], content providers or integrators such as video platforms should increase the development of niche products and content, expand video viewers in different content fields, and benefit from niche markets. This theory provides support for the decision-making of the diversification of Bilibili. The platform integrated more video content from various interest circles, such as entertainment, food, and sports. Further, its business model could be described as using video content to attract users, using the community atmosphere to retain users, and then providing users with more content and content-derived services that they are interested in. If users like it, they will pay for it. Under this business model, Bilibili's development will be diversified. Users who like games will pay to play games, those who like to watch live broadcasts will pay for live broadcasts, those who like paid TV shows and animations will register as major members of the platform, and those who like IP derivatives will purchase some peripheral products. In fact, most users like several things. For instance, a user who is a fan of one anime will pay to watch the anime and buy peripheral products, and perhaps will play games with the same name as the anime in the future.

Elberse proposed that the long tail should not be developed blindly, and pointed out that the consumption of long-tail products is more common among those who tend to stick to certain types of products [26]. Such a statement provides another theoretical basis for Bilibili's diversification development since it is in line with the style of this platform ecosystem, a community for clusters that have a high degree of influence in different fields such as ACG. Many users who initially only watched animes on Bilibili gradually spend more of their time on this platform watching videos and live broadcasts related to their other interests. They rely more on the platform as they have more interests fit the content that the platform can provide. Besides, some of their behaviors, such as rewarding anchors, could also bring revenue to Bilibili.

Elberse also pointed out that when producing niche products for end-users, it is necessary to reduce costs as much as possible [26]. For Bilibili, high-quality video production in different interest circles mainly comes from the creators' interest incentives, rather than the emphasis on substantial rewards, and the platform ecosystem itself does not bear the high cost. Therefore, Bilibili's expansion of content in more interest circles and its diversification development in various related businesses are considered to be in line with the principle of cost-effectiveness.

The critical conditions and key actions to be implemented by the platform at this stage are summarized in Table 2.

Table 2. Identification of Diversification Feasibility

Critical Conditions	Data Support	Respondent
Users have a high degree of concentration on certain types of products	My friends and I are mainly e-sport fans, especially for League of Legends, we can be considered crazy. We always watch live matches on Bilibili. Later, I learned that Bilibili also has some self-developed games. I also go to play those games and watch the videos or live broadcasts related to them.	Video viewers 2
The platform does not bear high costs for niche products	Basically, we make videos the same as "generating power for love". The platform does not give us a lot of money. If someone wants to use those rewards as wages instead of relying on their liking, then he may not be motivated to update the video soon.	Video content creators 1
Key Actions	Data Support	Respondent
Develop or integrate content or services in other fields based on the users interests and consuming behaviors	Most of us are ACG lovers, but we also have other hobbies, for example, I also like pets. One day I accidentally saw a video regarding cats on Bilibili, I clicked and kept watching it. Later I followed some pet uploaders on the platform, and then I like to watch videos on Bilibili more and more.	Video viewers 1
Stimulate the enthusiasm of platform users and promote user interaction	I initially posted videos because I thought that my cat was cute and I wanted to record her daily life. It also could be considered to satisfy my desire to show off or express. More and more people are watching later, and sometimes they urge if I didn't update. It seems that many followers care more about the situation of my cat than I do haha, so I upload more.	Video content creators 3

3.2.2. Development of Sustainable Competitive Resources

Baldwin and Clark emphasized the use of the core resources of the platform ecosystem to achieve its excellent functions and performance [28], which is consistent with the resource-based view of the firm proposed by Wernerfelt [29]. Regarding the view, as its name indicates, more attention is paid to internal resources rather than products [29]. Therefore, we further analyze the diversification mechanism of Bilibili based on the resource-based view, and particularly focus on how Bilibili discovered and used its superior competitive resources to achieve diversification.

Despite continuous attempts to diversify, Bilibili is still generally considered as a Chinese video-sharing website derived from the Japanese video-sharing website Niconico [30], meaning that Bilibili has always retained its ACG-based characteristics. That is, a series of diversification-related activities Bilibili has carried out is based on its achievements in the original ACG fields. During the diversification implementation process, Bilibili always positions its target users accurately and strives to maintain the original ACG community atmosphere, which is the main reason why it is highly praised by the user group and is considered as a platform with belief. Such a community atmosphere can be regarded as the source of Bilibili's sustained competitive advantage since it possesses the four characteristics of corporate sustainable competitive resources proposed by Barney [31], and helps Bilibili retain users.

Firstly, such a strong community atmosphere is valuable that can help Bilibili discover potential opportunities, and it is sustainable [31]. Although the diversification strategy has allowed the main

users of Bilibili to expand from the original ACG enthusiasts to “generation Z”, the similarities between these two groups have always been valued by the platform ecosystem, such as they both prefer games and online shopping, and have a strong willingness to pay. As a result, Bilibili developed the game, e-commerce, and other services around content that both new and original users are interested in. By doing so, this platform ecosystem could attract more young people with similar interests, encourage some of them to become video content creators and network anchors and produce high-quality content by providing them incentives through user interaction and some rewards, and continuously attract more young people who value these interest circles, thus forms a closed-loop, as shown in Fig. 2.

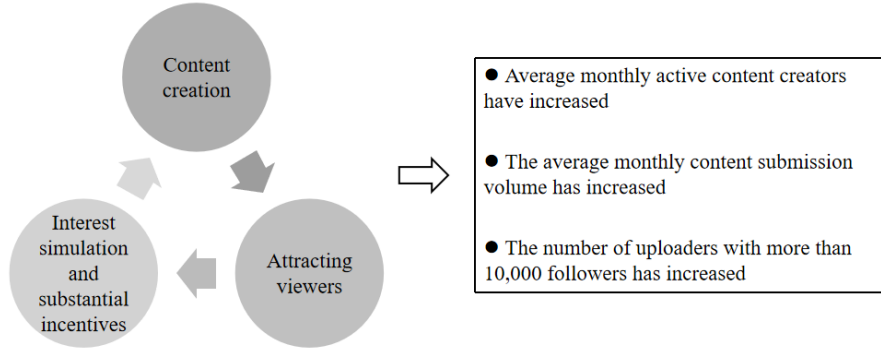


Figure 2 The continued thriving content ecosystem of Bilibili

Secondly, compared to other video platforms, the community atmosphere of Bilibili is undoubtedly rare [31], since it is caused by its ACG-based culture and unique precise user positioning. Some terms, such as "Sister Tifa beats me", are difficult to understand for people who are not familiar with ACG-related fields. Bilibili's unique content and community atmosphere are very different from other platforms, which could create barriers. Moreover, by introducing content from different interest circles, Bilibili demonstrates a strong ecological tolerance, so that it can attract more content creators and other users as long as the ecology is sufficiently developed.

Besides, Bilibili's unique community atmosphere is difficult to be imitated or replaced by other video platforms [31]. The construction of its various interest circles benefits from the community of the large-scale and high-loyalty ACG enthusiasts attracted in the early stage and the maintenance of the accurate user positioning in the following diversification process. Such precise user targeting is inconsistent with the product positioning of Tencent Video, TikTok, and other video platforms that aim to attract more and more different types of users. Thus, the active community atmosphere can help Bilibili gain sustained competitive advantage in the long term.

The critical conditions and key actions to be implemented by the platform at this stage are summarized in Table 3.

Table 3. Development of Sustainable Competitive Resources Phase

Critical Conditions	Data Support	Respondent
The platform has the valuable, rare, difficult to be imitated or replaced, and sustainable resource	The business model of Bilibili is to use video content to attract users, to retain users with the active community atmosphere, and to provide users with more content that they are interested in or content-derived services. If users like it, they will pay for it. What needs to be emphasized here is the community atmosphere, which is unique to Bilibili, since it is developed based on the original ACG content, and has certain but not excessive commercialization. It makes Bilibili's cultural and community barriers high enough, and many fans think it is a platform with its belief. No matter how competitive the environment is, Bilibili's ecological tolerance is always great. As long as the ecology is sufficiently developed, the platform can attract more content creators and other users.	Consultant 1
Key Actions	Data Support	Respondent
Emphasize the precise positioning of platforms and users, develop and utilize sustainable competitive resources based on the unique advantages of the original business, and do not diversify blindly	When we think of Bilibili now, perhaps the first impression is still ACG even though its content is not limited to these anymore, meaning that, to some extent, the platform does not blindly diversify and commercialize, but still attaches great importance to its own style and the user experience of regular users, and does not blindly attract new users.	Consultant 2
Focus on the ability of intangible resources to create benefits	High-quality video content and the active community atmosphere are very important elements in Bilibili's business model.	Consultant 1

3.2.3. Application and Reinforcement of Network Effects

3.2.3.1. Economic Networks

The network effect of a product is reflected in that its value to users not only depends on the product's own but also is related to network access of people using that product or a compatible one [32]. It refers to the value added by increasing the connections within and across networks [14]. The development basis of Bilibili is derived from various unique interest circles created in the process of diversification, including animations, documentaries, games, music, and many others. For Bilibili, the internal network connections can be considered as users in one specific interest circle, mainly including content creators and viewers in the UGC/PUGC and live broadcast fields, while the interaction of users from different interest circles is a cross-network connection. Based on the description of the businesses in the Bilibili 2021Q2 financial report, we draft the network related to Bilibili's core business as shown in Fig. 3.

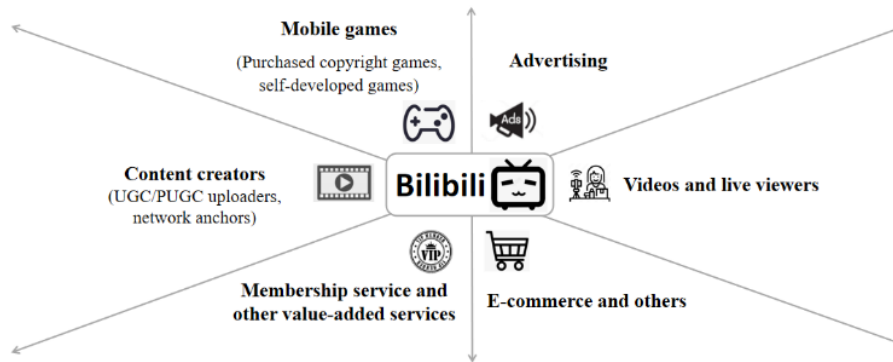


Figure 3 Major networks connected to Bilibili's core business

The diversification strategy brings Bilibili the video content creators and viewers in different interest circles, which is an important resource for the platform ecosystem, with its twofold role. It can not only strengthen the internal connections of the network, but help promote cross-network interaction, further inspire a great community atmosphere, introduce complementary products to the platform ecosystem, and promote the construction of network clusters.

3.2.3.2. Strengthening Internal Connections of the Network

The resource, including the content creators and viewers, helps to promote the reach of the content within each interest circle and attract more new users, encourage them to express their opinions, enhance the interactivity within the circle, therefore creating a good community atmosphere and increasing user loyalty. The sharing of content by viewers can help attract more viewers and potential viewers, and therefore promote direct network effects [14]. The behaviors of viewers such as "urging updates" and "rewarding" can, to some extent, inspire creators to continue the production of high-quality content and enhance indirect network effects [14]. The dissemination of high-quality content in a specific interest circle can also encourage viewers to participate in content creation, cultivate more excellent content creators, and introduce more high-quality content to the resource pool.

3.2.3.3. Promoting Cross-network Interaction

1) Economics of Scope

Research shows that in industries with social networking characteristics, consumers value the scale of the network and the number of complementary products [33]. Therefore, the diversification of content creators and viewers in different interest circles can also help attract users for other businesses in the platform ecosystem, and enhance the positive network effects between different networks. In particular, the original loyal users of Bilibili, ACG enthusiasts, also have a high degree of acceptance and appreciation of works in other fields such as mobile games and national-style music. Therefore, it is considered wise for Bilibili to reach and develop new interest circles such as mobile games and music on the premise of maintaining regular user loyalty. For instance, many users would watch animes or UGC/PUGC videos at Bilibili in the early days. Recently, as they are interested in mobile games such as "Glory of the King", they may also broadcast live through Bilibili when playing the game, and even record instructional videos and share them with other gamers.

In addition, the increase in the number of users in different interest circles will also help Bilibili attract more advertisers from different fields to place advertisements on its homepage, thus obtaining economic benefits. Such effects can also be explained by the economics of scope [34]. By fully and effectively applying the resources such as content creators and viewers, and sharing the platform ecosystem as a service system, Bilibili can achieve the resource sharing effects for its different businesses, and promote synergy between different networks [14]. It can also accelerate the development of related diversification strategies, respond more quickly to the needs of various stakeholders and provide comprehensive services [35]. Also, the economics of scope can weaken the dependence of Bilibili on a single business such as games, so that it can resist risks when the pillar business is facing drastic market changes [35].

2) Introducing Complementary Products

From cooperating with Hupu in the FM (Frequency Modulation) Innovation Festival to reaching in-depth strategic cooperation with QQ Music to jointly support high-quality music, a series of attempts to diversify not only allowed Bilibili to attract users from other major platforms and expand the original user scale, but also helped Bilibili develop new businesses and introduce complementary products in the fields of radio, music, and others. According to Schilling, as a result of such an innovation, the value of Bilibili to its users will not only include its original value in the ACG field but also include the value brought by more users and those complementary products introduced through the diversification process [36].

3) Promoting the Construction of Network Clusters

Diversification also helps Bilibili gain competitive advantages brought by network clusters. Specifically, after the diversified layout, Bilibili is no longer a platform focusing on specific clusters composed of ACG enthusiasts, but has opened up more interest circles and services, and can overcome the limitation brought by the few original single clusters. According to Iansiti and Lakhani, the more a network is dispersed into single clusters, the smaller the influence of network effects, and the easier it is for challengers to become competitive since they can compete with existing clusters with the only need regarding resources or the scale for the development of one single particular cluster [14]. For the diversified Bilibili, if challengers want to compete with such an ecosystem, they need to integrate more diverse resources related to videos, games, and e-commerce, to rich competitive advantages. Challengers can also strive to form a more unique characteristic to be competitive, such as developing a disruptive innovative product or entering the market with a lower fee for individual users. Usually, it is difficult for normal video platforms to gain such achievements.

3.2.4. Application and Reinforcement of Learning Effects

The learning effect gains added value by increasing the amount of data flowing through the same network [14]. The accumulation of data contributes to the improvement of the algorithm, enables it to better understand user needs, and improves the user experience correspondingly [14]. Specifically, through diversification, the algorithm of Bilibili will more accurately anticipate the potential needs of users and recommend video content or advertisements to them based on their interests and search history.

It is worth mentioning that the learning effect can not only increase the value of existing network effects but also generate value on its own [14]. Taking the UGC/PUGC business of Bilibili as an example, the more search for a certain term or topic, the more accurate Bilibili's algorithm can match users with the relevant content, and the quality of service at Bilibili will be better [14]. Therefore, it is possible to attract more content viewers, which can stimulate the network effects of multiple interest circles and businesses, as mentioned above. Also, the larger the user group, the more available data, and correspondingly, the learning effect itself will be enhanced [14]. Furthermore, it is especially worth noting that Bilibili's great community atmosphere and active user interaction make the data acquired by the platform highly effective. If the vast majority of users use platform services less frequently, the quality of the data will be reduced.

The critical conditions and key actions to be implemented by the platform at this stage are summarized in Table 4.

Table 4. Application and Reinforcement of Network Effects and Learning Effects

Critical Conditions	Data Support	Respondent
The platform has the resource to connect its different core business networks	The foundation of Bilibili's development comes from various unique interest circles formed in the diversification process. Especially the interaction between users within these interest circles and between different circles. User interaction is helpful to create a good community atmosphere, can enhance the social attributes of the platform, and further enhance user loyalty and the influence of the platform.	Consultant 2
Sufficient user data accumulation	In the process of diversification, Bilibili has accumulated more users and user data, which will help the algorithm continue to improve and feed users more accurately.	Consultant 2
Key Actions	Data Support	Respondent
Encourage user interaction and cultivate a strong and positive community atmosphere to strengthen internal network connections	I like the overall atmosphere of Bilibili a lot, and I like to know what others think, so I really enjoy watching videos with the barrage. Usually, if we leave a message in the comment area, uploaders will reply, I feel that this atmosphere is quite good.	Video viewers 4
Develop other content or businesses, attract users in other fields, strengthen the social attributes of the platform, enhance the network size and structure, build network clusters, or cooperate with other products to introduce complementary products and new users	I watched animations and some original videos on Bilibili at first, such as vlogs. Later, I was very interested in "King of Glory" and some other mobile games. When I play the game, I also broadcast live through Bilibili, and even record instructional videos to share with other players. So do many others, as far as I know, they play LOL and many other games as well. We know that there is a cooperation between Bilibili and LOL, that's why they also watch the live broadcast or live broadcast by themselves on this platform. In this way, they can attract viewers and followers easier.	Video viewers 3
Increase user participation and maintain high stickiness and activity in the community	When it comes to user data, one thing important is effectiveness. If there are many of what we called zombie accounts or marketing accounts, then the overall development of the platform will be unhealthy.	Consultant 2

4. Conclusion

As mentioned above, by analyzing the commercial activities carried out by Bilibili in recent years, the diversification mechanism of the platform can be explored and explained. In the process of diversification, Bilibili strives to maintain a balance between "breaking the circle" and "not changing the original style". The platform tries to develop new content resources on the premise of ensuring that

ACG-related fields are rich in content and the community is highly active. It also takes effort to maintain the loyalty of regular users while attracting new users at the same time to promote the stable development of the platform ecosystem.

To achieve the generalizability and continuity of the sample Bilibili, we have constructed a framework on the diversification mechanism of the platform (Fig. 4). Based on the long tail theory, the framework firstly clarifies the diversification feasibility of a platform that initially focuses on a single content area or business, and elaborates the critical conditions for diversification development. Then, the framework explains the principles of the platform diversification mechanism based on the resource-based view, and emphasizes the identification and application of the platform's sustainable competitive resources. Furthermore, the framework focuses on the value creation and capture dynamics of the platform, network effects and learning effects, explaining their roles in promoting the implementation of the diversification strategy, and reflecting the rationality as well as some potential advantages of applying these two dynamics to achieve diversification. The research findings embodied in this framework have some contributions to both academia and management practice.

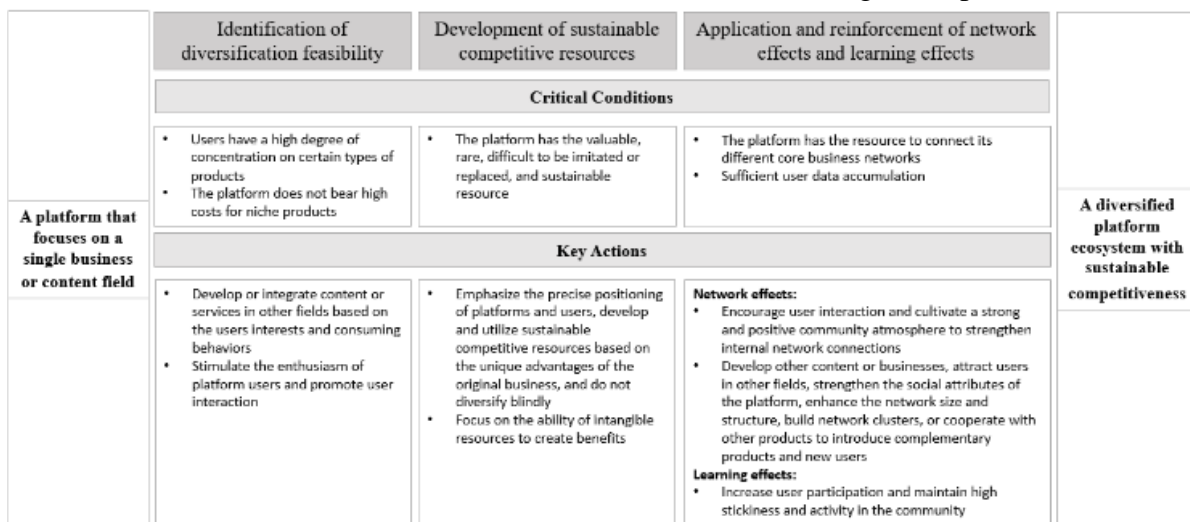


Figure 4 A framework on the platform diversification mechanism

4.1. Theoretical and Practical Contributions

In terms of theoretical implication, the conclusion of this study provides a qualitative empirical framework for research on platform diversification. As a popular topic in recent years, platform has attracted more and more attention from scholars and researchers. However, many studies on platform strategy and development are generalized. Based on the internet perspective, this study introduced the relevant framework, explained the diversification mechanism of the platform, paid attention to the internal value creation and capture dynamics of the platform during the diversification process, and enriched the research results in fields related to platform development strategies.

Regarding the practical contribution, the framework of the platform diversification mechanism proposed in this study can support managers to formulate and implement corresponding strategies for the platform. In particular, the framework helps managers to clarify in what way those intrinsic dynamics, including network effects and learning effects, contribute to platform diversification. The description of the Bilibili case study in the results and discussion section helps managers have a deeper understanding of how to apply these endogenous forces to promote platform diversification. Also, the case study of Bilibili in our research shows the importance of intangible assets when it comes to sustainable competitive resources. Finally, the success of platform diversification could enrich and facilitate people's lives, thereby enhancing the social value of the platform itself.

4.2. Limitation

This study also has some limitations. Although a qualitative research method respects the inductive style was adopted, which helps us to obtain general conclusions about the diversification mechanism

of platforms through the exploration of the single sample platform [37], there are still some questions worthy of in-depth exploration. For example, with regard to network effects, this study focuses only on the advantages of network effects when implementing the platform diversification strategy, while omitting some potential negative effects. Afuah pointed out that in addition to the network structure, network conduct will also affect the value of the network [38], which means that it is necessary to maintain the platform with high-quality and highly active users. Otherwise, in extreme cases, the platform may face the tricky situation of high-quality regular users exiting the network, leaving only some low-quality new users [39]. This negative impact can also be explained from another point of view. Too many complementary products involved through the diversification process may make the platform lack its uniformity or even be fragmented [40]. Therefore, in the process of platform diversification, attention should be paid to the potential negative effects of network effects, meaning the exploration of the boundaries of platform diversification should be an important topic for future research.

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