

Platform-based Business Model and Entrepreneurs from Base of the Pyramid

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Abstract

Technological progress and the rise of short video platforms have created new possibilities for the marginalised communities. This paper explores how such platform-based business model innovation can foster entrepreneurship from the base of the pyramid (BOP) and include poor people into value creation activities by sharing their skills, experiences and their normal farming and life activities. Through an in-depth case study of a successful platform which has hundreds of millions of active users from the BOP, we developed a content-based new inclusive digital business model for grassroots entrepreneurs; and identified the mechanisms that makes such a platform fair and inclusive for the poor. The paper analysed its impact on income creation, capabilities development, and social capital development at the BOP, as well as its impact on the growth of BOP entrepreneurs, and the enabling factors that are essential for the scale-up and success of such a business model. Policy implications are also discussed.

Key words: platform technology, business model innovation, base of pyramid, poverty reduction, inclusive development

1. Introduction

In recent years, significant progress has been made towards the global eradication of poverty. Extreme poverty has now fallen to less than ten per cent of the global population (Si et al, 2019) as compared to approximately twenty-eight per cent in 2000 (World Bank, 2021). However, many of those in the marginalized communities still struggle to earn a decent living (Prahalad, 2005; UN, 2018) despite the rapid acceleration of technological development in many parts of the world. Nonetheless, these technological advancements especially the ubiquitous growth of digital platforms, have provided new opportunities for marginalized people by creating new drivers of economic growth, upgrading the capabilities of small business owners and enhancing the welfare of the poor (Sen, 1999; Si et al., 2015; Si et al., 2020).

Mainstream digital platform apps such as Amazon, e-bay, Taobao, and WeChat have created opportunities for previously marginalized groups to participate in market transactions and sell their products with greater efficiency. In many communities, they have facilitated the development of a dynamic self-organizing e-commerce ecosystem that allows grassroots entrepreneurs to build their businesses with the support of these platforms (Leong et al., 2016; He, 2019).

While there has been increased scholarly attention on ‘base of the pyramid’ (BOP) empowerment on one hand (Prahalad and Hammond, 2000; Ghauri and Wang, 2018) and the role of digital platforms in poverty eradication, on the other; these research streams have occurred largely in parallel, leaving some significant gaps in our understanding of the role of digital platforms in enabling BOP entrepreneurship. Indeed, while there has been a lot of research on Information and Communication Technology (ICT), most have been focused on its direct impact on development (Heeks, 2010; Fu and Akter, 2016). There has been relatively little focus on the business model innovation underpinning these technologies and how they can be used to foster entrepreneurship, especially for vulnerable and marginalized communities.

Moreover, where there has been some research on e-business models and job creation, they have mostly focused on e-trading businesses that sell products or services online. However, the impact of e-trading on inclusive development is mixed because while e-commerce creates jobs, it also replaces jobs in the offline economy. As online retail businesses require some initial

capital investments, the issue of how digital technologies can be designed to include the poor has not been sufficiently addressed. This is important given the role of entrepreneurship in accelerating poverty reduction (Bruton et al., 2013; Alvarez et al., 2015; Ghauri, et al., 2018).

Finally, while there is substantial literature on innovation and entrepreneurship for poverty reduction and on business for the Base of Pyramid (e.g., Si et al., 2015; Radjou et al., 2012; Yunus et al., 2010; Fu et al., 2018), the interaction of business models and digital technology for entrepreneurship promotion and poverty reduction has not been systematically studied. Therefore, this study seeks to answer the following question: Can a digital technology-based platform business model foster entrepreneurship from marginalized communities in value creation activities?

This paper attempts to answer this question through an in-depth case study of Kuaishou – a Chinese short video platform that has become popular among BOP users. As of April 2020, the total number of Kuaishou users, mostly rural users, exceeded 300 million making it a unique platform and thus appropriate for this study. The research design is primarily qualitative. It uses a case study approach because of the explanatory nature of the study (Ghauri, 2004). Data collection sources included in-depth interviews, archival data and secondary data.

This paper makes significant theoretical contributions to our understanding of BOP entrepreneurship, by placing it within the context of a new type of digital platform with lower user barriers and no initial capital investments that enable marginalized people to create economic and social value. It, therefore, contributes to the BOP business model innovation literature by showing how business model innovation driven by advances in digital technology can bring revolutionary change. Secondly, it contributes to the platform technology and poverty reduction literature by providing a detailed analysis of the empowerment mechanisms. It shows how information, connectivity, convenience, and lower entry requirement provided by the digital platform enabled poor people in the marginalized society to gain greater access to information, opportunity, and knowledge as well as build social capital. Finally, it contributes to the literature on shared value creation by exploring the co-creation of value between BOP groups and other users. By so doing, it expands shared value creation research to the digital context (Kramer and Porter, 2011). Findings from the research also provide valuable practical implications. They suggest that the provision of digital infrastructure and training at the BOP can inspire entrepreneurship in BOP communities by addressing the problem of information

poverty. This will enable BOP entrepreneurs to fully exploit digital business models for social and economic value creation.

2. Theoretical background

2.1 Business model innovation towards the Base of Pyramid

A business model depicts the design of transaction content, structure, and governance to create value through the exploitation of business opportunities (Amit and Zott, 2001; Zott and Amit, 2007). Business model innovation emphasizes making designable, novel, and important changes to the content and connection architecture of the business model (Foss and Saebi, 2017). By doing so, firms can find new business logic, create, and capture value for stakeholders in a new way (Casadesus-Masanell and Zhu, 2013).

There are significant differences between the BOP market and the Top of Pyramid (TOP) market in terms of participants, institutional environment, and infrastructure. Thus, companies must change their intrinsic business logic to serve the BOP. While innovating technologies and products, they must design new business models or reinvent existing ones to achieve success in the BOP market (Simanis et al., 2008; Chakravarthy and Coughlan, 2012). However, the BOP market is an uncertain environment that is characterized as near-Knightian (Thompson and Macmillan, 2010). Therefore, the design of a BOP business model needs to follow the discovery-driven principle, which is consistent with McGrath's (2010) idea that business models should be designed based on experiment and learning rather than an analytical approach.

It is difficult for firms to lead value creation activities in the BOP market by themselves. Therefore, building a cross-sector alliance or cooperative network with non-traditional organizations, institutions, and individuals is critical to the success of business model innovation (Yunus et al., 2010; Ramachandran et al, 2012). Moreover, in the construction and operation of local cooperative networks, special attention should be paid to the social rather than economic attributes of the relationships (Dahan et al., 2010). In this sense, many of the business models that work well in the BOP market are socially embedded in nature. Such business models include local capacity building, non-traditional partnerships, grassroots learning, and other key characteristics (Goyal et al., 2014).

2.2 Entrepreneurship at the Base of the Pyramid and the constraints

Consumer-oriented initiatives driven by firms to engage with marginalised communities are based on the premise that there are significant opportunities for companies to make a profit by developing products for the poor (Prahalad, 2005). Entrepreneurship-oriented initiatives, on the other hand, focus on collaborating with BOP communities to support them in the production of goods and services or support BOP entrepreneurs in overcoming capability and resource constraints (London, 2008).

While profit-oriented BOP strategies have received more attention, there has been growing criticisms of the profit-focused understanding of the needs of the marginalized communities (Simanis and Hart, 2011). Critics argue that focusing on increasing the variety of goods and services available to the poor does not enhance their capabilities; the only way they can enhance their capabilities is by involving them in income-generating activities. Thus, viewing the BOP as entrepreneurs presents the most sustainable means of increasing their resources and capability and inclusive development (Karnani, 2007).

This changing view of the role of members of the BOP has led firms to re-evaluate their business models and the constraints faced by BOP entrepreneurs (London et al., 2010). BOP entrepreneurs face internal constraints to their productivity including poor education and managerial skills, limited access to finance and information, sales and marketing ability, and limited exposure to entrepreneurship training (UNCTAD, 2018; Zanello et al., 2016). External factors which undermine the efficiency of entrepreneurs in marginalized communities include poor business climate, limited access to markets, poor infrastructure, weak intellectual property rights, and lack of entrepreneurial confidence and capabilities (UNCTAD, 2018; Zanello et al., 2016). ICT projects require specific complementary assets such as internet connections and reliable electricity supply, timely access to information, and social factors, such as trust and social networks (Hagen et al., 2019; Fu and Polzin, 2010).

2.3 Digital technology and poverty reduction

Digital technology is regarded as an effective means to promote development and alleviate poverty (Fu, 2020). From the perspective of consumption, the connectivity of digital

technology reduces transaction costs, especially search and information costs, which improve efficiency and convenience and promote the availability of products and services (Njihia and Merali, 2013; Ghauri and Cateora, 2021). Digital technology also enables poor communities to access educational and financial assistance, as well as higher levels of market participation (Narayan-Parker, 2002). For BOP entrepreneurs, digital technologies connect producers, services providers, traders and distant consumers. The widespread use of smartphones even in the poorest parts of the world (ITU, 2018) has significantly improved the operational efficiency of poor entrepreneurs. For example, smartphones helped to build trust and improve the efficiency of communications, enhancing the performance of Indonesian micro-entrepreneurs (Anwar and Johanson, 2015). All this empowers grassroots entrepreneurs (Leong et al., 2016) and fosters entrepreneurship in the marginalized communities. More importantly, e-commerce platforms empower marginalized groups and gives rise to a rural e-commerce ecosystem that can aid self-development and eliminate structural barriers (Leong et al., 2016; He, 2019).

2.4 Short video platforms and entrepreneurship at the Base of the Pyramid

The development of digital technology also has an important impact on the design and innovation of the BOP business model; in particular, digital platforms play a key role in the value network. The rise of platform business models supported by digital technology has enabled some poor communities to have economic and social interactions beyond their local boundaries (Heeks, 2010; Smith and Elder, 2010; Walsham, 2017). Firms can also generate value by promoting the interaction and transaction between different organizations and individuals both inside and outside of the BOP market (Eisenmann et al., 2006). Because of the network effect, user size and user interaction become the source of value creation. When the increase in the number of users and the interactions reaches a certain threshold, it can bring considerable value to the platform (Cennamo, 2018). When digital technology is widely used and disseminated in the BOP market, a new cooperative ecosystem can be formed based on the platform. In this ecosystem, value creation comes from the joint efforts of organizations, partners, and customers. Individuals, organizations, and digital technologies jointly create value through the shared digital platform. All the links of value activities are no longer isolated or independent but become organisms that can influence each other and achieve win-win symbiosis (Chuang and Lin, 2015; Leong et al., 2016; Srinivasan and Venkatraman, 2018; Senyo et al., 2019). Thus, such capacity helps form a rural e-commerce ecosystem that promotes self-development and facilitates poverty reduction. In sum, business model

innovation based on digital technology can transcend the constraints of local BOP scenarios. It can mobilize and connect more stakeholders to participate in value creation.

Short video platforms refer to 'video content that is shorter than 5 minutes and distributed via digital media platforms' (Kaye et al., 2020, p. 1). These platforms largely feature user-generated content as opposed to professionally generated content and involve low-cost and highly accessible content (Kong, 2018). They provide users with easy-to-use video editing tools which do not require any professional training, allowing them to create video content lasting from a few seconds to a few minutes (Zhang et al., 2019). Scholars argue that the ease of content development, rapid transmission, and emphasis on socialization make short video platforms distinct from other forms of applications (Zhao and Wang, 2020). Arguably, these attributes mean that members of marginalized communities who are mostly uneducated with limited technological experience may find it relatively easy to operate these platforms. These platforms require minimum capital requirements, typically only a mobile phone and internet connectivity.

Short video platforms like other social media platforms have functionalities that encourage interaction with content such as likes, comments, and followership; these functionalities allow content creators to build social networks and social capital (Fukuyama, 2001). The social capital of a user refers to the capacity of a user to 'interact, organize, cooperate and participate on a short-video platform' and create a follower group (Liao et al., 2020, p. 22). Most of these platforms have e-commerce functions embedded within them that allow content creators to sell their goods or services (Sotiriadis, 2017), thus becoming successful entrepreneurs without any investment.

The platform-based model also has important network effects, which can either be direct or indirect. Direct network effects reflect the notion that a platform becomes more valuable to each member as every new user creates value for others by providing more users to interact with each other (Gawer, 2014). Indirectly, the value is created by increasing the number of users in groups that are complementary to each other. For example, a member can join a user group, e.g., sellers that is also useful for the complementary group, e.g., buyers (Koskinen et al., 2019).

In addition to the social, market and network effects, the digital platforms may also offer important empowerment effects for the poor. Empowerment is an intentional, contextual,

participatory process, through which individuals or organizations lacking an equal share of valued resources gain greater access to and control over these resources, or a process by which people gain control over their lives, participation in the life of their communities, and a critical understanding of their environment (Perkins and Zimmerman, 1995). Digital platforms can help the people at BOP to start their business, incubate their networks and marketing channels, and create self-employed job opportunities (Si et al., 2015). In the case of short video platforms, empowerment is the process by which information, connectivity and convenience provided by the platform enable the poor people to gain greater access to information of market, opportunity, knowledge and social capital through the platform, being inspired by role models on the platform, and gaining confidence.

3. Methodology

3.1 Research design

This study is purely qualitative, as this method supports a comprehensive and in-depth investigation of cases (Yin, 2003; Maxwell, 2012; Zainal, 2007). It is also conducive to theory development and discovery of new theoretical insights (Eisenhardt and Graebner, 2007; Eisenhardt, 1989; Yin, 2003). The main qualitative method used is the case study approach as it enables us to address the '*how*' question (Eisenhardt, 1989; Yin, 2009). This is important because research on how business models can be designed to support entrepreneurship in BOP contexts is quite novel and almost unique, as only a few studies have explored this issue. Therefore, a case study allows scholars to develop theories in relatively new research fields when only limited literature and insufficient theories are available (Eisenhardt and Graebner, 2007; Ghauri et al., 2020). Moreover, this paper involves multiple constructs such as platform empowerment, business model innovation, BOP entrepreneurship, and poverty reduction, each of which contains several sub-dimensions. The case study method can be used to describe the dimensions of different constructs and their relationships in detail, and this improves the construct and internal validity of the study (Ghauri, 2004).

Given the research question and that the new BOP-oriented platform-based business model innovation only recently emerged, we chose to carry out an in-depth study of a unique case, Kuaishou, for which we were allowed complete access, which fulfils our criteria for case selection. We believe a single case study is justified in this case because this is a relatively

new industry and this particular firm fits perfectly for our study (Yin, 2009). The firm is very unique in the industry making it difficult to find other firms with similar characteristics; it is therefore a black swan incident (Knight, 1921; Taleb, 2007). However, if this approach allows us to develop a strong theoretical framework to conceptualize the role which short video platforms play in the development of BOP grassroots entrepreneurship, it is a useful starting point.

3.2 Case selection

The case sampling procedure in this paper was opportunity- and theory-driven (Ghauri et al., 2020; Patton, 1990). Opportunity-driven implies a case that is easy to access, while theoretical sampling means the deliberate selection of cases that are information-rich so that the research phenomenon can be easily revealed (Dubois and Gadde, 2002). The purpose of in-depth case studies is to form a theory, rather than test the theory; the selected cases should therefore be typical and enlightening (Eisenhardt, 1989; Ghauri, 2004).

The case selected here is the Beijing Kuaishou Technology Co. Ltd., which was established in March 2011 and is one of the first companies in China's short video industry. Users can take short videos of their daily lives and share them with other users on the platform. They can also use the live broadcast function to interact with others in real-time. In 2019, 16 million performers earned income from the Kuaishou platform. By April 2020, with the continuous improvement of products and user experience, the total number of Kuaishou users exceeded 300 million, and it became the world's second most important short-video e-commerce platform. Given that this paper studies the grassroots entrepreneurs on the short video platform, Kuaishou represents a perfect fit for our study. Moreover, the company has been operating for nearly ten years and has passed the preliminary testing stage. As a mature and functioning business model, it is worth studying and examining.

3.3 Data collection and analysis

This study mainly used primary data from multiple sources, supplemented by secondary data. The triangulation of the research data was carried out by using diverse data sources and interviewing individuals at different levels of the organization to reduce information deviation;

information was also collected from users (Miles and Huberman, 1994; Eisenhardt and Graebner, 2007). This ensured the reliability and validity of the case study (Yin, 2003).

The primary data sources in this study are interviews. During the period 2018 to 2019, the research team visited the headquarters of Kuaishou three times and conducted in-depth interviews. In the first phase, semi-structured interviews were conducted with senior managers, technicians and business managers. They were all involved in the establishment and operations of the Kuaishou platform and play an important role in the process of helping BOP users. They, therefore, had a deep understanding of the platform's business model, user uptake, market appeal, infrastructure design and corporate social responsibility initiatives. To obtain a more comprehensive view and reduce any form of bias, we interviewed several middle-level managers.

We also interviewed Kuaishou users living in marginalized communities, for example, the users who have many fans on the Kuaishou platform. Despite living in remote rural areas in China, these users have been able to achieve income growth through diversified activities on the Kuaishou platform. These users were able to explain and show what makes the platform attractive to them and how they have been using its tools and products to enhance their entrepreneurial capabilities. Lastly, to ensure the integrity of the study, we also interviewed regulators and other relevant industry stakeholders.

The interviews focused on the following four questions:

- 1) What is the reason for the emergence and rapid development of short video platforms?
- 2) How does the business model design of the Kuaishou platform bring BOP people into the value network?
- 3) As a user, why do you choose the Kuaishou platform?
- 4) What do you do and what do you gain by using Kuaishou, and in what ways?

Each interview lasted for at least two hours and researchers transcribed the interview recordings into text within twenty-four hours after the interview and confirmed the text information with the interviewees. During the whole research process, we also had some informal communications with some interviewees. Emails, phone calls, WeChat calls and WeChat messages were also used to supplement the required information.

In addition to the first-hand data obtained through interviews, second-hand archival data were also collected as supplementary data from the company. Internal documents of the company mainly include the Internal Development Report of Kuaishou, the Corporate Social Responsibility Report of Kuaishou, and research conducted by Kuaishou on its users. The published documents include news reports of Kuaishou from authoritative media, published articles and reports about or related to Kuaishou, information on the Kuaishou official website and patent information published by the State Intellectual Property Protection Bureau. During this process, we combined secondary data with interview data and then compared these two sources of data.

To save time and increase the validity and reliability of data analysis, we used NVivo10, which is a widely used text reduction and content data analysis software, to analyse the interview and secondary data (Sinkovics et al., 2008; Ghauri and Firth, 2009). Nvivo codes textual data from the transcripts in a structural way and formulates a few key concepts and themes. This process reduces data and highlights the relationship between high-order concepts, which is important for theory generation. Practically, we coded the interview transcripts and other sources of data to formulate initial concepts or free nodes in NVivo, such as “product usability”, “simplified video production”, “fair algorithm”, “virtual social capital”, “BOP education and training” and “business transaction based on trust”, etc. After completing preliminary data coding, the content contained in each node was extracted by the software. Secondly, similar free nodes or free nodes with intrinsic connections were integrated into the tree nodes, which are high-order concepts. For example, “advertisement”, “e-commerce” and “rewards sharing” were integrated into a new concept called “profit model”. Finally, the relationship between tree nodes was explored, outlining the mechanisms through which Kuaishou’s unique business model and other contributing factors influenced the BOP group. The data analysis process was not linear but iterative as the process of exploring new theory involves going back and forth between different sources of data and existing literature. Therefore, we added, deleted, merged, summarized and renamed tree nodes and gradually presented the relationships between concepts and new theoretical framework.

4. An inclusive platform business model for BOP entrepreneurs: Findings from case study

Kuaishou's business model is the typical two-sided platform business model. Users on the platform can be broadly categorised as either content consumers or content providers, as shown in Figure 1. Content consumers are users who typically do not upload lots of videos but join the platform so that they can watch the videos uploaded by others. For the videos they find interesting, they perform actions such as: like, follow, give gifts etc. They also show their support by buying products that live streamers advertise. Therefore, while Kuaishou's algorithm may not promote the publicity of a particular user or content, the actions performed by these content users can contribute to the popularity of certain users or content.

[Insert Figure 1 here]

Content providers on the other hand are users who upload short videos or live broadcasts to the platform. This is critical for Kuaishou because User Generated Content (UGC) is the main component of the app as users upload a variety of rich and diverse content including their daily life activities, exclusive tips, product recommendations, hometowns' scenery as well as personal talent and craftsmanship. The distribution of content traffic is controlled by an algorithm, therefore providing every user with a level playing field. Users are encouraged to be creative on their platform because they know that as long as their video is interesting, it will become popular.

Content providers can also choose to become live streamers by using the live broadcast function to communicate with fellow users in real-time. Unlike platforms like Tiktok or Douyin which provide the live stream features only to users with 1000 followers and 50,000 followers respectively, Kuaishou does not have such restrictions (Kaye et al., 2020). This encourages maximum participation from users who enjoy the support from their fans and continue to produce even more videos. Depending on their followership, some live streamers even decide to start selling special hometown products, fruits etc. through the platform. Most users, however, are both content creators and consumers and the video content provides the social link between users.

Based on the interaction of both sides, Kuaishou's revenue mainly comes from the live broadcast, advertising, and related value-added services. Kuaishou launched its live broadcast function in 2016 and it is now its main source of income due to the high volume of user activity for the function. Kuaishou obtains considerable income through the gifts and rewards for the

live broadcast as Kuaishou retains a commission from these. The live broadcast function is the main source of income and brings in about 78 million USD turnover to Kuaishou; when the live streamer's share, operating expenses and taxes are subtracted, the live broadcast can contribute about 31 million USD revenue enabling Kuaishou to reach breakeven.

The second source of revenue is advertising which is generated from the payments which manufacturers pay for advertising on Kuaishou. Advertising is carried out through information flow advertising, topic tabs or work promotion. In terms of information flow, adverts can be integrated into other videos and the way the page functions when working is like other short videos. In terms of topic tabs, Kuaishou can allow organizations or individuals to set up topic tabs where users can choose to participate in topic discussions, take pictures, like etc. Also, Kuaishou allows users to pay for the promotion of their work so that they can gain exposure and publicity, the traffic-based promotion has become one of its most important sources of profit.

The platform also has a quick-order option which is offered to manufacturers and content creators. However, this is not available to everyone as it is only offered to creators with huge followings. Manufacturers are not allowed to advertise directly through the live streamers, instead, they must sign a contract with Kuaishou before they are put in contact with the online celebrities and before they can advertise with the quick order option. Finally, Kuaishou has made attempts at commercialisation through the launch of functions such as the Kuaishou shop, brand account etc. However, these functions do not currently bring real earnings to the app but represent areas for future exploration. A path diagram that summarises Kuaishou and users' value creation is presented in Figure 2.

[Insert Figure 2 here]

4.1 Platform business model empowerment mechanism

There are five empowerment mechanisms designed in the Kuaishou platform business model which support the development of BOP entrepreneurship.

4.1.1 Technological de-skilling mechanism

Based on the complex artificial intelligence (AI) system, Kuaishou has a simple user interface, several communication tools and video processing technologies which largely lower BOP users' entry barrier. BOP users have the willingness to share their daily lives, experiences, and opinions with other people. However, the main difficulty lies in the lack of capability in using the existing complicated communication tools and SNS applications, especially for the sharing of short videos; skills for shooting, producing, and releasing videos are needed. As these difficulties may limit BOP participation on the platform, Kuaishou innovates several technologies at different stages to help these BOP users to create and upload short videos. In the video shooting stage, Kuaishou designed a very simple and clear user interface. Users can easily complete activities such as watching, reviewing, editing and uploading videos. When opened, the app displays just three buttons, making it easy to navigate even for users who are illiterate and less smartphone-savvy. For example, you can enter the video recording page by simply clicking the video button in the upper right corner of the homepage. *"People can post videos even if they cannot write, as long as they know how to use a smartphone"*, said a staff member of Kuaishou. This low entry barrier has helped Kuaishou take off among farmers, factory workers and truck drivers. This also reflects the Kuaishou CEO Su Hua's product design philosophy: *"The idea behind the product details may not be obvious to the user, but the simpler the product is, the faster he can understand and use it"*.

In the video production stage, Kuaishou developed a deep learning engine, AI technology and AR algorithms which helped it become good at face recognition, posture estimation, and body recognition. These allow Kuaishou to recognize and understand the characters, scenes, language, and other content in the video. Moreover, there are a variety of pre-set special effects and background music to choose from in the software. Some interesting video effects and automatically matched background music provided by Kuaishou can also make the production of short videos much easier.

As one senior manager said:

"People think that making a video is incredibly hard. It feels very complicated because you have to use a camera to shoot it and then you have to edit it and things like that. But today, you'll find that we've lowered the editing barrier through technology, allowing you to add any filters, effects, or backgrounds you want. The most important thing is that you can add music to the video. Because music can express emotions, adding music improves the whole video"

qualitatively.”

4.1.2 Fair recommendation mechanism

After the video has been uploaded, the next problem is how to attract an audience. Kuaishou has developed an algorithm based on decentralized logic. Such an algorithm ensures that the content of every user has an equal chance to be seen on the platform.

Firstly, on Kuaishou’s platform, videos uploaded by internet celebrities and BOP users are distributed equally. A very famous movie star is not different from an ordinary person on its platform as Kuaishou does not deliberately influence user habits or trends on the platform. Content recommendations are all based on machine algorithms without any manual interventions. The only logic that defines the popularity of a short video is its content and users’ preference. With the help of algorithms, Kuaishou enables the machine to understand users’ habits and their interests; thus the recommendations which users receive are based on their preferences.

Secondly, on other platforms such as TikTok, videos featuring big-name influencers or flashy dances can rack up views quickly because as a video becomes popular, Tiktok gives it more public traffic making it much more popular. However, Kuaishou’s algorithm intentionally steers users away from videos once they reach a certain number of views. This approach makes it much easier for users that are not so popular or maybe new to the platform to get a chance to rise in the rankings.

“If you give a star 10 million views, he might not feel anything,” said a Kuaishou Senior Vice President; “But if you give that traffic to 1,000 ordinary people, each of them will gain 10,000 views. This is a huge thrill for them. Under such a stimulus, someone might have the opportunity to get more attention, and he or she will be more confident and motivated to do something better. Therefore, you don’t want to discount that little bit of random quantity of views. It’s such a little bit of random quantity of views that gives opportunity to ordinary people.”

Thirdly, unlike TikTok, where a large amount of public domain traffic and a limited amount of private domain traffic is distributed, Kuaishou distributes a small amount of public domain traffic to its users. Therefore, the ordinary users, most of which are BOP users, can build close

relationships and strong ties with their fans. Then, they can develop their social networks and build social capital through these connections with fans.

4.1.3 Bespoke training programmes

Due to the large size of the marginalized communities, encouraging and supporting more people from these communities has a profound impact on the development of the platform. This is because these users can provide a large amount of high-quality and diversified content. These potential users do not lack ideas and stories, they also do not lack creativity. They have long been limited by the lack of channels to communicate with the outside world and the lack of experiences and skills for making videos. The Kuaishou platform has adopted targeted programs and policies to improve the ability of these users and help them develop their confidence and capabilities.

Kuaishou provides direct training and support for grassroots entrepreneurs. Kuaishou has launched the ‘Rural Anchor Growth School’ and the ‘Kuaishou Class’ on the platform to help people in poor areas to learn skills such as content creation, live streaming and new media operation. Such schools and classes not only provide a comprehensive training system for these entrepreneurs but allow them to communicate with other users.

In addition, Kuaishou has launched some special programs for these entrepreneurs. For example, the ‘Ten Thousand Village Anchor Cultivation Plan’ is mainly designed to accelerate the growth of BOP entrepreneurs in poor rural areas into more professional anchors through traffic support and subsidies in their different stages of development. ‘Happy Village Plan’ will invest 78 million USD worth of traffic resources in three years to help BOP entrepreneurs to promote and sell local high-quality speciality products. Through supporting multi-channel network (MCN) organizations in the field of agriculture, rural areas, and rural residents, organizing professional training, and integrating and optimizing supply chains, the ‘Cultivation Plan’ enables producers to become sellers, agricultural products to become regional symbols, and farmers to earn money from the fields.

4.1.4 Interaction mechanisms

Kuaishou has also designed a variety of social functions on its platform, including following, commenting, thumbs up, same-city, same-theme creation, etc. It also designed the live-

streaming function which is the most direct way for users to interact with each other. These functions bring together users who have similar characteristics or interests and this effectively expands the same-layer and cross-layer social network of the BOP population, thus helping them to build a diversified network and social capital.

Through the continuous releasing and watching of short videos on the platform, the connection between information and people is transferred to the connection between people. Therefore, during the production and consumption process, users constantly interact with each other. Moreover, because the connection is formed based on common values, this deepens interpersonal relationships between users and creates strong ties. Such expansion of same-layer social networks will eventually coalesce into massive online communities where BOP people can develop an identity and a sense of belonging. For example, there are tens of thousands of truck drivers who use Kuaishou to record their daily lives, this has made Kuaishou an integral part of their lives.

A large number of short videos serve as records of the talent, life and work experiences of BOP users' daily work and life. Moreover, a content connection can be easily transformed into an emotional connection, which also enhances the social ties between BOP and TOP users. One Kuaishou staff member said,

“As many grassroots anchors in Kuaishou don't have a large number of fans, they attach great importance to each fan. Users from both rural and urban areas often interact with each other, so it's easy to form a close community. On the contrary, if a star has a million fans, it's hard for him to take care of every fan's feelings”.

4.1.5 Monetization mechanism

Kuaishou has designed a profit model which features several ways to support the commercial realization of marginalized communities. By shooting and sharing short videos, BOP users not only express their opinions and gain recognition from the outside world but also reap economic benefits. On the Kuaishou platform, there are three ways for BOP users to earn money. The first way is by selling local products with the help of e-commerce, which is regarded as a content-based model. The second way is by receiving rewards from their followers during the process of live streaming, which is regarded as a relationship-based model. The third way is the combination of the former two models, which is selling goods during the process of live

streaming.

The first model is also regarded as an e-commerce mode because the content of short videos is related to specific products, so the user can earn income by selling these products. Since the content produced by BOP users is usually related to their lives and living environment, there will be some displays of agricultural products with special local features. It is surprising and interesting to note that this model was not originally designed by Kuaishou. When the platform was originally designed, it did not contain any trading function. During the process of watching short videos, many users were attracted by the things (e.g. vegetables, fruits, or honey) shared by BOP users, and then contacted the BOP users to indicate their interest in purchasing them. To help these BOP users to sell products, Kuaishou launched the function 'Kuaishou Store' on the platform. This store is online and is specially designed to help BOP creators with commodity display, order processing, logistics and other issues. In 2020, the number of transactions made by creators from these communities on the Kuaishou platform exceeded 50 million.

In the case of direct interaction between BOP users and their followers in the online live streaming chat room, the users usually provide various forms of services, such as singing, dancing, or performing. Then, if their fans think they have performed very well, they can earn rewards from their fans. This is the most direct way that users earn a profit, which can be completed directly online. The interface design by Kuaishou featured a waterfall-style display, which can help these users have timely feedback from their fans and improve the communication between the two sides.

The final monetization model is selling products during live streaming. In the live streaming chat room, users interact with their followers and display and introduce the products. For example, they may taste the food, use the products, or just introduce the special features of the local products. In this mode, BOP users can sell their products, as well as others' products.

Overall, more than 6.64 million users in poor areas have earned income on the Kuaishou platform during the period 2019 to 2020. Unlike a fully market-based business mechanism, Kuaishou's monetization mechanism is based on the trust between the users (both video creators and consumers) of the platform.

According to a senior manager in charge of the commercialization of Kuaishou:

“No one can successfully sell goods on Kuaishou at the first step, it is impossible. For example, if he sells a product directly on the live broadcast, no one will buy it. He needs to create a lot of content that is closely related to the production of the product and his personal life to win the trust of users. Users will buy only if they trust him. This business transformation process is based on a very deep emotional connection.”

4.2 Grassroots entrepreneurship

4.2.1 Rise of grassroots entrepreneurs

Kuaishou has led to the empowerment of many users who are engaged in agricultural production in the rural areas of China. They have gradually been transformed from ordinary producers to short video entrepreneurs. During this transformation process, Kuaishou has offered a lot of help. In the early days of the short video industry, these BOP users did not have a clear commercial purpose but were more focused on expressing themselves, sharing their opinions and being recognized by the outside world. The technology empowerment and capability training of Kuaishou enabled many BOP users to participate in the platform as Kuaishou's fair distribution algorithm allowed many BOP users to receive attention.

The expansion of social networks and the increase in traffic created new business opportunities and the possibility of obtaining economic benefits. Therefore, during the process of sharing short videos, some grassroots users became aware of the business opportunities in the market. To take advantage of this, they intentionally watched other people's short videos and analyzed the data of their short videos to create better content that can satisfy market needs. Live streaming, for instance, requires more comprehensive capabilities as it involves direct interaction with other users. Some grassroots users realized the business opportunity and tried to carry out small-scale and informal commercial transactions to explore the opportunities it presented.

Finally, as the short video market grew rapidly, more BOP users became involved in online and offline business activities and became grassroots entrepreneurs. They have been deeply involved in multiple parts of the trading process, covering the entire value chain which contains value creation, transfer and acquisition. The online and offline resource integration, as well as the task diversification, pushed these users to keep learning and practising. Therefore, many

BOP users are no longer responsible for the low value-added part of the value chain. Instead, they have become BOP entrepreneurs with higher bargaining power and marketing capability, have market consciousness and are familiar with market rules. To help rural entrepreneurs improve their skills, Kuaishou also organizes online and offline training for these entrepreneurs, providing them with centralized training and branding resources.

“Rural users can not only find business opportunities on the Kuaishou platform but also find a group of like-minded partners to learn systematic entrepreneurial knowledge and share their entrepreneurial experience so that they will no longer be alone in their entrepreneurial journey,” said a project leader.

4.2.2 Marketization of grassroots resources

In rural areas of China, the populations have diverse kinds of resources, such as labour force, housing, land, natural resources and other forms of tangible assets. However, most of these resources do not enter the market and therefore become dead capital. This is due to the information asymmetry between these populations and the external market (De Soto, 2000). However, with the help of Kuaishou, these users can build many external ties and connections, and thus engage in commercial activities. These connections not only reduce the information asymmetry between BOP entrepreneurs and the external market but also allow the utilisation of local dead capital in the market. The capital and resources then become entrepreneurial resources that can support these entrepreneurs to compete in the market.

There are many products with different kinds of features in the BOP environment. However, most of these products have only been consumed in the local market (e.g., small villages and towns) for a long time. Other people who may be interested in these products but live in big cities do not have access to buy or even know about them. The result is that most of these products can only be sold at a very low price and cannot achieve a higher market value. Kuaishou recognized this problem and launched the Kuaishou platform where these entrepreneurs can create content based on the products or present them to potential customers through live streaming. Thus, these products can be sold in a larger market at a higher price, or at least be recognized by more potential customers.

With the enlargement of the scale and scope of their business activities, a lot of these entrepreneurs have been mobilizing and encouraging their neighbours, relatives, or friends to

make or at least watch short videos. Even though these people might have initially not been interested in watching or making short videos, the success of grassroots entrepreneurs has made them more willing to try. As one Kuaishou entrepreneur said: *“My family and friends thought I was wasting my time shooting short videos when they didn't understand what I was doing. Later, when they found that they could make money on the platform, they were all happy to join in. Some worked with me, some asked me to help sell their speciality products, others just start making short videos to sell their local products.”*

In short, the essence of this kind of BOP resource marketization is to reduce uncertainty and information asymmetry by forming and expanding the connections between BOP-related information and people in the outside world. By doing so, the connection between users on the Kuaishou platform and BOP goods, the connection between users and BOP services, as well as the connection between users and other BOP business forms can also be formed. Therefore, a whole business ecosystem based on the BOP population can be established.

4.3 Enablers of a BOP friendly business model platform

Certain contextual factors in China have contributed to Kuaishou's success and BOP entrepreneurship. BOP entrepreneurship has benefitted from broader changes in the Chinese economy especially in the developments of complementary conditions needed for the growth of the short video industry such as internet access, smartphone affordability and implementation of relevant policies.

4.3.1 Investment in digital infrastructure

China has witnessed a rapid explosion in internet development such that by the end of 2008, China overtook the United States to become the largest internet user in the world (Liang and Lu, 2010). In 2013, the country's national broadband plan mandated operators to deliver fixed broadband connections to at least 50% of households by the end of 2015. In 2015, the Chinese government announced plans to invest \$22 billion in the provision of broadband infrastructure in rural areas (PWC, 2015). These investments have led to widespread internet access and the development of last-mile network infrastructure in rural communities. The number of internet users in China reached 854 million by June 2019 while the internet penetration levels reached 61.2%. In rural areas, the number of internet users by the end of 2018 was 225 million, accounting for 26.3% of the total internet users in China. Also, internet penetration in rural

areas was 38.4%, an increase of 3.0% compared to the previous year. The total users of short video platforms reached 648 million by the end of 2018 (CNIC, 2019).

4.3.2 Increased accessibility and affordability of mobile phones

The growth of affordable Chinese smartphone brands has led to significant price reductions thereby making smartphones affordable to the farmers. Competition between smartphone companies has contributed to the decrease in the price of smartphones and the inclusion of cameras, beauty software and video processing software in these phones makes it easier for BOP users to shoot videos with little or no experience. In addition, the popularization of Wi-Fi and 4G networks and reduction in internet tariffs have all contributed to the increased access for members of the BOP to short video platforms. All these factors have collectively lowered the barriers to short video apps. Kuaishou has also benefitted from the positive externalities associated with the rise of other short video platforms such as TikTok, Tencent WeSee, and the technological progress in the digital industry. From 2G to 3G and then 4G, the information richness contained in the carrier, video instead of text messages and audio messages, is constantly increasing. Short videos can present richer content compared with other carriers. Thus, short videos not only intuitively and comprehensively satisfy users' demands for expression and communication but also conform to the fast-paced and increasingly fragmented work and life scenes in the era of mobile internet.

4.3.3 Institutional support

The e-commerce law formally implemented in 2019 provided a regulatory framework for the sale of goods and services through the internet. This has significant implications for commerce on the short video platform as it safeguards the rights and interests of parties involved in e-commerce. The law also has provisions addressing issues of intellectual property protection, fair market competition and consumer protection. These provisions increase the confidence of people participating in trade on short video platforms. Also, the government's commitment to the development of the short video industry is reflected in the introduction of regulations such as 'management standards for online short video platforms' and 'detailed standards for the review of online short video contents'; both are designed to encourage quality upgrading of content on these platforms.

4.4 A model to support grassroots entrepreneurs

The factors discussed above allow many people from marginalized communities to have access to the internet through their mobile phones, thereby allowing them to watch and share short videos. The short video platform business model supports grassroots entrepreneurs to create content at a very low cost and further helps them to form new social and commercial connections. To be more specific, the short video platform business model empowers these entrepreneurs mainly in five aspects, which are technology, algorithm, training, development of confidence and social contact, and earning money. These five aspects of platform empowerment are not separate from each other, they are closely related and jointly promote the transformation of ordinary users in rural areas to become BOP short video entrepreneurs.

Moreover, many BOP users pay attention to learning and keep upgrading their capabilities. With the efforts of BOP entrepreneurs, all kinds of idle resources in the BOP environment are integrated into the commercial ecosystem. BOP entrepreneurs thus create value from idle resources. Integrating and utilizing resources is a kind of training for these entrepreneurs and these two mechanisms are mutually reinforcing.

Based on the above analysis, this paper regards empowerment as the main mechanism to promote grassroots entrepreneurship. With the help of this empowerment, BOP users can have equal opportunities to compete in the market, create value and share benefits with other BOP users. Here, we want to emphasize that both the development of the short video platform business model and the BOP short video entrepreneurship rely on the support of the external technological, economic, and social environment. Their relationships are shown in Figure 3.

[Insert Figure 3 here]

5. Discussions

Based on the case study of Kuaishou Company, this paper discusses how the digital platform-based business models support marginalized people to start their businesses. It also shows how the empowerment mechanisms facilitated by the platform and the support provided by the external environment contribute towards that effect.

Based on this in-depth case study, we develop a conceptual model that helps to explain how this process works. The model emphasizes that the function and mechanism of the business model of the short video platform can effectively integrate BOP people into the mainstream

business system. During this process, part of the BOP population also completes the dual transformation of identity and role by integrating and utilizing all kinds of resources in the surrounding BOP environment and further realizing self-value and economic benefits through a variety of creative market activities. By doing so, they complete the transformation from agricultural farmers to internet grassroots entrepreneurs.

5.1 Theoretical contributions

Our study is based on entrepreneurship and innovation for poverty reduction literature (; Alvares et al., 2015; Si et al., 2015) platform-based business model literature (Heeks, 2010; McGrath, 2010; Foss and Saebi, 2017) and literature of value creation (Zott and Amit, 2007; Casadesus-Masanell and Zhu, 2013).

The paper first contributes to the business model innovation and poverty reduction literature by revealing a new business model, which includes the poor in mainstream value creation activities without the requirement for initial capital investment. We discover the function and mechanisms of this business model and explain how BOP people are effectively integrated into the business system based on the contents they produce and subsequently being transformed into entrepreneurs. We thus extend the extant literature and connect innovation with poverty reduction. We also contribute to the literature on digital technology and poverty reduction by exploring a new type of digital platform, the short video-based platform, which may have a deeper poverty reduction effect through BOP entrepreneurship development as it does not require initial capital investment.

This paper expands and deepens our understanding of BOP entrepreneurship as it places BOP entrepreneurship in a digital content platform scenario and investigates how BOP groups seize new opportunities in the era of the digital economy, improve their capabilities and increase their income. This is critical as existing scholarship mainly focus on a need-oriented entrepreneurship perspective which underestimates what entrepreneurship can achieve in poverty alleviation (Bruton et al., 2015; Alvarez et al., 2015).

Moreover, different from the previous literature that suggests that BOP entrepreneurs lack resources and face many constraints to participate in economic activities, our study demonstrates that poor people can participate in economic activities on the digital content platform. Similar findings can also be seen in the Yiwu offline poverty alleviation model (Si et

al., 2015). This paper therefore confirms the important role of establishing and utilizing social capital and bridging capability development and community empowerment through learning by doing (Ansari et al., 2012).

Secondly, this paper adds new content to the BOP business model innovation literature. In the existing literature, even though scholars have emphasized the importance of business model innovation, they always study it from the perspective of multinational firms or incumbent firms entering the BOP market from the outside (Seelos and Mair, 2007; Sánchez and Ricart, 2010). Moreover, extant literature often claims that the BOP market faces various constraints such as weak infrastructure, institutional void, heterogeneous demand, no purchasing power and poverty penalty, etc. (De Soto, 2000; Viswanathan et al., 2008; Mair et al, 2012). However, this paper complements the literature by showing that business model innovation can also be driven by advances in digital technology and can bypass the above-mentioned constraints. Thus, BOP entrepreneurs themselves become one of the core elements of the new business model, and they can create value based on the development of content-based virtual products and services. Such digital technology-driven BOP business model innovation therefore helps design new value creation models digitally and provides BOP groups with entrepreneurial opportunities.

5.2 Practical implications

There are two practical implications suggested by this paper. First, in the digital world, the capability building of BOP groups needs time and there is also a process for BOP groups who wish to play a role. During this process, the BOP group needs to gradually become familiar with the rules of digital content creation, doing business, and integrating into the commercial ecosystem. Thus, companies trying to develop these new business models need to be patient and their responsibility is to design a mechanism that can give the poor people more opportunities to try, practice, and learn. Due to the huge size of the BOP group, once the poor people overcome the entry barrier of the digital platform, a strong network effect is created.

Second, this study finds that for BOP people and communities, social orientation is an important characteristic. That is to say, BOP people think that interpersonal interaction and trust are most important, whether it is offline or online. In Kuaishou's case, interpersonal connections around content usually precede the construction of commercial connections.

Therefore, the marketization of BOP resources is often based on the relationship between social capital and trust.

The findings of this paper also have implications for policymakers who want to encourage private companies to get involved in poverty alleviation in the digital age. Kuaishou's business model innovations are based on a series of conditions including the availability of the internet infrastructure, the sharp decrease of smartphone prices and internet fees, and the improvement of electronic commerce facilities (such as convenient online payment and logistics supply chain). These conditions are far beyond what a single private firm can or is willing to undertake. Thus, it not only requires government planning, investment and construction but also depends on the stage and degree of development of the overall digital commercial ecology. The government does not have to get involved in specific, micro-level products or business model innovations but should provide an infrastructure suitable for BOP innovation and entrepreneurship. The government also needs to introduce policies to regulate the business model innovation of the BOP group to avoid infringement of the rights and interests of the BOP group.

5.3 Limitations and future direction

The research reported in this paper has some limitations that open up avenues for future research. First, relying on a single case study makes it possible to obtain deep insights concerning mechanisms designed to involve the BOP group as entrepreneurs, but it limits its generalizability. Future research can expand the number of digital platform companies to enrich, modify or refine the conceptual model established in this paper. Second, the research in this paper is rooted in the specific context of China, which invites scholars to test the findings in other countries or settings to see the external validity and make cross-country comparisons. Such comparisons could help tease out some of the important idiosyncrasies, and provide lessons learned from one jurisdiction to others (Hall, 2014). Finally, this paper mainly focuses on platform enterprises, the BOP population, and their relationship; it does not discuss the roles and functions of other related stakeholders but successful BOP innovations usually require collaboration with other intermediaries and the State (Rivera-Santos et al., 2012; Ramani and Mukherjee, 2014). Therefore, future studies can take into consideration other enterprises, social organizations, NGOs and government departments that can influence the construction of digital platforms.

6. Conclusions

The purpose of this paper was to investigate whether a digital technology-based platform business model can foster entrepreneurship in marginalized communities. Kuiaishou, which is an emerging giant in China's short video industry was used as a case study. The analysis of Kuaishou's business model innovation and its influence on BOP groups revealed that leading enterprises can help BOP people to better create and obtain value on the platform by designing five interrelated empowerment mechanisms.

Our study has shown that through digital technology innovations and functional designs, the entry barriers have been greatly reduced so that BOP people can easily enter the platform and become content creators. They, therefore, go from the demand side to the supply side on the platform. Furthermore, the establishment of a fair algorithm distribution mechanism, which allows an unbiased distribution of traffic, can further reduce the Matthew effect, where the rich get richer and the poor get poorer. Every BOP creator can benefit from this fair algorithm and their enthusiasm can be maintained for a long time.

The study also confirms that the internet traffic monetizing mechanism enables BOP users to create value by selling commodities and receiving rewards from their followers in the process of live streaming. The effectiveness and efficiency of this kind of revenue generation is based not only on the ability of BOP users and their social capital but also on the support extended by the platform provider. Finally, BOP creators can continuously enhance their marketization consciousness and entrepreneurial ability and drive the local BOP resources around them to be involved in the marketization process. This process recognizes the closed-loop of value creation, value transmission, and value acquisition. BOP entrepreneurs often create content based on their local resources and environment, which reduces the information asymmetry between them and the external market. The idle resources in the BOP communities are signalled to the outside world, thus stimulating the market potential of BOP entrepreneurs.

In summary, this study has proposed a novel approach to the empowerment of BOP communities in the digital economy. It has shown how a digital technology-driven model can be designed to overcome the physical and institutional constraints which typically limits the participation of BOP members in economic activities. Specifically, it has illustrated how reducing the barriers to the participation of BOP members in digital platforms can promote their involvement in value creation while empowering them socially and economically.

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Fig 1. Users on both sides of the Kuaishou platform business model

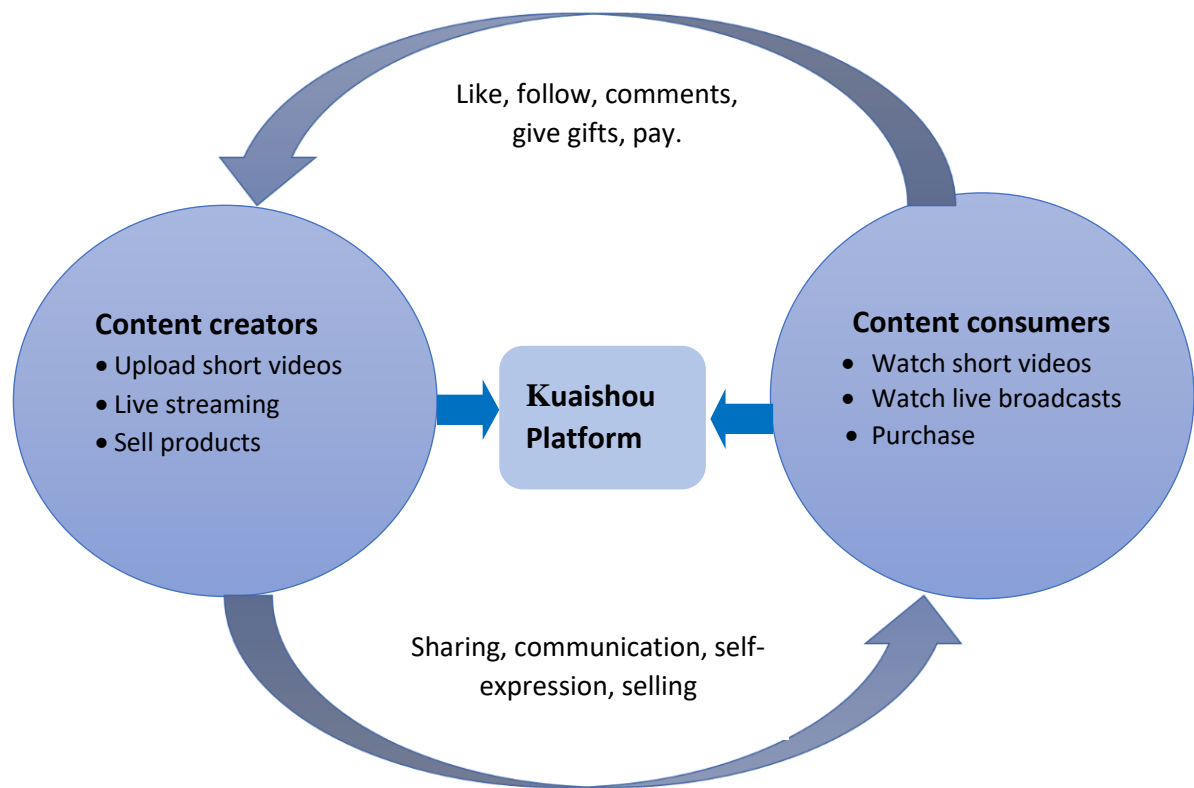


Figure 2. Kuaishou and users' value creation: A path diagram

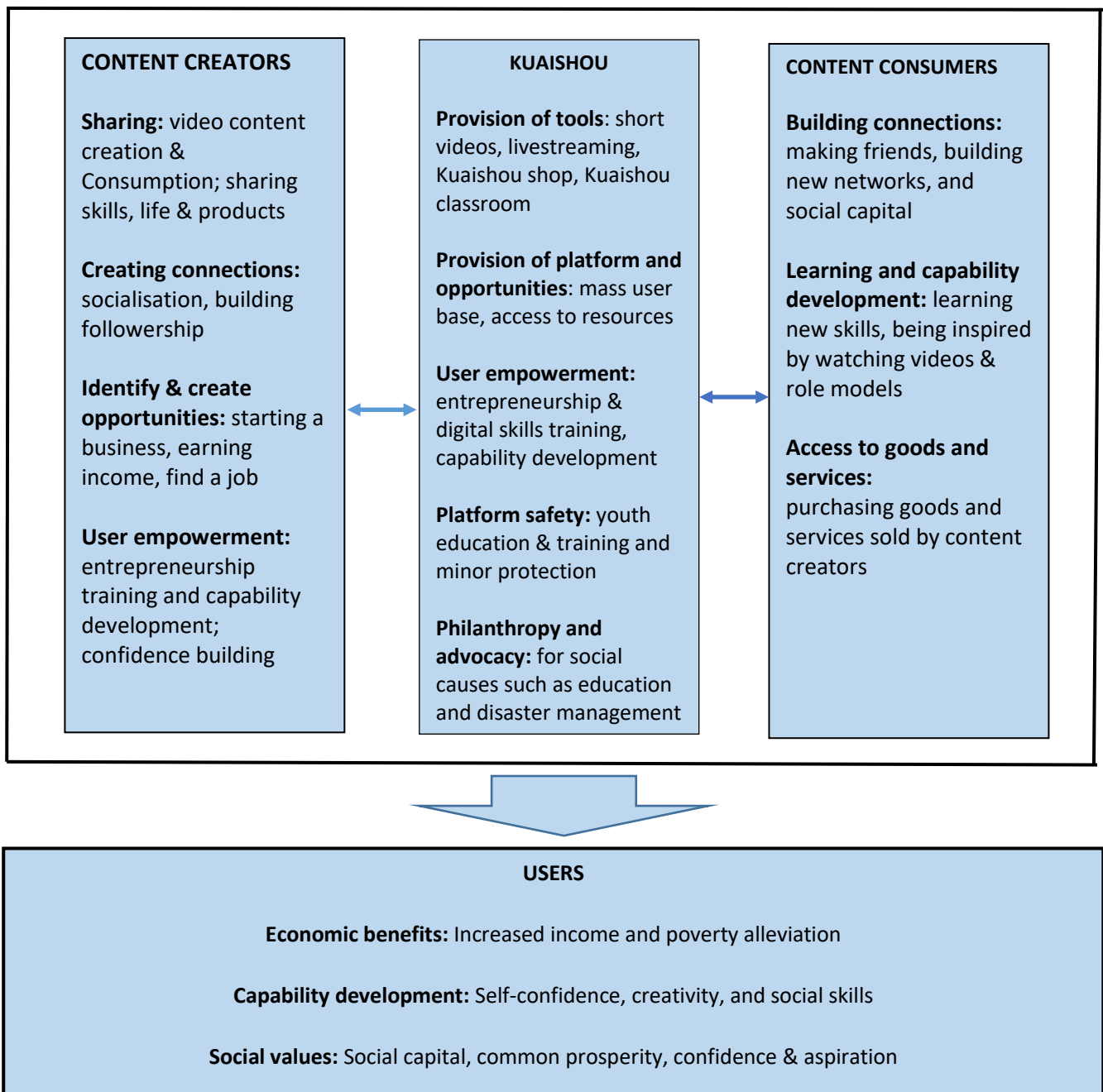


Figure 3: Conceptual framework of short video platform business model and BOP entrepreneurship

