Research on the Development of Image Processing Software Industry - Taking "Meitu Xiuxiu" and "Xingtu" as Examples

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Abstract. This research starts with an analysis of the operating models of two major image processing softwares, Meitu Xiuxiu and Xingtu, and then explores the changes and operating rules under new technological conditions. The study focuses on these new changes under the conditions of popular demand and new technology, and concludes on how to attract users as well as increase user stickiness and enhance the business value of the Meitu platform. The aim is to analyze the development path of the image beatification software industry. As the originator of photo retouching software, Meitu was once a must install software for many girls who loved beauty. It started at the peak and relentlessly developed corresponding mobile phones and original beauty brands. From the initial valuation of more than 10 million yuan, it is not difficult to found the expectation of the capital market. Given the fact that the world is in an era of VUCA (volatility, uncertainty, complexity and ambiguity), the VUCA will determine the unpredictability of changes in the pattern of current business world. To sum up, Meitu should dig deep into the content and build the content ecological core in the "beauty" field of its expertise.

Keywords: Image processing software; digital ecosystem; socialization mechanism.

1. Introduction

With the boom in the self-publishing short video industry, photography and image software is constantly evolving. The development of new information technology promotes the birth of photo and video processing software and all kinds of photo retouching Apps. Compared to the complex photoshop and other early computer-based professional software, these Apps have added convenient mobile phone mobile functions such as one-click portrait, picture processing and one-click video creation. Even the communication medium has completed the construction from a single image processing to a digital ecosystem, however, the emergence of social platforms for image and short video sharing provides a connection between creators, works and the public. For the development mode of the software platform, the real dilemma of image retouching software lies in the "booming development of short live videos and relatively rich social methods", "easy access to free resources and users' willingness to pay ground" and "insufficient grasp of demand and insufficient degree of satisfaction".

2. Literature Review and Market Analysis

In the age of face-gazing, modern people have long been addicted to selfies and photo retouching. Beautification tools have been developed since 2006, when "Light and Shadow Magician" swept the streets. Since then, various image processing Apps have emerged and blossomed everywhere. According to Aurora's data statistics, among the post-95 female group, Meitu Xiuxiu accounts for 22.4% of users, ranking first, while Faceu and Beauty Camera occupy the second and third places with 15% and 14.3%, respectively. With the help of the two "star products", Meitu Xiuxiu and Face Beauty Camera, Meitu has become the dominant player in this market [1]. However, with the rapid development of the mobile Internet, the market landscape has also changed. With its "simple and literary" style that is different from other photo retouching Apps on the market, Xingtu was ranked 38th of the "Free App Ranking" in the App Store. It was ranked No.1 in the category of photo processing Apps, with an average of 72,813 daily downloads in the past 30 days.

According to the "China Beautification Shooting App User Marketing Value Insight Report" released by Ai Rui Consulting in 2020, as of December 2019, the number of monthly active users of the Beautification Shooting App reached 300 million, and the penetration rate of the App was 20.3% [2]. On the other hand, according to the "Metu Corporation 2021 Midterm Report", as of June 30, 2021, the average number of monthly active users in the beautification shooting category App reached 240 million [3]. Compared with the annual average monthly active user size of other categories Apps, such as food delivery, online travel, fitness and sports, etc., the overall user flow of the beautification shooting category Apps are relatively larger.

Although the market is hot, many comsumers are not optimistic about this market and industry. The old photo retouching software Meitu accumulated hundreds of millions of users in the first half of the mobile Internet competition, and its market value was close to HK$100 billion after its listing in Hongkong, but it has fallen off sharply since that proserity, with its share price now hovering around HK$2.50. In the first half of 2022, Meitu's total operating revenue is only RMB 1.051 billion, up 20.69% year-on-year [4]. Its net loss is RMB 266 million, expanding 106.93% year-on-year. Meitu has never made a profit in the nearly six years since it was floated on the stock market, and losses have become the normality for Meitu [5].

3. Analytical Framework

3.1 Research Object

This study takes Metu Xiuxiu and Xingtu as examples, and the main user groups of the two image processing Apps will be analyzed. Gender analysis reveals that the whole users are 64% female and 36% male. In terms of users' age, users under 19-year old account for 21% of the whole users , 20-29 year old users account for 23%, and 30-39 year old users accounted for 36% [6]. Obviously, the user groups are mainly young and middle-aged people. As for the regional distribution of users, according to the Baidu index, Guangdong, Henan and Shandong have the largest number of users, followed by Jiangsu and Zhejiang [7].

3.2 SWOT Analysis

The study analyzes the various environmental factors during the operation of Meitu Company, including external environmental factors and internal capacity factors. At the same time, a comparative analysis of its strengths and weaknesses is carried out. These comparative analyses includes competitive dynamics, corporate image, technological strengths, scale effect, product quality, market share, cost advantage, advertising campaigns, etc. Finally, there are opportunities and threats, which are factors external to the organization, including new products, new markets, new demand, substitute products, market tightening, changes in customer preferences, etc.

4. Practical Dilemmas and SWOT Analysis of Related Platform Companies

4.1 Reduced Online Traffic

The business structure of Meitu is also changing, and the business that were dependent on online traffic is declining. Meitu's revenue is divided into five business segments, namely, online advertising, VIP subscription services, SaaS and related services, Internet value-added services, Tattoo marketing content solutions and others, with corresponding revenue percentages of 26.23%, 34.92%, 23.33%, 4.30% and 11.23% respectively in the first half of the year [8]. Among the three businesses with the greatest revenue weight, advertising revenue declined and has been trending downwards in recent years [9]. It fell from 76.89% in 2019 to 26.23% in the first half of 2022, and Meitu attributed this decline to the impact of pandemic. According to data from recent three years, advertising revenue of 255 million yuan in the first half of this year was down 35.1% from 393 million yuan in the same period of the previous year. In the first half of 2020, the advertesing revenue is 319 million yuan.

In this case, Maybe the pandemic is not the only reason. The starting point of value for internet platform companies is online traffic. The online advertising business is the basic form of converting online traffic into cash, and the changes of advertising revenue are often in direct proportion to the increase or decrease of online traffic. The number of active users in Meitu has declined significantly. at the time of its IPO in 2016, Meitu had 456 million monthly active users for all its products, and 261 million and 231 million in 2020 and 2021 respectively. in the first half of 2022, this figure rebounded slightly to 241 million. With fewer monthly active users, Meitu focused on tapping into the value of its stock users. VIP subscription services jumped to Meitu's No.1 business in the first half of the year, bringing in nearly 35% of Meitu's revenue [10]. About 5 million VIP members paid nearly RMB340 million in subscription fees for Meitu, with an average revenue per paid user (ARPPU) of RMB67.

But this year's jump in VIP subscription business has generated a lot of controversy. On a complaint platform, a large number of users complained that they were forced to pay 98 yuan for a VIP annual membership after opening "a 7-day trial of Meitu". This shows that some users are less willing to pay, which will also pose a potential problem to the stability of Meitu's future subscription business. On the one hand, Meitu wants to update its features and retain users with its products; on the other hand, it is under pressure to grow its performance and set a threshold for payment. For Meitu, it is difficult to maintain a closed loop of payment by relying on features, as there are many alternative products in the image service field.

4.2 Lack of Innovation and Low User Stickiness

Image processing and retouching Apps are tools with a high degree of homogenization. The market is flooded with a variety of photo processing and retouching software, for example, Meitu Xiuxiu, Beauty Camera, Camera360, Daily P, etc., but it is difficult to foud the characteristics of each tool. For most users, these photo processing applications seem to be carved out of a same mold. The main reason is that the threshold of these products is too low, and the products have low technology and high replicability. Consequently, these products face the problems such as low user loyalty and easy to be copied and replaced.

4.3 Less Profitable Ways

For most of the photo processing and retouching software on the market, the main way to make money through online traffic is advertising. However, compared to social communication software, the value of advertising in tool products such as Metu is relatively low. This is mainly due to the fact that tool-based products address a single user need, and user's retention time is very short. The use of occasions also lacks extensibility, so the value of advertising is not high. At present, the profit function of these products is incomplete, and only stickers, filters and other materials need to be paid. Advertising business is a profitable way to expand the market and attract users, and it will be possible to introduce e-commerce in the future.

4.4 Operation Comparison between Meitu Xiuxiu and Xingtu

As two major Apps in the image processing and retouching market, Meitu Xiuxiu and Xingtu have won the favor of many users and occupied a large market share. This study adopts the method of SWOT analysis to compare the product operation and market competitiveness of the two Apps. Their advantages, disadvantages, opportunities and threats are shown in Table 1.

Table 1. Comparative analysis of Meitu Xiuxiu and Xingtu

App	Meitu Xiuxiu	Xingtu
Strengths	1. High market share, wide popularity and large user base 2. The community has complete functions and active users 3. Fully functional, deeply integrated into users' daily life, providing users with diversified use scenarios	1. Free advertising free, simple page, simple operation 2. More in line with the aesthetic of modern young people, and the effect is natural and realistic 3. Keep up with social hot spots, with various models and functions 4. The image processing function is powerful, and the portrait recognition function is more intelligent and accurate 5. Be good at making use of the popular social media platform to publicize, and release teaching videos by using Little Red Book and Tiktok, so that users can more fully master the use of software
Weaknesses	1. The structure of the software page is complex, the function is disordered, and the user experience is poor 2. A large number of advertisements are easy to cause user solutions 3. The exclusive function of paid VIP is not enough to attract users, and users' willingness to pay is low 4. The quality of materials is in line with the rules, and the degree of interest is not enough	1. Late entry into the market and weak user base 2. Lack of some core functions of drawing repair software 3. The user's score is low, and the software has some hidden problems 4. The image compression quality is serious 5. Lack of building a social platform and community function
Oppotunities	1. The rapid development of artificial intelligence promotes the improvement of product technology 2. Build a competitive barrier by using years of accumulated technical experience Form a strong correlation ecosystem with Meiyan Camera/Meipai and other apps	1. The rapid development of artificial intelligence promotes the improvement of product technology 2. Use byte's products with large traffic to promote and drain
Threats	1. There are many free apps in domestic competition, and the market competition pressure is high 2. The advent of 5G era, the rise of live broadcast and short video, and more abundant social ways 3. The profit method is relatively simple, and the user's willingness to pay is low	1. There are many free apps in domestic competition, and the market competition pressure is high The advent of 2. The advent of 5G era, the rise of live broadcast and short video, and more abundant social ways 3. The profit method is relatively simple, and the user's willingness to pay is low

5. Conclusion and Countermeasure

This paper mainly analyzes the development mode and industry status of the image processing software. Based on the data analysis in recent years, the photo retouching Apps represented by Meitu Xiuxiu and Xingtu are facing the problems of continuous loss of users, insufficient product innovation, simple profit model, etc. How to attract more users through strengthening technological innovation and market change to achieve sustainable profits has become the core problem that such software enterprises need to solve urgently. Thus, the study gives corresponding countermeasures.

First, the platform companies should enter the overseas market. In fact, the domestic market has long been saturated, and it is a good choice to go overseas at this time. Back in 2018, BeautyPlus, the imaging App of Meitu, surpassed 300 million overseas users. Zynn, the overseas version of Racer, has also been gaining momentum. Zynn shot to No.32 in the entertainment category in less than a week after its launch on the US App Store in May last year. So the companies should consider expanding the market and thus tap more users.

Second, the companies should meet users' personalized needs through technological innovation. For example, based on MakeupGan (Makeup Generative Adversarial Networks) network architecture, Meitu has developed a new makeup migration technology, also known as the "one-click makeup imitation" function. To attract male users, Meitu has also introduced a "boy mode", which makes it simple for straight men to take good-looking photos.

Third, the companies should combine with social functions to extend the usage scenario. Tool products have a short dividend period and must be combined with social communication to survive. By building social platforms or collaborating with existing social platforms, users are given the space to share and create, enabling them to achieve online traffic and income, while also gaining visibility through publicity, thus strengthening their stickiness to the software.

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