

# *The Growth and Monetization of PC Games and Mobile Games*

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**Abstract:** For the future university application, this paper carried out research and exploration on this subject, and finally put my success into this paper. My goal is to break down these two game models thoroughly and give the company a better idea of which one is more promising. The main research content is the differences between mobile games and personal computer (PC) games, and the development of these two game modes from early to recent times and changes in market size. Finally, by analyzing their different business sizes and their different growth, we can give game companies, or companies willing to get involved in games, a better idea of which type of game to develop in which situation. After studying historical literature and analyzing various data, the conclusion is that if a company wants to monetize or capture the market in the short term, it can do so through mobile games. Because mobile games are fast to develop, and because the user base is diverse, there are many ways to make money. If you have a long time and enough money, you can develop quality PC games, and you can use that to boost your reputation (if it's good enough).

**Keywords:** mobile games, PC games, market size of game market

## **1. Introduction**

### **1.1. Background**

Games have been popular among young and middle-aged people since the 20th century. From the early days of personal computer(PC)games to the days when almost everyone has a mobile phone, gaming has been a part of growing up. Worldwide, according to the "2022 Global Game Market Report" released by market research agency Newzoo, the number of global game players reached 3.2 billion in 2022, which is expected to generate 19.8 billion dollars in revenue for the game market, with a slight year-on-year growth of 2.1%.

Mobile gaming is clearly the main driver of growth. Revenue from the mobile market is expected to reach \$103.5 billion in 2022, accounting for 53% of the global gaming market and an increase of 5.1% year-on-year. PC gaming is basically unchanged from 2021. According to the report, revenue from digital/boxed PC games grew 1.6% year on year to reach \$38.1 billion, accounting for 19% of the global gaming market. Console gaming revenue will fall 2.2% year on year to \$52.9 billion in 2022, accounting for 27% of the global market. So far, the mobile game market has developed rapidly, so for PC games, it is obvious that it is gradually taking away a

portion of the game market share. This is important for the games industry and for companies that want to get into the games industry, the future of games is critical.

## 1.2. Related Research

Su and Wang studied the industry chain and its business model of mobile games by means of investigation and comparison. Ultimately, they concluded that different game models lead to different monetization methods and profitability for developers, what kinds of games people of different ages are more likely to spend money on, and that the mobile gaming market has greater potential for growth [1].

Liao and Yang studied the profit model and possible risks of the current mobile game market by means of historical literature research, questionnaire survey, survey and interview of game companies, theoretical research and empirical research, and reached certain conclusions: The mobile game market has a two-stage development trend, with shortcomings such as plagiarism, short life cycle, and reliance on ip games. However, as long as we focus on game innovation and other substantive issues and avoid certain risks, it can still develop in the long run [2].

Yang examines the evolution of the mobile gaming industry model, by starting with the gaming industry, examining the development of the platform model, the various modules of the mobile gaming industry chain, and the network effects that drive both product and user growth. The research finds that the industrial chain, as a subsystem module of the platform, only integrates the internal relations of the platform. Mobile game platforms are faced with competition from peers and cross-industry coverage [3].

Taking the PC game industry as the research object, Fang made a comparative study on the online marketing channel mode of PC games based on network effects. Based on network effects, Fang makes a comparative analysis of the channel patterns of PC game industry from three aspects: influence mechanism, development status and typical cases. The industry-leading Battle.net platform was selected for the study as a typical example of the channel model under unilateral network effects. PC game distribution platform Steam is a good example. The results show that under the influence of unilateral network effects, PC game developers tend to adopt the channel mode of self-operated online distribution platform, while under the influence of bilateral network effects, PC game developers tend to distribute their game products through third-party online platforms [4].

Using a combination of case analysis and empirical research, Du analyzed successful cases of popular Y games and summarized the main factors affecting the user engagement of "end-hand" games from the perspective of user engagement theory and flow theory, focusing on the discussion of the specific external environment in China. Factors and relationships that affect user engagement in "end-to-end" games. It is found that the cognitive, emotional and sensory factors of users can all affect the value perception of users to games, and thus affect user engagement. An immersive flow experience can also significantly impact the perceived value of the user, thereby increasing user engagement [5].

Chen used Tencent Games, a subsidiary of Tencent Corp, as an example to study the monetisation model of games. This paper adopts the analysis method of literature research, sorts out and studies the profit models of mobile online games according to the ideas and suggestions of scholars at home and abroad, and finally summarizes the existing profit models of Tencent games, and puts forward constructive optimization suggestions for Tencent games and even the whole mobile online game industry. The case study shows that when analyzing Tencent's game profit model, we should not only consider the influence of its own components on its profit, but also consider the influence of external factors, which has very important reference significance for the improvement and adjustment of other mobile online game industry profit model [6].

Based on the theory of business model canvas, Chen uses literature induction, case study and Petri net modeling and simulation to deeply deconstruct the business model of online games. Starting from the development history of computer client online games, industry status, market analysis, industrial chain deconstruction and other aspects, under the background conditions of analyzing the environment and local environment, this paper deeply summarizes the business model of computer client online games since its birth and the changes of the business model it has experienced, and then carries on the research [7].

Combined with market data, Li elaborated the current situation of online game industry, and introduced the industrial chain composition of online game marketing market and online game marketing channels. Secondly, Li analyzed the problems existing in online game marketing. Finally, based on the marketing theory, the development strategy of the online game industry is put forward [8].

Starting from the evolutionary logic, components and key drivers of innovation of business models, Xie and Cheng combined with existing literature and case studies. On this basis, a theoretical model of business model innovation evolution is constructed, and combined with China's PC online game industry, the evolution of its business model is deeply studied, and finally, the possible direction of future business model innovation of the industry is given [9].

Starting from the industrial chain of electronic games, Han has fully studied the operation process of electronic games. Based on these studies, the paper discusses the value-added space of the electronic game industry and studies the profit model based on the integration of the game industry chain. Finally, the conclusion is drawn that the core value of the electronic game industry is the differentiation of the game content, and the cultural connotation and technical support reflected by it are important aspects to enhance the competitiveness of China's game industry [10].

### **1.3. Objectives**

Therefore, this paper will conduct a profound study on PC games and mobile games to explore the commercial scale of which game mode, and which game market development is more promising and suitable for companies to conduct research and development.

In Chapter 2, this paper will compare the characteristics, growth, and profitability of PC games and mobile games to make the difference more obvious. Chapter 3 will focus on the differences between the two business models. After the previous exploration, Chapter 4 will give a conclusion, taking all aspects together, which games are more suitable for companies to develop.

## **2. The Characteristics and Development of PC Game and Mobile Game**

### **2.1. Characteristics of PC Games and Mobile Games**

There are huge differences between mobile games and mobile games in nature. Mobile games are games based on mobile platforms, usually on phones or ipads, and require very little memory. PC games, on the other hand, are laptop or desktop games, usually made by game companies and sold through intermediate game platforms. Relatively speaking, the memory required by the game package will be much larger than that of the mobile game, but the game's look and feel (such as screen, frame count, operation) will be better than that of the mobile game.

### **2.2. PC Games' Growth Compared with Mobile Games'**

In previous years, the market for console games was much bigger. Because early electronic products just began to develop, computers could carry more content than mobile phones. The quality of PC games was far ahead, with excellent pictures, special effects, plots and details. But in

recent years, the PC game enters the bottleneck period, the development is restricted. Because it takes a long time to develop, and also needs to ensure the quality of the game, novel, research and development costs are also high, so in recent years, high-quality PC games (whether it is a stand-alone game or online game) become less and less. In recent years, with more and more research and development of mobile devices, more games can be carried by mobile phones, and the picture quality, pictures and special effects have become much better. Influenced by changes in the environment and users' entertainment needs, users are more inclined to fragmented entertainment mode, and the convenient, quick and easy operation of the game is more advantageous. This is where mobile devices show their advantage: they are easier to carry than computers. In the market of game users, office workers, students and middle-aged people account for a large proportion. Office workers and students have indefinite playing time, and mobile games that start and stop at any time are more in line with their needs. However, middle-aged people do not have high requirements on the operability of games, so it is easier to get started and interesting to meet their preferences. In addition, the types and contents of mobile games are also continuously enriched, with enhanced interactivity and improved configuration of mobile phones. The market of mobile games is promising in recent years, including the next few years.

### 2.3. Comparison of Profitability of PC Games and Mobile Games

According to data released by Sensor Tower, Mihoyo has made 4.1 billion U.S. dollars (about 28 billion yuan) in revenue worldwide since the game was officially released in September 2020, ranking the third in global mobile game revenue. Overseas markets accounted for nearly two-thirds of that revenue. In particular, Japan generated \$960 million (23.2 percent), the U.S. \$860 million (16.4 percent), and Korea \$250 million (6.1 percent). (until 2022)

《Genshin impact》is an open world adventure game produced and released on September 28, 2020 by Shanghai Mihoyo Yingtie Technology Co., Ltd. The game has caused a huge storm in many countries since its release. As can be seen from the above statistics, by 2022, Genshin impact has been the third highest grossing mobile game in the world, with a cumulative revenue of 4.1 billion dollars in less than two years after its release. Needless to say, as a mobile game, Genshin impact 's ability to attract money is obvious.

PC, which has always been a big game market, grew rapidly from the 20th century to the 21st century. PC game is divided into a variety of network games, single-player games and so on, user stickiness is very large. Grand theft auto5, for example, has been a runaway hit since its release in 2013, selling 175million copies by February 2023 (source: <https://www.statista.com>).

Developed by Rockstar games at a cost of \$268 million, GTA5 has sold more than 90 million copies across the five major game platforms since its release in 2013, with total revenue topping \$6 billion. Not only has GTA5 become the most profitable game in the world, but the stock of Take-two, its parent company, has increased nearly tenfold (according to Dow Jones). Take-two shares have soared 998% since the release of GTA5. GTA5 has shown strong profitability in the game field, with about 268 million dollars of research and development expenses, and achieved nearly 30 times of revenue. It has also driven the stock of the game company, showing its strong profitability.

### 3. Business Model Differences

PC games are divided into several different game modes, two of which are popular: online games (League of Legends, dota2, PUBG, etc.), and stand-alone games (GTA5, Call of Duty series, etc.). Online games generally include in-app purchase and recharge interface, or sell point cards, game currency, monthly cards, etc., in order to gain profits. For example, in League of Legends, it is possible to purchase coupons, skins, heroes and so on through in-game recharge. In addition to the

game recharge part of the profit, online games also have the effect of external attention. Most online games are in the mode of player versus player, which makes it easier for players to spend money by promoting competition between players. In recent years, the development of e-sports has skyrocketed, and it also has a certain topic and influence in the world. Game officials can make money by holding e-sports competitions. If the popularity of the league is high, it can not only bring the topic to the game, but also attract more advertisers. If it is a popular game, it can also make money by the derivative products of the game. In this way, if it is a popular IP, user stickiness will be greatly improved, but PC requires block time and cannot experience anytime and anywhere, and the user group is relatively fixed. The stand-alone game, on the other hand, is a buyout system, and there is no way to purchase or recharge within the game. Generally, it is sold by the game company after research and development, and the profit statistics are based on the number of sales. Console games, on the other hand, often rely on the company's marketing to drive awareness and sales, as well as the company's reputation and R&D funds (to ensure that the graphics are beautiful, the action is smooth, etc.), which can lead to a significant increase in the expectation level of gamers. The number of copies sold by single player games is also the proof of the game's profitability. For example, GTA5 has been on sale for nearly ten years from 2013 to 2023, and the number of copies sold is still on the rise. The entire GTA series also generated high sales, and as a series of Rockstar Games, the authorities invested heavily in its development and marketing. However, there are drawbacks to this business model, such as long development time and long window periods, during which players tend to be distracted by other games, resulting in ineffective marketing. And research and development fund is large, not necessarily profit back.

There are also many types of mobile games, such as competitive mobile games, developing love games, single-player games, chess and card games and simulation mobile games, and each of the different types of games has its own special business model. The gaming arm of Tencent, a Chinese technology company, has launched many different types of games, the most popular of which are Honor of Kings and PUBG. The mobile game business model represented by Tencent Games is the most typical Chinese game business model. Its main characteristics can be described as,

1. Independently develop or act as an agent for third-party game products, taking game products as the core of profit;
2. Lower the game access threshold, free of fees for game registration, download and basic game functions;
3. Build additional (even necessary) features and content into the game, and charge for those additional features and features;
4. Relying on in-game purchases, stimulate consumption through online activities and other operational means in the operation process after listing.

There are two core tenets to this business model. One is freemium, or Free to play games, which dates back to 2002 with Shanda Games and China's first generation of iconic online games, Legend. The biggest difference between this model and the so-called buyout game is that the threshold of game acquisition is compressed by the limit. The second is "games as a service". Since the game itself is "unprofitable", it means that a new way needs to be found. In the long-term exploration, the answer of the Chinese manufacturers, who started from the game agency operation and are well aware of this, is to provide adequate service, considerate users and long-term operation. The more likely you are to pay for the paypoint. These principles are a typical set of Internet product thinking -- speed and quantity, essentially "user-centric" as the supreme principle. This business model is based on a large player base, social and cultural prejudices against game consumption, and the prevalence of piracy and poor research and development capabilities.

The disadvantages of this business model are also obvious. The "krypton money" brought by in-app purchases led to players' "complaints" against "unscrupulous manufacturers"; Behind metrics

such as retention and time spent online are questions about gaming addiction; The "unprofitable" game itself retards the motive force of innovation and research and development of manufacturers, and a set of market-proven product form is destined to be pursued by enterprises.

#### **4. Which Is More Suitable for the Company's Research and Development**

In terms of market demand and competitiveness, mobile games are relatively large at present. In recent years, the market for mobile games has gradually become saturated, while the mobile game market is developing rapidly. Mobile games have attracted a large number of players due to their convenience and quick hand, satisfying the time and entertainment needs of office workers and students. In addition, compared with PC games, the production difficulty of mobile games is lower and the cycle is shorter. In this competitive market environment, companies and manufacturers are more inclined to invest in mobile games. But it will not be replaced, there is still a share of the market for PC games. The convenience of mobile games has lowered the threshold of players and expanded the audience. However, there is still a gap between mobile games and PC games in the details such as picture, precision and special effects, which is the advantage of PC games. Although PC games take a long time to develop and need to spend more money, they cannot be replaced by mobile games in terms of picture precision, special effects and smooth movements. For example, single-player games, its unique story, exquisite picture, and game experience can not be replaced. In different countries and different economic environments, different kinds of games are suitable for companies to develop. With the progress of science and technology and the improvement of living standards, more and more people can use mobile phones, relatively, all kinds of mobile games have also been born, but compared with PC games, there are still a lot of places that is not good as PC games. Compared with PC games, mobile games are more convenient to use no matter where you can play anywhere, but the disadvantages are also obvious. The picture quality of mobile games is not as good as that of PC games, and mobile games simplify a lot of content, so the game experience may not be very comprehensive. However, there are a few mobile games with similar picture quality and PC games, such as the Genshin Impact, its picture quality is close to the PC game, but the configuration requirements of the mobile phone is still very high, many people were told to quit, of course, there are a lot of Tencent mobile games are good, but some high consumption games are not very good for players, and even affect the game balance. Look at the end of the game can be thousands of games, because the space capacity of the computer, its performance can be designed with the game, coupled with high-performance graphics card, so that the game can be smooth, so that the player has a good game experience.

Companies need to consider the following aspects when doing research and development, such as the R&D budget, such as whether the company essentially needs to make profits in the short term. If a company wants to capture the gaming market in the short term, mobile games are more suitable because they have a shorter development period, lower cost, and are more appealing to different age groups and consumers. But if you have enough budget and time for development, and you want to have a stable long-term flow and higher user engagement, the above analysis, PC games are more suitable for development.

#### **5. Conclusion**

This paper examines the respective market growth and profitability of PC games and mobile games. Through the comparison of such aspects as annual profit, reputation, research and development funds, the development and profit of these two games from the early days to now are compared. In the near term, mobile games have a larger audience, and mobile games are more profitable. But PC games have a very loyal audience, and they can make some long-term money. The mobile game



market is growing fast and has a lot more room to grow, while PC games, after their early years of rapid growth, are now a little bit tired and have entered a flat period.

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