

Business Model Analysis

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ABSTRACT

Business models play a vital role in the formation of sustainable competitive advantages of enterprises, as well as the survival and development of enterprises. With the rapid development of artificial intelligence, the business model of iFlytek, a leading company in this field, has important reference significance for other companies in this field. This article first analyzes the business model of iFlytek, then uses SWOT model and profit analysis to further analyze the business model, and finally discusses the current challenges facing iFlytek. This has important implications for improving business models in the field of artificial intelligence and enhancing corporate value.

Keywords: component, business model, education, R&D

1. INTRODUCTION

After several years of development, iFLYTEK's current business has shown diversified development, with three main sources of revenue: education, open platform and consumer business, and smart city.

According to the 2020 corporate annual report, the education sector's revenue accounted for 32.14% of the total revenue in 2020; the smart city business was 29.46% of the total revenue; the open platform and consumer sector business held the proportion of 23.65% of the total revenue. The three businesses together accounted for over 85% of total revenue.

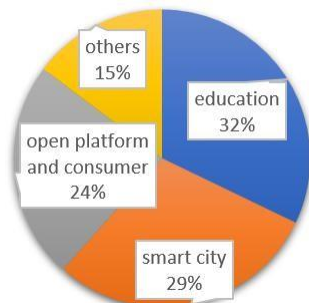


Figure 1 Composition Of Revenue Specifically, these three business sectors:

Education field is divided into B (commercial) end products and C (consumer) end products[1]. B-oriented products refer to smart classroom teaching products.

Through the construction of a "cloud-desk-end" overall structure, a networked, data-based, interactive, and intelligent campus learning environment is created to achieve efficient lesson preparation before class and accurate teaching in class, Realize intelligent marking and personalized learning after class. According to the 2020 annual report, as of the end of 2020, smart classroom products have covered more than 30,000 schools in 34 provincial administrative units. C-oriented education products mainly focus on the K12 education and tutoring field, including providing personalized learning manuals, serving students and parents, Zhixue.com, and Xunfei learning machines and other products and value-added services.

Smart City is mainly for the G (government) side, including smart police, smart court, smart prosecution, and related products of the political and legal collaboration platform; for example, when the court decides a case, it helps the court record and assists in the rapid determination of simple and quick cases. Open courts, thereby improving the efficiency of court trials.

Open platform refers to the use of iFLYTEK's intelligent voice and artificial intelligence capabilities and solutions for customers in industries such as operators, finance, and automobiles. According to the financial report, as of December 31, 2020, The number of Flytek's open platform ecosystem partners is 2.7 million, the total number of developers is 1.75 million, and the total number of applications is about 996,000;

consumer business mainly refers to hardware products such as Xunfei voice recorders, Xunfei office notebooks, and Xunfei translators.

In summary, the current products of iFLYTEK of HKUST are relatively complex, with layouts for G-end, B-end, and C-end, as well as hardware and software.

2. BUSINESS MODEL

At present, iFLYTEK's main revenue source is open platform business

Over the past 19 years, iFLYTEK's numerous experiments have probably shown that voice technology does not have as many application scenarios as imagined. In this situation, iFLYTEK chose government subsidies and government procurement.

In fact, iFLYTEK has survived on government subsidies and procurement, but it has been trying to establish itself as an AI company, offering investors a big pie against Amazon, Google, Xiaomi, Baidu and even Alibaba.

iFLYTEK mainly faces the crowds are Student market, teacher and training market and test market.

Main partner of iFLYTEK are Textbook publishing houses, educational institutions, educational authorities as well as media groups.

Now, artificial intelligence has begun to enter the stage of practical application. The system of software service + hardware terminal not only fully demonstrates the technical capabilities of iFLYTEK, but also enables them to find a reasonable and sustainable commercialization path.

In the future, with the continuous improvement and development of voice technology, iFLYTEK, which focuses on voice processing, will go further and more smoothly on this road.

From the first half of 2021, iFLYTEK's operating revenue increased by 45.29% year-on-year. In 2020, due to the impact of the epidemic, iFLYTEK's operating revenue increased by only 2.86% in the first half of 2020

iFLYTEK's net profit increased by 62.12% year-on-year from the first half of 2021. According to the analysis of the 2020-2021 annual report, there are five projects accounting for more than 5% of the operating revenue, namely educational products and services, open platform, information engineering, application of related businesses and intelligent hardware. Therefore, these five projects will also become the main performance revenue source of iFLYTEK in the future.

iFLYTEK is a very low-key national enterprise. Now in our life, almost everyone uses a technology every day from iFLYTEK, which is the intelligent voice to text function.

iFLYTEK is not a company that produces physical goods, but a company that relies on technology to support scientific and technological development. The voice to text function we use in our daily chat through wechat or QQ comes from iFLYTEK. Not only these, but also the small voice translators we use abroad are from iFLYTEK.

At present, from an international perspective, iFLYTEK's technology has been very advanced. As we all know, the most difficult language to learn in the world is Chinese, and Chinese includes many different dialects. What iFLYTEK can do is to convert these minority languages into Mandarin, English, French and other languages in the world. Of course, iFLYTEK's technology can also convert English and other foreign languages into Chinese or authentic dialects.

3. BUSINESS MODEL ANALYSIS

3.1 SWOT Analysis

Through a comprehensive analysis of the brand development environment, advantages, disadvantages, opportunities and threats of the iFLYTEK company, and the complementary combination of various aspects, a combined strategic development is formed, and the brand advantages and development direction suitable for the development of iFLYTEK are explored.

3.1.1 Analysis of the advantages of iFLYTEK

First, the advantages of voice technology. iFLYTEK has rich experience in intelligent voice. iFLYTEK has advanced knowledge in both Chinese and English speech synthesis. It has won various major scientific research awards and has been the champion in the international grand prix for two consecutive years. HKUST iFLYTEK has top-notch voice detection technology, and has become an accredited organization designated by the National Language Commission in the national Mandarin test.

Second, the advantage of human resources. First of all, from the perspective of the quality of the talent team, the structure of its talent pool is mostly highly educated professional and technical personnel with advanced technical advantages and national award-winning experience; secondly, in terms of the size of the talent team, there are many high-tech workers. They not only have many years of experience in the field of speech, but also participate in a number of scientific projects, and they can be regarded as elites in the speech industry. HKUST Xunfei Company not only has excellent high-quality technical personnel, but also has a leading management level. The top leaders of Xunfei Company are all Ph.Ds and have a relatively high academic background.

Third, market competitive advantage. IFLYTEK's products in the area of smart voice cover a wide range of products, including connections to B-end companies such as China Telecom and China Unicom, as well as connections to C-end users such as home appliances, toys, and mobile phone software. The applications can be promoted through product upgrades. field of. Now, iFLYTEK's Chinese voice market share has exceeded 70%, more than 500 cooperative enterprises have been developed, and nearly 10,000 application pilots have been put into use.

Fourth, the advantage of brand strategy. Hefei, Anhui, is known as China's "Valley of Voices". There are many intelligent voice companies and enterprises. Among them, iFlytek, which occupies most of the Chinese voice share, is an important representative of the voice industry in the region and the whole country, and it is also the top brand in Anhui Province. IFLYTEK pays attention to the thinking initiative of machinery and equipment, applies intelligence to the development of products and platforms, and is committed to "let the world listen to our voice." Relying on its advanced voice technology advantages, it has gradually formed the brand effect of its intelligent voice products.

3.1.2 Analysis of the disadvantages of iFlytek

First, the business model is not yet mature. A complete business model can effectively promote the successful implementation and operation of corporate strategies. Technology giants such as IBM and Microsoft have formed a complete system in terms of product sales. Although HKUST's technology is in a leading position, it only adopts vertical industry and product extension strategies for product output channels, and its business model is not yet mature.

Second, the company's business scale is not large. Among similar voice companies, giant companies such as IBM, Microsoft, and Nuance, both in the international market and in the domestic market, have a strong share of the world's voice market and their industry application advantages. In contrast, iFLYTEK's product promotion and output channels are compared with those of giant companies such as Nuance, IBM, and Microsoft. However, there is still a certain gap in the number of patent research and development, comprehensive strength and scale of its products.

3.1.3 HKUST News Aircraft Association Analysis

According to Outline of the National Medium - and Long-term Program for Scientific and Technological Development[2], the State Council proposed the development of science and technology in China in 2020: the overall focus is on the development of a well-off society, and independent innovation needs to be strengthened[3], focusing on the research and analysis of

scientific research foundations, enhancing frontier exploration capabilities, and having certain accomplishments in this area, and gradually realizing science and technology "Strengthen the country". Anhui province also puts forward its own requirements for technological development. Enterprises and scientific research-related authorities in the province have achieved the simultaneous growth of technology and economy. At the same time, because the voice company is mainly aimed at education and financial services. The application of the field has certain industry barriers and restrictions, which also makes it difficult for powerful Internet companies to seize the technology application market.

3.1.4 Threat analysis of HKUST IFLYTEK

First, Internet companies seize the market. Internet companies have established direct contact with users for a long time[4]. Obviously, they have considerable C-end (consumer end) advantages in product cooperation, traffic downloads, search engines, etc., including data storage formed by their online interactive experience with users and semantic understanding. It has formed a certain product market in itself. This makes technology R&D companies that have relied on core technology development for many years to have a certain development crisis in the C-end application market itself. Second, new IT competitors settled in Hefei. The intelligent voice industry has a cutting-edge position. The iterative updates and technological upgrades of its industrial products will create a relatively high index of change in the short term. In the development of new fields, new large, medium and small enterprises are often inserted. In Hefei, Anhui, Various voice companies may lead to the weakening of the iFLYTEK brand, or when new competitors absorb advanced experience and talents, they will also have new breakthroughs in a certain field. This will also attract a large number of users' attention, making Brand loyalty to Xunfei products has decreased.

Third, the maintenance of independent patent property rights is not enough. IFLYTEK has invested considerable manpower, financial resources, and material resources to support the development of a number of independent patented products. With high technical level, strong functions and applications, there will naturally be more similar companies to follow suit, which will result in "counterfeit products". Appeared, which affected the reputation of iFLYTEK to a certain extent. As far as the current situation is concerned, iFLYTEK has no relevant patent and property rights policies to maintain its own products.

3.2 Revenue Analysis

TABLE 1. IFLYTEK’S COST AND EXPENSES AS A PERCENTAGE OF SALES REVENUE

Year	2016	2017	2018	2019	2020
Total Operating Income (million)	3,320.48	5,444.69	7,917.22	10,078.69	13,024.66
Total Operating Costs (million)	3,083.29	5,061.97	7,717.27	9,630.46	12,395.70
Net Profit (million)	496.78	479.18	617.97	943.07	1,441.78
R&D expenses/Operating Income(%)			11.86	16.27	16.98
Sales expenses/Operating Income(%)	19.537609	20.41140221	21.80	17.66	16.00

In recent years, IFLYTEK has been criticized by the outside world because sales expenses have long been higher than R&D expenses. In 2017, HKUST iFLYTEK’s sales expenses increased by more than 70%, and in 2018 it increased by more than 50%, and the amount far exceeded R&D expenses. Since then, perhaps the outside world has played a role. The growth rate of HKUST iFlytek’s sales expenses has slowed down, and R&D expenses have gradually increased. The 2020 financial report shows that HKUST’s annual R&D expenses were 2.211 billion yuan, a year-on-year increase of 34.86%, and the amount finally surpassed 2.084 billion yuan in sales expenses. However, compared with companies in the same field, such as Hang Seng Electronics, which maintains a R&D investment ratio of more than 40%, the R&D investment of iFlytek is still very low.

On the other hand, considering the degree of capitalization of R&D investment, iFLYTEK’s R&D investment capitalization rate is very high[5]. The direct consequence of this is that intangible assets continue to grow, and the corresponding annual amortization amount is also increasing. Will cause a certain erosion of profit growth. According to wind financial terminal statistics, the average level of capitalization rate of R&D expenditure in the software industry is 5.78%, while iFLYTEK has maintained a capitalization rate of around 50%, which is rare in the industry. This means that if the R&D expenses of the year are fully expensed, the company is likely to be unprofitable. In fact, the high rate of capitalization of R&D expenses is also a source of criticism for iFLYTEK.

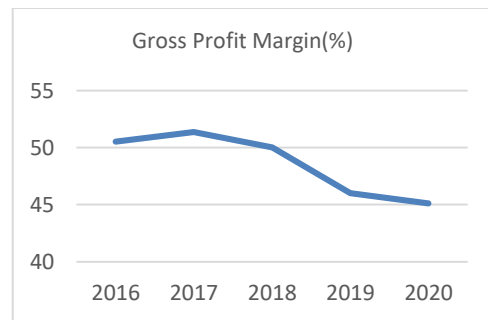
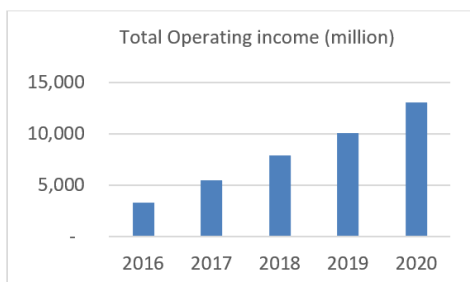


Figure 2 Total Operating Income And Gross Profit Margin

The total operating income has increased, but the gross profit margin has been declining year by year. It shows that iFLYTEK’s ability to “make money” in the future may be challenged; in terms of business, the current gross profit margin of major education areas is higher, exceeding 50%; the gross profit margin of smart cities, open platforms and consumer businesses is around 30%, other businesses will not be discussed for the time being due to their low contribution to revenue.

Regarding the decline in gross profit margin, the senior executives of iFLYTEK of HKUST explained that the decline in gross profit margin was mainly due to the increase in the proportion of C-end products and some hardware. During the "14th Five-Year Plan for economic and social development" period, the gross profit margin will be relatively stable, and the assessment orientation will gradually shift to continuous operation.

In general, iFLYTEK has a wide range of products and a large margin for a single business. However, apart from the education sector, which has been deeply cultivated for many years, the market competitiveness of other business sectors is not strong.

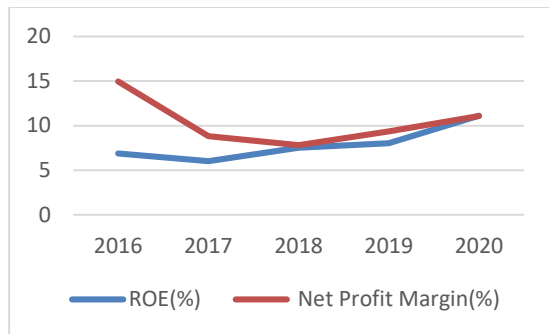


Figure 3 ROE And Net Profit Margin

The return on equity and net interest rate have been at a low level for a long time. In 2019, the weighted return on net assets was 11.11%, and the net profit margin was 11.06%, compared with 27.06% and 26.56% of Hang Seng Electronics in the same industry. In other words, as an investor, if you use 100 yuan to invest, iFLYTEK can bring 11.11 yuan income, and Hang Seng Electronics can bring 27.06 yuan income, which also shows that the profitability of iFLYTEK is weak[6].

In the slow net profit growth, there is also a considerable proportion of government subsidies. From 101 million yuan in 2014 to 426 million yuan in 2020, the increase has reached four times. In 2018 and 2019, the contribution of subsidies to performance exceeded 50%, and in 2020 it also exceeded 30%. This inevitably makes the outside world question that iFlytek is still a company that relies on government subsidies.

Although the operating income of HKUST Xunfei has increased by more than 23 times in the past ten years, most of the increase is the growth of purchase.

In July 2019, the company invested 1417.5 million to acquire 25% of the equity of Yiwencheng; in 2016, the company invested 495 million to acquire 100% of the equity of Lezhixing; invested 101 million to acquire 23.2% of the equity of Xunfei Jicheng, and again in 2018. Feijiecheng 10% equity; 2015 invested 15 million to acquire 60% equity of Qiming Toys; invested 37.2 million yuan to acquire 18.6% equity of Anhui Xintou; 2014 invested 216 million to acquire 100% equity of Shanghai Ruiyuan; 2013 invested 4.8 Yiyi acquired 100% equity of Qiming Technology.

These mergers and acquisitions have become the main factors driving up the company's sales growth. Although the sales revenue of the consolidated statement has maintained rapid growth, its gold content is not high.

In addition to finances, HKUST's overly dispersed shareholding structure may also become a hidden danger. After several dilutions, Liu Qingfeng, the founder of iFLYTEK, currently holds only 4.40% of the shares, of which the majority shareholder China Mobile holds 11.6%.

In addition, iFLYTEK is also facing a dilemma, and it is also a common dilemma faced by all voice-oriented

AI companies-the development of voice technology is not yet mature, which limits the ability to commercialize.

4. THE PREDICAMENT OF IFLYTEK'S BUSINESS MODEL

Generally speaking, based on the imagination that high-tech companies can bring about technological innovation, the market will give higher valuations[7-9]. However, the liquidity of products and the ability to achieve rapid growth in performance are all tests.

The business model of iFLYTEK of HKUST is "platform + track". The so-called "platform" provides artificial intelligence capabilities for the entire industry, allowing developers to use its AI capabilities on iFLYTEK's open platform simply and conveniently.

Track is to provide products, services and solutions in the education, medical, judicial and other industries. Currently, the main sources of iFLYTEK's operating income include education, smart cities, political and legal services, open platforms, and consumer services.

As the "handsman" of the voice industry, but inconsistent with the public perception is that iFLYTEK, which always emphasizes its leadership in the field of intelligent voice, is always cherishing its own technology in the actual operation of the company, and it always seems a bit petty[10].

The reason lies in the occlusion of its business model. Under the influence of the epidemic, the shortcomings of the business model will be infinitely amplified by the market and will directly reflect the company's revenue status.

The reason is that the service model and customer groups of iFLYTEK of HKUST have been suppressed under the epidemic, which reflects the shortcomings of the company's business model. The current profit model of iFlytek is still a paid road that is not open, not integrated, and patented.

Under this business model, iFLYTEK's customers often can only choose to rent technology and pay for it. However, the needs of different industries are different, and it is difficult for customers to meet the special needs of their own industries with the support of iFLYTEK's existing technology.

IFLYTEK's existing software customization and hardware sales model, although it is currently the largest segment of the entire AI market, can indeed bring short-term performance growth to the company, but in the long run, it is actually not conducive to the company's long-term customer acquisition and maintenance[11].

The reason behind this is, of course, inherent problems such as insufficient flexibility of the existing model, lack of customer follow-up services, high one-time costs, and slow product iteration[12].

To solve these problems, this company still has a long way to go, at least for now it is facing the test of technological breakthroughs and market competition.

5. CONCLUSION

In general, iFLYTEK is in a leading position in China in terms of business model and business philosophy. The main group they face is countless primary and secondary school students in China. The core direction of development is the most advanced voice to text system. As a leading domestic enterprise in this emerging industry, iFLYTEK has shown its ability and strength. More and more audience groups, the continuous growth of income and profits, all show the correctness and advancement of their business model. Although their business model is still flawed in some aspects, I believe they will do better and better over time. As the most outstanding person in the same industry, iFLYTEK has shown its due value.

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