The Future Development of the Online Medical Platform: A Case Study of the HaoDF Online Platform

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Abstract: With the support of national policies and the influence of an aging society, the online medical industry has become a popular market nowadays. As the head platform of the online medical industry, the analysis of the currently existing problems, defects, and improvement directions of the HaoDF online platform is not only of great significance to the future development of the platform itself but also has great guidance and influence on the whole Internet online medical industry. Taking the HaoDF online platform as a case study, this paper mainly analyzes the future development of the online medical platform. It can be concluded that, although online medical platforms face challenges in, low accuracy of medical treatment, single marketing channel, weak marketing means, and lack of supervision, they still have broad prospects for development. Moreover, with the development of the Internet, artificial intelligence, and other technologies, as well as personalized and diversified consumer needs, online medical platforms need to adjust their business models and strengthen their cooperation with enterprises.

Keywords: Internet thinking, platform operates, online platform, medical treatment

1. Introduction

Currently, the online healthcare industry has become better in the mass because of the increasing support of the Chinese national policy. Besides, due to Covid-19 and the aging trend in China, the Internet healthcare industry has become a popular area to invest in. As the head of the online medical industry, HaoDF has a large market share in the industry. However, based on the analysis of its current situation and future development, there are still some "fatal" defects. Therefore, how to overcome the existing defects and problems to propose new models or improve the original services becomes the next step for development. This paper first introduces the current products and business model of the HaoDF online platform. Then, it analyzes the shortcomings and feasible strategies of the HaoDF online platform in terms of "risk of access", "marketing channels", and "profitable products". With the fast development of the economy, people are attaching greater importance to health. So, the Internet has become a major new way for the public to seek medical treatment. As the head platform of domestic online medical treatment, the HaoDF online platform seized the market opportunity and established a new online medical model. The analysis of this platform will have a significant impact on online medical treatment and even other Internet industries.

2.   Platform Overview

Founded in 2006, the HaoDF online platform is one of the leading Internet medical platforms in China. After 16 years of honest operation, the HaoDF online platform has achieved remarkable results in various fields such as hospital/doctor information search, graphic consultation, telephone consultation, remote video clinic, outpatient precise appointment, post-consultation disease management, family doctor, and disease knowledge popularization [1]. It has been widely trusted by doctors and patients. The HaoDF online platform has a large number of quality doctors. As of July 2022, the HaoDF online platform has included the information of more than 890,000 doctors from more than 10,000 regular hospitals in China. Among them, 250,000 doctors are registered in their real names on the platform and provide online medical services directly to patients. Among these active doctors, the number of doctors from grade A tertiary hospitals accounts for 73%. Users can conveniently contact 240,000 doctors in public hospitals through multiple platforms, such as the HaoDF online platform app, PC version of the website, mobile version of the website, WeChat public account, and WeChat mini-program, for one-stop solutions to various medical problems such as online services and offline consultations [2].

2.1.   Product Services

Main Business. The HaoDF online platform is mainly registered by two types of clients, doctors and patients. The functional modules on the doctor side include workstation, patient management, cooperation communication, academy, personal centre, etc. The main products of the workstation module are online consultation, telephone consultation, remote consultation, outpatient management, post-consultation return visit, membership management, etc. that match with the patient side. The patient management module refers to the consultation records of every patient and provides a more in-depth understanding of the patient's condition to reduce misdiagnosis. Doctors can manage patients in a zoned and categorised manner, and make post-visit visits at any time to facilitate interaction with patients. The communication and cooperation module means that the HaoDF online platform is docked to other medical platforms. Through this connection, doctors can communicate and learn from professionals on other platforms, and even cooperate with each other. The patient-side functions include online consultation, telephone consultation, remote clinic, appointment referral, post-consultation management, family doctor, etc. The main platform services that can be used are shown in Table 1.

Specialized Direction. In the early and current stages, the HaoDF online platform mainly focused on medical services. At present, the platform has launched membership services, and in the future, the platform will focus on making profits from membership services. Different from manufacturers in the same industry who actively build a closed loop of drug sales and medical services, the HaoDF online platform does not rely on the model of supporting medical services by drug sales, but proposes the principle of "three no's" as the "separation of medicine" principle from entity hospitals offline. Namely, it does not earn drug profits, does not build offline hospitals by itself, and does not do medical advertising business [3]. However, the prospect of making a profit is difficult to achieve by relying solely on medical services without the drug business. Therefore, the HaoDF online platform is actively expanding its membership service content and advancing its membership services by enhancing the number of members and the quality of membership services. It is important to emphasize that the HaoDF online platform's target membership users are defined as people with potential medical needs and healthy people as well.

Table 1: The main platform services that can be used in the patient-side.

number	service	Major contents
1	Hospital/doctor information search	Patients could search hospital/doctor's professional expertise, patient evaluation and visit information through the HaoDF online platform so that they could choose a more appropriate hospital/doctor based on their own conditions. And according to the doctor's outpatient information, they could make reasonable arrangement of their schedule.
2	Graphic consultation/ telephone consultation	Patients could communicate with doctors online and over the phone. The doctor shall give consultation suggestions or diagnosis and treatment plans according to the patient's medical information and consultation information.
3	Remote specialist clinic	Patients could have a video conference with experts in Beijing, Shanghai, and other places [4]. The experts will provide diagnosis and treatment plans for patients, and the local doctors will treat the patients in the local area [5].
4	Precise outpatient appointment	According to the patient's condition and the doctor's professional expertise, the HaoDF online platform could match patients with needs to make appointment of the doctor's clinic.
5	Disease management after diagnosis	In view of patients' demands for long-term management and guidance from doctors, channels are provided to patients to establish long-term contact with doctors and receive medication guidance, rehabilitation guidance, and online return visit from doctors.
6	Electronic prescription	Doctors can write electronic prescriptions for returning patients and send medicine home through the HaoDF online platform.
7	Disease popularization	It contains popular science knowledge in the form of text, voice, and video provided by doctors in regular hospitals.
8	Family doctor	Relying on the specialized and general practitioner team of the platform, chronic disease management services are provided to patients as well.

2.2. Business Mode

A business model is the mechanism by which a company creates value, delivers value, and maximizes returns from it. This section describes how the HaoDF online platform delivers customer value, how it delivers value to customers, and how to make a profit [6].

2.2.1. Market Segmentation

The users of the doctor side are mainly doctors in large hospitals in second-tier and third-tier cities, who hope to improve their popularity and increase their part-time income. Doctors in first-tier cities have not registered much and are not as active as doctors in second-tier and third-tier cities due to the overload of offline work. Doctors in fourth-tier and fifth-tier small cities and towns do not understand or trust online medical services because online medical services are not popular, resulting in basically no doctors registered online [7].

The main users on the patient side are concentrated in the first-tier cities. Because of their high level of education and concern for their own health, more people in first-tier cities actively record and monitor their own health data, and these users have a high usage rate of smartphones and other devices,

so it is more convenient and comfortable to use online medical products. At the same time, offline medical resources in big cities are highly stretched, and offline medical consultations often take a lot of time. The use of online medical products has become their main method of consultation for non-emergency cases. However, the medical environment in second- and third-tier cities is relatively good, and patients can basically be satisfied with offline medical treatment, so the usage rate of the product is lower than that of first-tier cities. Township residents are composed of empty-nesters and people with low education levels, and their use of online medical products is even less. Therefore, the main patient-end users of the platform are concentrated in big cities.

2.2.2. User Groups

Target customers are the people to whom companies provide products and services, and they usually have some common characteristics. Companies need to choose their value proposition according to the needs of specific customer groups. The participants of medical platforms are patients who have a need to see a doctor and doctors who can perform knowledge output. For the patient end, the HaoDF online platform's users are at 25 to 40 years old, mainly from the age of 23 to 30. Young white-collar users are the main consumer group, with a wide range of income, and this age group has a relatively high awareness of using the mobile internet to access medical services, online consultation, and health management [8].

For the doctor's side, as a platform to provide paid medical services for the public, how to attract more doctors to join the platform to improve improve patient awareness and trust, is an important bottleneck for the development of the HaoDF online platform. At present, from the doctor's side, the users are mainly chief physicians, deputy chief physicians, attending physicians, resident physicians from tertiary hospitals, and attending physicians are the majority, followed by chief physicians and deputy chief physicians, and resident physicians are the least [9]. Because the attending physician group is generally younger, they have more fragmented time to deal with online consultations than the chief physician, and they are more willing to learn more about different cases.

2.2.3. Profit Analysis

The HaoDF online platform's current profitability directly comes from three main sources, hospitals, doctors, and patients.

Hospital-Based Charging Function. The service modes provided for hospitals are the information system, provision of patient medical data, in-hospital communication, and monitoring of remote treatment. The main profit is based on the operation and maintenance of software, the sale of service software, data monitoring services, etc. At present, the main head of the tertiary hospitals in Zhejiang Province, such as the first hospital affiliated with Zhejiang University School of Medicine, the second hospital affiliated with Zhejiang University School of Medicine, Zhejiang Province People's Hospital have established a deeper connection with the HaoDF online platform. Additionally, the number of hospitals and medical institutions across the country is very large. So this module of market space is vast and the potential profit space is very large. But the future of its actual operation and the popularity of hospitals across the country have some difficulties as well. Unless the value of data is very high, hospitals as state-run units in China are not willing to cooperate with online medical enterprises. In fact, only a very small number of hospitals are willing to liberalize cooperation with online medical enterprises even with the national cooperation policy.

Physician-Based Charging Function. For the physician's side, the platform provides services to assist in diagnosis, treatment, and booking services. Doctors are mainly charged in the form of membership fees. But this channel's profit margin is relatively small. Because doctors use the platform to make a profit and also to win a reputation. The HaoDF online platform charges patients

through features such as booking appointments, graphic consultations, telephone consultations, and prescription advice, which is how doctors make money. Doctors can gain popularity by seeing patients on the platform, and gain academic reputation by publishing articles on the platform. This is the way for doctors to gain fame. But the real difficulty is that doctors, who are the main pillars of the HaoDF online platform profitability, have their own busy schedules and pressure from the doctor-patient relationship. And the number of doctors who are actually registered and active on the platform is not large, as shown in Figure 1, although major hospitals have established cooperation with the HaoDF online platform.

Patients-Based Charging Function. Patients' demand for the platform is mainly for health management, consultation, post-consultation, appointment registration, and other needs. The main charging module is the one about the doctor's consultations. Other modules such as health information pushing, charity clinics, health live streaming, and patient community are currently not charged, and are mainly to attract users and reward them. As shown in Figure 2, the module that occupies a large portion of the app home page is the consultation module, i.e. the main module for paid interaction between doctors and patients, which is also the main function for the platform to make profits.

Figure 1: The number of registered and active doctors on the platform (Source from HaoDF Online Platform Registration interface).

Figure 2: The consultation module occupying a large portion of the app home page (Source from HaoDF Online Platform home page).

2.2.4. Market Size

The concept of online healthcare was introduced in 2011, and in the following year, the domestic online healthcare market grew by 17.8% to reach a market size of nearly RMB 1.6 billion. In the following five years, China's online healthcare market as the darling of the investment sector saw explosive growth, with the market size reaching 4.23 billion, up 48.9% year-on-year. Until 2017, China's online healthcare market was second only to the US in terms of the total revenue share of the global online healthcare market, reaching around 12.5 billion with a fast growth rate and large scale. Combined with Figure 3, it can be intuitively seen that China's online healthcare market is growing fast and its scale is large, and the market scale of the HaoDF online platform, as one of the head products, should not be underestimated.
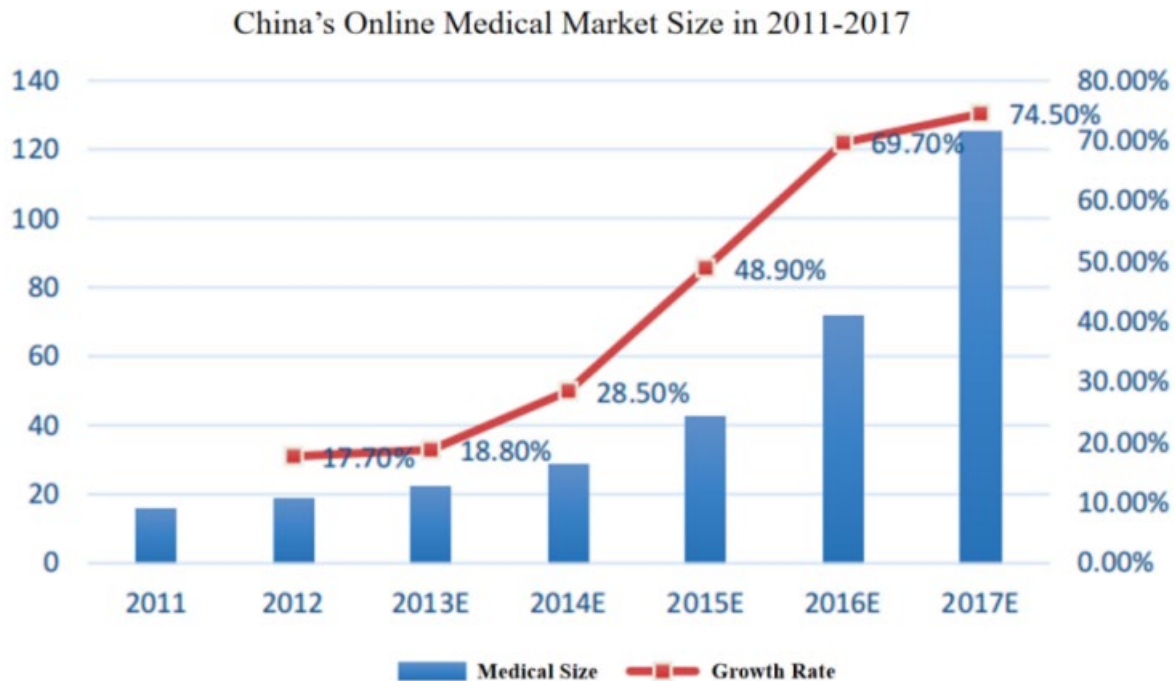
Figure 3: China's online medical market size in 2011-2017 (source from Insight and Info).

3. Deficiencies and Countermeasures

3.1. The Risk of Seeing a Doctor

The risks associated with online healthcare are unpredictable and there is a high risk of misdiagnosis. Doctors and patients rely solely on the information provided by the platform, with no knowledge of each other and no further access to each other's information. There is little basis for judgement, as doctors can only rely on the images provided by the patient and cannot visually observe the patient's condition, nor can they monitor in real time whether the patient is performing the medical service according to their own description. Patients are at risk of being blinded, as they have a single source of information about the quality of medical services they receive, and cannot rely solely on the platform's description of the doctor to determine a doctor's medical skills, which could be life-threatening if the doctor misdiagnoses the patient and the patient is treated according to medical advice. For patients, the platform gives away insurance to protect patients' interests and boost their confidence in seeking treatment. When patients pay for consultation on the platform, the platform will buy insurance from a third-party platform as a free gift to the patients, thereby guaranteeing medical treatment to a certain degree, which can enhance the user's confidence in the platform. For doctors contracted by the platform, the platform needs to develop more comprehensive access terms, raise the threshold of doctors online and adopt a manual case-by-case audit to review doctors' qualifications to see doctors on the platform. At the same time, the doctor's qualifications should be made public to patients on the online platform so as to be transparent.

3.2. Single Marketing Channel

Online marketing channels are single. The construction of the module function of the HaoDF online platform is still single. In the main menu of the platform, the main functions include "find a doctor", "paid clinic" and "appointment registration", and other main services, without paying attention to and

managing other functions, such as the mental health issues for patients after the liberalization of the epidemic control in China, disease monitoring for patients with chronic diseases, multi-disciplinary consultations and patient dynamics. Lack of offline marketing channels, the main marketing channel of the HaoDF online platform is the online channel. Offline cooperation of various marketing and promotion channels is basically blank, which has lost a large number of medical enthusiasts (the elderly) who are not so sure about online medical treatment and are still keen on offline medical treatment. Only by combining online and offline marketing and promotion can the platform successfully achieve its marketing objectives. For online, the platform needs to pay more attention to current affairs hotspots, update the platform modules in a timely manner, go deeper into the users' needs and do the modules that they urgently need. For offline, the platform can promote marketing through mutually beneficial cooperation with various hospitals, pharmaceutical companies and insurance companies and other parties. Meanwhile, for internet companies, cross-border promotion is not a bad way of marketing [10]. Platforms can link treatment and food by collaborating with food brands across borders to launch food with certain therapeutic and health benefits. It is novel, attractive to users, and can generate profit.

3.3. Profitable Products are Simple

From the existing profitability module of the HaoDF online platform, the main focus is on the doctor's graphic consultation fee and telephone consultation fee, the fee varies from a few dozen to a few hundred dollars depending on the doctor's area of expertise and his or her title. The specialist module is more profitable per visit. But several hundred RMB for one consultation is an unaffordable figure for most ordinary patients, while for specialists, several tens of RMB is an unimpressive figure. This contradiction has led to the fact that the volume of the platform's existing expert-paid consultation module is not as high as expected and cannot become a core profit source for the HaoDF online platform. The development of core competencies and profitable products that can make more profits is one of the transformation directions of the HaoDF online platform. Although the platform has launched a paid membership service and intends to continue to develop it, many patients are discouraged by the high price of membership access, which can only be topped up on an annual basis. Therefore, the platform could offer relatively inexpensive packages or monthly/quarterly memberships. This will allow users to experience the services of an annual membership for a small, affordable amount of money, lowering the barrier of entry. Besides, cross-industry cooperation with some medical device companies is possible: in the chronic disease diagnosis and treatment module, smart wearable devices are provided to patients to interface with the platform's data, so that patients can provide real-time chronic disease monitoring data through the device at any time.

4. Conclusion

With the increasing improvement of living standards and the awakening of people's health awareness, people's concern and demand for health information have been increasing. The development of the Internet has changed the way people seek health care information, and the Internet has become an important channel for the majority of Internet users to understand health care knowledge and seek medical treatment. In today's social trends, especially the liberalization of China's policy on Covid-19 and the rise in demand for at-home medical care, medical platforms such as the HaoDF online platform must have a broad future and a profound impact. However, there are also many difficulties and challenges in its development, such as the inability to ensure user privacy and platform security, the low accuracy of medical consultation, the single marketing channel, weak marketing tools, a lack of supervision, and a shortage of effective and diversified profitable products. With the development of mobile internet, artificial intelligence, big data, cloud computing, and other technologies, as well

as the drive for personalization and diversification of consumer needs, online healthcare platforms need to continuously adapt their business models in line with the time background and consumer needs, and strengthen cooperation with companies in order to seek a healthy and sustainable profit model.

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