The information and statistics set out in this section and other sections of this document were extracted from the report prepared by Frost & Sullivan, which was commissioned by us, and from various official government publications and other publicly available publications. We engaged Frost & Sullivan to prepare the Frost & Sullivan Report, an independent industry report, in connection with the [REDACTED]. The information from official government sources has not been independently verified by us, the Sponsor, the [REDACTED], the [REDACTED], the [REDACTED], the [REDACTED], any of their respective directors and advisors, or any other persons or parties involved in the [REDACTED], and no representation is given as to its accuracy.

#### THE PRC GENERAL HEALTH AND WELLNESS INDUSTRY

The PRC general health and wellness industry is one of the largest components of the PRC economy, which refers to services and products related to the maintenance, recovery and promotion of health, encompassing healthcare services, pharmaceuticals, nutrition and healthcare products, medical devices, maternal and infant products, as well as other services such as health management and elderly care. According to Frost & Sullivan, the market size of China's general health and wellness industry reached RMB9.2 trillion in 2021, and is expected to increase to RMB20.2 trillion by 2030, at a CAGR of 9.1%.

### THE PRC HEALTHCARE SERVICES INDUSTRY

### Overview

The PRC healthcare services industry consists primarily of disease prevention, treatment and rehabilitation. According to Frost & Sullivan, China's healthcare expenditure was RMB7.6 trillion in 2021, and is expected to reach RMB12.0 trillion by 2026, and further increase to RMB16.3 trillion by 2030, at a CAGR of 8.9% from 2021 to 2030.

Several factors have driven and are expected to drive the rapid growth of the healthcare market in China. Specifically, increasing per capita disposable income, an aging population and increasing prevalence of chronic diseases are the key drivers that propel the continuing development of the PRC healthcare services industry. According to Frost & Sullivan, the population of China exceeded 1.41 billion as of December 31, 2021, and the per capita disposable income is expected to increase from RMB35,128 in 2021 to RMB66,598 in 2030, at a CAGR of 7.4%. According to Frost & Sullivan, the healthcare consumption is expected to constitute more than 20.0% of the total per capita consumption expenditure by 2030. Meanwhile, China has witnessed accelerated growth of its aging population, and the burden of support is increasing gradually. Population aged over 65 accounted for 14.2% of the total population in China in 2021, and such percentage is expected to increase to 22.0% by 2030, according to Frost & Sullivan. Accompanied with the aging demographic, the healthcare expenditure in China is expected to continually grow, according to Frost & Sullivan.

The development of China's healthcare market is falling behind that of many developed countries. According to Frost & Sullivan, the healthcare expenditure of the U.S., Germany and Japan accounted for 17.8%, 13.8% and 12.2% of their GDP in 2019, respectively, whereas China's healthcare expenditure was only 6.7% of its GDP in 2019. Accordingly, the PRC healthcare industry has the potential for significant growth.

### Pain Points of the PRC Healthcare Services Industry

### Scarcity and Uneven Distribution of Quality Medical Resources

The imbalanced distribution of medical resources has been a severe problem in China. Quality medical resources are primarily concentrated in eastern coastal cities and economically developed large and medium-scaled cities, particularly in Class III hospitals, while the primary healthcare service capabilities in rural regions continue to lag behind. According to Frost & Sullivan, there were only 8.5%, or 2,996, Class III hospitals out of 35,394 hospitals in China, and only twelve provinces or municipalities have over 100 Class III hospitals in 2020. Additionally, the lack of effective management of patients' medical treatment and the traditional and limited way to provide healthcare services have led to difficulty and high expenses for patients to get medical consultations, which has long been the structural disadvantages impeding the development of the PRC healthcare services industry. As the primary care system and triage mechanism have not been fully established, patients are concentrated in large medical institutions, especially Class III hospitals. According to Frost & Sullivan, Class III hospitals, in aggregate, assumed more than 50% of medical consultations in 2020 in China, while they only accounted for 8.5% of the total number of the PRC hospitals.

Meanwhile, most of Class III hospitals are located in tier one cities such as Beijing and Shanghai as well as more affluent and densely populated eastern coastal provinces, such as Shandong, Jiangsu and Zhejiang provinces, each of which has more than one hundred Class III hospitals, with more than one Class III hospital per million population. In contrast, in less affluent but densely populated provinces such as Hebei, Henan and Hunan provinces, there are less than one hundred Class III hospitals in each province, with less than one Class III hospital per million population.

The significant mismatch of the supply and demand, combined with the relative scarcity of quality medical resources, including primary medical resources, has resulted in inefficient and unnecessary utilization of the medical resources in China.

### Poor Healthcare Service Experience for Patients

The mismatch of medical resources supply and demand leads to another pain point of the PRC healthcare services market, namely poor healthcare service experience for patients. According to Frost & Sullivan, a patient in China spent on average three hours on an outpatient visit in 2021, in which the effective time dedicated to the patient's diagnosis only accounted for eight minutes, or 4.4% of the average outpatient visit time.

### Potential Deficit of the Social Medical Insurance

China's increasing healthcare demand and expenditure pose challenges not only to healthcare providers, but also to its medical insurance system. At present, the PRC medical insurance system consists primarily of government-sponsored social medical insurance, which includes basic medical insurance and medical aid schemes, as well as commercial medical insurance offered by private insurers. According to Frost & Sullivan, the growth of basic medical insurance's expenditure is expected to outpace that of its revenue in future. A deficit is expected to arise in 2026 and expand to over RMB4.4 trillion in 2030, assuming no timely and effective cost control measures are implemented.

### THE PRC DIGITAL HEALTHCARE SERVICES MARKET

### Overview

Accompanied by technology advancement and favorable policy support, the concept of digital healthcare emerged. Digital healthcare is value-based healthcare combined with digital medical services. It is not only the digitization of the medical services, consumer healthcare services and health management services, but also the added value resulted from the interconnectivity built upon such services. It is identified as an effective approach to address the pain points of the PRC healthcare services industry.

Currently, the PRC healthcare system is, by and large, still relying on a development model where healthcare businesses are relatively disconnected with low efficiency and low transparency. In contrast, digital healthcare is a more connected, well-organized, collaborative, fully integrated online-to-offline development model with high efficiency and high transparency. The digital healthcare model is expected to create a healthcare ecology without physical boundary, where data and knowledge are shared, and AI, big data, smart wearables and community become new elements of the healthcare system. In this process, digital technology and model innovation play a crucial role. These two factors, while being interdependent, can together contribute to (i) the establishment of a precise, standardized and measurable healthcare service model, (ii) the creation of more medical service resources as a whole where quality hospitals have larger capacity and more doctors can offer quality services, and (iii) the extension of quality healthcare services from hospitals to households.

# **INDUSTRY OVERVIEW**

The PRC digital healthcare services market has developed rapidly in recent years. It covers four key components, (i) digital healthcare infrastructure, (ii) digital medical services, (iii) digital consumer healthcare products and services, and (iv) digital health management. According to Frost & Sullivan, the size of the PRC digital healthcare services market reached RMB140.4 billion in 2021 and is expected to further increase to RMB1,676.6 billion by 2030 at a CAGR of 31.7%. The following diagram sets forth the historical and forecast market size of the PRC digital healthcare services market size of the PRC digital healthcare services market size of the PRC digital healthcare services market from 2017 to 2030:



Source: the Frost & Sullivan report

Market players in each of the four components of the PRC digital healthcare services market are facing challenges. For the digital healthcare infrastructure segment, major challenges include (i) high capital requirements as the size of investment in this segment is relatively large and investment cycle is relatively long; and (ii) the experience and knowhow required to apply and operate the digital infrastructure for medical institutions. For the digital medical services segment, major challenges include (i) lack of standardize medical records and prescriptions in primary medical institutions and the lack of market education, making it difficult for market players to provide full-service support; and (ii) implementation of diagnosis-related classification, requiring market players to possess technical capabilities to incorporate functions enabling the use and control of medical insurance budget. For the digital consumer healthcare products and services segment, major challenges are to precisely locate helpful medical information and effectively connect online and offline medical resources. For the digital health management segment, major challenges include (i) the capability of detailed data collection and proper data analysis and management; (ii) the requirement of the speciality and reliability of digital health management services to be provided.

### Characteristics of the PRC Digital Healthcare Services Market

The most significant characteristic of the digital healthcare services market in China is the interconnectivity among the participants of this industry, which is reflected in the following aspects:

- **Connection between online and offline.** Connection between online and offline makes it possible for healthcare services that conventionally take place offline to be enabled online, which allows both healthcare providers and patients to benefit from diversified channels of healthcare services. In particular, from the healthcare provider's end, it helps to reorganize and optimize the utilization of medical resources; from the patient's end, it helps to simplify the onerous procedures when patients are seeking healthcare services. By and large, the connection between online and offline healthcare services promotes the overall efficiency of healthcare system, improving the accessibility of medical resources.
- Connection between inside and outside of medical institutions. Connection between the inside and outside of the medical institutions is to establish the continuity of care for post-discharge patients and address their needs for covalescent care outside the medical institutions. Such connection also focuses on expanding the tracking of personal data from inside of a medical institution to the outside. By connecting EMRs inside of medical institutions with personal health data generated outside of medical institutions, it creates a continuity of personal health data that captures a more accurate and comprehensive health profile for a person, which forms the basis of improving healthcare quality in terms of better healthcare decisions, more coherent health management and efficient expense control. EMRs are electric medical records generated electronically within a medical institution when a patient visits a doctor. Personal health data records, on the other hand, are generated by monitoring body conditions through smart health products in daily life. Digital healthcare services cover both digital medical services and health management services to enable the connection of EMRs and personal health data through an opened digital channel, where doctors can access certain health related data of patients to gain an accurate and comprehensive understanding of the patients' condition.
- Connection among medical institutions. Connection among medical institutions is the linkage of different tiers of medical institutions and formation of regional cooperative healthcare service network. Through the sharing of medical information and opening of mutual transfer channels, the healthcare service network can assist with hierarchical diagnosis and treatment, improve convenience of patients to manage chronic diseases, and provide technical infrastructure for telemedicine.

### Accelerated Digitization of the PRC Digital Healthcare Services Market

Digitization is a prevailing means to achieve the interconnectivity among the participants of the PRC digital healthcare services market. Benefitting from the development of technologies including communication technology and information technology, digital platforms become easier to be established for digital healthcare service providers to accelerate the digitalization of digital medical service market. The demand of digital healthcare services is driven by upgraded healthcare demands of patients that seek high-quality healthcare services including speedy and convenient online diagnosis or treatment advices.

### Drivers of the digitalization of the PRC digital healthcare services market

The digitization of this market is driven by the following factors:

### Technology Development and Upgraded Healthcare Demands

With the advancement of technology infrastructure, information technology is further integrated with the traditional healthcare industry, which drives innovation and upgrade of products and service models for digital medical services. Such upgrade is also attributable to the rising demands for high-quality healthcare services. Through the application of information technology, hospitals or doctors of different levels are able to communicate and cooperate smoothly and patients could also access high-quality healthcare services across regions. With the increasing popularity of Internet and the growing health awareness, digital medical services are becoming well-recognized and used by more users.

### Favorable Government Policies

The PRC government has always attached great importance to improving the operational efficiency of the healthcare industry by the means of digitization, especially the operational efficiency of social medical insurance funds, in order to effectively address the difficulty and expensiveness in seeking medical consultations by patients. In recent years, the PRC government issued a number of policies to promote the digitization of the industry. For example, it implemented the standards of Internet hospitals, and opened up online access to social medical insurance payment, propelling the development of various forms of "Internet + Healthcare" services and products. In particular, in the backdrop of the COVID-19 pandemic, the PRC government has published a series of favorable policies, including Notice on Strengthening Informationization to Support the Prevention and Control of the COVID-19 (《關於加強信息化支撐新型冠狀病毒感染的肺炎疫情防控工作的通知》) Pandemic and Notice on "Internet + Diagnosis and Treatment" Consultation Services in the Prevention and Control of the Pandemic (《關於在疫情防控中做好互聯網診療諮詢服務工作的通知》) in February 2020, and Guiding Opinions on Promoting "Internet+" Medical Insurance Services in the Prevention of the COVID-19 Pandemic (《關於推進新冠肺炎疫情防控期間開展「互聯網+」 醫保服務的指導意見》) in March 2020. In addition, according to the "Implementation Guideline for Promoting High-Quality Development of Healthcare Industry (2019-2022)" issued by NDRC in 2019, it is encouraged to construct healthcare information platforms within

# **INDUSTRY OVERVIEW**

provinces to connect medical institutions and share medical resources and data through such platforms, promoting the digitalization and balanced distribution of medical sources within provinces. These policies focus on the promotion of the digitization progress of the entire healthcare industry, and particularly the following areas: (i) to promote online voluntary consulting; (ii) to give full play to the role of online consultation in prevention and control, scientifically organize online diagnosis and treatment; and (iii) to cover Internet medical treatment with medical insurance.

### **COVID-19** Pandemic

During the COVID-19 pandemic, the PRC government implemented strict measures to control the outbreaks in China, including workplace shutdowns and travel restrictions. The disruptive impact of the COVID-19 pandemic has exposed a number of vulnerabilities in the traditional healthcare system and highlighted the need for the whole system to work together.

Faced with significant pressures on the healthcare system, the PRC digital healthcare services market has witnessed an acceleration of digital transformation across many processes of healthcare among multiple healthcare participants. During the COVID-19 pandemic, an increasing number of medical institutions started participating in digital medical platforms and providing online consultations. This has driven more patients to experience digital medical services. The acceptance of digital medical by both patients and doctors has increased significantly, and digital healthcare platforms supplementary to the traditional healthcare services have also been widely recognized by the PRC government for the value it has brought about. According to the NHC, the number of Internet hospitals increased over eight times from 158 in May 2019 to more than 1,700 in June 2022. In the backdrop of the COVID-19 pandemic, the online diagnosis and treatment by third-party platforms increased approximately 17 times in 2020 as compared to 2019.

Since the outbreak of COVID-19, the National Healthcare Security Administration had introduced "Internet medical service" in the national medical insurance document for the first time and implemented detailed policies to support the development of online follow-up medical services for common and chronic diseases provided by Internet medical institutions for insured persons. Such policies set up specific goals and guidelines to be reached in the future, encouraging the digitalization of healthcare going forward. In addition, in response to the lockdown as affected by the COVID-19 pandemic, healthcare service providers have accelerated the digitalization of medical services. Remote diagnosis and treatment have been accepted and will be more widely used after the pandemic due to its high efficiency and convenience. COVID-19 pandemic leads to the promulgation of relevant government polices and accelerates the application of healthcare digitalization, and therefore, positive effect on the digital healthcare services market is expected to continue in the future after the ease of the COVID-19 pandemic.

# **INDUSTRY OVERVIEW**

### **Entry Barriers**

New market entrants to the PRC digital healthcare services market are confronted with a number of barriers, including those relating to:

- *Capabilities to empower multiple participants.* Market players' capabilities to serve and empower multiple participants in the healthcare system are important to attract participants to their digital healthcare solutions and platforms to achieve growth. New entrants to the market may experience difficulties in establishing platforms that integrate patients, medical institutions, medical insurers and local governments and developing such capabilities in a short period of time.
- Comprehensive healthcare service offerings for the full healthcare cycle. The failure to provide comprehensive healthcare services over digital healthcare platforms that cover the full cycle of healthcare may risk discouraging new and losing existing users, thereby reducing the activeness of such platforms. Existing market players are often equipped with well-established service offerings and may find it easier than new entrants to maintain user satisfaction and attract and retain users.
- *Healthcare quality management capabilities*. The establishment of a comprehensive and effective healthcare quality management system is crucial to the user experience and satisfaction of healthcare services provided, as healthcare services are treatment outcome oriented. New market entrants may not be able to so establish such system in an early stage of their business.
- Data accumulation and platform technological capabilities. The access to large volumes of medical data and technological capabilities to ensure the scalability and reliability of digital healthcare platforms are vital to the continuous development of digital healthcare solutions and platforms. In contrast, it is relatively difficult for new market entrants to acquire such access and capabilities within a short period of time.

# **INDUSTRY OVERVIEW**

### **Competitive Landscape**

Among all major players in the PRC digital healthcare services market, diversified cooperation models arise with different contents and methods. As a city has all the key participants of the healthcare system including local health administrations (regulators), medical institutions (healthcare providers), patients (demand) and medical insurers (payers), such cooperation models are typically at a municipal level, thereby forming municipal-based systems. According to Frost & Sullivan, Neusoft Xikang ranked first among the five major players by number of cities with strategic cooperation at municipal level as of September 30, 2022, as illustrated in the following table:

Major Players <sup>(1)</sup>	Background and Listing Status (if applicable)	Business Model Description	Cities with Strategic Cooperation at Municipal Level as of September 30, 2022	Contents of the Strategic Cooperation
Neusoft Xikang	Mainly focused on the provision of cloud hospital platform services, Internet medical services, health management services and smart healthcare products	Providing cloud hospital platform operation services, Internet medical services, health management services and smart healthcare products	28 Cities	Established city-specific cloud hospital platforms, a digital healthcare infrastructure to facilitate the digitization of the local healthcare landscapes. For details, see "Business – Our Solutions."
Company A	Established and operated the first online hospital in China, with an innovative model of "Internet + Medical Health"; incorporated in 2004	Providing online medical services and health maintenance services	17 Cities	Launched digital chronic disease management service model empowered by Internet hospitals, with direct settlement by public health insurance in China, where city-based digital consultations, treatment and management services to users with certain chronic diseases can be provided

# **INDUSTRY OVERVIEW**

Major Players <sup>(1)</sup>	Background and Listing Status (if applicable)	Business Model Description	Cities with Strategic Cooperation at Municipal Level as of September 30, 2022	Contents of the Strategic Cooperation
Company B	Committed to building a health management platform that takes medicine and health product supply chain as the core, and also concentrated on digital-driven medical services; listed in Hong Kong in December 2020	Providing retail pharmacy operation services and online medical services	7 Cities	Established regional Internet hospital to improve accessibility of comprehensive healthcare services including medical consultations, health management, chronic disease management, adopted digitization at primary medical institutions to improve management capability and further utilized big data to cooperate with local medical insurance to better supervise and prevent medical insurance abuse and fraud
Company C	Mainly concentrated on the fields of pharmaceutical e-commerce, medical services and digital healthcare; listed in Hong Kong through asset injection into a then listed company	Providing pharmaceutical direct sales business, pharmaceutical e-commerce platform business, medical and healthcare services business and pharmaceutical products tracking and consumer healthcare	5 Cities	Established cooperation at the municipal level to improve the accessibility of healthcare services including medical consultation, drug prescription and health management, among other things, thereby forming the foundation to manage the residents' health data at a regional level, which helps the region better control the healthcare expenditure, balance the healthcare resources and facilitate commercial healthcare insurance development
Company D	Operated as one of leading companies in the Internet healthcare industry; listed in Hong Kong May 2018	Providing online healthcare services, consumer healthcare services, health e-commerce and health management and wellness services	4 Cities	Formed Internet hospital platform to connect with local medical institutions, which consisted of five modules of services, namely, online diagnosis, prescription circulation, health management, data monitoring and back- office management

Source: the Frost & Sullivan report, public filings of companies

<sup>(1)</sup> The identities of peer companies are presented in code names. Even though Companies B to D are listed companies, the relevant data was not directly extracted from their respective public filings, and was compiled by Frost & Sullivan based on last available public filings together with subsequent news articles, press releases, and other public sources, as part of the data compilation methodology of Frost & Sullivan. Accordingly, as we had not acquired consent from these companies as of the Latest Practicable Date, unauthorized disclosure may cause potential disputes.

### **INDUSTRY OVERVIEW**

The following table sets forth further details on our competitive landscape of the PRC digital healthcare services market in 2021 or as of December 31, 2021, as appropriate, by sub-industry:

Sub-Industry	Type of market players	Intensity of competition and industry position of our Company
Digital healthcare infrastructure industry	Healthcare IT solution providers, such as traditional IT solution companies with business footprint in the healthcare industry as	We face competition from competitors across China and the intensity of competition in this market was rather high. There were roughly dozens of competitors in such market, while only very few of them had established strategic cooperation at the municipal level.
	well as specialized health-tech companies	We ranked first in terms of number of cities with city-specific cloud hospital platforms.
		We ranked third in terms of the total number of medical institutions (including both primary medical institutions and hospitals) connected to digital healthcare platforms. Our network of medical institutions covered 3.4% of the total number of medical institutions in China, while our competitor that ranked first covered 9.4% of the total number of medical institutions in China.
		We were also one of the few companies whose platform network was connected to more than 2,000 hospitals in China. Our network has covered 5.8% of the total number of hospitals in China.
Digital medical services industry	Digital medical services companies, such as online medical appointment making and consultation platform companies, online prescription processing platform companies, and other companies providing various digital medical services	This market is rather crowded as there were around 100 competitors providing digital healthcare platforms.
		We were among the top three players in terms of the number of medical institutions connected to the platform, and among the top 15 players in terms of the number of doctors registered with the platform.
		We ranked 13th among the top 15 players in terms of Internet medical service volume. The annual service volume of the top five players ranged from 54.8 million to 265.3 million.
Digital health management industry	Health management service companies, such as franchise of private health check-up companies and the health check-up departments of public hospitals	Health management service companies can be divided into private ones operated in a chain manner, and public ones mainly provided by public hospitals. The market is relatively scattered, with top three players contributing to less than 15% of the market share in terms of revenue. This is largely due to offline nature of health check-up service with leads to limitations on geographical service coverage. In different regions, the respective market leaders are subject to restrictions on the number of physical check-up centers of such region, therefore exhibiting regional differences.
Digital consumer healthcare products and services industry	Digital health product companies, such as medical equipment companies and traditional IoT product companies with healthcare offering	There are a large number of players in this industry, with different specializations and business focuses. Sub-industries within this industry are diversified, including IoT, home-use medical devices, medical-use devices, and physiotherapy equipment industries, among other things, leading to a scattered market. The sub-industries each have their own parameter and criteria with unique weight assignment to evaluate the top players. For example, some of the leading players in the home-use medical devices industry have had little revenue from sales of medical devices to hospitals, and it will fail to show their competitively advantageous position if they are ranked within the larger digital consumer healthcare products and services industry. Meanwhile, our Company focused on smart healthcare products targeted at institutional settings including primary medical institutions and practitioners in rural communities. Compared to the other players, our business focus is relatively unique and thus there is no direct competitor with similar business focus. Accordingly, there is a lack of unified metrics to qualitatively or quantitatively assess the rankings of specific players in this industry to meaningfully and accurately reflect the competitive

landscape.

### DIGITAL HEALTHCARE INFRASTRUCTURE INDUSTRY

#### Overview

Digital healthcare infrastructure industry refers to the infrastructure system that uses digital technology as the core and meets healthcare needs through digital means. The digital healthcare infrastructure serves to develop the healthcare industry, enhance national health awareness, and realize universal and equitable access to healthcare. Digital healthcare infrastructure is the base of digital healthcare services. Digital healthcare infrastructure includes a set of fundamental facilities and systems for healthcare purposes that is based on digital technology, network technology, communication technology, electronic technology and information technology. It is an innovative modern service system that is driven by healthcare digitalization.

Benefitting from the development of digital healthcare infrastructure, the digital healthcare platforms have been upgraded to contain extended functions by providing multiple series of healthcare services, as opposed to merely carrying out basic functions such as establishing a hospital information system. In particular, through digital healthcare infrastructure, medical data can be shared among different specialities in medical institutions or even among different medical institutions to diminish the information gap in the healthcare system through such connectivity.

The digital healthcare infrastructure industry is the largest component of the digital healthcare services market in China. According to Frost & Sullivan, the size of the PRC digital healthcare infrastructure industry reached RMB80.4 billion in 2021 and is expected to increase to RMB631.7 billion in 2030, at a CAGR of 25.7%. The following diagram sets forth the historical and forecast market size of the PRC digital healthcare infrastructure industry from 2017 to 2030:



Source: the Frost & Sullivan report

# **INDUSTRY OVERVIEW**

### **Future Trends**

The PRC digital healthcare infrastructure industry has demonstrated the following trends:

- **Expansion and integration.** Various top medical institutions and primary medical institutions are expected to join the digital healthcare platforms, thereby sharing the same pool of resources and patient demands, which is expected to further attract additional medical institutions to the platforms. Meanwhile, various functions are expected to be integrated into digital healthcare platforms to maximize the value of the platforms optimized by information technologies.
- Standardization. Standardization is expected to improve the quality of medical data, leading to better cooperation between digital healthcare platforms and hospital information systems, public health systems as well as social medical insurance systems. In addition, the advocacy by the PRC governments in respect of patient sorting is expected to lead to further standardization of the diagnosis and treatment processes. Clinical guidelines are also expected to establish standard treatment paradigms of different diseases.
- **Specialization.** With the increasing demand of realizing the life-cycle management of different diseases and delivering patient-centric care, healthcare services are becoming more specialized. To align with such trend, it is expected that healthcare infrastructure providers will be able to offer corresponding software services to facilitate clinic cooperation and whole process management of certain diseases, enhancing the specialization of healthcare.
- **Data protection.** Protection of patient records and privacy has long been raised as a paramount issue, since it helps to maintain the fundamental fiduciary doctorpatient relationship. Thus, in order to maximize the benefit of such infrastructure, it is expected that infrastructure service providers will enhance data security, addressing privacy issues.

### **Entry Barriers**

New market entrants to the PRC digital healthcare infrastructure industry are confronted with a number of barriers, including those relating to:

- *Capability to attract customers.* Public medical institutions still dominate China healthcare's system, which means that the digital healthcare infrastructure business heavily relies on public bidding and brand reputation to attract customers. Medical resources, knowledge and experience in healthcare industry, and general client acquisition capabilities are critical to attract new customers.
- *Multi-disciplinary technique.* The application and operation of digital healthcare infrastructure in medical institutions requires software and hardware techniques, and the experience and know-how to integrate into healthcare services are also important for a market player to serve medicals institutions.

- Service coverage. Integration of digital healthcare infrastructure with healthcare services enables offline healthcare services to move online, improving accessibility and convenience. To achieve this, a series of functions including digital connection among different entities to break isolation of a sole medical institution and efficient internal informatization, need to be systematically realized. Market players with one-stop service coverage are preferred due to better compatibility among different function modalities and lower vendor management costs from customers' perspective.
- *First mover advantage.* Platforms providers who establish platforms early, address fundamental demands of customers and build business relationships with stakeholders of the healthcare system are expected to take the lead in the digital healthcare infrastructure market. This is because the complexity of the healthcare system as well as the scale and depth of involvement by various parties make it difficult and costly for existing platform participants to switch to new platforms.

#### DIGITAL MEDICAL SERVICES INDUSTRY

#### Overview

Digital medical services could be efficiently delivered through digital healthcare platforms, which connect hospitals and other medical institutions, medical professionals and patients in China to aid the healthcare system to achieve greater productivity and efficiency. In particular, with the advancement of digital technology, healthcare services that conventionally take place offline are enabled online. The entire process from registration to medicine pick-up can be digitized to resolve the current pain points of the PRC healthcare services industry by building up a linkage between online and offline services, controlling medical expenses and breaking information barriers. According to Frost & Sullivan, the size of the PRC digital medical services industry reached RMB31.7 billion in 2021 and is expected to increase to RMB504.8 billion in 2030, at a CAGR of 36.0%. The following diagram sets forth the historical and forecast market size of the PRC digital medical services industry from 2017 to 2030:



Source: the Frost & Sullivan report

Digital medical services have the following advantages:

- *Improve medical resource distribution.* Digital healthcare platforms can effectively integrate resources and break time and geographical restrictions. On such platforms, doctors can use fragmented spare time to conduct consultations and follow-ups, thereby increasing the supply of medical resources. The platforms can also match the supply and demand, so that patients in remote areas can enjoy quality healthcare services by seeking diagnosis online, overcoming the problem of uneven distribution of medical resources.
- *Optimize medical procedures*. Digital healthcare platforms can help transfer some offline services online, such as appointment registration, result check and payment, which are typically time-consuming and laborious, thereby shortening the waiting time of patients at the hospitals and improving the overall experience.
- Save costs for insurance fund. Digital healthcare platforms can accumulate and store health data. Integrating data and AI technology can provide support for cost savings for medical expenses and insurance funds to potentially alleviate the expected deficit of the social media insurance.
- Weaken the information asymmetry. Information barriers often exist between patients and doctors, and diagnosis and treatment is often based on the doctors' knowledge and experience. Through the digital healthcare platforms, patients can seek experts' advice in different fields concurrently based on their own needs.

Digital healthcare platforms can effectively collect, store, transmit and integrate the information of patient's personal medical records, as well as health economic information from payers, and incorporates all such information into healthcare database, thereby optimizing the user experience of both patients and payers. Moreover, digital healthcare platforms can regularly handle daily issues of hospital management to improve administration efficiency. Digital healthcare platforms may help integrate patients, providers and payers to form a regional healthcare system at a municipal scale, namely a municipal-based healthcare system. The municipal-based healthcare system typically has the followings features:

- *From the patients' side.* Due to the improved public healthcare accessibility through digital healthcare platforms and services, patients could seek follow-up consultations of chronic diseases in the city they live in, thereby improving convenience and healthcare service experience.
- *From the providers' side.* The municipal-based healthcare system established based on city-level hospital clusters can alleviate the distribution imbalance of medical resources by sharing them with all hospitals in the area.
- *From the payers' side.* The payment from insurance is expected to be approved, processed and controlled at a municipal level through the digital healthcare platforms and services, which may potentially relieve the expected deficit of the social medical insurance.

The following diagrams set forth breakdowns of medical institutions into public and private sectors and a breakdown of patient visits by type of medical institutions in 2021:



# Breakdown of Patient Visits at Hospitals and Primary Medical Institutions in China, 2021



Unit: Patient visits in thousands

#### Source: the Frost & Sullivan report

*Note:* Primary medical institutions include community healthcare centers, community healthcare stations, township clinics, and other clinics (such as Chinese medicine clinics, and general clinics, among other things). In particular, the community healthcare centers and township clinics mainly fall within the public sector, while other clinics and community healthcare stations mainly fall within the private sector.

# **INDUSTRY OVERVIEW**

### **Future Trends**

The PRC digital medical services industry have demonstrated the following trends:

- *Further improvement in the healthcare service payment system.* Driven by favorable government policies, the integration of digital medical services with social medical insurance in various regions is expected to be accelerated. The publication of such favorable policies is expected to significantly improve the social medical insurance system in the future to cover more types of digital medical services.
- Increased prevalence of health-oriented digital medical service model and rapid expansion of digital chronic disease management model. In the future, the health-oriented digital medical service model is expected to extend to more regions and cover larger populations. Furthermore, the online and offline digital chronic disease management services are expected to develop rapidly in light of the aging population and enhanced health management awareness of the public.
- **Rapid development of healthcare services and specialty healthcare services.** Due to the increase of disposable income per capita and the enhancement of health awareness, the future healthcare services market is expected to further expand to meet the diversified healthcare needs. Customer demand is likely to expand from disease treatment to health management, which focuses on high-end or specialty healthcare services, such as assisted reproductive services and medical tourism.

### **Entry Barriers**

New market entrants to the PRC digital medical services industry are confronted with a number of barriers, including those relating to:

- *First mover advantages.* In order to solve the data silo issue caused by discouraged sharing of information, digital healthcare platforms need to be joined by as many hospitals as possible to gain sufficient scale of healthcare data. As a result, well-developed platforms are able to occupy a large share of the digital medical services market and efficiently lower the operating costs of the platforms.
- *Extensive specialized departments.* Along with the continuous advancement of medical research, the specialized departments of hospitals subdivide, even spin off into separate specialized hospitals. As digital healthcare platforms provide personal healthcare solutions to patients with all sorts of injuries and illnesses, the therapeutic areas of such platforms need to be comprehensive, which is hard to achieve for new entrants.

- *Grasping municipal-based access*. Due to the trend of establishing municipal-based healthcare systems, the municipal-based access by market players is becoming critical to their business development. New entrants to the market may experience difficulties in successfully accessing city-based healthcare systems through their platforms.
- **Data protection.** For digital healthcare platforms, huge amounts of data from patients and institutions are collected and stored. Such data are strictly confidential for not only the patients but also the whole nation. New entrants may not be able to achieve the capabilities to ensure the security of the healthcare data on their platforms within a short period of time as the existing market players.

### DIGITAL CONSUMER HEALTHCARE PRODUCTS AND SERVICES INDUSTRY

#### Overview

Digital consumer healthcare products and services effectively integrate online and offline resources by providing non-public funded, non-therapeutic and market-oriented healthcare services including health check-ups, cosmetic medicine, and cancer screening and detection, among other things. Empowered by digital platform technologies, the digital consumer healthcare products and services market is expected to attract more potential consumers and experience sustainable growth.

The digital consumer healthcare products and service industry is the smallest component of digital healthcare services market in China, while it is expected to expand rapidly in the future with phenomenal potential. According to Frost & Sullivan, the size of the PRC digital consumer healthcare products and service industry reached RMB12.4 billion in 2021 and is expected to increase to RMB352.6 billion in 2030, at a CAGR of 45.0%. The following diagram sets forth the historical and forecast market size of the PRC digital consumer healthcare products and service industry from 2017 to 2030:



Source: the Frost & Sullivan report

### **Future Trends**

The PRC digital consumer healthcare products and services industry has demonstrated the following trends:

- **Consolidation of consumer healthcare services.** Offline consumer healthcare services are typically specialized in a specific field, such as specialized health check-ups. The migration of such services to online is expected to accelerate the consolidation of these services by market players to capture the diversified demands from customers.
- Synergy with other segments in the digital healthcare services market. As a supplement to medical services, digital consumer healthcare products and services are expected to generate synergies with the other segments in the digital healthcare services market. Moreover, in light of the improving health awareness of residents, consumer healthcare services are expected to be integrated with other types of digital healthcare services in a more convenient manner.

# **Entry Barriers**

New market entrants to the PRC digital consumer healthcare products and services industry are confronted with a number of barriers, including those relating to:

- *Coverage of preventive care*. The ability to provide service coverage of preventive care is crucial to competing in the digital consumer healthcare products and services market. New market entrants may not be able to accumulate sufficient medical resources to provide such coverage.
- *Ability to establish a continuity of care*. Along with rising health awareness and an aging population, the needs for continuing health management grow significantly, and the ability of market players to address such needs is important to attract customers. New entrants may not have the required resources to acquire such ability.
- *Capability to target and maintain customers*. Existing market players may capitalize on the health profiles of customers generated in the course of their provision of digital consumer healthcare products and services to provide services that more accurately match with the respective customer's needs. However, new market entrants may not be able to achieve the capability within a short period of time.

### DIGITAL HEALTH MANAGEMENT INDUSTRY

#### Overview

Digital health management via smart healthcare products and services refers to (i) healthcare products that are enabled by the Internet and Internet of Things technology, thereby making them digital, people-centric and visualized, and (ii) healthcare services provided based on health monitoring devices with emerging technologies such as Internet of Things, cloud computing and mobile Internet. Smart healthcare products and services can help build a person-centric healthcare management system, thereby enabling customers to effectively and conveniently manage health conditions. According to Frost & Sullivan, the size of the PRC digital health management industry reached RMB15.9 billion in 2021 and is expected to increase to RMB187.5 billion in 2030, at a CAGR of 31.5%. The following diagram sets forth the historical and forecast market size of the PRC digital health management industry from 2017 to 2030:



Source: the Frost & Sullivan report

### **Future Trends**

The PRC digital health management industry has demonstrated the following trends:

• *Application in broader settings*. Driven by the diverse demand of customers for health monitoring and light healthcare services on a daily basis, customers expect smart health products and services to apply to more settings. This is expected to lead to the emergence of more types of smart health products with new functionalities and greater service utilization.

- Increased connectivity of healthcare data. Health data generated from smart healthcare products were historically siloed and unable to be automatically stored or integrated into the customers' medical records. In light of the growing customer needs to establish a continuous health profile to allow more precise medical decision-making, health management is expected to be connected to digital healthcare platforms.
- *Emphasis on the value of services*. The increasing use of smart healthcare products is expected to drive the flow of medical data to healthcare providers, and encourage them to provide more value-based personalized healthcare solutions to customers in the long term.

### **Entry Barriers**

New market entrants to PRC digital health management industry are confronted with a number of barriers, including those relating to:

- *Strict supervision and rigorous regulation.* The safety and quality of healthcare products and services are vital as they concern the health of people, and has always been the top priority of supervision and regulation. New entrants may need to incur substantial compliance costs initially, which can be detrimental to their businesses.
- **Scaled organization and standardized management.** Existing market players are often established players in other health segments with cross-regional presence and may find it easier to create synergies with their digital health management business, which may not be the case for new entrants.
- *Endorsement of medical institutions.* Due to the requirement of precision in the healthcare industry, the quality of data output by many smart healthcare products may not be sufficient to be directly utilized by medical institutions. Accordingly, endorsement from medical institutions is crucial to the development of digital health management, which may be difficult for new market entrants to obtain.
- **Data safety and privacy protection.** As digital health management directly acts on the customers, providers of such products and services are required by laws and regulations to implement strict protection measures regarding the access to sensitive and confidential user information. New market entrants may incur substantial compliance costs to ensure data security as required.

### SOURCES OF THE INDUSTRY INFORMATION

We engaged Frost & Sullivan, an independent market research consultant, to conduct an analysis of, and to prepare a report upon, the general health and wellness, healthcare services and digital healthcare services markets in China for use in this document, which was commissioned by us for a fee of RMB840,000. Frost & Sullivan prepared its report based on data released by government institutions and non-government organizations and its primary research.

Forecasts and assumptions included in the Frost & Sullivan report are inherently uncertain because of events or combinations of events that cannot be reasonably foreseen, including, without limitation, the actions of government, individuals, third parties and competitors. Specific factors that could cause actual results to differ materially include, among other things, risks inherent in the general health and wellness, healthcare services and Internet healthcare industries in China, financing risks, labor risks, supply risks, regulatory risks and environmental concerns.

Except as otherwise noted, all of the data and forecasts contained in this section are derived from the Frost & Sullivan report. Our Directors confirm that after taking reasonable care, there is no material adverse change in the overall market information since the date of the Frost & Sullivan report and up to the date of this document that would materially qualify, contradict or have an impact on such information.