The information and statistics set out in this section and other sections of this document were extracted from the report prepared by iResearch, which was commissioned by us, and from various official government publications and other publicly available publications. We engaged iResearch to prepare the iResearch Report, an independent industry report, in connection with the [**REDACTED**]. *We believe that the sources of this information are appropriate sources for such information and have taken reasonable care in extracting and reproducing such information. We have no reason to believe that such information is false or misleading or that any fact has been omitted that would render such information false or misleading. The information from official government sources has not been independently verified by us, the Sole Sponsor, the* [**REDACTED**]*, the* [**REDACTED**] *or any other party involved in the* [**REDACTED**] *and no representation is given as to its accuracy.*

Accordingly, you should not place undue reliance on such information. For risks relating to our industry, see "Risk Factors – Risks Relating to Our Industry" in this document.

AI SOLUTION MARKET IN CHINA

Artificial Intelligence (AI) is a branch of computer science that studies and develops technologies applied to simulate and extend human intelligence. It is aimed at simulation of human perception, cognition, and thinking through algorithms and models, so as to realize human-like intelligence throughout the communication, thinking and execution processes.

With the surging trend of digitalization and intelligent transformation globally, AI is currently being integrated deeply with various industries, in which it is leading towards global technological innovations and development of new application scenarios. Therefore, AI has been regarded as the "next-generation infrastructure", being widely applied in areas including city management and administrative services, transportation, telecommunications, finance, healthcare and education, etc. According to the iResearch Report, the global AI solution market reached RMB1.4 trillion in 2023 and is expected to reach RMB4.3 trillion in 2028, at a CAGR of 24.1% from 2023 to 2028.

The AI solution market in China is now pioneering the global AI solution market with the highest growth rate, which has been strongly stimulated by continuous favorable industrial policies and constant accumulations of talents, patents and investments, among other development resources, into the area. According to the iResearch Report, the AI solution market in China reached RMB272.4 billion in 2023 and is expected to reach RMB761.2 billion in 2028, at a CAGR of 22.8% from 2023 to 2028.

The AI solution market in China can be categorized into segments including conversational AI solutions, computer vision AI solutions and AI general technologies solutions. The following sets forth the definition and major applications of these three categories of technologies:

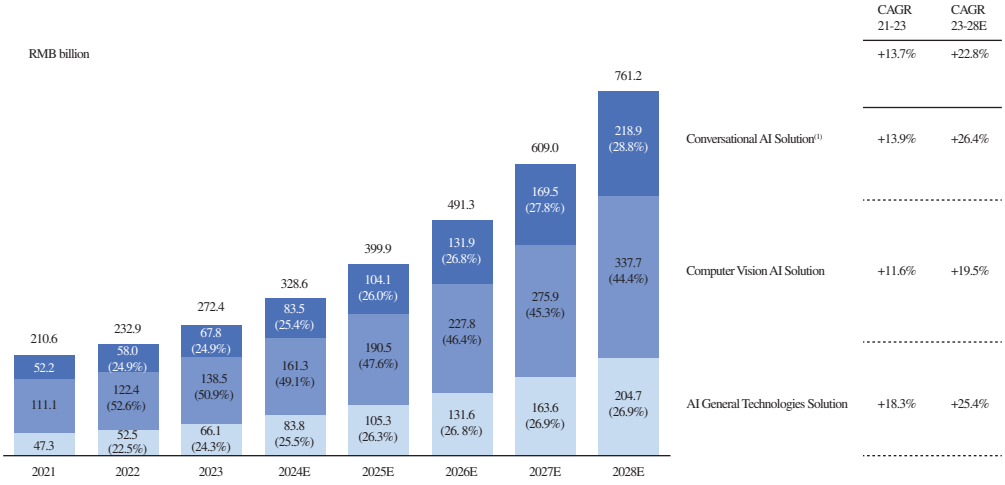
- **Conversational AI** comprises the complex of technologies that enable machines to understand the intent behind natural languages and, through effective human-machine interactions, respond to human beings or execute various tasks assigned by human beings. It realizes speech-based communications between human beings and machines by combining technologies including unified communications, automatic speech recognition, emotion recognition, natural language processing and text to speech.

- **Computer Vision AI** enables cameras and computers to identify, track and measure images and videos in lieu of human eyes, through which it allows extraction of valuable information and data, and performance of tasks such as analyses and automation.

- **AI General Technologies** refer to those key generally applicable AI technologies other than conversational AI and computer vision AI, such as machine learning, which can also play an important role in the aforementioned two areas.

According to the iResearch Report, conversational AI solutions accounted for 24.9% of the AI solution market in China in 2023. This share expected to increase to 28.8% in 2028. The conversational AI solution market in China is expected to grow at a CAGR of 26.4% from 2023 to 2028, making it the fastest-growing segment among all three segments.

Market Size of AI Solution Market in China by Segment, 2021-2028E[(2)]



Source: iResearch Report

Notes:

(1) Conversational AI solutions referred to in this document also include IT solutions that, besides core conversational AI technologies defined below, are additionally empowered by unified communications and/or other AI technologies.

(2) The market size is calculated based on revenue from sales of software, hardware, and supporting services. In the case of AI general technologies solutions being applied to conversational AI or computer vision AI solutions, they were taken into account when calculating the respective market size of conversational AI or computer vision AI solutions within China's AI solution market. Numbers of each item may not add up to the total due to rounding.

MARKET OF IT SOLUTIONS EMPOWERED BY CONVERSATIONAL AI & UC IN CHINA

According to the iResearch Report, the conversational AI solution market in China can be divided into that of enterprise-level conversational AI solutions and consumer-level conversational AI solutions based on the type of target users, among which:

- **Enterprise-Level Conversational AI Solutions** target organizations, including corporations and government entities, and aim to offer solutions based on conversational AI technologies applied in various end-customer industries. By being integrated with organizations' business procedures on production, sales and post-sales services, etc., such solutions are to improve their communication efficiency and facilitate the intelligent transformation of their operations, so as to achieve cost-efficiency.

- **Consumer-Level Conversational AI Solutions** aim at providing individual consumers with conversational AI-empowered solutions that can be used in daily application scenarios to achieve human-machine interactions and device control.

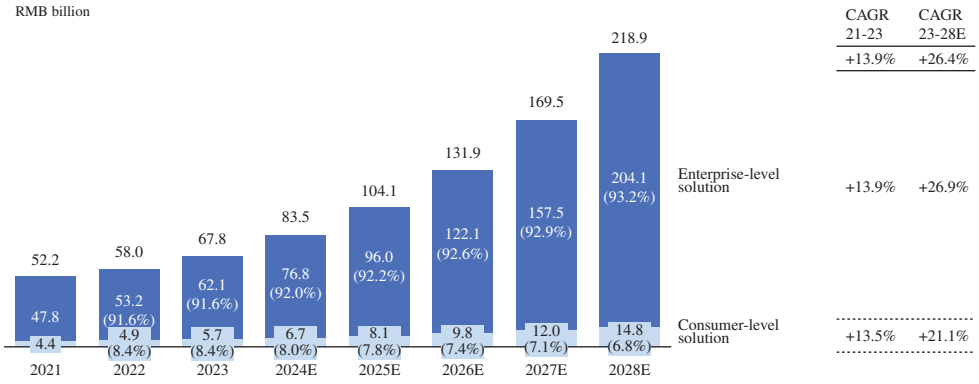
The following table illustrates a comparison between the current application status of enterprise-level conversational AI solutions and consumer-level conversational AI solutions:

	Enterprise-Level conversational AI Solution	Consumer-Level conversational AI Solution
Technical threshold Assessed by the type of technologies required to meet the minimum usage requirements	High	Low
Development investment requirements Assessed by the average R&D investment of solution providers	High	Low
Technology maturity Assessed by current demand satisfaction in various application scenarios	Medium	Medium
Commercialization potential Assessed by the size of the potential serviceable market	High	Low
Anti-cyclicality Assessed by revenue model and key factors that affect market payment	High	Low
Market competition Assessed by the number of market participants and whether there is an oligopoly or monopoly market	Low	High

Source: iResearch Report

According to the iResearch Report, the market growth of consumer-level conversational AI solutions depends substantially on consumers' willingness for spending on the smart devices into which the conversational AI technologies are embedded. By contrast, enterprise-level conversational AI solutions in China are pertinent to more diversified application scenarios in the course of enterprise-level users' digitalization and intelligent transformation, thus having higher commercial values in comparison with the former. In 2023, the enterprise-level conversational AI solution market in China reached RMB62.1 billion, and is expected to reach RMB204.1 billion in 2028, at a CAGR of 26.9% from 2023 to 2028. However, the penetration rate of enterprise-level conversational AI solutions in China, calculated based on the proportion of enterprise-level users that have deployed conversational AI solutions, was merely 11.6% in 2023, which is expected to increase to 16.2% in 2028.

Market Size of IT Solutions Empowered by Conversational AI & UC in China (Enterprise-Level vs. Consumer-Level), 2021-2028E*



Source: iResearch Report

Note:

* The market size of enterprise-level conversational AI solution market is calculated based on revenue from sales of relevant software and hardware, as well as other related supporting services, to enterprise-level users. The market size of consumer-level conversational AI solution market takes into account the output value of algorithms for AI speech assistant embedded in smart hardware in China, the forms of which include API calls or technological outputs, etc. Numbers of each item may not add up to the total due to rounding.

Enterprise-Level Conversational AI Leads Technological Innovations in China's Conversational AI Solution Market

According to the iResearch Report, the AI technologies key to conversational AI solutions include speech-related core conversational AI technologies, i.e., automatic speech recognition (ASR), emotion recognition, natural language processing (NLP) (primarily consisted of natural language understanding (NLU) and natural language generation (NLG)) and text to speech (TTS), as well as AI general technologies that can be applied in speech and semantic analysis, the details of which are set forth below:

- **ASR** converts human speech signals into corresponding computer-readable inputs such as texts, through speech signal processing and pattern recognition based upon parameters of speech features. ASR includes such key technological areas as voiceprint recognition, accent adaptation, end-to-end recognition, and low-power recognition, etc.

- **Emotion Recognition** suggests the current emotion states of human through collecting speech, facial expression, gestures and other physiological characteristics, as well as the analysis and processing of the same. Specifically, emotion recognition extracts the acoustic features expressing emotions from speech signals and establishes the mapping relationship between such features and human emotions, so as to realize the automatic recognition of the latter.

- **NLU** allows machines to understand the meaning of human languages through mapping users' inputs into the semantic slots predefined according to different scenarios, which covers the analyses of human pronunciation, vocabulary, grammar, semantics and pragmatics, as well as reasonings and logics.

- **NLG** transforms the abstract expressions output by machines into syntactically sensible and semantically accurate natural language utterances, which covers such key steps as content determination, text structuring, sentence aggregation, lexicalization, referring expression generation and linguistic realization.

- **TTS** realizes human-machine speech interactions by firstly generating speech parameters based on models, and then converting such parameters into natural speech streams, thereby giving machines the ability to talk.

In addition to the abovementioned core conversational AI technologies, enterprise-level conversational AI solutions can be substantially empowered by technologies on unified communications (UC), which represent a new mode of communications that integrates computer technologies with traditional communication technologies. Unified communications realize the connection and integration of multi-standard communication methods through gateways, and provide full-service support covering audios, videos, data and multimedia, etc., thereby enhancing the level of communication flexibility and efficiency. The high synergies between unified communications and AI technologies for enterprise-level conversational AI lie

in the fact that, in order for the solutions to truly improve enterprises' communication efficiency and facilitate the intelligent transformation of their operations on a one-stop basis, a complete and seamless human-machine dialogue process has to be enabled. Such a process necessitates the integration of signal input before human-machine dialogue for the interaction to be made and signal output after human-machine dialogue for the execution to be implemented, so that the application value of the processing activities realized by core conversational AI technologies can be considerably amplified. As such, for enterprise-level users of conversational AI solutions that require high standards of scale, efficiency and quality in speech signal input and output, unified communications can effectively support and ensure the said steps crucial for a complete human-machine dialogue process. For details of the value of unified communications in addressing the pain points experienced by enterprise-level users of conversational AI solutions in China, see "– Market of Full-Stack Enterprise-Level IT Solutions Empowered by Conversational AI & UC in China" in this section.

Enterprise-level conversational AI solutions need to be deeply integrated with applications scenarios of users from different end-customer industries, and are expected to continuously improve user experiences in cross-industry, cross-area, and cross-department business settings. As such, enterprise-level conversational AI solutions carry higher technological requirements compared with consumer-level conversational AI solutions with respect to recognition accuracy, response speed, system stability and ability to deal with high concurrencies, etc., therefore necessitating large-scale development expenditures. Furthermore, in contrast to consumer-level conversational AI solutions featured by a single round of conversation mostly in absence of mandatory technological parameters, enterprise-level conversational AI solutions need to be equipped with the capabilities of making multiple-round meaningful conversations to truly and accurately understand users' semantics and intent, and accordingly generate the accurate answers. Currently, enterprise-level conversational AI is hence leading the technological innovations and application diversification of conversational AI in China.

Growth Drivers of China's Enterprise-Level Conversational AI Solution Market

Stimulated by China's favorable industrial policies facilitating the digitalization of organizations on the supply side, and the significant economic scale and considerable social activity level giving rise to a rich variety of application scenarios on the demand side, growth of the enterprise-level conversational AI solution market in China is primarily driven by:

- **Organization Digitalization.** The digitalization of organizations in China is already a major trend. In 2022, the digital economy in China reached RMB50.2 trillion, accounting for 41.5% of the total GDP and substantially impacting the overall economy. As a crucial pathway for and process of organization digitalization, enterprise-level conversational AI solutions facilitate organizations' cost-effective operations and improve the overall recognition of their commercial value and their monetization abilities. Firstly, organizations' digitalization necessitates unified communication technologies enabling the inbound and outbound communications of information generated during their operations in various formats, such as audios,

texts, images, videos, and a combination of the same. Such unified communication capabilities enrich organizations' information exchanged, expand their forms of communications and improve their communication efficiency. In addition, organizations' accumulation of insights in the aforementioned multimodal forms through the digitalization trend further assists the efficient, speedy and scenario-oriented research and development of novel algorithms and optimization of machine learning models.

- **Technological Improvements.** With the evolvement of core intelligent-speech technologies, the boundaries of enterprise-level conversational AI with respect to the value it is able to create have been constantly extended. Originated from the simple Q&A interactions between human beings and machines, enterprise-level conversational AI solutions have gradually evolved to integrate knowledge engineering capabilities, such as knowledge base and knowledge graphs, and emotion computing models, which have equipped machines with solid knowledge background and the ability to conceive human emotions. Such progress has been efficiently automating business operations and enhancing enterprise-level user experiences, and further driving the ongoing expansion of the enterprise-level conversational AI solution market in China.

- **Application Scenarios Expansion and User Experience Enhancement.** As the application scenarios of human-machine interactions continue to deepen and broaden, enterprise-level conversational AI solutions have been empowering business operations through technological offerings, with innovative ones with higher cognitive abilities and tighter integration with downstream applications being actively explored. Benefitting from the foregoing, incremental markets have gradually been emergent. In addition, enterprise-level users have developed more diversified and demanding needs for the level of intelligence, flexibility and efficiency enabled by conversational AI solutions in the course of industrial upgrading, intensification of market competitions and updates in management notions, whereby differentiated market demand and continuously improved user experiences further stimulating the development of enterprise-level conversational AI solutions.

- **Favorable Industrial Policies.** Enterprise-level conversational AI acts as the key infrastructure that integrates the digital and real sectors of the Chinese economy. In recent years, favorable policies supporting the development of digital economy, unified communications and AI technologies have been released in succession, in order to encourage the development and commercialization of the relevant technologies. The following table illustrates a number of major favorable industrial policies:

Policies	Issuance Date	Issuer	Description
Plan for the Overall Layout of Building a Digital China (《數字中國建設整體佈局規劃》) (the "**Plan**")	February 2023	Central Committee of the Communist Party of China, the State Council	The Plan clarifies that the construction of digital China will be laid out in accordance with the overall framework of "2522", by, among others, solidifying the "two foundations" of digital infrastructure and data resource systems.
Opinions on Building a Basic Data System to Better Fulfill the Functions of Data Elements (《關於構建數據基礎制度更好發揮數據要素作用的意見》) (the "**Opinions**")	December 2022	Central Committee of the Communist Party of China, the State Council	The Opinions propose to, among others, fully leverage China's advantages of vast data scale and diverse application scenarios, and scale up, strengthen and optimize China's digital economy.
Notice on Supporting the Construction of a New Generation of AI Exemplary Application Scenarios (《關於支持建設新一代人工智能示范應用場景的通知》) (the "**Notice**")	August 2022	Ministry of Science and Technology	The Notice proposes to, among others, fully harness AI's role of empowering economic and social development, and support a group of AI application scenarios with relatively mature accumulations.

Policies	Issuance Date	Issuer	Description
Guiding Opinions on Accelerating Scenario Innovation to Promote High-Quality Economic Development Through Advanced AI Applications (《關於加快場景創新以人工智能高水平應用促進經濟高質量發展的指導意見》) (the "**Guiding Opinions**")	July 2022	Ministry of Science and Technology, the MIIT, etc.	The Guiding Opinions, among others, propose the theme of deep integration of AI and the real economy, and the direction of opening up scenario resources and enhancing scenario innovation capabilities.
Guidelines for the Construction of a New Generation of National Open Innovation Platforms for AI (《國家新一代人工智能開放創新平台建設工作指引》) (the "**Guidelines**")	July 2017	Ministry of Science and Technology	The first batch of a new generation of national open innovation platforms for AI released pursuant to the Guidelines included such platforms as related to autonomous driving, city brain and intelligent speech, etc.

In addition, the *Plan for Development of Digital Economy during the "14th Five-Year" Period* (《"十四五"數字經濟發展規劃》) issued by the State Council in December 2021 specifically singles out the development of digital economy and sets raising the added-value of core digital economy industries to account for 10% of the GDP by 2025 as a major objective. It also highlights facilitating China's strength in cyberspace, accelerating digital economy, digital society and digital government construction, and evolutionizing economic production, social lifestyle and governance patterns through digital transformation. In addition to calling for development in key fields such as AI, big data and cloud computing, it, among others, proposes the planning and construction of new type of infrastructure such as information infrastructure, integrated infrastructure and innovative infrastructure, centered upon enhancing the digital transformation, intelligent upgrading and integrated innovations.

In addition to the aforementioned key drivers, the enterprise-level conversational AI solution market in China may be further catalyzed by the development of large language models (LLMs) in the broader conversational AI field and the emergence of any disruptive market players. As a model that may potentially lead to the development of artificial general intelligence, LLMs have become a prominent topic in the AI industry in recent years as they have shown remarkable capabilities in natural language understanding and generation. Particularly, LLMs have received huge public attention since the end of 2022 with the launch of several ground breaking LLM-based products.

Market of Enterprise-Level IT Solutions Empowered by Conversational AI & UC in China by End-Customer Industries

Enterprise-level conversational AI solutions can be widely applied in a number of representative end-customer industries such as city management and administration, automotive and transportation, telecommunications, and finance, where conversational AI technologies empower various types of organizations to optimize their business procedures and iterate their business paradigms, thereby improving their operation efficiency and reducing operating costs. Specifically,

- **City Management and Administration.** Conversational AI empowers local administrators' improving their civil governance and facilitating industrial development, as well as other related missions, i.e., upgrading of administrative services, intelligent interconnection and scheduling of administrative facilities, and establishment of regional intelligent technological infrastructure.

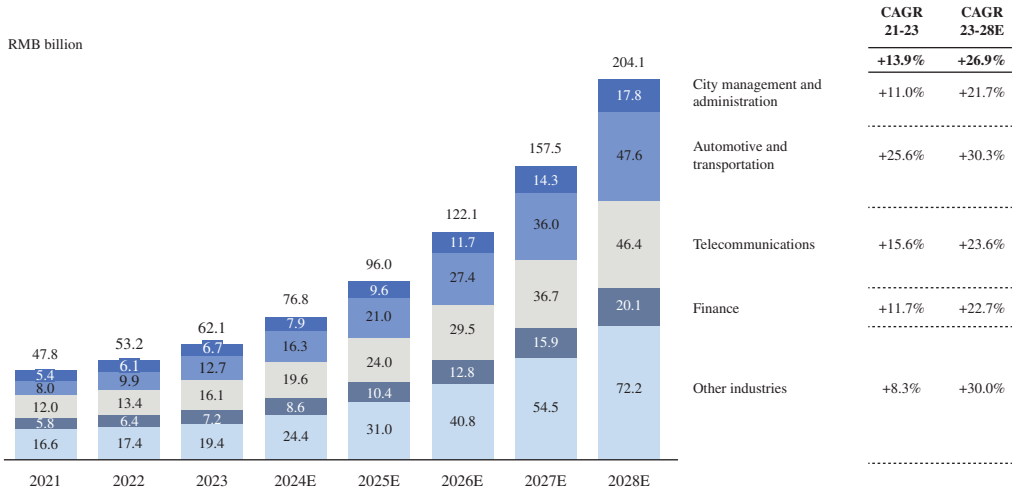
- **Automotive and Transportation.** Conversational AI empowers the automobile and logistics industries and the public transportation system through the intelligent transformation of customer services of automobile and logistics companies, and the realization of internet of vehicles based upon human-vehicle intelligent in-cabin speech interactions and vehicle-to-everything autonomous driving.

- **Telecommunications.** Conversational AI empowers telecommunications companies and users of their services through the intelligent transformation of customer services of telecommunications companies and communication tools offered to enterprises for the latter's communication and management needs.

- **Finance.** Conversational AI empowers financial institutions through the intelligent transformation of their customer communication-related services and their employment training and management.

- **Other Industries.** Conversational AI solutions can also be widely applied to other industries, such as education, healthcare, tourism, the media, E-commerce and retailing, etc.

Market Size of Enterprise-Level IT Solutions Empowered by Conversational AI & UC in China by End-Customer Industries, 2021-2028E*



Source: iResearch Report

Note:

* Numbers of each item may not add up to the total due to rounding.

Market of Full-Stack Enterprise-Level IT Solutions Empowered by Conversational AI & UC in China

Despite the surge in demand for enterprise-level conversational AI applications and optimistic market growth prospects, China's enterprise-level conversational AI solution market is currently still experiencing a number of pain points in fundamentally addressing the needs of enterprise-level users. Such pain points make it especially challenging for non-full-stack providers, i.e., those who focus merely on the development and commercialization of certain single-point conversational AI technological segments, yet some or all of the unified communication and essential AI algorithm capabilities are realized by integrating with third-party providers, to truly and effectively satisfy enterprise-level users' needs. Specifically, it may not be possible for such non-full-stack solution providers to allow enterprise-level users to enjoy:

- **One-Stop Service.** Considering enterprise-level users' needs of conversational AI empowerment on a one-stop basis, each product under non-full-stack solutions is independently designed and developed by different providers. Such fragmentation of products and providers will lead to issues with product compatibility, lower overall system efficiency and cause substantial post-integration maintenance, etc., with data silos left unconnected.

- **Convenient Application-Scenario Expansion.** Notwithstanding that users often need the solutions to be highly scalable across various scenarios, non-full-stack solution providers may not be able to realize the uniform management of the resulting solutions due to the fact that each integrated software is associated with its own management and monitor platform, making it challenging to deliver a "ready-to-use-whenever-needed" user experience.

- **In-Depth Service.** With respect to the users who need the solutions to cover both the establishment of underlying technological infrastructure and upper-layer AI-empowerment of applications, non-full-stack solutions are nevertheless generally limited to the application layer, and their providers are hence unable to optimize the overall system according to the specific application scenarios.

- **Selectable Delivery.** Users ultimately choose the delivery, e.g. privatized deployment, cloud-based subscription or a combination of the same, based on various considerations such as business stability, data security, available budget, deployment locality and technological iterations, etc. However, it is difficult for non-full-stack solution providers to deliver their solutions flexibly to meet the rapidly iterative business needs of users.

- **Cost Efficiency.** According to the iResearch Report, the total cost of ownership of procuring and integrating multiple non-full-stack solutions is about 15%-30% higher than full-stack solutions due to functional redundancy and lack of standardization, causing substantial additional cost of use and operation and maintenance costs. Besides, the potential improvement for business operations' efficiency enabled by such multiply integrated solutions may not meet users' expectations, thus leading to uncertain return on investment.

In order to fundamentally address these key pain points and challenges, market players in China's enterprise-level conversational AI solution market are increasingly seeking for "full-stack" solutions, developed and offered by conversational AI solution providers that possess proprietary unified communication and essential AI algorithm capabilities with the ability to self-develop conversational AI applications which have achieved large-scale commercialization. The following table illustrates the comparison between full-stack enterprise-level conversational AI solution providers and their non-full-stack counterparts with respect to addressing the pain points discussed above:

	Full-stack Conversational AI solution providers	Non-full-stack Conversational AI solution providers
One-stop service capability	Full-stack solution providers can offer one-stop service from communication infrastructure to front-end application for users	The technological support or services offered by non-full-stack solution providers are to be integrated with other similar providers to aggregately enable a full-stack conversational AI solution
Option Availability	Due to the all-encompassing nature of full-stack solutions, users will compromise their autonomy while implementing the project with respect to technological specifications	Users can discretionarily choose from non-full-stack solution providers (including that on communication infrastructure) to allow focused customization and wide choices of specific solutions that they may need
Application-scenario expansion capability	Full-stack solutions may cover various scenarios through follow-up application development	The application scenarios that can be expanded by non-full-stack solution providers are contingent upon the infrastructure of the integrated third-party platform or the coding capabilities on the integrators
Service depth	Full-stack solution providers may comprehensively adapt to user needs in terms of communication quality, optimization by scenario-specific AI algorithms, etc.	The depth of service of non-full-stack solution providers depends upon the specific technological segments that they are able to empower, on which they are yet able to offer advantageous solutions tailored to users' the particular need for the same
Delivery selectability	Full-stack solution providers are usually able to deliver their solutions in the form as selected by the specific users	Non-full-stack solution providers are usually able to deliver their solutions in identical form according to their technological specialty
Cost efficiency	Full-stack solutions from the infrastructure layer to the application layer can save external procurement costs	Non-full-stack solutions may result in substantial additional cost of use and operation and maintenance costs
Device compatibility	Full-stack solution providers have advantages especially for the conversational AI empowerment of old hardware devices due to compatibility with multiple communication protocols	Non-full-stack solution providers are generally unable to empower old hardware devices with conversational AI abilities due to a lack of unified communication capabilities

Source: iResearch Report

As can be seen, full-stack enterprise-level conversational AI solution providers have comprehensive advantages over non-full-stack enterprise-level conversational AI solution providers with respect to one-stop service capability, application-scenario expansion capability, service depth, delivery selectability, cost efficiency realized for users, and device compatibility. In particular, due to the higher requirements by major users in the market (including large enterprises and government entities) thereon, it is expected that full-stack solution providers will seize greater market opportunities by fully exercising their technological advantages.

In addition to the disparities with respect to addressing the pain points discussed above, please see below for a further comparison between full-stack enterprise-level conversational AI solution providers and non-full-stack enterprise-level conversational AI solution providers in terms of capital investment, technical expertise, pricing and qualifications, according to the iResearch Report. The comparison below is made only by virtue of the fact that full-stack enterprise-level conversational AI solution providers and non-full-stack enterprise-level

conversational AI solution providers provide full-stack enterprise-level solutions and non-full-stack enterprise-level solutions, respectively, and may not be indicative of any comparison between two concrete enterprise-level conversational AI solution providers that are contingent upon the specific customer groups, research and development regimes, and solution offerings etc., involved. Specifically:

- **Capital Investment.** To develop complete solutions based upon core technologies in both unified communication and AI, full-stack enterprise-level conversational AI solution providers generally have to invest in wider range of technological segments than non-full-stack enterprise-level conversational AI solution providers, when achieving equivalent service outcomes and scale, whose solutions based upon their expertized technological segments have to be integrated with that of other providers.

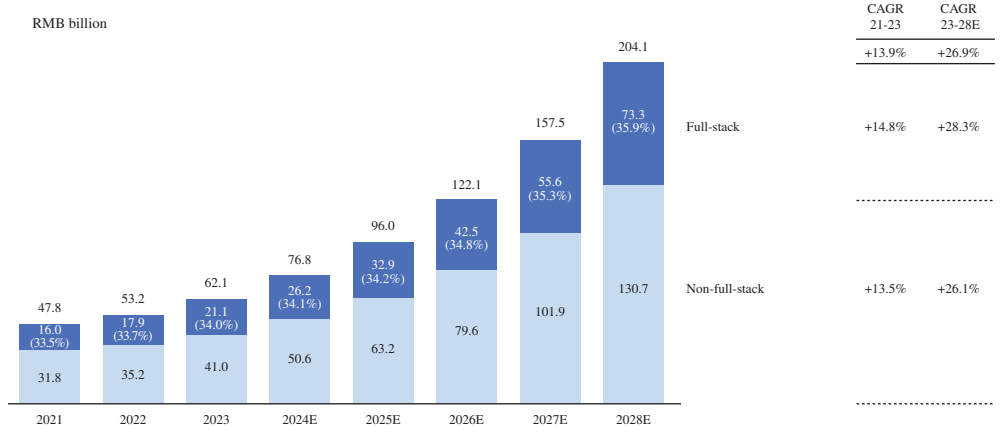
- **Technical Expertise.** As mentioned above, full-stack enterprise-level conversational AI solution providers possess proprietary unified communication and essential AI algorithm capabilities with the ability to self-develop conversational AI applications, whereas non-full-stack enterprise-level conversational AI solution providers focus on single-point conversational AI technological segments, yet some or all of the unified communication and essential AI algorithm capabilities are realized by integrating with solutions of other providers.

- **Pricing.** Without considering the specific competitive strategies and business models of different conversational AI solution providers, wider range of proprietary technologies under full-stack enterprise-level conversational AI solutions need to be priced than that under non-full-stack enterprise-level conversational AI solutions. Users have to invest additionally if they want to access the complete range of functionalities when they deploy non-full-stack conversational AI solutions.

- **Qualifications.** The attainment of certain qualifications is essentially an autonomous action of enterprise-level conversational AI solution providers in association with their intended scope of business, operational capacities and technological capabilities, without mandatory industry-entry standards. Common qualifications within the industry include Software Enterprise Certificate (軟件企業認定證書), Quality Management System Certificate (質量管理體系認證證書), Information Technology Service Standard (ITSS) Certificate (信息技術服務標準證書), High and New Technology Enterprise Certificate (高新技術企業證書), etc. Full-stack enterprise-level conversational AI solution providers involved in telecommunications services may, as required or as relevant, possess VAT License (增值電信業務經營許可證).

The size of the full-stack enterprise-level conversational AI solution market in China is expanding significantly, with robust business value and considerable growth potentials. According to the iResearch Report, the full-stack enterprise-level conversational AI solution market in China is expected to grow from RMB21.1 billion in 2023 to RMB73.3 billion in 2028, at a CAGR of 28.3% from 2023 to 2028, which is higher than the 26.1% CAGR of the non-full-stack enterprise-level conversational AI solution market in China during the same years.

Market Size of Full-Stack Enterprise-Level IT Solutions Empowered by Conversational AI & UC in China (Full-Stack vs. Non-Full-Stack), 2021-2028E*



Source: iResearch Report

Note:

* Numbers of each item may not add up to the total due to rounding.

Competitive Landscape

According to the iResearch Report, our competitors in China's enterprise-level conversational AI solution market can be divided into the following categories: (i) companies that have transitioned from communication technology services to AI research and development and thus have full-stack service capabilities; (ii) traditional communication technology service companies; (iii) intelligent speech and semantic companies; and (iv) general AI companies. According to the iResearch Report, we rank the sixth in the enterprise-level conversational AI solution market in China as measured by revenue in 2023. The respective comparable revenue and market share of each of the top ten solution providers in such market is shown in the following table:

Ranking	Company	Comparable Revenue in 2023	Market Share in 2023
		(RMB billion)	*(%)*
1	Company G[(1)]	5.58	9.0
2	Company A	2.77	4.5
3	Company H[(2)]	1.35	2.2
4	Company I[(3)]	0.93	1.5
5	Company J[(4)]	0.90	1.5
6	Voicecomm	0.80	1.3
7	Company K[(5)]	0.73	1.2
8	Company L[(6)]	0.60	1.0
9	Company B	0.40	0.6
10	Company C	0.30	0.5
	Top ten in total	**14.36**	**23.3**

Notes:

(1) Company G is a leading provider of information and communications technology (ICT) infrastructure and smart devices. Company G is a private company founded in 1987 and headquartered in Shenzhen.

(2) Company H, listed on the NASDAQ Exchange in 2005 and dual-listed on the Stock Exchange in 2021, is a leading technology company, specializing in internet-related services, products, and AI. Company H was founded in 2000 and is headquartered in Beijing.

(3) Company I, listed on the New York Stock Exchange in 2014 and dual-listed on the Stock Exchange in 2019, is a leading provider of e-commerce and technology infrastructure services. Company I was founded in 1999 and is headquartered in Hangzhou.

(4) Company J, listed on the Stock Exchange in 2004, is a leading provider of internet value-added services. Company J was founded in 1998 and is headquartered in Shenzhen.

(5) Company K is a leading provider of intelligent voice technology and AI solutions. Company K is a private company founded in 2012 and headquartered in Beijing with a registered capital of approximately RMB69 million.

(6) Company L is a professional conversational AI solution provider offering both enterprise-level solutions and consumer-level smart devices. Company L is a private company founded in 2007 and headquartered in Suzhou with a registered capital of approximately RMB360 million.

According to the iResearch Report, we rank the second in the full-stack enterprise-level conversational AI solution market in China, as measured by comparable revenue in 2023. The combined market share of the top five providers account for 21.1% within China's full-stack enterprise-level conversational AI solution market. The respective comparable revenue and market share of each such provider in 2023 is shown in the following table:

Ranking	**Company**	**Comparable Revenue in 2023**	**Market Share in 2023**
		(RMB billion)	*(%)*
1	Company A[(1)]	2.77	13.1
2	Voicecomm	0.80	3.8
3	Company B[(2)]	0.40	1.9
4	Company C[(3)]	0.30	1.4
5	Company D[(4)]	0.18	0.9
	Top five in total	**4.45**	**21.1**

Notes:

(1) Company A, listed on the Shenzhen Stock Exchange in 2008, is a leading player in the field of NLP technologies in China, and provides a wide range of AI-enabled software, systems and services such as speech recognition, voiceprint recognition, language translation and intelligent speakers for use in various applications. Company A was founded in 1999 and is headquartered in Hefei, Anhui with a registered capital of approximately RMB2,323 million.

(2) Company B is a leading provider of intelligent customer service management software and solutions across various industries in China. Company B is a private company founded in 2013 and headquartered in Beijing with a registered capital of approximately RMB100 million. In 2022, Company B was included in the "National-Level Specialized, Refined, Distinctive and Innovative 'Small Giant' Enterprises (SRDI) (國家級專精特新"小巨人")" list and became a member of the Chinese Association for Artificial Intelligence (中國人工智能學會).

(3) Company C is a leading provider of intelligent contact center, customer service and enterprise communication products and solutions in China. Company C is a private company founded in 2016 and headquartered in Hangzhou with a registered capital of approximately RMB10 million. Company C was included in the "Key Programs of AI-Precisely-Empowered SMEs (AI精准赋能中小企業重點方案)" by the Department of Science and Technology of the MIIT of the PRC (工業和信息化部科技司) in 2021, and was selected as one of the "Outstanding Cases of Customer Service Center Application of 2022 (2022客服中心應用優秀案例)" by the Artificial Intelligent Industry Alliance of China (中國人工智能產業發展聯盟) in 2022.

(4) Company D is a leading provider of intelligent customer service solutions in China, specializing in AI-empowered chatbot and voice assistant technologies. Company D is a private company founded in 2014 and headquartered in Beijing with a registered capital of approximately RMB16 million. Company D completed its Series D financing of USD100 million in February 2022.

The following table sets forth the respective comparable revenue and market share of each top provider in China's full-stack enterprise-level conversational AI solution market for city management and administration in 2023:

Ranking	Company	Comparable Revenue in 2023	Market Share in 2023
		(RMB billion)	*(%)*
1	Voicecomm	0.32	14.2
2	Company A	0.12	5.3
3	Company F*	0.02	0.9
	Top three in total	**0.46**	**20.4**

Note:

* Company F is a leading intelligent technology company in China. With core competencies in AI, big data and cloud computing, Company F is committed to helping China's digitalization process and provides digital solutions for enterprises across finance, retailing, education, medical care and intelligent manufacturing, among other industries. Company F is a private company founded in 2007 and headquartered in Beijing with a registered capital of approximately RMB1.4 billion. Company F is a national High and New Technology Enterprise and High and New Technology Enterprise in Zhongguancun, and was included in the "Beijing Specialized, Refined, Distinctive and Innovative 'Small Giant' Enterprises (北京市專精特新"小巨人")" list.

The following table sets forth the respective comparable revenue and market share of each top provider in China's full-stack enterprise-level conversational AI solution market for automotive and transportation in 2023:

Ranking	Company	Comparable Revenue in 2023	Market Share in 2023
		(RMB billion)	*(%)*
1	Company A	0.75	17.4
2	Voicecomm	0.19	4.4
3	Company E*	0.06	1.4
	Top three in total	**1.00**	**23.2**

Note:

* Company E, listed on the Stock Exchange in 2022, is a leading provider of customer contact solutions for enterprises in China. Company E was founded in 2006 and is headquartered in Beijing with a registered capital of approximately RMB52 million.

The following table sets forth the respective comparable revenue and market share of each top provider in China's full-stack enterprise-level conversational AI solution market for telecommunications-related applications in 2023:

Ranking	Company	Comparable Revenue in 2023	Market Share in 2023
		(RMB billion)	*(%)*
1	Company A	0.58	10.6
2	Voicecomm	0.17	3.1
3	Company D	0.02	0.4
	Top three in total	**0.77**	**14.1**

The following table sets forth the respective comparable revenue and market share of each top provider in China's full-stack enterprise-level conversational AI solution market for finance-related applications in 2023:

Ranking	Company	Comparable Revenue in 2023	Market Share in 2023
		(RMB billion)	*(%)*
1	Company A	0.14	5.7
2	Company B	0.10	4.1
3	Voicecomm	0.08	3.3
	Top three in total	**0.32**	**13.1**

The key successful factors with respect to the aforementioned enterprise-level conversational AI solution market in China primarily include:

- **Technologies Accumulation.** Technologies for enterprise-level conversational AI solutions, such as UC, ASR, emotion recognition, NLU, NLG and TTS, as well as AI general technologies, are charged with significant technological requirements, and featured by high difficulties, long cycle and great expenditures with respect to technological research and development. Therefore, new market entrants face great difficulty in achieving practicable and sufficient technology accumulations in a short period of time, and existing enterprise-level conversational AI solution providers lacking the capabilities in technological development and iteration may also lose their competitive edges.

- **Industry Knowledge.** Conversational AI solutions are applied in city management and administration, automotive and transportation, telecommunications, finance and other end-customer industries. Each industry accordingly requires in-depth knowledge of the technological adjustment, solution design, and service process unique thereto. Therefore, early movers with abundant industry knowledge accumulations from previous project experiences usually deliver solutions and accompanying services of higher quality and better consistency, thus forming a competitive advantage over new market entrants.

- **Customer Base.** Existing enterprise-level conversational AI solution providers dedicated to such solution offerings are also able to enhance their technological development capabilities, speed up their model and algorithm training processes, accumulate end-customer industry know-how and improve capabilities of serving enterprise-level users through ample project implementation experiences, so as to realize the establishment and accumulation of product modules and solutions in a technology-oriented fashion. Benefitting from such conversational AI solution offerings proven to be of high quality, they can more easily acquire new customer orders and establish customer loyalty. In contrast, new market entrants are constrained by their insufficient service experiences and may not be able to sustainably acquire orders in a short period of time.

- **Capital Sufficiency.** Due to the aforementioned technological requirements, competitors in the enterprise-level conversational AI solution market are required to devote huge capital investments in the establishment of strong technological R&D teams by attracting highly qualified, skilled and multi-disciplinary professionals experienced in conversational AI technologies. In addition, enterprise-level conversational AI solution providers may be influenced by the internal budget management, as well as bidding and other approval processes, of various enterprise-level users. Therefore, new market entrants are challenged by such capital barrier and requirements on working capital sufficiency.

MAJOR RAW MATERIAL ANALYSIS

The raw materials involved in conversational AI solutions primarily include (i) common and standardized hardware devices (communication devices, computers and servers); and (ii) network and telecommunication resources. The historical prices of hardware devices are generally stable from 2021 to 2023, which is beneficial for the business development of conversational AI solution providers. According to the iResearch Report:

- The global prices of smart phones, as measured by average wholesale price, decreased from USD304.6 in 2021 to USD293.4 in 2023, representing a CAGR of -1.9% from 2021 to 2023.

- The global prices of typical computing devices including desktop PCs, laptops, and storage units have been relatively stable from 2021 to 2023. Detailed global average prices of computing devices are set out below:

	For the Year Ended December 31,		CAGR From 2021 to 2023
	2021	2023	
	USD	*USD*	*%*
Desktop PCs	623.4	625.8	0.2
Laptops	639.3	637.1	(0.2)
Storage units	13.5	14.1	2.2

- The global average price of servers increased from USD8,048.7 in 2021 to USD10,427.1 in 2023, representing a CAGR of 13.8% from 2021 to 2023. The price of servers worldwide generally saw a surge attributed to increased demand driven by escalating technological advancements, supply chain disruptions, and rising infrastructure costs.

The price of network and telecommunication resources generally had a steady decreasing trend from 2021 to 2023. The average price of network and telecommunication resources in China as measured by the average revenue generated therefrom per user of three major telecommunications companies in China decreased from RMB418.5 in 2021 to RMB412.9 in 2023, according to the iResearch Report.

SOURCES OF INFORMATION

We commissioned iResearch, an independent market research and consulting firm, to provide an analysis of, and to produce a report (the "**iResearch Report**") on China's AI solution market. Founded in 2002, iResearch provides professional services including, among others, industry consulting and strategic consulting, and has accumulated extensive experiences in researching and monitoring the development of China's AI solution market. We have agreed to pay a fee of RMB600,000 to iResearch for preparing the iResearch Report. The report was prepared independent of the influence of us and other interested parties. We have extracted certain information from the iResearch Report in this section, as well as elsewhere in this document, to provide our potential investors with a more comprehensive presentation of the industry in which we operate. Our Directors confirm that, after taking reasonable care, they are not aware of any material adverse change in the overall market information since the date of the iResearch Report that would materially qualify, contradict or have an adverse impact on such information.

During the preparation of the iResearch Report, iResearch performed both primary and secondary research, and obtained knowledge, statistics, information on and industry insights into China's AI solution market. Primary research involved interviewing key industry experts and leading industry participants. Secondary research involved analyzing data from various publicly available data sources.

The market projections in the iResearch Report are based on the following assumptions: (i) the overall social, economic, and political environment in China is expected to remain stable during the forecast period; (ii) relevant key drivers are likely to drive the continued growth of China's AI solution market throughout the forecast period; and (iii) there is no extreme force majeure or unforeseen industry regulation in which the industry may be affected in either a dramatic or fundamental way. All forecasts in relation to market size are based on the general economic conditions as of the Latest Practicable Date.