KPMG

# 2023 KPMG China Leading PropTech 50

毕马威中国未来行业50榜单系列
KPMG China Future Sector 50 Ranking Series

不动产科技
PropTech

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## Disclaimer

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# Foreword

**Michael Jiang**

Head of Markets
KPMG China

For the real estate sector, the era of land-generated benefits is drawing to a close, and real estate enterprises are increasingly embracing a paradigm shift in which they need to rely on effective management to drive success. In this new era, industry players are expected to identify opportunity amid change, forge ahead amid adjustments, and strike a judicious balance between growth and deleveraging. At the same time, they are expected to pursue development against a backdrop of concentration and differentiation, and harness transformative innovation to cultivate organic, sustainable growth. With the government focusing on promoting high-quality development, the technology + industry model has matured, and new technologies are being applied in more and more real estate scenarios, delivering improvements, savings and efficiency gains for real estate companies across investment, construction, marketing, operations, exit and other business processes. With innovation becoming the engine for growth, technology will gradually become a core part of real estate developers' strategies, helping them navigate changes and find success in this new era.

As a professional services organisation with deep roots in the real estate sector, KPMG has always been committed to driving PropTech innovation and development and helping businesses respond to and move in sync with trends. By organising this selection, we hope to work together with industry leaders to get a clear picture of what lies ahead for the PropTech industry and identify areas where players can concentrate their efforts, so as to open up a new chapter for China's economy and real estate sector.

**Jacy Li**

Head of Real Estate and Building Construction
KPMG China

2023 marks the third year in which KPMG China has held the PropTech 50 selection. The past three years have been challenging for the real estate and construction sector. As the market has slowed, the industry has been facing growing financing pressure while undergoing significant structural adjustments, resulting in major changes in the market landscape.

Now, industry players are adopting a two-pronged approach under which they are pursuing incremental growth while also strengthening existing activities, and they are turning their attention to the benefits of real estate lifecycle management. In this process, PropTech will undoubtedly play a significant role in enabling businesses to effectively identify and respond to the needs of internal and external stakeholders, reduce costs, raise efficiency and identify risks on a timely and forward-looking basis.

In the past three years, remarkable advances have been made in the development and application of computer technology, with artificial intelligence (AI) being the most eye-catching. In the future, AI-based technologies in different areas will continue to converge into a more comprehensive ecosystem. As these technologies become integrated with industry data resources and vertical business scenarios, industry-specific solutions will emerge.

We remain steadfast in our belief that the PropTech journey is a long-term one. As industry players deeply transform their business models amid current adjustments and continue to improve their data awareness, PropTech will play a greater role in driving the industrialisation, digitalisation, and smart, green transformation of traditional industries such as real estate and construction.

**George Wong**

Head of Real Estate and Building Construction
Southern Region
KPMG China

During interviews for this year's PropTech 50, we have heard strong feelings about the impact of the real estate sector's downturn on PropTech companies. Their incomes have declined and so have their profit margins. Their receivables are becoming uncollectible, and IPOs are increasingly out of reach. In this context, we have seen technology companies demonstrating their resourcefulness in various ways to survive against all odds. For example, some are focusing on doing business with state-owned enterprises and local government investment vehicles, some are applying their technology to new scenarios as part of their effort to move into other industries, and some are exploring new overseas markets. In addition, state-owned enterprises and developers are also transforming their IT departments into technology companies, which are being launched as businesses one after another.

As there are no quick solutions to the problems facing the real estate sector, PropTech companies that fail to respond to industry trends in a timely manner may soon meet their demise, and technology companies affiliated with state-owned developers that are working on their commercial launch need to absorb and develop technologies to strengthen themselves. In the years ahead, we expect to see the PropTech industry become more integrated, closing the chapter on the sector's past fragmentation.

**Susana Gao**

Head of Real Estate and Building Construction
Northern Region
KPMG China

With the slowdown of China's real estate sector, PropTech companies are also facing transformational challenges as they move from focusing on providing technological support for real estate developers to applying their technologies in scenarios including commercial properties, industrial park projects and urban services. In this year's selection, we have been pleased to see a more diverse range of PropTech use cases, more agile solutions and greater efficiency.

In the past year, although the PropTech industry has slowed due to the real estate sector downturn, industry players have been forging ahead with their informatisation and AI projects, and their sustained R&D investments will pay off in the long run.

In line with national policies, localisation has recently become a hotspot in technology investment. In the PropTech industry, many unique companies have emerged in the areas of construction design software, construction equipment manufacturing, and operations management platforms. Localisation is becoming a reality in PropTech. In the next few years, Chinese companies are expected to gradually replace foreign property technologies with locally developed ones on a larger scale.

While we have seen great strides in this sector, Chinese PropTech companies also have their weaknesses. For example, they have developed few innovations on their own and are not well-equipped to explore the international market, hindering their global ambitions. Compared with their global peers, Chinese PropTech companies have a competitive edge in terms of cost. If they are motivated to build their global footprint in the future, they will be a presence to be reckoned with in the international market.

PropTech companies are traversing a period of change that presents both challenges and opportunities, and we hope that they will emerge from these difficulties more resilient and more committed to innovation. We are confident that, by working hard and forging ahead steadily, they will expand their share in the international market and deepen the adoption of PropTech.

**Alan Yau**

Head of Real Estate and Building Construction
Hong Kong SAR
KPMG China

Driven by the COVID-19 pandemic, the global real estate sector has undergone a rapid digital transformation. In the wake of the pandemic, the adoption of technology in the real estate sector has continued to grow rapidly, resulting in significant changes in how transactions are conducted, properties are managed and experiences are improved. Technology has become a powerful tool to promote innovation and has introduced various changes to the real estate sector landscape, ushering in an era characterised by efficiency, transparency and innovation.

In response to the sustainability imperative, green technologies and practices have been widely implemented in the real estate sector. High efficiency buildings, renewable energy solutions, and intelligent systems for building and energy management are capturing people's attention. Significant technological advances such as smart grids, solar panels and automation systems are contributing towards carbon footprint reduction, resource conservation, optimised energy consumption, cost savings, shortened project timelines, safety and quality improvements, and eco-friendly living spaces that align with environmental practices.

In the post-pandemic era, technology has become a gamechanger in the real estate sector, and players in the real estate market have embraced technology as a catalyst for innovation and growth. Going forward, real estate professionals should continue to leverage technology to find success amid the evolving market landscape. By doing so, enterprises in this important sector will jointly open up new opportunities, promote sustainable growth and deliver more value for all stakeholders.

**Mark Liu**

Director, CIO Advisory
KPMG China

For the real estate sector, 2023 has been a year of changes and challenges. What is clear is that the "size-first" approach is no longer tenable. Across the real estate sector, companies are endeavouring to be sound, asking themselves what their original aspirations were, and pursuing high-quality development. While enterprises' solutions may be different, the underlying theme is that digital and intelligent technologies have injected confidence into industry players that are struggling amid a sluggish economic environment.

In the real estate industry, digital technologies represented by data, AI and building information modelling (BIM) are being adopted more than ever before across various business scenarios. Enterprises have realised that data will be a crucial aspect of production and that data governance is the first step towards being able to use data assets in a meaningful way. By building an effective base of data assets, enterprises can harness AI technologies that are autonomous, interactive and intelligent to improve quality and efficiency and deliver value for the sector. As a tool that leverages real estate-related data, BIM technology is exclusive to the industry, and when enhanced with various emerging technologies, it will boost the reshaping of the industry landscape.

While various PropTech companies continue to develop their own digital products and services, we are also pleased to see increasingly frequent collaboration between real estate enterprises. In the current era, collaboration is not only key to the real estate sector's effort to integrate resources, leverage advantages and meet challenges, but also a response to the call for smart spaces, smart homes and a smart future.

As the catchphrase for the 2023 PropTech 50 selection, "Joining Hands for the Future" is also our expectation for the development of PropTech. In the years ahead, we look forward to working alongside our industry partners to create a better future for the real estate sector.

# KPMG China "Future 50" Ranking Series

毕马威中国未来行业50榜单系列
KPMG China Future Sector 50 Ranking Series


Business markets are just like arenas, and industries the race tracks on them. KPMG China's "Future 50" ranking series, which cover industries such as finance, automotive, biotechnology, retail, chips, healthcare, property technology, government, and energy, have been released to serve as a lighthouse to help enterprises make strategic development decisions based on where they are in their respective life cycles, and enable industries and investors to identify the enterprises on the rise. We have also put forward the "Future 50 Tracks" concept to continuously explore competitive opportunities for enterprises.

Since KPMG launched its "Future 50" ranking series, we have been striving to create and maintain a professional and fair platform to help extend various industry networks internally and externally for greater overall values of the industry ecosystems. In our selection process for these rankings, KPMG assembles a selection committee consisting of internal and external experts, which is tasked with assessing enterprises in an open, just and fair manner from multiple perspectives, such as teams, technology, products, markets, and financing.

Going forward, we hope that KPMG's "Future 50" ranking series will generate more opportunities for enterprises, support industry innovation and reform, and provide insights on future industry trends.

# Overview

## Introduction to KPMG China's Leading PropTech 50

As the focus of China's economic development shifts from speed to quality, the digital economy is emerging as a new engine of the country's high-quality economic development. The presence of digital technologies—from big data, cloud computing, and Internet of Things (IoT) to AI and the Metaverse—is being felt everywhere, profoundly changing ecosystems and competitive landscapes across various industries.

The real estate sector, which is undergoing a critical period of transformation, is no exception. Industry giants who embarked on digital transformations several years ago are pushing forward with process reengineering, resource integration and business restructuring across the building lifecycle as they integrate digital technologies into various industry chains and business scenarios. Enterprises are attaching greater importance to synergy-generating business models that enable connectivity across the whole value chain covering investment, design, construction and operations, while also cultivating interconnected industry chains and effective, sustainable industry ecosystems. Value creation has become a key goal of enterprises' digital transformations, and digitalisation has become a springboard for the transformation of the real estate sector. Against this backdrop, industry stakeholders are actively exploring new opportunities for high-quality development, and digital technology is leading the real estate sector into a new stage of efficiency and sustainability.

As digital transformation advances, the real estate sector is being regenerated. In the past year, many PropTech companies have made impressive strides and garnered market attention. Although the industry still faces challenges, many real estate enterprises are forging ahead with resolve, searching for certainty and opportunity amid changes and challenges. KPMG China is now publishing the 2023 PropTech 50 report, which marks the third instalment in the series since its launch in 2021. Special thanks to Hong Kong PropTech Association to collaborate with KPMG China to tap into Hong Kong-based PropTech start-ups.

## Scope of participating enterprises

The types of enterprises that are eligible to participate include:

- Enterprises and start-ups pursuing PropTech innovation
- PropTech companies exploring the innovative application of technology in real estate products and services
- Enterprises that use innovative technology to engage in real estate construction and operations management or provide other related services

Enterprises that meet one of the above-mentioned criteria and that have been operating for at least nine months in the following fields are eligible to participate:

- Project investment decision-making and industrial data
- Project lifecycle management (including engineering advisory, construction and process management, etc.)
- Real estate digital marketing and membership management
- Innovation of construction techniques and design
- Environmental, social and governance (ESG)/Sustainability
- Real estate sale and lease transactions
- Asset management operations and services (for residences, offices, commercial spaces, logistics, hotels, cultural tourism, parks, etc.)
- Industrial digital products or service solutions

## Core assessment dimensions

- Innovations in technologies and business models
- Degree of market recognition and development potential of subsectors
- Degree of capital market recognition and contribution to society
- Financial health and growth
- Corporate governance and innovation mechanisms
- Transformation and empowerment of the traditional real estate industry

KPMG has developed its proprietary Startup Insights Platform (SIP), which we leverage—in combination with the above core dimensions—to quantitatively assess businesses from multiple dimensions, such as team, technology, product, market and financing.

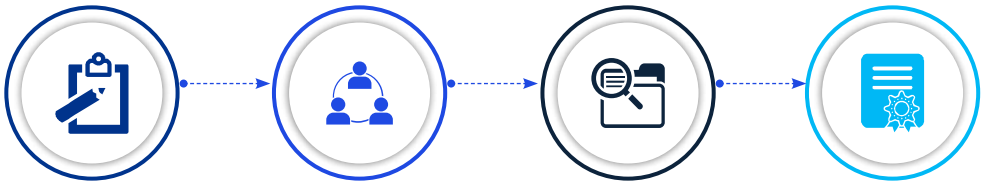
Note: The KPMG China Leading PropTech 50 selection is for the purposes of drawing attention to technological innovations in the real estate industry, promoting industry exchanges, and driving the development of PropTech in line with regulations. It does not assess the compliance and investability of the assessees. During the selection process, we did not interpret any regulatory policies.

## Selection committee

The selection committee includes multiple KPMG partners and industry experts.

### Selection process

The judges interviewed and surveyed candidate enterprises on-site to obtain first-hand information in a comprehensive and detailed manner and ensure the objectivity, fairness and rigour of the selection process.



**Commencement of registration and primary selection**

**Documentation review and corporate interviews**

**Discussion and evaluation by the committee**

**Announcement of the results**

## Selection methodology

**Desktop research**

The PropTech selection team obtained an overview of the industry ecosystem based on the firm's long-term monitoring of the real estate sector.

**Field interviews**

The selection team conducted field visits to the candidate enterprises and interviewed their founders and senior management teams.

**Expert interviews**

We interviewed industry insiders, such as senior management of industry-leading enterprises, industry experts, and investors focusing on the real estate sector, to gather their knowledge and insights on the sector and its subsectors.

**Data analysis**

We performed evaluations with reference to our proprietary Startup Insights Platform (SIP).

# Distribution of enterprises in KPMG China's Leading PropTech 50 by core business

**Innovation of construction techniques and design**

UNRE 让空间数智化更简单 | 建研宏图 JYTECH | 创乐 Invix | 大界 ROBOTICPLUS.AI | 智建云 | ZWSOFT | 固工机器人 Googol Robot | 绿城建筑科技 GREENTOWN | Pinlan 品览 | HAIYI DESIGN | WEIBUILD 蔚建 | xkool 小库 | 中天美好 ZHONGTIAN MYHOME | 众智软件

**Asset management operations and services**

blue pin | peace | 新基建科技 NEW INFRASTRUCTURE TECHNOLOGY | MotionsCloud | 中海科技 | 邻汇吧 LINHUIBA | Retailing Connect | 翼楼科技 HELLOTECH | SPACE iCloud | SEGI 西格互联 | FMC 设施之家 | 万物为家 | Qebuild 微筑科技 | 兴海物联 | 万翼科技 | VANN 万安智能 | 中建壹品 | 越创智数 YUETRON DIGTECH

**Project lifecycle management**

dayta | 中建三局信息科技有限公司 CHINA CONSTRUCTION THIRD ENGINEERING BUREAU INFORMATION TECHNOLOGY CO., LTD. | NEWGRAND 新中大科技 | 蓝墙互联 BLUE WALL | 爱德数智

**Environmental, social and governance (ESG)/Sustainability**

ALBACASTOR | Persagy 博锐尚格 | i²COOL 创冷科技

**Project investment decision-making and industrial data**

榆叶飞云 | 脉策科技 | MobTech 袤博

**Industrial digital products or service solutions**

中投创展 Zenith | 华云中盛 HUA-CLOUD.CN | 得帆 重新定义企业软件生产力

**Real estate digital marketing and membership management**

原圈科技 Circles Technology

**Real estate sale and lease transactions**

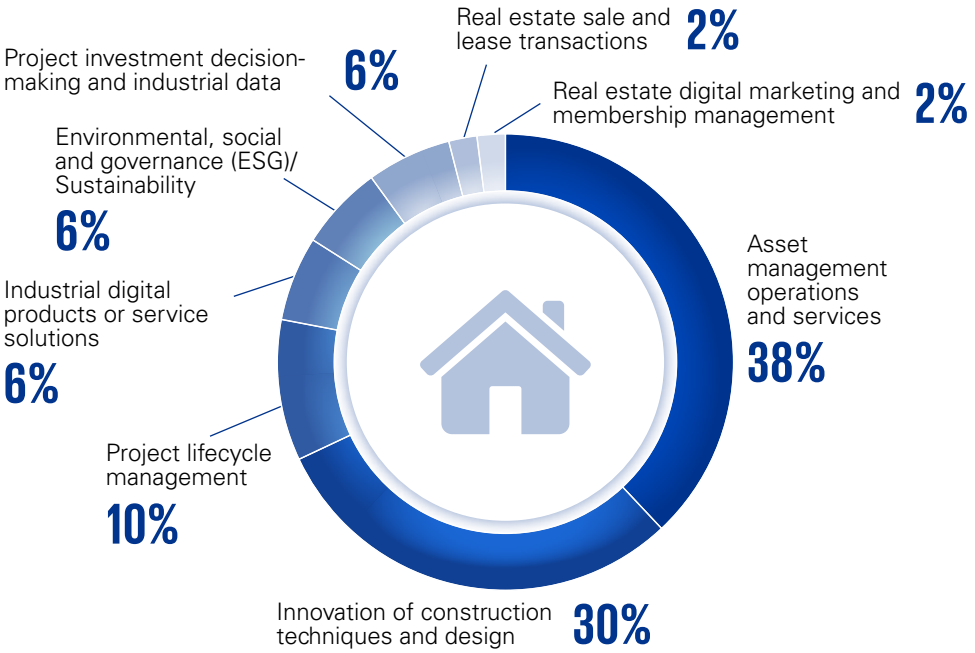
中证云星 ZHONG ZHENG YUN XING

Note:
The companies are listed by alphabet sequence.

# Analysis of Enterprises in KPMG China's Leading PropTech 50

## Distribution by core business

Enterprises engaging in asset management, operations and services (for residences, parks, offices, hotels, logistics parks, etc.) account for the largest share of this year's list at 38%, followed by construction technique and design enterprises, which account for 30%. Enterprises that specialise in project lifecycle management ranks third, accounting for 10%.

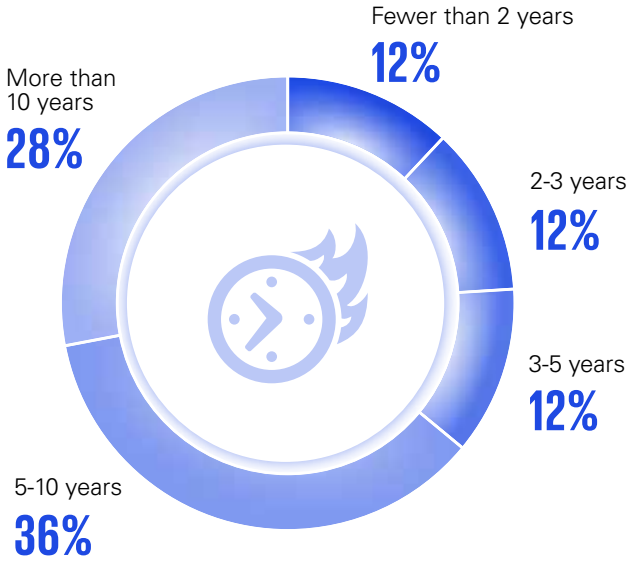



## Distribution by region

Half of the companies on the list are based in Shanghai and Shenzhen; and there are four companies from Beijing, Hangzhou and Hong Kong SAR each. The shortlisted companies are distributed across fifteen cities. Notably, this year's list includes one registered in Munich but serving clients in Chinese Mainland and Hong Kong SAR, signaling greater geographical diversity.

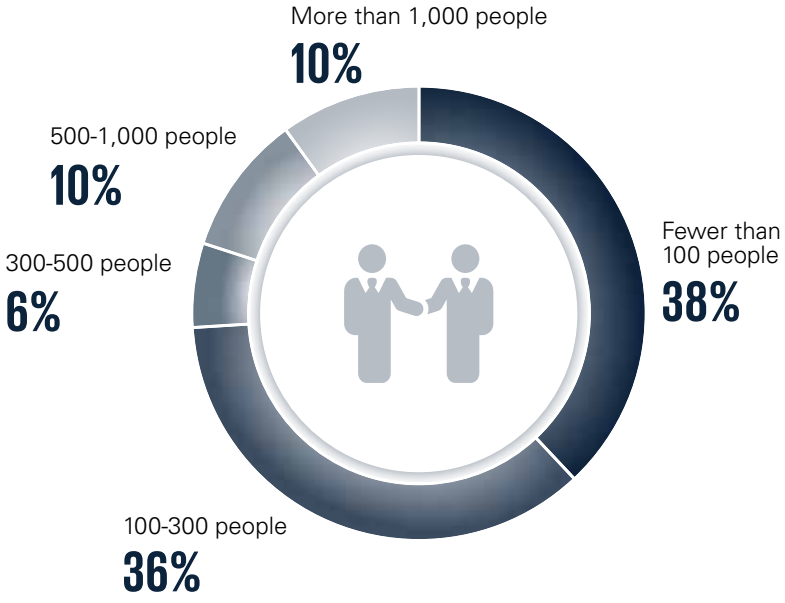
## Distribution by years in operation

On this year's list, enterprises that have been in operation for less than 3 years accounted for 24%, a significant increase from 10% in the previous year. Although the proportion is still less than 30%, this jump is a reminder that despite significant adjustments in industry development, there are still opportunities in the technology market for the property sector. If technology enterprises can seize opportunities in the changing market and evolve in sync with the sector, young technology enterprises can also gain access to opportunities even amid the overall industry downturn.



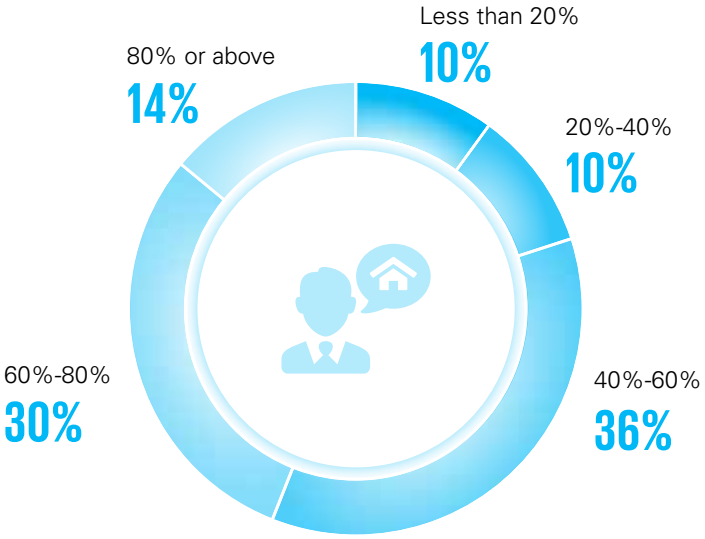

## Distribution by company/team size

74% of the enterprises on the 2023 list have headcounts of fewer than 300, slightly higher than 72% in the previous year. As a result of the downward trend across the real estate sector, technology enterprises have had limited opportunities to expand and are focusing on strengthening their operational resilience, reducing costs and raising efficiency. In addition, some enterprises on the list mainly engage in business activities with strong regional attributes and are in no hurry to expand as market concentration is low, which explains their small team sizes.



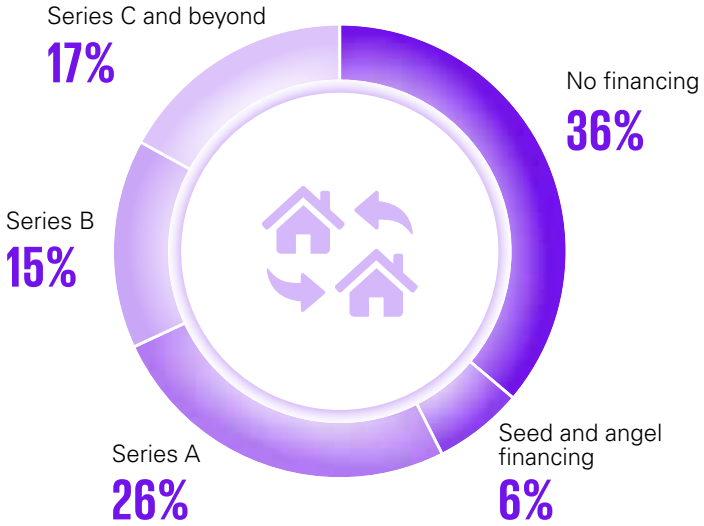
## Distribution by proportion of technical personnel

80% of the enterprises on this year's list have headcounts that consist of more than 40% technical personnel, up 12 percentage points over last year. In addition, the share of enterprises with headcounts comprised of more than 80% technical personnel rose to 14% from 10% last year. In the context of the overall transformation of the real estate sector, technology enterprises are finding it significantly more difficult to sell their products, and market participants across various segments are iterating their products in an effort to deliver excellence and drive revenue growth. Against this backdrop, technicians are working on products to help real estate enterprises drive value creation during the industry transition. As a result of these efforts, technology enterprises will be able to weather the downward cycle and position themselves well for future development.




## Distribution by series of financing

On this year's list, 17% of the enterprises are in series C or subsequent rounds of financing, down from 24% last year. Many of the shortlisted companies achieved solid valuations this year, but there have tended to be longer intervals between financing rounds, as investors are more cautious amid challenges and uncertainties in the overall environment. They are looking into prospective targets in greater detail, resulting in prolonged financing rounds.



# PropTech Trends and Outlook

# 1 Real estate enterprises' demand for data governance is steadily growing. In the era of digital assets, PropTech companies should seize opportunities to promote the digitalisation of the industry

In recent years, the government has issued a number of data-related policy guidelines to accelerate the development of data assets. In February 2023, the Central Committee of the Communist Party of China and the State Council issued the Overall Layout Plan for the Construction of a Digital China, which includes plans for building a Digital China based on a 2-5-2-2 framework that will enable connectivity across digital infrastructure and facilitate the flow of data resources. Data has become a new engine for China's high-quality development. In March 2023, the National Data Bureau was inaugurated, which will accelerate the country's effort to convert data into assets. As a result of these initiatives, a prototypal digital resource system is gradually emerging. In August 2023, the Ministry of Finance issued the Interim Provisions on Accounting for Corporate Data Resources, which will come into effect on 1 January 2024. This set of guidelines includes provisions on data resources that are recognised as assets (intangible assets or inventories), as well as provisions on transactions of data resources that are legally owned or controlled by an enterprise that are expected to bring economic benefits to the enterprise but that do not meet the conditions for recognition as assets, and other relevant matters. These policies have laid the foundation for the continued transition of data into assets. The first step in moving data assets onto the balance sheet is to take stock of corporate data assets, which means prioritising data governance.

In recent years, as data application scenarios have grown, real estate and construction enterprises have derived significant benefits from turning data into assets. Driven by factors such as the benefits of data application and policy incentives, enterprises are increasingly looking to convert data into assets. However, due to the current market environment, a large number of enterprises are taking a wait-and-see approach. We believe that enterprises will be motivated by the policy that allows them to move data assets onto the balance sheet, and we expect that they will be encouraged to generate value from data by enhancing the way they apply it. By actively identifying customer needs and conducting specific analyses to sort out and label relevant data resources, real estate and construction enterprises can move data resources that were previously included in expenses to R&D expenses that are eligible for capitalisation. During our visits this year, we discovered that certain leading PropTech companies have realised the value of moving data assets onto the balance sheet. They are also actively considering how to use their own data analytics to provide support for clients in this area, and exploring the possibility of data marketisation and data transactions in specific scenarios. For example, these enterprises can cooperate with government-owned enterprises to provide government data analytics services, conduct commercial centre or market environment analyses, and deliver other statistical packages after data desensitisation.

The expanding data governance needs of real estate enterprises are presenting more opportunities for PropTech companies with data capabilities. These latter companies can start by improving their data governance service capabilities, and then build out their data lifecycle service capabilities based on an end-to-end model. We are aware that PropTech companies are still facing many challenges in this area, mainly in respect of measuring the value of data assets and establishing the rights to data assets as they move such assets onto the balance sheet. In addition, these enterprises are grappling with the lack of well-established criteria and specifications in this area, as well as a lack of data awareness, qualifications and historical success cases, among other issues. In general, few data categories related to real estate and construction are available on the market.

In order to accelerate the transition of data assets onto the balance sheet, we believe that data awareness needs to be further improved across the industry, and companies should sufficiently prepare data in advance. Through data governance, enterprises can accumulate data assets, enhance their data foundation and improve data quality. Specifically, data governance mainly includes the following steps:

1. Adopt unified data standards across the enterprise to ensure data integrity, consistency and alignment with specifications;
2. Define accountability and authorities and the main responsible department for various kinds of data;
3. Exploit the value of data, convert data into assets, and enable operational and management decisions through analysis and application of data.

In addition, data governance involves organisational systems, data systems, master data management, a system of data standards, data quality management, metadata management and data models; and therefore, it is a long-term, complex and systematic project. To find success, industry players need to take data more seriously, strengthen their professionals' data awareness and qualifications, and work together to promote data governance.

# 2 AI agents promote scenarios for streamlining and refining real estate operations

In recent years, as a result of changes in the economy, the industry environment and demographics, China's urbanisation has gradually slowed and entered a new stage in which efforts are focused on upgrading urban infrastructure. In terms of real estate sector digitalisation, companies are shifting towards deepening the development of existing assets. At the same time, with consumption upgrading, space users' demands for real estate projects are increasingly diversified and personalised. In order to meet their expectations, operators need to pay more attention to streamlining and refining operations than ever before and comprehensively optimise services and resource allocation to add more value to services.

Amid the industry downturn, we have observed that many real estate enterprises have gradually shifted away from an asset-heavy model under which they held and operated assets to an asset-light model under which they provide management and operational services. Specifically, the asset-light model is supported by branding, asset securitisation and complementary value-added services. In order to achieve stable development and expansion under this model, enterprises need to improve their core competitiveness through digitalisation, improve quality and efficiency, and make full use of intelligent and digital technology to streamline and refine operations and management. In this way, they can generate sustainable income and pursue growth while reducing operating costs.

In 2023, breakthroughs in AI technology have brought new growth drivers to various industries. In particular, the concept of the AI agent has attracted significant attention recently. As an intelligent system that assists humans, an AI agent can scan the environment, make decisions and execute actions. For example, AI agents can provide accurate decision-making support for real estate operations and management, optimise resource allocation, and improve user experience, risk predictions and warnings, significantly enhancing companies' ability to streamline and refine real estate operations.

However, as AI agent technology is still in the developmental stage, we understand that, in their current research on AI, PropTech companies are mainly focusing on computer vision, natural language processing (NLP), data mining and other areas. They have not gone so far as to introduce AI agent technology. In this year's survey, many enterprises are taking a positive attitude towards deepening their use of AI, especially AI agents, in the real estate sector; and they believe that the development of innovative technology will accelerate in the future. In this context, PropTech companies must be quick to learn and apply emerging technologies. AI agents can play a role in a diverse range of scenarios that will help streamline and refine operations in the real estate sector; and going forward, these use cases will be gradually deepened and expanded. We believe that, in respect of applying AI agents, companies should start with more mature areas such as property management and commercial offices, as in these areas they can rely on their own product structure, experience and capabilities; and then expand to integrated scenarios such as healthcare management, tourism management, industrial parks and urban renewal. In this way, the application of AI agents can be expanded both horizontally and vertically. In property management, companies can provide users with personalised recommendations to improve their living experience; in commercial offices, they can monitor a building's energy consumption and provide advice on how to drive energy savings; and in healthcare management, AI agents can provide personalised guidance on rehabilitation and health management based on users' health status and needs. In tourism management, they can provide customised experiences for tourists; and in industrial parks, they can monitor the status of equipment across the park, alert users to risks and assist managers in taking emergency measures when needed. In terms of urban renewal, AI agents can perform analyses and forecasts of urban facility operations, resource allocation and scheduling, and respond to emergencies.

In addition, AI agents will also have a significant impact on design and construction, as well as other areas of the construction industry. Technology- and talent-intensive design segments will be the first to be affected. AI agents can automate the design process, optimise design features, and generate automatic drawings and models, effectively improving per capita output. Combining BIM and AI will become a trend in the industry, and more mature and intelligent building design algorithms and models will be generated based on the rich building data made available by BIM. In addition, AI agents that are highly autonomous, intelligent and interactive will be widely used in cost control, construction progress monitoring and quality control, energy conservation, emissions reduction and construction safety. For example, AI agents can analyse and process large amounts of data, understand data patterns specific to the construction industry, and assist in formulating better cost budgets and control schemes. They can simulate and analyse building structures to predict their strength and stability, analyse the correlation between construction progress and quality, and provide suggestions and guidance based on the results. Moreover, AI agents can monitor temperature, humidity, noise and other factors on construction sites, and help workers take measures to ensure their safety. As AI agents are applied to reduce costs and drive safety and quality control, 3D positive design based on BIM is expected to transform traditional production models across the industry as the popularity of prefabricated buildings grows.

AI is becoming the next cutting-edge area for the PropTech sector. Against this backdrop, PropTech companies need to embrace emerging technologies and accelerate the iteration and upgrading of their own products; and they should consider combining AI agents with existing technologies or developing their own product lines centred around AI agents to harness and integrate various technologies.

# 3 Integrating emerging technologies with BIM to support the construction industry's transition towards quality and efficiency

Promoting the use of building information modelling (BIM) in an integrated manner throughout the lifecycle of new buildings is an important starting point for the digital transformation of the construction industry. Two main trends have emerged from the BIM-related policies issued by Chinese regulators in recent years: First, general policies outlining directions are being replaced by specific guidelines, such as detailed national standards; and second, BIM that was previously used in design and construction is being integrated and applied across the building lifecycle. Under this guidance, provinces and cities are actively promoting the application of BIM in the construction industry chain, while also promoting industrial housing, prefabricated buildings and smart technology. In June 2023, the General Office of the Shenzhen Municipal People's Government issued the Action Plan for Building Shenzhen into a Digital Twin Pioneer City (2023), which includes a clear proposal to build a unified and fully managed BIM platform in the city. This represents an unprecedented development in the integrated application of BIM and will effectively support the Digital Cities and Digital China strategies. In addition, as increasing importance is being attached to BIM, the ISO 19650 Building Information Modelling standard is being recognised and promoted among Chinese government institutions and enterprises, accelerating the digital transformation of the construction industry.

As new technologies, needs and realities emerge, construction enterprises can adopt a development and transformation model that is centred around BIM and that integrates big data, AI, IoT, cloud computing and other emerging information technologies. With such a platform, enterprises can continuously expand and deepen their operations across the industry chain, and enable synergies and optimisations across different stages, including planning, design, construction, operations and maintenance. For example, at the planning stage, BIM-based data integration capabilities and simulation analysis functionalities can provide a more comprehensive basis for informed decision-making; and in the design phase, 3D visual building models can be used to help better understand design schemes, improve design quality and efficiency, and reduce errors and reworking. In the construction phase, a BIM + smart building model can be used to engage in real-time monitoring and data analysis, which will assist on-site workers in carrying out high-precision and uninterrupted construction activities. These advances will enable enterprises to conduct production process management in a more visual, intelligent and refined manner. In the operations and maintenance phase, BIM's advantages in space management, information management, equipment maintenance management, energy consumption management and public safety management can be used to raise building management efficiency, reduce operational and maintenance costs, and optimise overall building performance.

Based on our observations, many Chinese PropTech companies that are committed to technological optimisation and upgrading have been expending more effort to develop their own proprietary BIM-based applications for the real estate lifecycle, with a view to getting rid of their dependence on imported European and American BIM software. At the same time, many leading Chinese real estate developers have made gradual but detailed plans for smart buildings and are continuing to expand their investment in BIM applications. In terms of the development and application of BIM technology platforms, real estate enterprises can mainly be divided into two categories: those in the first category are promoting such projects at the company level, and their BIM applications have gradually covered the full building lifecycle, including planning, design, construction, operations and maintenance, resulting in a more mature smart building system; those in the second category are focusing on applying BIM on a small scale at the design and construction stages and are carrying out pilot projects that are expected to be gradually extended to tendering and procurement, delivery, operations and maintenance, and other stages in the future.

We are standing at a crossroads in the development of the digital economy. Although the widespread application of BIM faces many challenges, such as obstacles in value transmission, inconsistent quality standards, poor synergy across the ecosystem, and shortage of interdisciplinary talent, industry players agree that BIM represents the path forward for the development of digital capabilities in the construction sector and marks the advent of a digital era for the industry. With continued national and local policy support and growing maturity in domestic R&D, BIM will continue to be integrated with big data, AI, IoT and other emerging technologies to enable more intelligent, efficient and refined building management and operation. Based on these advances, the construction industry will move into a development stage that is characterised by high quality and efficiency.

# 4 Building materials and energy technologies will promote the development of "ultra-low, near-zero, and zero" energy-consuming buildings, and IoT systems for space environments and energy consumption monitoring will be more widely used

Since President Xi Jinping put forward the 30/60 carbon strategy in September 2020, its implementation has had a comprehensive and profound impact on economic and social development. In January 2022, the national 14th Five-Year Plan for the construction industry was released, which established a basic principle of "pursuing innovation-driven, green development" to reduce material consumption, energy consumption and carbon emissions during construction and promote sustainability. Local housing and urban and rural construction management committees have also issued corresponding implementation guidelines and regular green building development reports. These organisations are playing an active role in promoting the high-quality development of the construction industry. In recent years, "carbon management" has also been appearing increasingly often on construction engineers' and real estate operators' daily agendas.

According to the 2017 Global Status report issued by the United Nations Environment Programme (UNEP), by 2030, 74% of carbon emissions associated with new construction projects will come from their embodied carbon, while 26% will come from their operational carbon. In 2020, energy consumption and carbon emissions resulting from all building processes accounted for 45.5% and 50.9% of China's energy consumption and carbon emissions, respectively. In 2019, China issued the Criteria for Building Carbon Emissions Calculation, which defined the calculation method for buildings' embodied carbon and operational carbon. Since April 2022, a carbon emissions calculation report for new buildings needs to be submitted for review during the drawing review phase. At the same time, globally, many other countries and regions have also issued standards or guidance documents on the calculation of buildings' carbon emissions to strengthen the requirements for carbon emissions data calculation, collection and baseline establishment. In addition, real estate operators are also seeing more and more tenants expressing concerns over carbon emissions as they lease space or make significant acquisitions, and energy consumption management capabilities are having a direct impact on leasing and purchasing decisions.

During our visits this year, we found that more and more real estate operators and corporate real estate owners are carrying out energy consumption management for their buildings, and their energy management needs are growing. A relatively large number of technology enterprises are providing such services. They are scattered geographically and have obvious regional characteristics, and no dominant leader has emerged in the field. At any rate, energy consumption management has become a standard offering for real estate space management service and technology providers. AIOT devices are being widely used to engage in data acquisition and monitoring for spaces, adding a human touch and more flexibility to the energy consumption model and supporting smarter and timelier decision-making for energy consumption management. These real estate operators and service providers have basically automated the generation and capture of data related to water, electricity, energy consumption, equipment operating efficiency and tenants, resulting in greater accuracy. Ongoing efforts to equip existing buildings with intelligent technologies will present more opportunities for such enterprises.

We have also noted that only some real estate operators regularly disclose their buildings' energy consumption-related indicators (Scope I and II and/or Scope III). Ensuring the completeness and accuracy of the extensive data collected is still a challenge for real estate operators in preparing high-quality ESG reports. In particular, Scope III disclosures have become a focus of their efforts in the medium and long term. At the same time, the carbon inventory and carbon emissions tracking modules that are available in the real estate market are still in their infancy. Though many of the surveyed technology enterprises may develop such modules in the future, mature solutions have not yet been established. With the promulgation of IFRS S1 and S2 and the revisions by the Stock Exchange of Hong Kong Limited to the climate disclosure rules under the ESG framework, we expect domestic capital market regulators to align relevant disclosure requirements with these changes. Going forward, PropTech companies will be able to diversify their ESG reporting service offerings in line with more stringent framework guidance.

In the future, the global economy will depend on energy technologies instead of energy resources. In the context of carbon neutrality, China will basically complete the low-carbon transition by 2060. Industry players are accelerating their efforts to explore new systems for near-zero energy-consuming and zero-carbon buildings. New materials, including green concrete, curtain wall materials and thermal insulation, are being developed and tested. For example, relevant regulations issued by the Shanghai government on the management of ultra-low energy consuming building projects have provided clear guidance for real estate builders and operators in respect of green buildings. They need to comprehensively consider how to combine clean energy and building materials at the design stage, so as to enable full-lifecycle green building management covering design, construction and operation.

We believe that as "ultra-low, near-zero, and zero" energy-consuming buildings thrive, and in light of the upcoming embodied carbon standards and ongoing innovation in energy storage technology, PropTech companies should focus on building a deeper layer of operational data and developing extensive data mining capabilities for energy consumption management. With these tools, they will be better positioned to drive energy conservation and help space users improve their ESG performance, and thereby expand their market share.

# 5 Amid ongoing industry transformation and market reform, customer-centric digital marketing and customer operations capabilities will help enterprises improve customer loyalty

The real estate sector basically features two marketing models: the business-to-business (B2B) model adopted by companies engaged in infrastructure, industrial parks and commercial real estate, and the business-to-consumer (B2C) model adopted by real estate companies and for-rent apartment operators. As the real estate sector enters an era characterised by a focus on existing assets, we have discovered that many real estate enterprises are encountering difficulties in their effort to improve their market penetration amid sluggish conditions. Although customer centricity has long been a hot topic in the industry, real estate enterprises are still beset by many problems in this area, such as an unvaried approach to marketing, unrefined operations, low customer loyalty and inaccurately identified customer value. To some extent, these issues have hindered their ability to exploit customer value and their efforts to establish their own brand image. Obviously, casting a wide net is no longer an appropriate customer acquisition approach for the current industry cycle. We believe that in terms of customer management, in the future, PropTech companies should focus on the following two areas: 1. carrying out targeted marketing based on reliable data, and 2. refining operations around existing customers to continuously generate value. Digital technologies will play an essential role in both these areas.

Under the B2B model, digital marketing is mainly used to identify prospective customers. By extensively integrating market information for processing and analysis, companies can target prospective customers who may want to construct, invest in or use real estate. They can make plans and engage with these customers early in order to gain a first-mover advantage in the market. We believe that companies should engage in marketing as early as possible to stimulate customer demand.

Under the B2C model, the role of digital marketing is mainly to add variety to marketing scenarios and improve marketing effectiveness. Real estate enterprises that engage in residential housing and for-rent apartments can invest in new media channels such as vertical network platforms, We Media and social media, and use the Internet as a marketing tool to reach a wider audience, establish their corporate image, and extend their brand impact. Meanwhile, using data analytics, AI and other technologies, businesses can gain better access to resources for marketing purposes and make their marketing efforts more targeted to improve conversion rates.

In terms of operations under the B2B model, it is essential to collect complete and accurate multi-dimensional customer information. Companies adopting this model should focus on risk management and customer retention. In respect of risk management, enterprises can perform "internal assessment and external inquiries" to dynamically update customer risk grades, while relying on digital tools to enhance and support corresponding responses. For customer retention, digital tools are mainly used to develop customised plans that can be implemented in a script- or task-based manner to normalise customer retention efforts and establish long-term relationships with customers. In terms of operations under the B2C model, real estate players can borrow the "private domain traffic pool" concept from Internet and e-commerce companies to accurately identify customer needs, promote traffic-driven marketing, and establish channels for more frequent and deeper interactions with customers. By doing so, they can develop a new system for "customer acquisition, management and retention" to drive conversion and improve customer loyalty.

Customer data plays a crucial role in both digital marketing and refined operations. We believe that helping real estate enterprises effectively use customer data to develop scenarios for intelligent analysis is the first step PropTech companies can take in customer management. Based on our survey and visits, in addition to traditional digital customer management offerings, many PropTech companies have also been innovative in using their own data resources to supplement and improve enterprises' customer data to help them stand out from competitors, build a unified, standardised system for customer data across multiple business segments, and promote intelligent customer profiling and labelling. In terms of digital marketing, companies adopting the B2C model can learn from other industries. It is worth noting that leading real estate enterprises and commercial real estate operators have worked with PropTech companies to actively apply various technologies in this area. Meanwhile, for companies using the B2B model, digital marketing is still in the blue ocean stage. PropTech companies can consider combining "industrial space profiling" with "customer profiling" and adopt AI technology to engage in smart customer profiling and labelling. In this way, they can drive innovation based on real estate enterprises' own customer resources and help them identify solutions to problems such as scattered customer resources and low customer loyalty.

# 6 Digital and intelligent technologies continue to empower asset operators. In the future, the gap between their core abilities to improve asset value will expand, although the general upper limit on their abilities will be raised

With the growing maturity of real estate investment trusts (REITs) and other models, the "investment, construction, management and exit" lifecycle for real estate has gradually become more comprehensive, and a closed loop system for "big asset management" has begun to take shape for the real estate sector. Currently, real estate operators are mainly focusing on enhancing asset value, whether they have adopted an asset-light or asset-heavy model. Under the asset-light model, value is mainly sourced from management fees and operating income, while businesses under the asset-heavy model mainly depend on sales, rent and asset appreciation. As the industry enters an era characterised by a focus on existing assets, companies are eyeing assets that can grow in value and generate high-quality cash flows. In recent years, PropTech has been gaining momentum. Across each stage of the real estate lifecycle, there are scenarios in which technologies can be integrated with business activities; and we have recently seen significant advances in the degree of specialisation and potential ceiling in each stage. By mastering one stage, enterprises can gain a competitive edge and establish a stronger position in this dynamic market.

### Investment: Digitally empowering traditional decision-making to improve the accuracy and efficiency of investment decisions

With the increasing penetration of PropTech, digital technologies such as geographic information systems (GIS) and AI are gradually being used to enable data integration and automatic analysis and help real estate operators refine, standardise and digitalise pre-investment management. GIS technology is capable of dynamically monitoring and integrating data regarding policies, demographics, points of interest (POI) and areas of interest (AOI), urban commercial centres, road networks, etc. and providing reliable data sources for subsequent evaluation and indicator analysis. Harnessing these capabilities, enterprises can automatically generate economic and technical indicators (such as gross profit margin, internal rate of return, etc.), arrive at preliminarily estimates of profitability, and analyse indicators. During our visits, we saw that many PropTech companies realise the potential of investment tools. However, in order to achieve results in this area, they need to master GIS technology and gain an understanding of the specifics of different investment scenarios. To this end, we recommend that they work together with owners.

### Construction: Using the "BIM + smart construction site" model to form a closed loop for integrated project construction management

In combination with IoT, AI, 5G, virtual reality (VR) and other technologies, BIM can deliver benefits across a series of digital scenarios—including simulated construction schemes, virtual progress monitoring, smart site layout and completed building models—to improve project quality and ensure project progress. By integrating software and hardware, smart construction sites can enable the digital management of on-site workers, machinery, materials, site environments and construction processes. This also represents an important way for real estate enterprises to promote ESG. In our visits in recent years, we have found that existing BIM and smart construction site solutions are acceptable, and each provider has its own unique advantages. However, as the adoption of ESG practices deepens in the real estate sector, PropTech companies that take the initiative to make breakthroughs in on-site environment and energy consumption monitoring and other ESG indicators are more likely to succeed in this segment.

### Management: Deploying digital technologies to build links between customer bases, spaces and contracts

As a core aspect of asset management, how to leverage operational strategies to achieve a higher rate of return is gradually becoming the best indicator of an enterprise's brand power and sustainability capabilities. The essence of real estate operations lies in well-coordinated relationships between customer bases, spaces and contracts. At the customer base-space relationship level, operators can create digital spaces by implementing smart office services, energy billing systems, environmental monitoring systems and other products to improve customer satisfaction. At the space-contract relationship level, they can establish a comprehensive platform for real estate operations to cultivate digital connectivity between assets and income-generating contracts. This can help real estate enterprises monitor their asset utilisation rates and vacancy rates in real time, record various operating costs in a timely manner, and visually and dynamically display the gap between the status of current operations and operating objectives. At the customer base-contract relationship level, PropTech companies should strive to convert customer research data accumulated in the operations process into assets, and use these assets to build customer profiles. In this way, they can help enterprises quickly ascertain market changes and also provide guidance on value mining

and customised product design. We have seen that the current offerings of real estate operators already meet the basic needs in day-to-day management. In this context, PropTech companies can develop operational indicator analysis capabilities that are data-driven and intelligent to improve their competitiveness.

### Exit: Digital tools are enabling REIT lifecycle management

As a way to smooth the real estate investment and financing cycle, public REITs have attracted significant attention from market participants since the pilot programme was introduced, and the market for multi-layer REITs is being actively explored. These efforts will further promote the development of China's asset-backed security (ABS) market. Managers of various REIT products can use digital tools to integrate project databases, asset management models and forecast models to help identify potential REIT projects, proactively manage and simulate asset evaluation prices, develop REIT issuance plans, and conduct lifecycle management for issued REIT assets. Developing a REIT asset evaluation and management system can help real estate enterprises and product managers manage potential REIT assets at different stages in a coordinated manner, establish target asset pools and issued asset pools by category or project, monitor milestones in project construction and operation, produce project financial summaries, analyse business performance, build models for cash flow calculations, and improve asset quality in a targeted manner to meet REIT issuance requirements. At the same time, managers can leverage AI and big data as core digital analysis technologies to further identify and analyse key factors that affect asset value and REIT product prices, in order to plan the issuance timeline and drive proactive management throughout the REIT lifecycle. Currently, PropTech companies do not consider REITs to be major targets due to their strong financial attributes, high safety requirements, relatively unvaried investor structures and small circulation scale. We believe that ongoing efforts to build a multi-layer domestic REIT market—especially the establishment of private REITs—will further encourage REIT managers to expand their assets under management and promote digital transformation around day-to-day management, information disclosure and long-term value enhancement for REITs. In particular, market participants should identify links between factors impacting asset value and day-to-day asset management indicators, so as to conduct multi-scenario simulation analysis. This is likely to be a good starting point for PropTech companies looking to access REIT scenarios.

# 7 Industry players are returning to their original aspirations, and the software-as-a-service (SaaS) market is broad and steadily enriching its offerings

In the past three years, national strategies such as Eastern Data & Western Computing and Digital China have been accelerated, and Chinese enterprises across all industries have stepped up their transformation efforts. In this context, the demand for SaaS services has increased significantly, ushering in a golden age for the domestic SaaS market. According to data from the International Data Corporation (IDC), China's SaaS market is expected to grow from RMB 27.2 billion in 2019 to RMB 92.6 billion in 2023, representing a compound annual growth rate of approximately 34.1%. Of this amount, real estate SaaS products account for RMB 7.5 billion in 2023, up 50% year-on-year. In this year's and last year's surveys, we found that the real estate sector's recognition of and demand for SaaS services are still increasing.

Ongoing economic turbulence has returned the rapidly growing real estate sector to a more rational orientation, and real estate and construction companies have become more manufacturing- and service-oriented. They are focusing on premium projects and technological upgrading across the industry, driving quality and efficiency improvements, attaching importance to engagement with users, pursuing business based on existing customers, establishing their brand reputations, and improving user experience. Industry players are streamlining and refining their operations around existing real estate, spaces and services to generate value and drive growth.

In terms of market demand for SaaS, we have observed a number of changes. First, large real estate and construction groups have a growing demand for SaaS products due to their decreasing number of technicians. They hope to use the low cost, asset-light model and other advantages to meet their day-to-day production needs, and they are more cautious in making decisions about whether to purchase management software for large enterprises such as enterprise resource planning (ERP) systems. Therefore, SaaS service providers are continuing to deepen their research on industry characteristics, drive customisation, and provide more professional and scalable solutions. Some vendors have begun to dismantle standard SaaS infrastructure and develop low-code products in order to provide various customised products and services for enterprises. Second, SaaS service providers have proactively expanded their markets horizontally. Some SaaS product/service providers that focus on doing business with real estate groups have begun to gradually expand their market reach to non-residential enterprises such as local government investment vehicles and companies that are engaged in industrial production and infrastructure, so as to reduce the adverse impact of upheavals in the industry on corporate development. Third, SaaS service providers have strengthened their cooperation with industry leaders to create landmark projects, deliver a greater brand impact, and accelerate marketing efforts. Fourth, they are expanding partnerships across the ecosystem and enhancing their ties with leading Internet companies to capitalise on the latter's technological and channel advantages. Owner enterprises are also expecting SaaS service providers to extend their SaaS-centred digital services to provide owner enterprises with end-to-end services covering business advisory, planning, implementation and operation. In this context, SaaS service providers should strengthen their capabilities in these areas or enhance cooperation with businesses with relevant experience.

In terms of construction, we believe that open and advanced underlying technological infrastructure, and deep insights into and understanding of the industry, will be the key to development for SaaS service providers. By building unified technical infrastructure and capabilities, deepening technical advantages, and iterating technologies, they can develop a sound technological base + flexible offerings to efficiently meet different customers' needs for non-standard services and products. Inter-segment competition between SaaS service providers in the real estate sector is fierce, and leading tech companies can quickly incubate solutions based on their technological strengths and resources. However, the real estate sector itself has many segments and complex business activities. Therefore, in addition to enabling refined management, SaaS services need to be deeply integrated with all business activities across the industry chain, and SaaS service providers need to gain deeper insight into the industry. By driving improvements in the two above-mentioned areas, they can further enrich their product matrix, cover more management and business scenarios, and extend SaaS services across the value chain.

In terms of product types, we have also observed that SaaS service providers are responding more actively to industry players' needs, and are deepening SaaS products/service development from the four perspectives of helping businesses increase revenue, reduce costs, improve quality and control risks—with a focus on customer management, supply chain management, asset management and project construction. In terms of enterprise management,

products such as digital customer relationship management platforms (including smart marketing, smart customer service, investment attraction, digital twin, 3D, AI-generated content (AIGC), etc.), digital centralised purchase platforms, and project management platforms (covering production, quality, costs and risks) have become keys to building standardised core data capabilities and engaging in refined, comprehensive business management. In terms of construction and production, service providers are stepping up R&D investment in digital-construction-based products and services that can be integrated with BIM, AI, IoT, digital twin and other technologies. In marketing, which is relatively digitally mature, use cases related to smart publicity, smart channels, smart sales offices and smart transactions can deliver effective solutions to industry pain points, such as low on-site conversion rates and limited sales channels; and these solutions can be combined with customer acquisition products to build a closed loop for digital marketing that covers all relevant scenarios. At the same time, the application of AI and large language models (LLMs) will lead to smarter customer relationship management (CRM) products. Operational transformation will drive the development of solutions in areas such as smart property management, smart buildings, asset operations and management, and investment attraction platforms.

On the whole, changes in the industry are presenting both challenges and opportunities. To succeed in this broad market, SaaS service providers need to build unique competitive advantages, embrace changes and strengthen partnerships to help drive the high-quality development of the real estate sector.

# 8 The deepening integration of intelligent technologies—typified by generative AI—with property operations has become a hot spot in the industry, driving gradual improvements in service experience

In the past year, we have seen emerging intelligent technologies, as represented by generative AI, digital humans and digital twin technology, give rise to a range of impressive applications in real estate operations and management. These developments are not only profoundly changing traditional operating models and driving deeper digitalisation across the industry, but are also bringing new work and life experiences to managers, users and residents. This shift is a good example of how smart technologies can enable better living. In this year's survey, we noticed that many enterprises are attaching greater importance to "human-centred" design and operational elements when adopting digital applications. At the same time, they are actively exploring the application of these emerging technologies in community operations, property management, urban renewal and related areas, with a view to developing core competitive advantages in customer service experience.

More and more high-end residential communities and commercial complexes are integrating generative AI with cloud computing, edge computing, terminal hardware and high-precision algorithms and applying it to security, property management, community services and other areas. These efforts can significantly enhance security management and service quality while also downsizing security and property teams. For example, cameras enabled with intelligent technologies can automatically scan and monitor public places in the community to identify abnormal behaviour and dangers, improve safety on the premises, and enhance the property manager's ability to prevent risks. In addition, by combining intelligent technologies that detect environmental temperature and humidity with cloud computing and big data technology, property managers can engage in intelligent energy management to reduce energy consumption and costs and provide users with a better experience. Meanwhile, by collecting and analysing data in the course of property management, property managers can gain an understanding of the habits, interests and needs of users and residents. With this knowledge, they can proactively provide personalised community services. In addition, tools that integrate generative AI with digital humans are ideally suited for customer services in property operations. Such solutions can be fully integrated with various connected terminals to deliver a more user-friendly, intelligent and convenient service experience and enable property managers to respond on a 24/7 basis.

Digital twin technology has also brought significant efficiency gains to property operations management and project marketing. This technology can be used to simulate the project operations and management process, and possible changes to buildings, equipment, the environment and other elements; and it can assist property managers in day-to-day operations, maintenance and management based on the simulation results. For example, the deployment and installation of facilities and equipment can be optimised by simulating the daylighting, ventilation and energy consumption of buildings, among other metrics. In case of emergencies in buildings, digital twin technology can simulate possible developments and emergency plans to provide guidance for rescuers. In project marketing scenarios, solutions that combine digital twin technology with virtual reality and augmented reality technology can provide an immersive experience for prospective customers, and enable online and offline marketing and display, including simulating interior decorations and views of the outdoors. These capabilities can significantly improve an enterprise's brand image and sales efficiency.

In a word, new technologies can be applied across a wide range of scenarios in the real estate sector to drive innovation and development. Of course, certain challenges and problems need to be solved in areas such as privacy, security, costs and data security. However, with ongoing advances in intelligent technologies and a widening range of application scenarios, we are confident that these smart tools will be widely adopted in the future, providing a range of development opportunities for the PropTech industry.

# Leading PropTech 50 - List of enterprises

| | |
|---|---|
| Albacastor Technology Limited | RoboticPlus. AI |
| Unre (Shanghai) Information Technology Co., Ltd. | Shanghai HelloTech Information Technology Co., Ltd |
| Peace Inc., | Haiyi Design Institute |
| Beijing Haixinyu Urban Renewal Group Co., Ltd. | Shanghai Blue Wall Technology Co., Ltd |
| Beijing Building Technology Consulting Co., Ltd | Shanghai MetroData Tech. Co., Ltd. |
| Beijing Zhongtou Chuangzhan Technology Co., Ltd. | Shanghai Pinlan Data Technology Co., Ltd. |
| Blue Pin (HK) Limited | Shanghai Weibuild Technology Co., Ltd. |
| Persagy Science and Technology Co., Ltd. | Shanghai YouKun Information Technology Co., Ltd. |
| InVix (Shanghai) Information Technology Co., Ltd. | Shanghai Yuanquan Network Technology Co., Ltd. |
| Dayta AI Limited | Shenzhen Haizhichuang Technology Co.,Ltd. |
| Third Dimension (Henan) Software Technology Co., Ltd | ShenZhen Idea Data Intelligence Technology Co., Ltd |
| Foshan New Infrastructure Technology Co., Ltd. | Shenzhen Huayunzhongsheng Technology Co., Ltd |
| YUETRON DIGTECH | SpaceiCloud |
| Smart Construction Cloud | Shenzhen Segi Information Technology Co., Ltd. |
| ZWSOFT CO., LTD.(Guangzhou) | Shenzhen Facility Management Community Technology Co., Ltd |
| Hunan Googol Robot Co., Ltd | Onewo In-home |
| Hainan Elmleaf Information Technology Co., Ltd. | Shenzhen Webuild Technology Co., Ltd. |
| Hangzhou LinHui Network Technology Co., Ltd. | Shenzhen Xinghai IoT Technology Co., Ltd. |
| Hangzhou Newgrand Technology Co., Ltd. | Citicyunxing |
| I2COOL LIMITED | Shenzhen Xkool Technology Co., Ltd. |
| Greentown Architectural Technology Co., Ltd. | Vanyi Technology Co.,Ltd |
| Retailing Connect Tech Ltd. | Xiamen Vann Intelligent Co.,Ltd. |
| Luoyang Zhongzhi Software Technology Co., Ltd. | China Construction Third Engineering Bureau Information Technology Co., Ltd. |
| MotionsCloud GmbH | China Construction Yipin Investment&Development Co., Ltd. |
| Shanghai Definesys Information Technology Co., Ltd. | Zhongtian Myhome Group Co., Ltd. |

Note:
The English list follows the same order as the Chinese list, with the Chinese list arranged in alphabetical order based on the pinyin initials.

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