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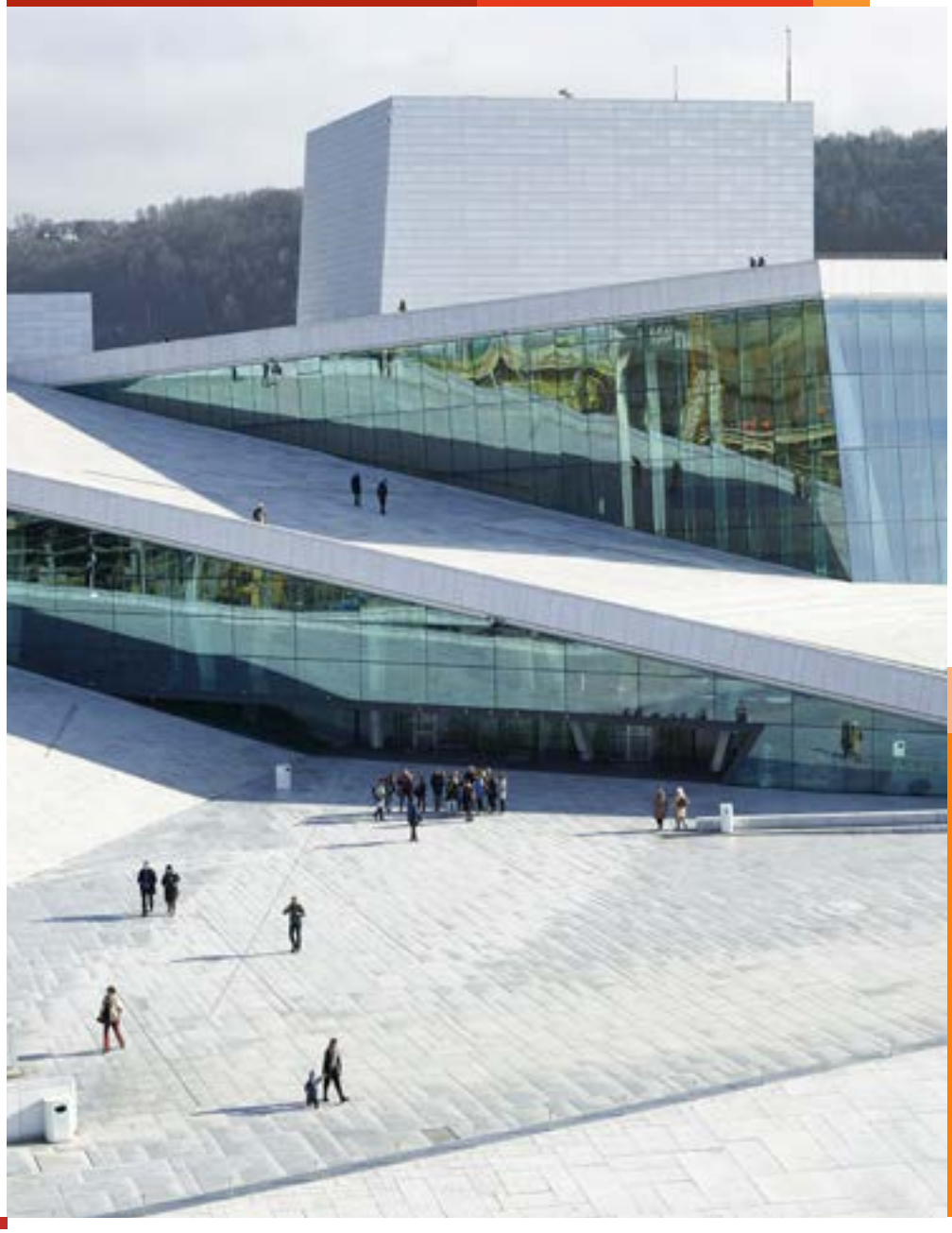
New Trends of Technology Enabling To-B Services Whitepaper

July 2018



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Preface

With the continuous development of information technology, the space for innovation in China's mobile Internet for the consumer-side (hereinafter collectively referred to as the "C-side") is shrinking. Business models are showing a trend in innovation from C-side to business-side (hereinafter collectively referred to as the "B-side"); thus, how technology can better serve the B-side has become the focus of attention.

Base on the research of the current emerging technologies application in the market, PwC drafted this white paper in order to explore future development trends of China's Internet companies. PwC believe that the next wave of Internet development in China will take place at the B-side. The"T2B2C" (Technology companies enable the B-side to better serve the C-side) will become mainstream business models.

At present, the platform ecology brought by the development of T2B2C has been initially formed. By 2025, the overall valuation of technology companies underpinned by the T2B2C business model will exceed 50 trillion RMB.

PwC have summarized the three main trends of Techonolgy Enabling To-B service: popularisation, deepening and ecologicalisation. We expect that the technology penetration rate in the market will gradually increase in the next decade, and emerging technology such as iABCD (Internet of Things, artificial intelligence, blockchain, cloud computing, and big data) will become important tools for technology to enable the B-side.

While looking at Chinese technology companies' innovations in T2B2C, we believe the degree of technology development and technology companies' service capabilities will be the decisive factors for international competition.

The focus of technological innovations is changing from C-side to B-side, the new T2B2C market is developing.

In recent years, as the technology giants (like BAT) have become more powerful, the space for innovation on the C-side has been continuously compressed. Meanwhile, marketing expenses have been rising quickly with many giants dominating the customer acquisition channels.

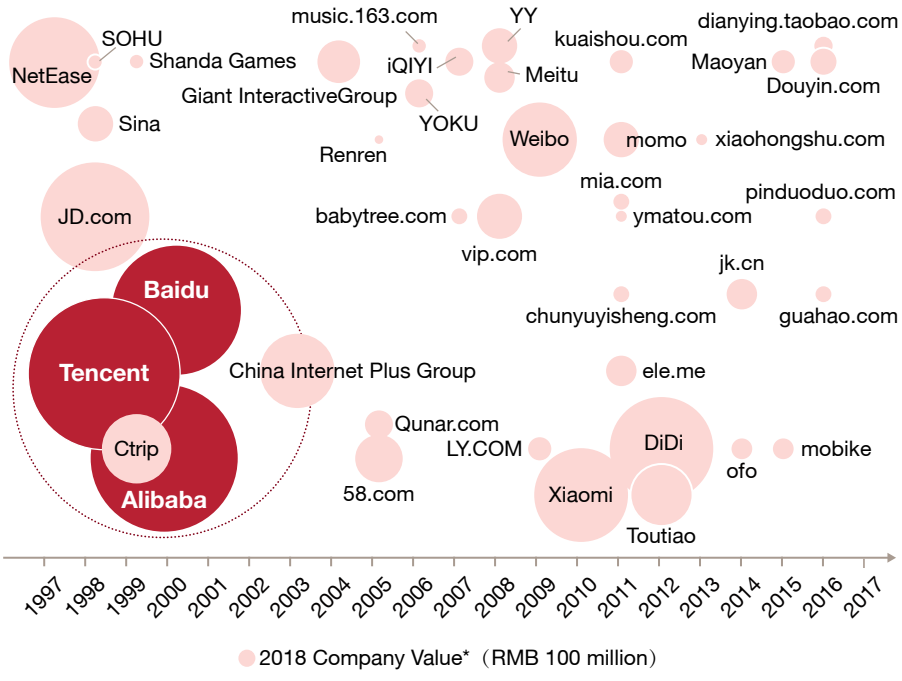
When we consider the B-side, we find that there has been a steady upward trend of technology enabling To-B services. However, there is still a gap in B-side sevice market volume between China with the U.S.. We foresee that the next development of Internet companies in China will focus on the B-side. Due to increasing transformation needs of existing entities and the increasing numbers of small and medium enterprises, T2B2C as mainstream business model of enabling the B-side, is developing rapidly in China with huge future potential.

China's Internet market(mainly focus on C-side service) has experienced a 20-year growth, and innovation in the C-side market has gradually decreased

In recent years, large oligopolistic firms are seen as dominating C-side and the space for innovation on the C-side has been compressed and segmented. The market shows oligopoy.

- **From the perspective of market competition, the C-side market has formed a landscape dominated by the 'giants'.** China's C-side market has experienced significant competition, driven by the three giants in China (Baidu, Alibaba and Tencent, as BAT). The U.S. C-side market is also dominated by the three U.S. giants (Google, Facebook and Amazon), and when combined with the Chinese C-side giants, they have collectively reached US$ 500 billion in revenue in 2017. At present, the C-side markets of both China and the U.S. have entered a mature phase.
- **In terms of development trends, the space for C-side application innovation is constantly being compressed.** C-side applications contiguously innovating in segment market, including fashion,healthcare ,food&restaurant,housing,transportation,and entertainment. The C-side is experiencing a transformation from social media platforms to be highly segment-specific and consumer-specific, and thus opportunities for innovation are shrinking.

The development history of Internet consumer market



The C-side market has entered into new phase of high customer acquisition cost. The consumption upgrade is forcing industry upgrade.

At the same time, the cost of customer acquisition at the C-side is constantly rising and the online channel is still dominated by the giants.

The cost of customer acquisition at the C-side is rising.

The trend of the rising cost of the channel has become increasingly apparent. Regardless of whether it is travel, e-commerce or value-added services, the cost of customer acquisition online is 5-10 times higher than what it was a few years ago. In 2016, Meituan Dianping commented that the cost of customer acquisition for lifestyle services had reached more than 100 RMB. Mafengwo assessed that the cost of customer acquisition for travel services was about 1,000 RMB. Data from a third-party, Touzhijia, showed the cost of consumer acquisition for Internet financial services companies was 1,000-3,000 RMB, and the cost for pharmaceutical E-Commerce services rose from 20-30 RMB in 2014 to 200-300 RMB in 2016.

The channels for customer acquisition are dominated by the giants.

The channels continue to be dominated by top enterprises (such as BAT), and 'unicorn' companies growing independently from the support of larger platforms are becoming less common.

Consumer service market under the New Normal of China economy

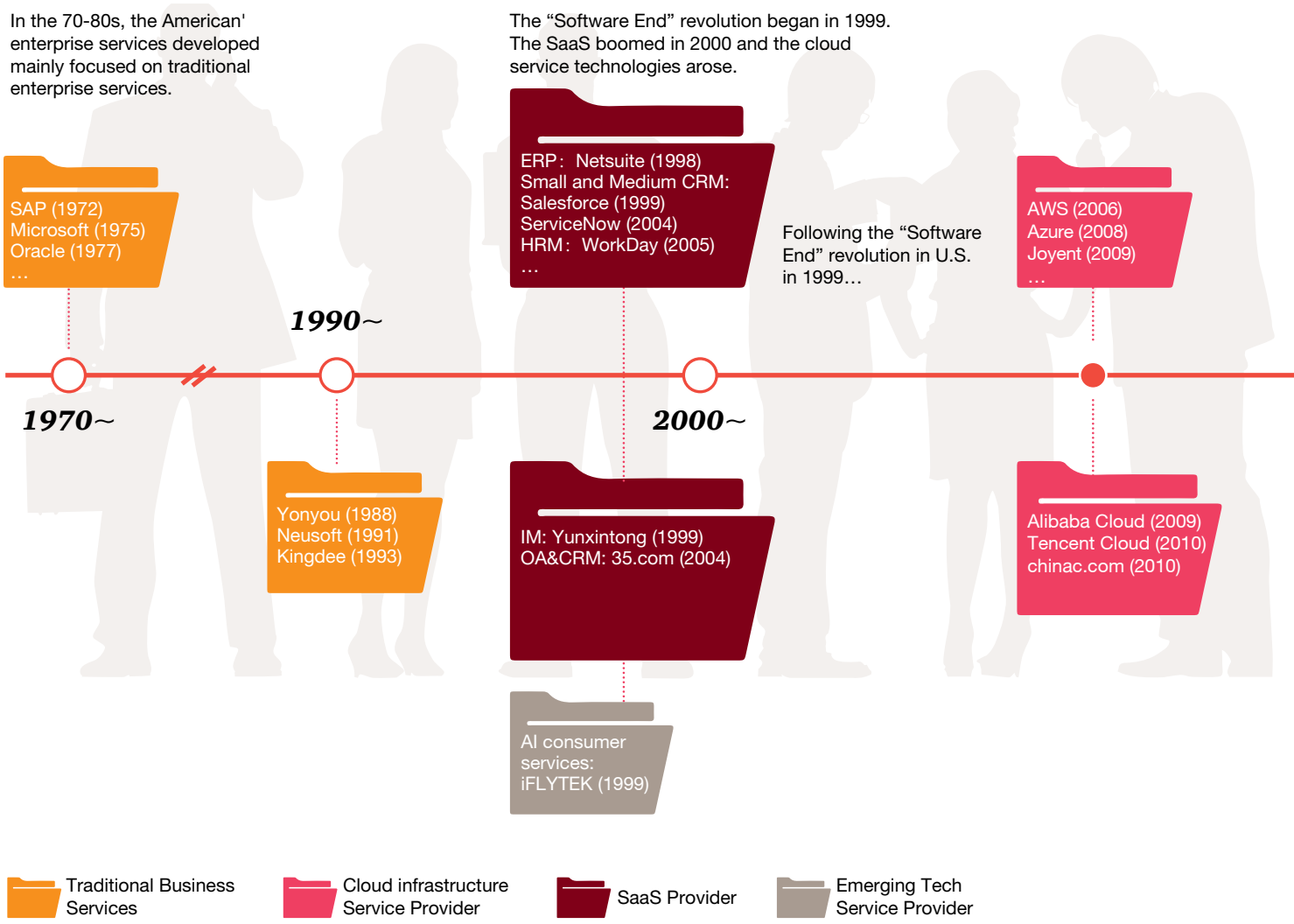
		Past	Present
	channel	Online channel acquired consumers by cash investment	Online channel is solidified and the cost of consumer acquisition is high
	client	Focused on consumer acquisition	Strengthen customer loyalty and focus on customer retention
	service	Provided basic consumer services	Provide upgraded consumption based on customer classification
	Product	Provided Low-end products	Upgraded consumption and provide a range of middle and high-end products

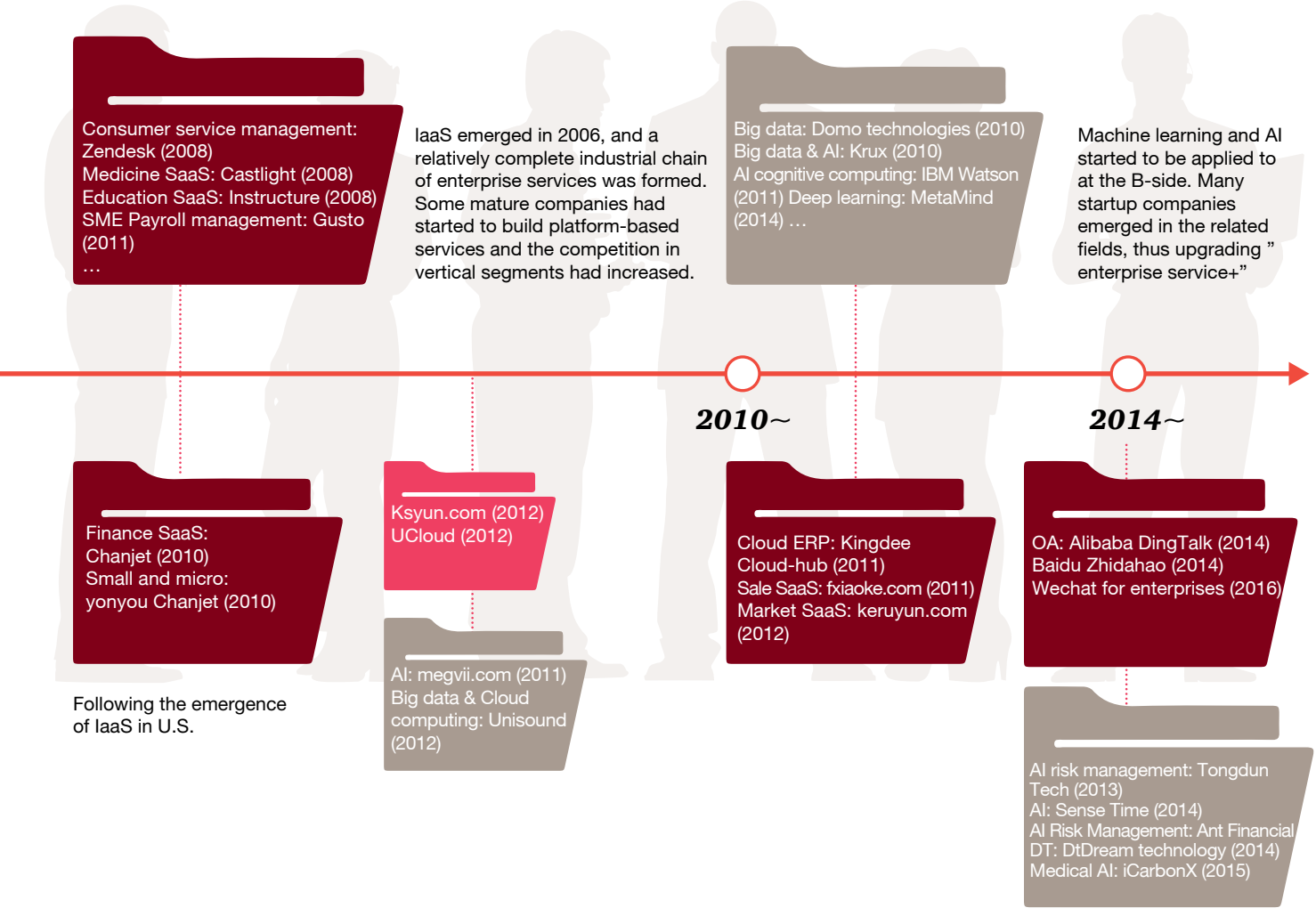
We found that consumption upgrade has promoting industrial upgrading.

Though the process of tech enterprises enabling the B-side began late, it has already presented a "blowout" trend

Comparing the development history of B-side market between China and U.S., we found that although enabling the B-side started late in China, it has manifested a "blowout" trend.

The development history of B-side market in China and U.S.





Cloud infrastructure service was authentically carried out in 2014

Technology enterprises enabling B-side companies are in the developmental phase with huge future potential

Although Chinese technology enterprises are growing significantly on the B-side, there is still a large gap compared to the volume of companies in the U.S. Technology enterprises' B-side service market has a large growth potential.

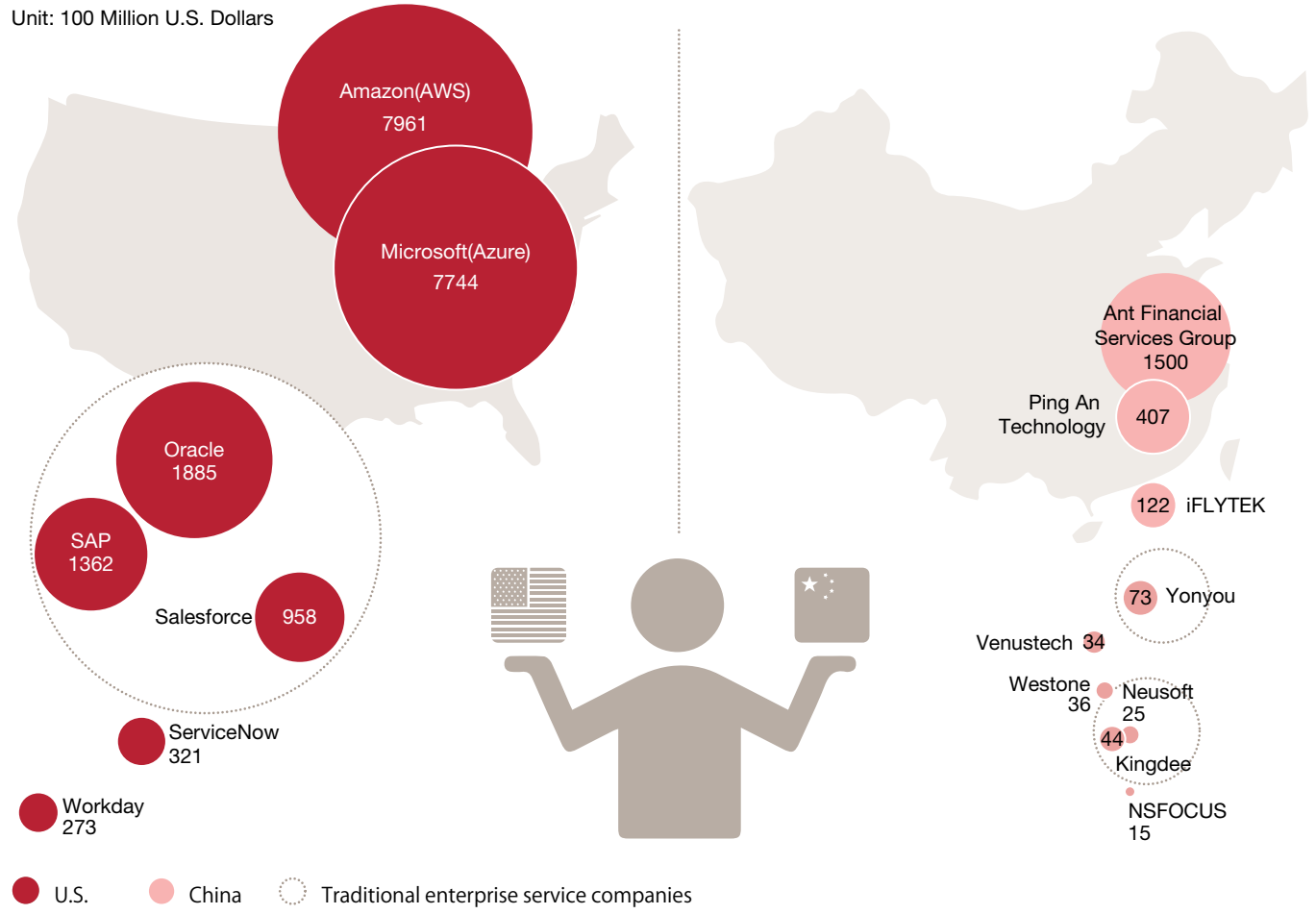
There is a big gap in the number and valuation of listed enterprise service companies between China and U.S.

- Comparing traditional enterprise service companies in China and U.S., Yonyou, Neusoft and Kingdee (all Chinese) have a total market value of US$ 14.2 billion, whereas U.S. giants Oracle, SAP and Salesforce have a total market value of US$ 420.6 billion.

Chinese enterprise cloud services lag behind U.S.

- The profit contribution from Amazon and Microsoft's enterprise cloud services is as high as 74% and 70%, respectively. Apart from some cloud services provided by Alibaba and Tencent in China, there is no mainstream Internet company whose main business is B-side services; thus, there are opportunities for Chinese businesses to explore this area further.
- China and U.S. combined have 30 million companies that require technology services. While the market value of U.S. SaaS companies has exceeded US$ 170 billion, the valuation of China's SaaS companies is approximately US$ 45 billion.

Market value of B-side giants in China and U.S.



Source: Market values/Estimated Value as of May 1st, 2018 from NYSE, Nasdaq, Shanghai Stock Exchange, Shenzhen Stock Exchange, etc., PwC Analysis

The market environment is driving the development of new business models, and T2B2C will become the main approach for China's Internet development

The Chinese to-B market environment is different from American. The Chinese to-B market derives a new business model, which is T2B2C model. And this model will become the major business model for Chinese Internet companies and technology companies.

The comparison of B-side technology services market between China and U.S.

	U.S.	China
T2B	• The market is mature and in leading place.	• The market is growing fast and has huge growth potential in its segment market.
Representatives	• Microsoft, Oracle, IBM	• Kingdee, Yonyou
T2B2C	• The market grew early and rapidly to large market volume with business all over the world.	• The market is well-developed and has experienced exponential growth in recent years. The gap between China and U.S. has narrowed. The China developed its unique business model.
Representatives	• Amazon	• Ant Financial Services Group, Ping An Technology

The Chinese T2B2C model has the following features and trends:

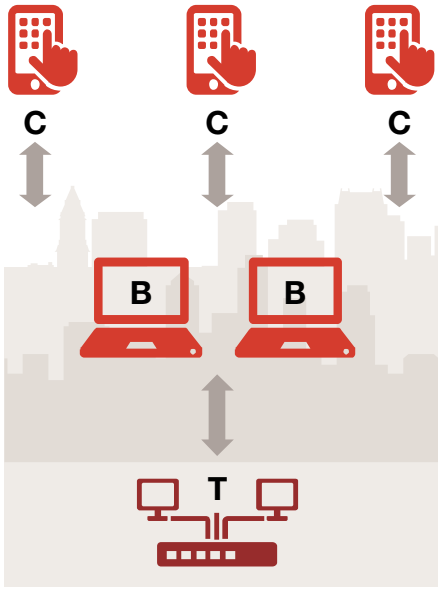
- **The increasing industry coverage further drives business model innovation.**
  The U.S. T2B2C models mainly focus on the retail industry. However, China has widely applied T2B2C models into retail, finance, transportation, healthcare and other industries. Deep exploration into specific industries, as well as expansion of cross-industry application, is driving the development of T2B2C.
- **The development and maturity of diversified technology applications can create new opportunities**
  Compared to the U.S., China's T2B2C model covers more segmented areas of the market and has developed and diversified their technology applications further. With continued maturity of segments and development of new applications, T2B2C model will be further progressed in the future.
- **Customer growth drives demand of technology companies to enable B-side enterprises**
  The U.S. consumer market is relatively mature and stable, whereas Chinese market is in the period of consumption upgrade, which requires growth of B-side enterprises. The transformation of B-side enterprises requires them to integrate their business capabilities with technological capabilities, which will be supported by the technology companies, to better serve the C-side market. We believe the consumption upgrade at the C-side through T2B2C model is a future trend.

The Chinese T2B2C business model has achieved a breakthrough in the growth of technology and resources. In the future, it will leverage the C-side service resource integration capability and more mature technologies to enable B-side enterprises to realise business value, and create a closed-loop model of T2B2C.

The T2B2C model can better access and meet the needs of both business over the industry chain(B) and the end user(C). Thus, it can help with value chain optimization and industrial upgrade.

The continuous developing T2B2C model will become the main business models of business service market.

T2B2C platform enabling model



T2B2C platform: A giant technology company (T) has accumulated substantial customer data based on C side service. Technology companies share consumer data to business companies (B), and business companies leverage technology, services and channel resources to increase the operating efficiency in order to improve the customer experience. Technology companies and business companies jointly reconstruct service experience and drive upgrade of industry. T2B2C has formed a closed loop and become a catalyst of market development.

We are explaining T2B2C platform model separately from demand and supply side of the industry. It is clear that this model can support industry upgrade.

Demand Side

- The client transmit demands of products and services to B-side enterprises. B-side enterprises can supply specifically to the demands and reduce the overcapacity through subsequently requesting demands from the supply side. At the same time, the client demands for better experience encourages the improvement of products.
- B-side enterprises transmit demands to technologies that improve B-side operation and channel efficiency, and thus the technology companies can resolve the challenges of low efficiency and overcapacity.
- The client delivers real-time feedback and user experience requirements, which strengthens the application of technology and product quality.

Supply Side

- Technology companies provide support for B-side enterprises' expansion of channels, technology and service, thus reducing the cost of customer growth and increasing efficiencies for B-side. B-side's technology service system can promote industry upgrade and bing a synergistic effect.
- B-side enterprises and technology companies optimise their responsiveness and levels of service to clients' real-time requirements, providing personalised products and services which will improve user experience.

T2B2C trend of "Popularisation": make the technology-enabled industry move toward "economical application" and eventually cover "all people".

As the value of the B-end market continues to emerge, more and more technology companies are targeting the "T2B2C model" to catch up with the pace of the times.

Based on the current application of technology in the market and the analysis of future trends, PwC sums up the three major trends of change in technology, namely, the reinvention of B-side, which are popularization, deepening and ecologicalization. This chapter aims to describe the trend of popularization. By focusing on the needs and pain points of SMEs, we will provide differentiated solutions to make the technology-enabled industry move toward "economical application" and eventually cover "all people".

Bring technology to to-B market, from "noble" to "civilian"

With the increasing demand for digitalization and intelligence of SMEs, technology companies begin to pay attention to "civilian" enterprises and seek innovation and breakthrough.

The demand for digitalization and intellectualization of small and medium-sized enterprises is urgent. Enterprise services begin to pay attention to "civilian" enterprises.

59.6%

Marketing Management

59.6% of SMEs urgently need to understand market information and expand sales capacity through informationization.

48.1%

Client Management

48.1% of SMEs expect to find more clients through improve the quality of products and service.

50.8%

Production and Research

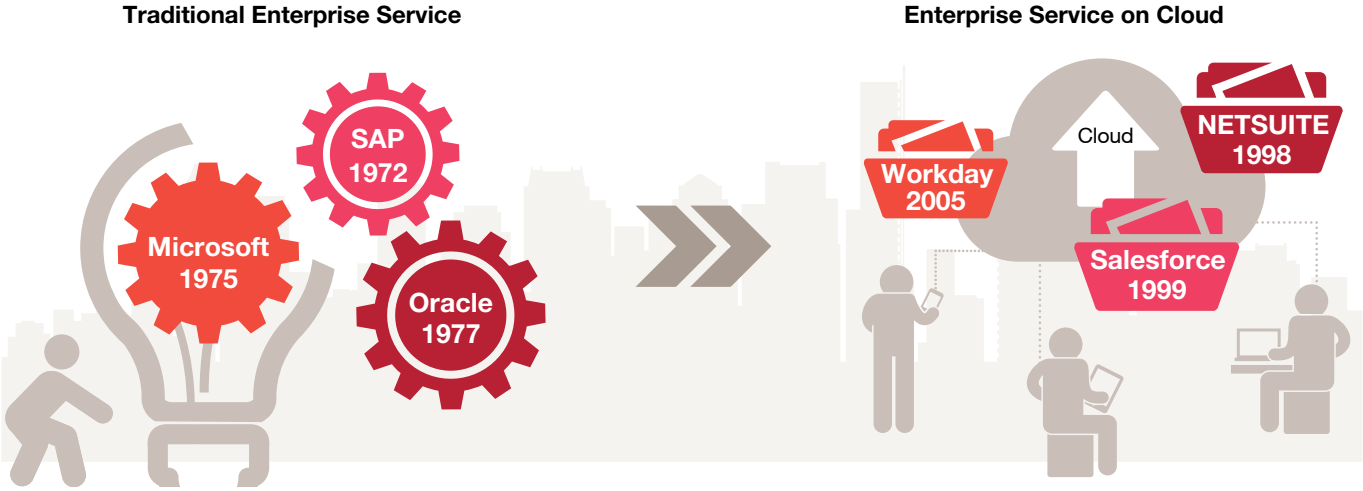
50.8% of SMEs expect to improve the quality of products and service through technology.

51.0%

Enterprise Management

51% of SMEs hope to grasp the business status of enterprises through informationization.

With the maturity of various technologies and the innovation of service models, the cost of acquiring technology is getting lower, and B-end services are becoming economically applicable.



Take cloud computing as an example. In the traditional mode, an enterprise building an IT system requires not only the purchase of hardware and other infrastructure, but also the purchase of software licenses, which require specialized personnel maintenance. Through cloud technology, enterprise services have gradually evolved from the previously sold software to the cloud service model that is now rented, sold on demand. Computing, services, and applications are provided to the public as a public facility, resulting in lower cost of B-side access services.

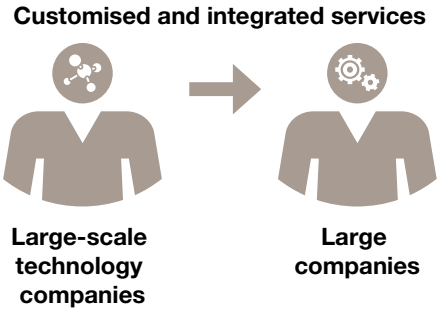
"T2B2C" solutions cover 'all segments'

T2B2C can provide differentiated solutions for all companies of large, medium or small size. In fact, T2B2C can cover 'all segments'.

The solutions for the large companies

Customised, integrated products and services

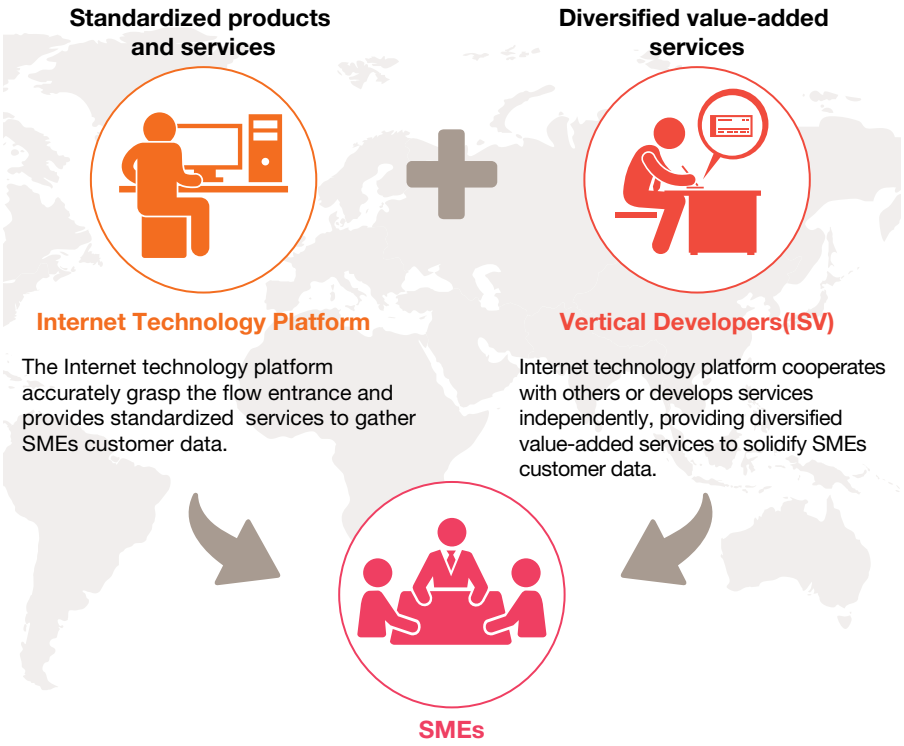
- Large-scale technology companies mainly serve large companies, providing a one-stop, customised and integrated range of products and services.



The solutions for SMEs

Standardised products and services + Diversified value-added services

- The total number of SMEs in China has surpassed 80 miilion. The demand of SMEs has become an important part of the to-B service market.
- For the services to SMEs, technology companies will lead the establishment of an Internet technology platform, and provide standardised, low-entry-level products and services, thus effectively gathering the information of SMEs' customer data. At the same time, the Internet technology platform will open the platform to collaborate with vertical developers or independently develop more diversified value-added services to solidify SME customer data.



Case Study: Alibaba and Ant Financial Services provide standardised and diversified services to SMEs

Taking Alibaba and Ant Financial Services as examples, both of them have standardised and diversified services for small-sized retail customers and small & medium-sized financial customers.

Small-sized retail customers - Alibaba Retail (LingShouTong)

- Alibaba Retail (LingShouTong) is an online service platform which provides the "mom and pop store" with standardised ordering, logistics, marketing and value-added services, in order to improve the efficiency of business services;
- In order to enhance service efficiency, customer experience and build smart channel access, Alibaba Retail (LingShouTong) provides Alibaba big data analysis, easy-to-use smart devices, and other capabilities including payment, real-name authentication, credit, RFID (electronic tag), gravity sensing calibration, and other technologies.

Small & medium-sized financial customers - FinTech Platform

- Ant Financial Cloud created the FinTech platform which supports small and medium-sized financial institutions' development. By exporting technologies to the financial institutions, such as a distributed technical framework, big data platform, smart risk management capability, blockchain, and AI, Ant Financial Cloud helps financial institutions build high-concurrency, highly available, and continuously scalable platform systems to enhance their ability to respond to market changes and business innovations in the mobile internet era.

Diversified value-added services

- **Insurance:** Turnover based free health insurance
- **Customer Attraction:** Online marketing
- **Smart:** Smart retail
- **Financing:** Turnover based small business loans
- **Business Cash Management:** Use Money Market Fund to generate higher retrun
- **Credit:** Turnover based credit line
- **Operation:** Data analytics
- **Withdrawal Fee Reduction:** Turnover based withdrawal fee reduction
- **Management:** Clerk system

The Merchant QR Code for small and medium-sized retailers

Alipay provides standardised services for SMEs:

- In February 2017, Alipay launched a low-threshold mobile payment product "Merchant QR Code", allowing small businesses to transform to Mobile Internet without having to purchase equipment such as scanning machinery, and allow small businesses to enjoy low-threshold, convenient, comprehensive financial services.
- As of the end of September 2017, the number of users nationwide for "Merchant QR Code" exceeded 33 million. Tens of millions of small businesses and self-employed individuals have successfully digitised their cash collection via "Merchant QR Code";
- At the same time, as an integrated service platform, Alipay also provides differentiated and diversified value-added services:

T2B2C trend of "Deepening": Technologies service are penetrating more and more industries, and refine the product and service experiences of the industries.

This chapter focuses on the deepening trend. After extensive research and analysis, PwC found the T2B2C model had been adopted by several industries such as TMT, finance, retail, and healthcare, and they have realised benefits in pioneering the model. With the support of national policy and market needs, technology can be integrated across all industries within the next 10 years. To-C platforms, cloud computing, AI and digital payment shape as powerful tools for enhancement of to-B services. The deep integration of technology and industry features will bring about the reshaping of the business format and service experience.

Technology enablement is widespread and growing fast, and will penetrate all industries in the next decade

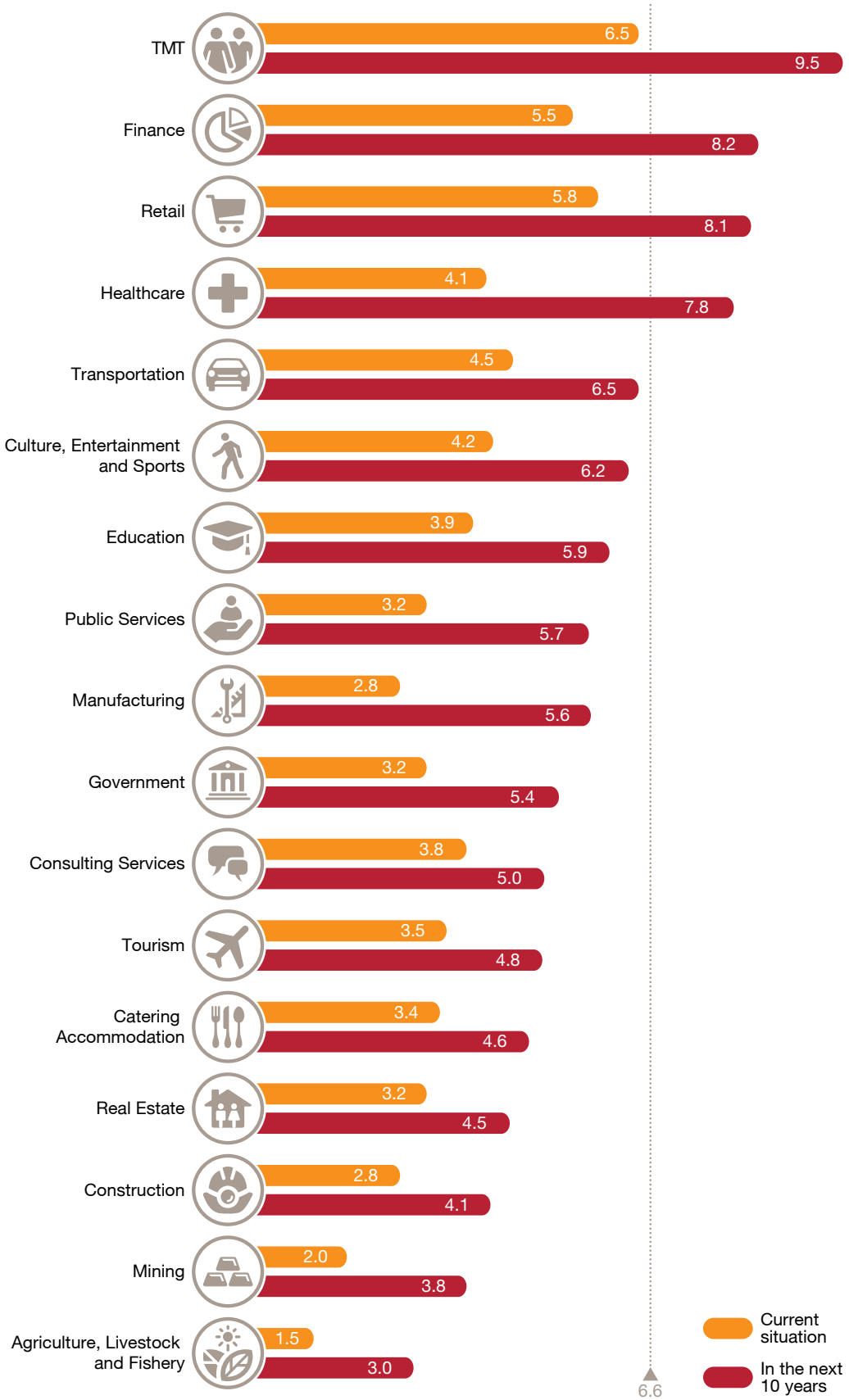
With the popularity of "Internet +" in various industries and the trend of T2B2C model, the integration of technology and industry will deepen. The next decade will usher in a period of deep technology penetration throughout the industry.

- **Technology enables companies in various industries to achieve breakthroughs**
  Science and technology can effectively solve the pain points of enterprises in various industries, promote the upgrading of the industry while promoting the transformation of enterprises, and bring new breakthroughs for enterprises in various industries.
- **Technology enables the holistic development of enterprise services**
  Holistic development would support alignment to future trends, and technology enables the application of the T2B2C business model.

Through the assessment of the penetration of B-side technology services, we have found that the industry adopting the T2B2C model has shown a first-mover advantage:

- TMT is the fundamental industry for to-B technology services and the penetration rate will continue to grow in the future
- Retail, finance and medical services, which are closely integrated with C-end, are also the leading industries in which B-side technology services penetrate. The complete closed-loop model of T2B2C will promote the continuous development of B-side technology services.
- Of the top 10 industries penetrated by to-B technology services, 7 have adopted the T2B2C model, translating the value of technology from to-B clients to to-C customers.

To-B tech service penetration evaluation



Facilitated by national policy and market needs, the combination of technologies and industries drives new business

With the facilitation from both policy and market needs, technologies and industries have combined to drive new business revolution.

Following extensive analysis, we found out that high technology penetration rate was largely due to national policy and market needs:

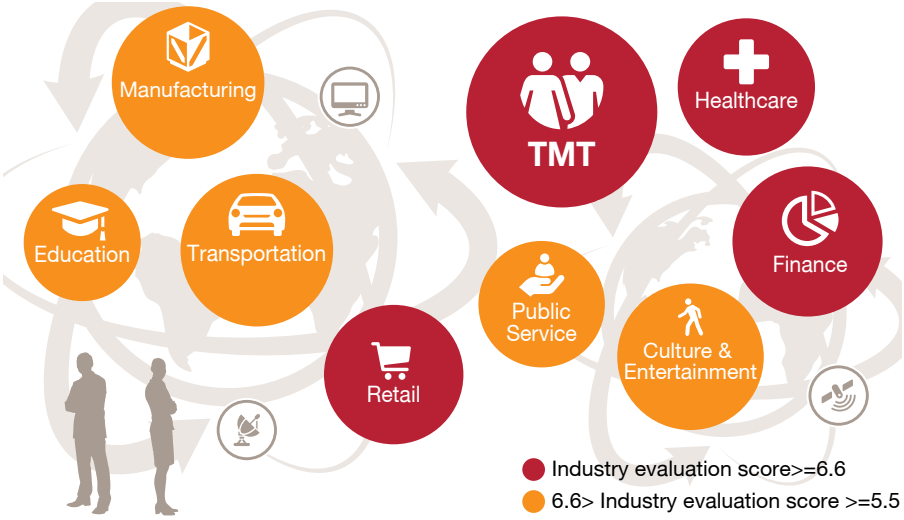
National policy:

- It is our national strategic plan to become a world technology power by developing emerging technologies. TMT could be one of the hallmark industries in the future to facilitate the supply side reform
- Policies like "Smart manufacturing 2025" facilitate technology development and digitalisation in manufacturing
- Smart city related policies facilitate reform in transportation, governance, healthcare and everyday living, will be supported by technology development in public services and healthcare.

Market needs:

- Improving people's wellbeing and holistic development requires technological advancement in various industries:
  - The new retail industry is driven by low cost and multi-channel business, promoting entrepreneurship and employment
  - New finance will fill a vacancy in the financial services market, providing a more holistic range of operations
  - Innovative medical care effectively allocates medical resources and raises medical treatment levels
  - Innovative education services will enable greater accessibility and customisation requirements
- Building a city management ecosystem has become a development trend
- Innovative public services are the foundation for improving public management efficiency
- Technology development are key to upgrading manufacturing and addressing the challenges of overcapacity

High penetration of industries which are influenced by technology in the future[1]



Notes: 1) The size of the figure indicates the degree of technology applied in the industry

Five major technologies empower B-side to help the industry transform and upgrade

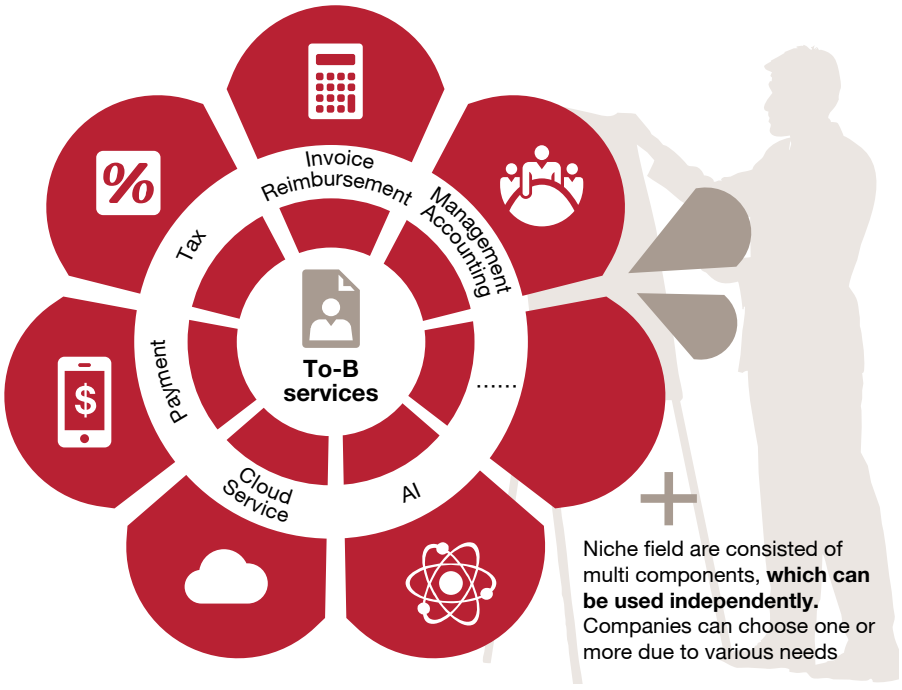
The innovation of technology and application promotes the penetration and development of T2B2C model in various industries. C-side traffic optimization, resource accumulation and technology development will become an important tool for enabling B-side in various industries.

Technology	Business Enablement	Industrial Upgrade
IoT	Improve quality control and supply chain, increase customer loyalty by creating better user experiences	Integrate resource allocation, improve industry efficiency and reduce waste of resources
AI	Automation can improve business operations efficiency, reduce costs, and enhance customer stickiness	Serves as the foundation of intelligence and automation and the key for industrial upgrade, increasing efficiencies throughout whole industry
Blockchain	Operational efficiency and safety. Its de-centralised feature shall enable business to get closer to customers	Reduce steps in the process and increase transparency, therefore helping industry to allocate resources more efficiently and achieve growth
Cloud Computing	Auxiliary B-side data storage and analysis become the basis for realizing the digital model	Cloud computing offers a platform for digitalisation and intelligence, which will support industry reform
Big Data	Technology platforms can help business in customer data analysis, operation optimization and risk control throughout the whole industrial chain	Realize the precise upgrade of all links in the industry chain, transfer user demand from C to B, and reverse supply chain data flow to effectively reduce overcapacity

Pan-industry service segmentation development and future componentization are the trends of the times

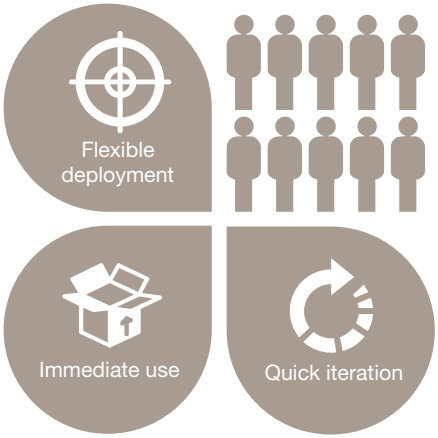
As the service for the industry will continue to be refined, and componentization is likely to be a future trend.

Pan-industry segmentation service model



Niche field are consisted of multi components, **which can be used independently.** Companies can choose one or more due to various needs

Three advantages



In the future, to-B service could be modularised and semi-open sourced. Companies of different sizes and business needs would receive customised, modular services bespoke to their requirements .

Cross-industry large companies

In view of the large number of employees and departments in large enterprises and the complex functions of the lines, it provides:

- Customised services
- Modular integration
- High level of Service Level Agreement(SLA)

Cross-industry small companies

For small companies with less complex business lines and functions, technology companies provide:

- Standardised services
- Single modules
- Low level of Service Level Agreement(SLA)

Taking the financial technology cloud service as an example, the financial service of technology companies typically consist of management accounting, taxation, invoice reimbursement, payment, etc. each module can provide companies with intelligent and digital business services. The above modules can also be split to meet the comprehensive financial needs of large enterprises, or to meet the individual financial needs of small enterprises.

Case Study: Technology and auto insurance business combine to reshape the car owner service experience

Take the insurance industry as an example - the combination of technology and auto insurance could bring brand new customer experiences in the future.

In recent years, insurance companies have applied many new technologies such as big data, AI and blockchain to optimise the processes for pricing, loss verification and claims. Such new technologies have enabled improvements in many functions of the insurance industry. Many insurance companies are rebuilding the industry ecology in their own ways.

With these advancements, technology has enabled the insurance industry to extend their capability in automation and intelligence.

- **Underwriting/Pricing**

The Internet of Things can automatically obtain the driver's driving data, obtain user information through big data to create a accurate user image rating credit rating, price different groups of people, and adjust at any time with environmental changes and user credit changes, providing a basis for underwriting pricing and assessing risk rationally.

- **Loss verification**

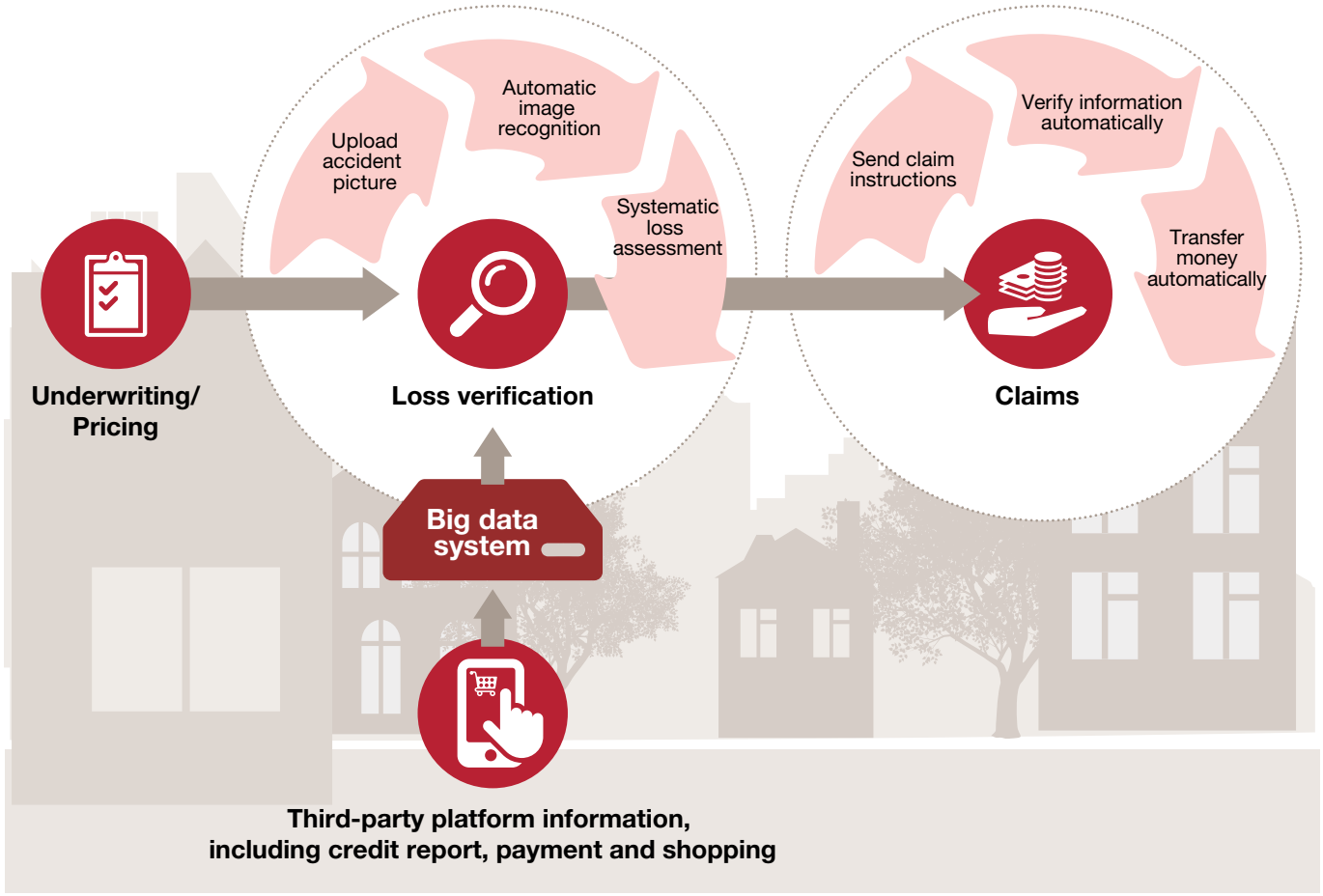
This process would involve the user uploading the pictures of the accident, which would then undergo automatic image recognition and systematic loss assessment to verify loss. AI technology based on image recognition would identify the picture uploaded and locate the relative vehicle model. Through cloud computing and algorithmic modelling, the system would collect driving and customer data. With the AI processing program, it can eliminate fraud, and through automatic processing, improve efficiencies by reducing manual operation.

- **Claims**

During the claims process, there are various steps, including sending claim instructions, verifying information and transferring money automatically. Automation of these steps through AI technology will enable improved efficiency by reducing manual operation. Furthermore, the whole claims process becomes more transparent, and easier to collect and access data afterwards, thus creating a database for continuous business improvement.

Based on these application scenarios, the insurance industry is able to reduce costs at various stages and increase efficiencies with the help of big data, AI and blockchain, etc. The combination of technology and business brings brand new user experiences for car owners.

Tech innovative model for auto insurance



T2B2C trend of "Ecologization": Science and technology enterprises build platform ecology and carry out the ascending dimension revolution

This chapter aims to discuss the trend of "ecologicalization". We find that the players of T2B2C platform are being developed by the past technology players to the industry and technology players. Moreover, based on the existing market structure, we evaluate the platform players and found that the current development of T2B2C brings the platform ecology has initially formed a pattern. We analyze the strategies adopted by different platform players in the market competition, and derive the ecology of the technology companies to build the platform, and will soon carry out the ascending dimension revolution.

T2B2C platform players' diversified development

T2B2C platforms have transformed from being led solely by technology players to being led by both industry and technology players. The market is becoming more diversified.

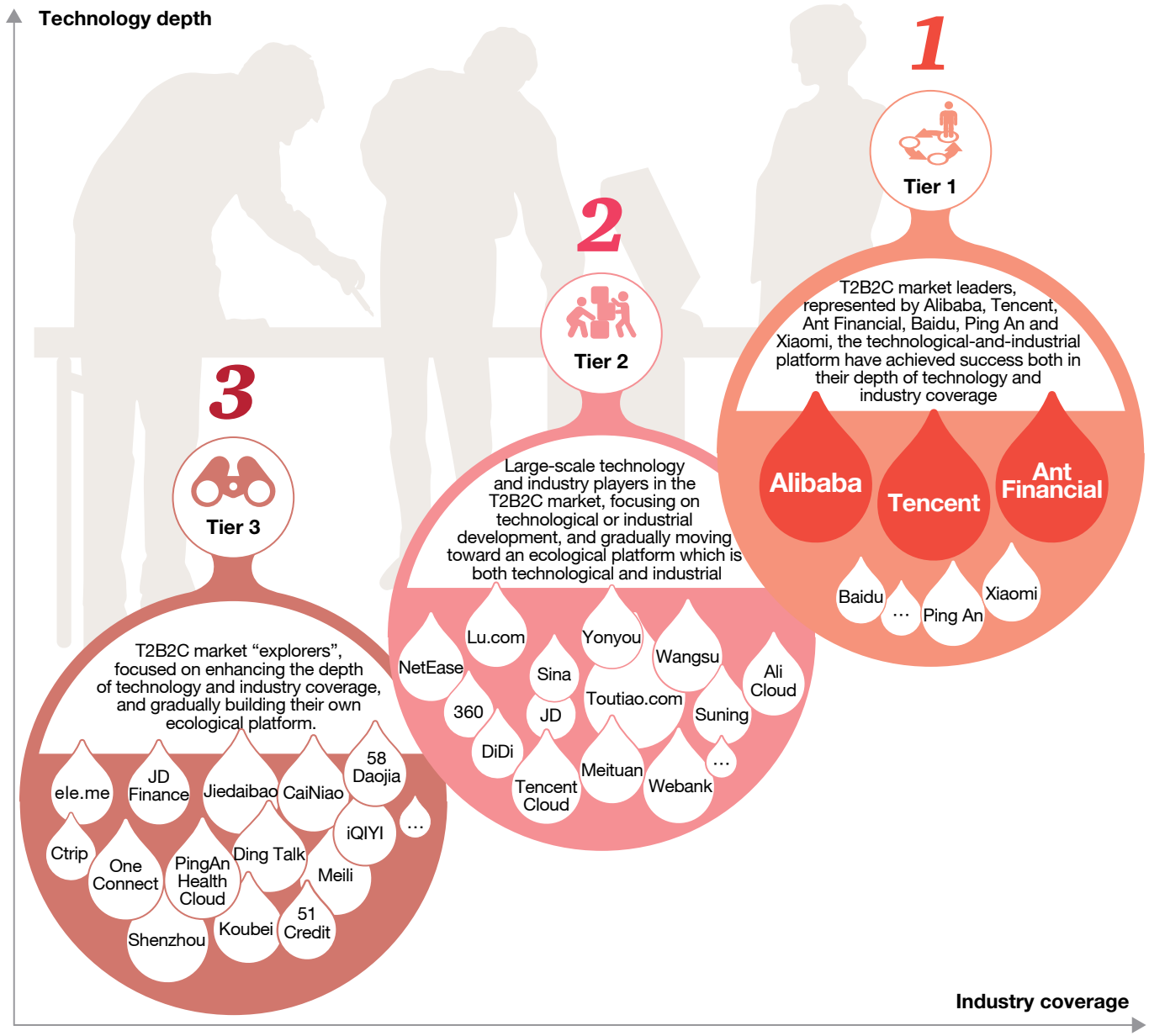
The wave of intelligence is transforming the market patterns for domestic companies. Intelligent technology enablement, as well as the rising demand for T2B2C services, makes the types of platform players more diversified. By relying on their own technological innovations, experience and other advantages, new industry players can develop partnership with technology players in the T2B2C services market.

In the past, China's T2B2C platform players were mainly dominated by technology players, with the main players consisting of Baidu, Tencent, Alibaba, Yonyou, Kingdee, ZTE, Digital China, Huawei and giants in each industry. In the future, industry players will apply their deep industry knowledge, advanced technology and industry experience to become T2B2C platform players – they could then be divided into technology players and industry players.

	In the past	In the future
Players	Led by the technology players	Joint development of both technology and industry players
Representatives	Baidu, Tencent, Alibaba, Yonyou, Kingdee, ZTE, Digital China, Huawei	• Technology: Alibaba, Tencent, Baidu • Industry: Ant Financial, Ping An, DiDi, Mobike

The market for T2B2C platform ecology has already formed, and the increasing competition is becoming white-hot

From the perspective of the depth of technology and industry coverage, we divided the existing players in the T2B2C market into three tiers:



T2B2C ecological platforms, represented by Alibaba, Tencent, Ant Financial(ATM)

The T2B2C eco-environment is composed of independent platforms, including Alibaba, Tencent, Ant financial, Baidu, Ping An, Xiaomi, and many other platforms. Different platforms have different focuses in core capabilities and industries.

Upon evaluation of the status of the mainstream T2B2C platforms in the market, with the increasing influence of T2B2C platforms on the market, an initial multi-platform ecological structure has been formed. By building on their strong core capabilities and multi-industry enablement, Alibaba, Tencent, Ant Financial and many other platforms have become T2B2C eco-platforms in the market as a result.

In recent years, Alibaba has transformed from an e-commerce platform well-known to Chinese consumers to become one of the leading T2B2C eco-platforms in the market by deepening its core technological capabilities in the realms of big data, AI, cloud and logistics.

Similarly, Alibaba consistently enables major industries such as e-commerce, new retail, corporate services, and government affairs and lifestyle services.

Tencent relies on its mass coverage of Internet social platforms, focusing on the development of WeChat public accounts, small programs, mobile payments, social advertising, and other core capabilities. Their enablement reaches many players in retail, entertainment, advertising, medical and other major industries. Tencent have created an eco-system which is appropriate for today's needs, and enable their future development.

Ant Financial, as the largest technology unicorn at present, has multi-dimensional core capabilities of payment, credit, finance, big data, and AI. These have been developed by its businesses such as Alipay and Ant Fortune, allowing them to become one of the leaders in the T2B2C platform ecosystem. Ant Financial is exporting an immense volume of resources of technology, services, and products to industries such as finance, transportation, retail, etc.,.

Major T2B2C Platforms

Platform	Core Capabilities	Main enablement Industries
Alibaba	User reaching platform, Marketing, Logistics, Cloud Computing, Big Data, AI	E-commerce, New Retail, Business Services, Public Service
Tencent	Social, User reaching platform, Small Programs, Mobile Payment, Big Data, AI, Security	Advertisement, Entertainment, Retail, Public Service, Healthcare
Ant Financial	Mobile payment, Credit, Financial Service, Security, Marketing, AI, Biometric Authentication, Big Data, Blockchain, Internet of Things, Cloud Computing	Retail, Finance, Transportation, Public Service, Healthcare
Ping An	Financial Service, Credit, Biometric Authentication, Blockchain, Big Data, Cloud Computing	Finance, Healthcare, Public Service
Baidu	AI, Cloud Computing, Big Data, Biometric Authentication	Transportation, Delivery, Entertainment
Xiaomi	Self-developed Chips, Acoustic Technology, AI, Cloud Computing, Big Data	Home/Lifestyle, 3C, Entertainment, Retail

Different platform eco-systems adopt different strategies and tactics to compete in the market

Different platform eco-systems choose different strategies to compete with others.

Comprehensive Development

Expand emerging services and strengthen their weaknesses:

- Gradually build their own capabilities and achieve significant development by building an ecological platform
- Expand their industrial chain and technical capabilities through mergers and acquisitions, eventually becoming a market giant

Competitive Advantage Development

Enhance the existing strengths of services, demonstrate the technical characteristics, and find opportunities for specialisation in the market:

- Targeted strengthening and consolidation of leading position in a certain business market segment

Flexible Development

Set a flexible strategy based on the market trend:

- Based on industry experience, make reasonable predictions of market trends
- According to the status of the company, the most appropriate development plan is selected to enhance its competitiveness in the business market.
- Adjust strategy as required to changes in the market

Innovative Development

Explore new market segments, find new market demands, differentiate from mainstream services:

- Strong focus on emerging segments
- Improve the capabilities of services in new segments and industries

In the market competition of the platforms, different platforms choose one or multiple strategies to compete in various formats according to their own development needs. Strengthening their own competitive advantages through corresponding capability building drives opportunities for greater share of the market.

Case study: A technology company uses T2B2C model to carry out multi-dimensional collaboration with ISV and expand market presence

The future demand of T2B2C services will show a trend of being more and more refined, which will bring opportunities to small and medium-sized ISVs. Players who engage in both the technological and industrial dimensions can partner with ISVs to develop more targeted and customised services by building an ecological collaboration platform, whilst providing themselves opportunities to develop expertise in different industries, expand business fields, and expand their T2B2C service ecosystem.

The following resources can be achieved through a collaborative eco-platform:

- Development planning
  Support in planning the development path for ISVs, and support with strategic planning;
- Client platform
  Make it easier for ISVs to find and service new clients;
- Financing support
  Specific funds to support the growth of ISVs when they need to scale up;
- Marketing
  Promoting ISV partnership through their own marketing platform to build mutual brand advantage;
- Infrastructure
  Building a solid basic infrastructure to provide a reliable platform for ISVs;
- Technology assistance
  Providing open-source platform, big data, AI and other technological assistance to help ISV development;

Collaborating with ISV partners to develop targeted business market services, for example:

- Efficiency service
  Covering customer, transaction, channel and other services to improve the efficiency of business market products;
- Infrastructure
  Covering services such as automated office, human resources, and financial systems to improve overall operational efficiency of the business.

Developing a full range of services including shopping, travelling, payment, entertainment, loans, and catering.

From "Made in China" to "Innovated in China" - the future of T2B2C innovation in Chinese technology enterprises

Through the earlier description of the three main transformation trends of the new to-B model driven by technology, we have a sound understanding of how technology will enable the to-B market.

Next, we will look into the future T2B2C innovation of Chinese technology enterprises from a macro perspective in terms of R&D support, commercial application appraisal, national technology competition and the response to supply-side reform policies.

T2B2C embraces emerging technology and promotes the transformation of enterprises from "Made in China" to "Innovated in China"

- **In recent years, Chinese to-B service companies have begun to deepen their underlying technology R&D.**

Strengthened independent R&D

- BAT and Huawei have strengthened their own R&D by establishing research institutes, setting up overseas laboratories, recruiting high-end talents, and making progress in the integration of key technologies and to-B services

R&D goes deep into the foundational level

- In 2016, China's annual growth rate of scientific research investment was nearly 11%, reaching RMB 1.5 trillion yuan, surpassing the 2% growth rate of European Union 15 countries

Accelerated patent development

- Taking AI technology as an example, in 2016, there were 592 AI enterprises in China, accounting for 23.3% of the world's total. The number of patents was approximately 400,000, surpassing the U.S.; and the number of Chinese AI patent applications reached 30,115 (an increase of 38%)

- **Through significant scientific research investment and continuous R&D of patented technology, Chinese to-B service will enter stage 3.0, and the innovation of technology-based R&D will continue to strengthen.**

B service Stage 1.0

Replication of to-B business model

- Before the 20th century, the Chinese enterprise services application produced Kingdee, Yonyou, CRM, etc.; however, most of these were replicas of business models of U.S. enterprise service companies (Oracle, SAP, Salesforce, etc.)

B service Stage 2.0

Technology replication promotes B "Bit" innovation

- In the 21st century, iABCD emerging technology has injected a new impetus into to-B service and led to-B services into the intelligence realm: China has acquired foreign emerging technology companies and attracted overseas talent to achieve the replication of emerging technologies, and promoted the commercial application of these emerging technologies in B services in China, realising the "Bit" innovation of to-B service

B service Stage 3.0

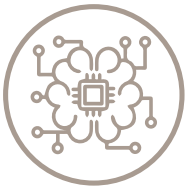
Foundational technology R&D promotes B "Atomic" innovation

- In the future, China's technology R&D will penetrate into the foundational layer: PwC believes that by 2025, a new type of underlying technology will be born and widely used in China's technology platform to realise the "Atomic" innovation of to-B service.

"iABCD" helps technology enterprises enable B-side enterprises, leading to huge potential for commercial development

"iABCD" helps technology enterprises enable B-side enterprises in different fields to embed and commercialise technology.

	Technology maturity & Commercial application evaluation	Examples of integration of to-B business application and technology
Internet of Things (IoT)	• In the mega trend of technology, a significant amount of investment has been made; it will take 2 to 5 years for a 'mature' state to develop, and the integration with to-B service begins to accelerate	• IoT service is available to retail B-side enterprises. The Ant Technology Lab creates an open platform for unmanned retail technology to deliver solutions to the physical retail industry, with various physical stores reconfiguring and applying more appropriate solutions to their needs
Artificial intelligence (AI)	• In the mega trend of technology, a significant amount of investment has been made; it will take 2 to 5 years for a 'mature' state to develop, and the integration with to-B service begins to accelerate	• AI capability is available to serve financial business: On November 13, 2017, the Industrial and Commercial Bank of China (ICBC) officially announced its intellectual investment brand "AI Investment", which has been already launched. After the user selects the acceptable investment risk and the investment period, the fund portfolio purchase can be completed. When the portfolio deviates from the market investment trend, "AI" will advise the client to adjust the fund portfolio, and the client can complete the portfolio adjustment through "one-key position adjustment"
Blockchain	• In the mega trend of technology, a significant amount of investment has been made; it will take 2 to 5 years for a 'mature' state to develop, and the integration with to-B service begins to accelerate	• Blockchain is available to serve the energy sector: in December 2017, Sinochem completed the first trial of a crude oil blockchain import transaction. The standardisation and platform growth and application of blockchain technology trade in the petrochemical industry will help improve the transparency of trading and overall risk management
Cloud	• During a mature period of technology, the scope and limitations of the application of this technology have been objectively and practically verified, and an effective business model has been successfully developed and applied to B service	• The integration of to-B business application and cloud technology is more advanced, and the overall cloud service market is relatively mature. Alibaba Cloud and other consolidated suppliers provide cloud computing services such as cloud servers, cloud databases, cloud security, as well as big data, artificial intelligence service, and accurate customising scenario-based industry solutions to support companies
Big data	• During a mature period of technology, the scope and limitations of the application of this technology have been objectively and practically verified, and an effective business model has been successfully developed and applied to B service	• Big data technology has become more mature, its application has increased, and results are beginning to emerge. Technology companies provide big data solutions to help companies analyse user behaviour through big data mining, manage high-importance and user-related information, and provide proactive services to customers



The level of enablement of B-side enterprises by technology will become the decisive factor of the competition between countries

In recent years, the competition of science and technology between countries has become increasingly apparent. China, U.S. and Europe have launched strong strategic policies to promote "iABCD" and smart manufacturing, supporting the development of science and technology.

	China	U.S.	Europe
Internet of Things (IoT)	2017.1 MIIT issued "The 13th Five-Year Plan of the Internet of Things", and established an inter-ministerial joint meeting of Internet of Things and an expert advisory committee to coordinate and guide the development of the Internet of Things industry	2009 The development concept of "Smart Earth" was put forward, aimed at embedding and assembling sensors into various objects, realising the integration of society and physical world. This was being promoted as a development strategy in conjunction with the national Internet of things	2009 EU launched a report named "Internet of Things – An action plan for Europe", proposing that actions should be taken to ensure Europe's leading role in building new Internet services
Artificial intelligence (AI)	2017.7 The State Council issued "Development Planning for a New Generation of Artificial Intelligence", stating that the Artificial intelligence industry needs to be improved to be ranked No. 1 internationally	2017.10 U.S. ITI (Information Technology Industry Council) released the first "AI Policy and Principles", to improve AI public policy	2017.2 EU Council passed the first report with recommendations to the "Commission on Civil Law Rules on Robotics", exploring civil legislations on robotics and AI
Blockchain	2016.7 MIIT issued "Letter about Organizing the Development of Blockchain Technology and Application Development Trends Research", which was later listed in the "National Informatisation Plan" for the first time in December 2016	2017.2 The US Congress announced the launch of the congressional blockchain decision-making committee, which would improve the relevant public policies for blockchain technology and digital currency	2018.2 European Commission initiated the EU Blockchain Observatory and Forum, and invested more than 800 million euros to support programs which applied blockchain to technology and social fields
Cloud	2017.4 MIIT issued "Three-year Action Plan for Cloud Computing Development (2017-2019)"	2011 CIO of the US Federal Government issued government documents on adoption of cloud computing by government agencies, and a white paper on "Federal Cloud Computing Strategy"	2012.9 European Commission announced the strategy of "Unleashing the Potential of Cloud Computing in Europe"
Big data	2015.8 The State Council issued "Outline for the Promotion of Big Data Development", and for the first time proposed to build a strong data country. In October, the State Council proposed "Implementation of the National Big Data Strategy", which elevated big data to a national strategy	2016.5 "The Federal Big Data Research and Development Strategic Plan" was issued, highlighting the growing development potential of big data, and providing guidance for the development and expansion of federal big data R&D	2014.8 The German Federal Government Cabinet passed "Digital Agenda 2014-2017" in order to create an internationally competitive "Digital Power"
Intelligent manufacturing	2016.1 The State Council issued "Made in China 2025", that Cloud computing, Big data, Internet of Things, Industrial Internet, etc. will all become the key technologies to promote the development of the manufacturing industry	2010 The US government officially launched "reindustrialisation" to support frontier technology innovation in high-end manufacturing and emerging industries	2013 The German Federal Government raised Industry 4.0 in "High-Tech Strategy 2020 for Germany", of which the fundamental technology is Cyber-Physical System and Internet of Things

With the "iABCD" developing into a national strategy, creating an internationally competitive T2B2C service and promoting upgrade of the industry is the only way for China to increase its overall national strength and safeguard its national security.

Technology enables B-side enterprises to respond to national policies, realising supply-side reform

In 2015, the Central Economic Work Conference put forward the supply-side reform, pointing out that because upgrade of industry lags behind consumption growth, it is necessary to reduce production capacity and inventory at the low end, reduce costs and supply shortages at the middle- and high-end, to achieve a balance of supply and demand from low level to high level.

China technology To-B market is entering into booming phase in the next years. PwC forecasts that China technology To-B market capitalization will reach RMB 40-50 trillion Yuan by 2025. The technology company's market value, of which leveraging T2B2C model, will reach half size of the technology To-B company market.

De-productivity

- To-B service helps enterprises eliminate backward production capacity and promote transformation and growth through ecological platform cooperation
- To-B technology enterprises related to big data and Internet of Things help traditional enterprises reduce turnover cycle and communication efforts through real-time data sharing, optimisation of resource allocation and increasing resource utilisation

De-stocking

- To-B service helps enterprises reduce inventory waste and provide space for new production
- To-B technology enterprises related to big data, Internet of Things and cloud help traditional enterprises integrate and process data more efficiently on a big data platform, and efficiently rectify mismatches in supply and demand

De-leveraging

- To-B service helps enterprises strengthen budget allocation, reduce debt ratio, promote resource integration and protect against financial risks
- Through modeling analysis, To-B technology enterprises related to big data and cloud computing can help enterprises achieve budget optimisation, improve investment and financing structures, implement financial data monitoring on core data, and reduce risks

Cost Reduction

- To-B service helps enterprises reduce production costs by leveraging core technology and gain more innovative R&D capital
- To-B technology enterprises related to blockchain and artificial intelligence support middle- and high-end enterprises improve the operational efficiency of front-, middle- and back-office, improve operating models and reduce operating costs

Supply Shortages

- To-B service enhances the core strengths of enterprises, and helps enterprises develop multi-faceted innovation capabilities, realising "smart manufacturing in China"
- To-B technology enterprises related to big data and artificial intelligence can customise targeted technology innovation plans for middle- and high-end enterprises through technology incubators, helping enterprises increase their capacity

Technology enterprises enable B-side enterprises and will respond to national policies in different aspects, supporting supply-side reform.

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