A new era of education
China education development report 2018
August 2018
Deloitte China
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Preface

With the adjustment of Chinese population structure and consumption upgrade in domestic market, education consumption has been playing an increasingly important part in China's household consumption, which allows China's education market to maintain the positive development situation. In this report, it is predicted that the scale of China's education market will hit RMB2.68 trillion in 2018. By 2020, the market of private education will grow to RMB3.36 trillion, driven by a favourable policy environment and, in particular, an eager capital market. We have seen 8 education companies going public in Hong Kong and the U.S during the period from the beginning of the year 2018 to early August. By June 2018, 137 deals have been made in the education market, with total investments (USD2.57 billion) surpassing that of the entire 2017. The surge has demonstrated great vitality and unbounded potential of China's education market.

There is a pressing need for international schools to be upgraded, as they are at the forefront of changes. With China's rapid economic growth and accelerated pace of globalization, Chinese parents are spending more on children's education as their expectations rise, and they are becoming more appreciative of the integration of Chinese and foreign educational philosophies and teaching methods. The focus of education is shifting from examination performance to self-driven learning. Today, parents send their children to school for the purpose of adapting to a constantly evolving world, instead of learning for learning's sake. International schools should put themselves in a broader ecosystem in order to nurture talents for the future.

The development of education industry is driven by technological innovations. In the government work report delivered to National People's Congress in 2018, Chinese Premier Li Keqiang stressed the importance of creating bigger and stronger emerging industrial clusters, implementing big data development action plan, stepping up next-generation artificial intelligence R&D and application, and advancing the Internet Plus model in various fields like health care, eldercare, education, culture and sports. Advancements in big data, AI and stereoscopic technologies may help us alleviate uneven distribution of resources and other issues in the education industry. Now, we need to respond to a significant challenge: how can we leverage new technologies to empower education in a more effective way?

The future education industry will witness a rise of opportunities as well as challenges. Compared with traditional schools, education organizations will be subject to a more complex environment. These organizations will need to create, transmit and apply knowledge in a manner that aligns with the natural process of learning, while meeting market demand and ensuring profitability. In this scenario, challenges will mount in talent development, operational efficiency improvement and risk management. As the education market becomes increasingly affected by inflow of capital and commercial factors, education organizations will need to ensure market growth, further expansion and improved delicacy management without compromising their core competitiveness and quality of education, if they want to thrive in the face of tomorrow's opportunities and challenges.

My sincere gratitude goes to experts and professionals in the education industry for their long-term support for Deloitte education industry reports. Your suggestions and advice will be much appreciated.
I. More opportunities triggered by new development trends
I. More opportunities triggered by new development trends

1.1 Emerging trends in China’s education industry

China’s education industry has been highly valued for its significance by policies, consumers and capital and under its expansion phase in terms of industry scale and market activity. According to Deloitte’s estimation, China’s education market will reach RMB2.68 trillion by 2018 with training organizations, K12 & STEAM education and private kindergartens being the three biggest segments. The total scale of private education is expected to reach RMB3.36 trillion by 2020 and be close to RMB5 trillion by 2025 with a CAGR of 10.8%.

Figure 1: Forecast on China’s education market

<table>
<thead>
<tr>
<th>Education market 2018: RMB2.6836 trillion</th>
<th>Education market 2020: RMB3.3624 trillion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal training 25.7%</td>
<td>Personal training 22.6%</td>
</tr>
<tr>
<td>K12+STEAM 22.2%</td>
<td>Corporate training 5.6%</td>
</tr>
<tr>
<td>Early childhood education 8.9%</td>
<td>Public basic education 6.2%</td>
</tr>
<tr>
<td>Corporate training 5.6%</td>
<td>Public higher education (degree granting) 5.3%</td>
</tr>
<tr>
<td>Private kindergartens 14.6%</td>
<td>Public kindergartens 4.1%</td>
</tr>
</tbody>
</table>

### Share of online education: 9.32%

- Online early childhood education: 7.0%
- Online corporate training: 13.0%
- Online language learning: 25.8%
- Online K12+STEAM education: 17.2%

### Share of online education: 10.41%

- Online early childhood education: 14.0%
- Online corporate training: 44.7%
- Online language learning: 18.0%
- Online vocational training: 13.3%

Source: Deloitte Research
1.1.1 Diversification of profit models in preschool education market

Preschool education segment grows steadily while the prospect of early childhood education remains bright

With the implementation of Universal two-child policy in 2015 and the raise of people's living standard, the number of newborns has climbed to 17.8 million in 2016, which has been the highest since 2000. This number will rise steadily in the coming few years. By 2020, it is estimated that the population of children applied for preschool education will exceed 120 million, which is a favourable condition for the development of preschool market from the perspective of demographics. Based on the statistics of urban household spending on preschool education, the scale of preschool education market is estimated to be RMB800 billion by 2020. Besides this, people born in the 80s and 90s are becoming parents, which implies a younger tendency of becoming parents. These parents have higher demand for preschool education and will consequently invest more money and efforts than ever before. With the growth in China's newborns, kindergarten enrollment rate and tuition fee, the overall demand for preschool education for those aged 0-6 is rising sharply, and there is an increase trend for preschool education at a younger age. These trends will result in an imminent upgrading of China's preschool education consumption, which means the parents hope to let their children grow happily and healthily and acquire various skills under a well-rounded and professional pre-education system.

Figure 2: Newborns in China from 2012 to 2017 (unit: 10,000 persons)

The government has increased allocation of budget on kindergartens as it continues to prioritize the development of inclusive kindergartens among all agendas in preschool education. In 2018, the central budget disclosed by the Ministry of Finance has shown that the expenditure on education is budgeted at RMB171.122 billion, up by RMB10.501 billion with an increase rate of 6.5% as compared with that in 2017. Among all stages of general education, preschool and high school education show the largest growth in funding, respectively receiving RMB803 million (35.6% increase over actual expenditure in 2017) and RMB2.064 billion (21.5% increase over actual expenditure in 2017).
Figure 3: Preschool and high school education receive the largest increase in central government expenditure on education

<table>
<thead>
<tr>
<th>Preschool</th>
<th>Elementary school</th>
<th>Junior high</th>
<th>High school</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>5%</td>
<td>10%</td>
<td>15%</td>
</tr>
<tr>
<td>20%</td>
<td>25%</td>
<td>30%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Source: Ministry of Finance

Both online and offline early childhood education witness robust growth, with increased capital investment in quality content targeting paternity. From the supply-side perspective, according to Qianzhan Industry Research, there are 11,000 offline teaching centers under Chinese early childhood education brands. The market concentration ratio of the industry is about 22% with the top eight having 2,400 teaching centers in total. Because the market concentration ratio is relatively low, there is still a wide space for business to grow.

In the meantime, multiple online and offline early childhood education brands have obtained funding with unique operation models and product structures. Parenting content providers have attracted much attention in particular. Kaishustory, a brand featuring storytelling services for children, raised RMB156 million in series B+ fundraising in March, 2018. Kaishustory has posted more than 4,000 stories, which are also a launching pad for the company to extend into various product lines including out-of-classroom learning, "Parent training camp", parenting products online shopping platform "Kaishu Selected" and the smart device "Portable Kaishustory". These products have formed a closed loop of diverse business models around the Kaishu IP, rather than a mere "label" that generates popularity. This strategy has helped Kaishustory’s revenue to grow from RMB60 million in the second half of 2016 to RMB200 million in 2017. Another eye-catching performer 7mtt is a company based on UGC (User Generated Content). With 200,000 mothers as broadcasters, 7mtt is building physical parenting centers that provide one-stop services from early childhood education to family-friendly activities. As early childhood education industry matures, the market will gravitate towards providers that are able to offer quality contents and meet consumers’ demands.

<table>
<thead>
<tr>
<th>Company</th>
<th>Time</th>
<th>City</th>
<th>Proceeds raised</th>
<th>Phase of funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>7mtt</td>
<td>2017/07</td>
<td>Wuhan</td>
<td>RMB tens of millions</td>
<td>Series pre-A</td>
</tr>
<tr>
<td>Fancy Education</td>
<td>2017/09</td>
<td>Shanghai</td>
<td>RMB20 million</td>
<td>Equity investment</td>
</tr>
<tr>
<td>Huiyu Technology</td>
<td>2017/09</td>
<td>Shenzhen</td>
<td>RMB33.5 million</td>
<td>Series pre-A</td>
</tr>
<tr>
<td>Allio</td>
<td>2017/11</td>
<td>Shenzhen</td>
<td>RMB100 million+</td>
<td>Series A</td>
</tr>
<tr>
<td>Yuxueyuan</td>
<td>2018/02</td>
<td>Beijing</td>
<td>USD tens of millions</td>
<td>Series C+</td>
</tr>
<tr>
<td>Joycus</td>
<td>2018/01</td>
<td>Beijing</td>
<td>RMB millions</td>
<td>Angel round</td>
</tr>
<tr>
<td>Naturling</td>
<td>2018/01</td>
<td>Suzhou</td>
<td>RMB5 million</td>
<td>Angel round</td>
</tr>
<tr>
<td>Kaishustory</td>
<td>2018/03</td>
<td>Beijing</td>
<td>RMB156 million</td>
<td>Series B+</td>
</tr>
</tbody>
</table>

Source: information in the public domain
With informatization of kindergartens still in early stages, profitability of platform model has yet to be tested by market

The 3rd Three-year Action Plan for Preschool Education issued in April 2017 delineates that by 2020, all provinces (including autonomous regions and municipalities) need to improve Preschool Education management information systems so as to promote the informatization of student registration management, real-time monitoring and project management by taking full advantage of the IT platform.

Various types of businesses coexist in the current preschool education ecosystem, which brings about fierce competitions. There are two types of education informatization technology products/services: multimedia products and kindergarten-parents collaboration platform. Multimedia products include devices (white boards, projectors, computers and multimedia machines) and software (digital teaching materials). Kindergarten-parents collaboration platforms enable instant communication between the kindergarten and parents and provide instructions such as customized parenting plans. Several collaboration applications have been widely recognized such as Zhang Tong Jia Yuan, ibeiiao and Zhihuishu. However, the functions of those products are highly homogenous including video upload, updates on daily recipe, class proceedings and activities. The few differences among these products are limited to visual design and way of using, and most of the providers have not identified a viable profit model (usually offering free trials to kindergartens).

Figure 4: Preschool education ecosystem

Source: Deloitte Research
Figure 5: Three profit models of kindergarten-parents collaboration apps

C-end parents pay for the app

- Ibeiliao initiated the “customized family education plan provider” strategy and started charging C-end parents for products, but have not yet turned a profit.

C-end parents pay for the functions

- Zhang Tong Jia Yuan and Zhang Xin Bao Bei represent collaborative apps that make profit mainly through charging parents for CCTV videos and live video broadcasts. Both have turned a profit. Zhang Tong Jia Yuan registered a revenue of nearly RMB200 million in 2017 and over RMB100 million profit in 2018.

Paid by B-end advertisers

- Zhihuishu launched a profit model in June 2016. Under this model, it is evolved from the collaborative platform to a comprehensive management cloud platform, which improves VIP services, implements a loyalty system, and advances cooperation with advertisers and moves into the arena of community e-commerce. From 2016, the advertisement-based profit model started to bear fruits and generate revenue. In 1H 2017, the company’s revenue began to grow rapidly, but it has not yet turned a profit.

In the long run, informatization products for early childhood education will augment the attractiveness to users by consolidating various resources and value-added contents. These products need to generate profit by turning registered members into active, paying users, and with the help of advertisers, e-commerce and paid digital content. In the short term, however, encouraging user activity and cultivating regular use remain the main goal.

1.1.2 Increasingly stratified K12 after-school tutoring market

Emphasis on examination performance underpins large room for the growth of after-school tutoring service market

As one of the most demanded segmentations in the education market, K12 after-school tutoring has a large room for growth. According to a report from Frost & Sullivan, as of 31 December 2017, there were over 100,000 K12 after-school tutoring providers in China, which implies a relatively fragmented market. Based on the total number of students and consumption per capita, it is estimated that the market size will grow to RMB433.1 billion in 2018, and over RMB500 billion in 2020, with a CAGR around 9.2% for the next three years.

In 2017, each student in China’s urban area spent averagely 10.6 hours per week on after-school tutoring courses. Due to the higher pressure from study and the expectation for better exam performance, an increasing number of parents are turning to after-school tutoring for their children. Demand for tutoring services grow higher as students come closer to the university entrance exam: over half of secondary school (junior high and high school) students take afterschool tutoring. In 2017, around 12.7% kindergarteners, 21.9% elementary school pupils, 36.8% of students in junior high school and 57.8% of those in high school took K12 after-school tutoring. The abundant and stable consumer base will drive the steady growth of the market.
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Meanwhile, K12 tutoring market still remains fragmented and the market could be divided into tier 1, tier 2 and tier 3 by company turnover and market distribution. Tier 1 companies consist of national market leaders whose presence expand across the country, such as TAL and New Oriental, each boasting an annual revenue of over RMB10 billion. Tier 1 companies are valued at over RMB100 billion, outperforming the runners up by a large margin.

Tier 2 companies comprises regional leaders that have developed well in their respective regions with revenue between RMB500 million to 3 billion, such as Xueda Education, Jingrui International Education, Longwen Education, Zhuoyue Education, Gaosi Education, Only Education, etc. Tier 3 companies are made up of regional players with revenue below RMB500 million, including Jiayi Education, Longmen Education, Dazhi Education, Jinshi Education and Four Seasons Education.
1.1.3 Live video streaming propels the rapid growth of online learning

Online learning market is still unsaturated, with huge potential for growth

With continuous progress in the internet technology and its increasing popularity rate, online learning has penetrated into each segment of the education industry, which includes prenatal and childhood education to basic, higher, and even continued education. The contents include language learning and academic tutoring to special interest classes and skills development. According to iResearch, the size of online learning market is expected to reach RMB235.1 billion in 2018, and RMB272.7 billion in 2019 with an increase of 16%. Based on the current status of China's online learning market, a large user base and underdeveloped technologies create a huge potential for market development in the future.
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Live streaming class/ double teacher class becoming the mainstream of online learning

In 2017, the most popular teaching model was definitely the "double teacher" method (one teacher gives instructions through online video broadcast and a teaching assistant tutors students in person). Following the steps of New Oriental and TAL, Gaosi, First Future, Aotu, ieq and ulearning have adopted double teacher class. This model has been applied to IT training, K12 after-school tutoring and childhood education. Since 2017, TAL Education Group has adopted the model in all of the cities it is operating in, which implies the importance of this teaching model.

Figure 10: TAL Education Group's fast growing revenue from online education

The double teacher model is recognized as the best way of merging the resources and emotional experience previously isolated by the online-offline gap. This model has been adopted by major education organizations as the primary strategy for the expansion into Tier-2, 3 and 4 cities. It reconciles the imbalance of educational resources and enables rapid occupancy of new geographies through the online channel. Despite all its popularity in the market, the double teacher model nevertheless has its challenges.

From the perspective of learning content:
- The double teacher model has covered K12 tutoring, childhood education and many other segments, but not all subjects are best taught in this way. Even for the subjects that it has been proved effective, not all learning stages can benefit to the same level. The content and method of learning vary from one subject to the other. For instance, physics and chemistry often requires hands-on experiments, which cannot be performed through online streaming but needs to be done by teaching assistants, hampering class procession and learning experience.

From the perspective of learning outcomes:
- The teacher usually needs to teach multiple classes of students at the same time via streaming platform, which cannot guarantee a good quality of interaction between teacher and student. When there is a huge number of students, it is particularly difficult for the teacher to get a clear feedback for students' understanding and comprehension, thus the learning quality and outcome would be undermined.
From the perspective of teaching:

- The model puts high requirements on the cooperation between the teacher and the teaching assistant. The teacher has to draw the attention of students while ensuring prompt interaction with the teaching assistant, which is quite demanding. Therefore, a good cooperation work between the teacher and the teaching assistant is the key point for achieving good teaching quality.

From the perspective of organization:

- The model does not fit all education organizations. Based on the characteristics of double teacher model, the scale effect is playing an important role. In other words, it takes a tutoring chain that owns multiple teaching centers to implement the model, which would be difficult for small players to operate.

- The key points for an educational organization establishing double teacher model are internet technology facilities, which requires an continuous investment in internet bandwidth and video streaming capabilities.

While New Oriental and TAL are both leveraging the double teacher model to capture Tier-3 and Tier-4 cities, Gaosi Education has collaborated with Juren Education in a new paradigm for premium courses. Gaosi provides teaching content and Juren offers offline teaching assistance. This cooperation generates shared benefits and addresses the pain points of the double teacher model.

Paid knowledge market estimated to reach over RMB20 billion in 2020

Another segment in the online education market that has been relatively more active than others is paid knowledge. As Chinese consumers develop deeper needs for knowledge and become more conscious of their own consumption, education consumption models built around “light knowledge” products are emerging. As statistics from iResearch shows, the market size of China’s paid knowledge was RMB4.91 billion in 2017, expanding nearly three times YoY. With consumers getting more educated and willing to pay for quality knowledge services, the paid knowledge market is projected to continue its growth and expansion in the coming three years, generating RMB23.5 billion in 2020 with a three-year CAGR of 68.5%.

At present, paid knowledge products can be classified into three types in terms of how the product is generated: produced by the content provider, co-created by the platform provider and the content provider, or produced by the platform provider on its own. Paid knowledge platforms and some of the leading content providers usually develop in three steps:

1. win followers with free content offerings;
2. screen potential paying users with services (Q&A or audio books) that require payments of small amount;
3. create a layered product portfolio by expanding content coverage while developing differentiated contents that meet the diversified needs of consumers - from seeking superficial knowledge to acquiring deep understanding of a subject matter. The users’ preferred service models may vary as scenarios shift, and their favourite types of content change with service model. Designing scenario-specific contents and service models will be important for platform providers to improve operational capabilities and empower content providers.
1.2 Favourable policies and investment for the education industry
From 2017 and onwards, China’s education industry has demonstrated the following characteristics.

1.2.1 The government has promulgated policies regulating various prospects of education to guide the informatization of the education industry; the Amendment to the Law on the Promotion of Non-public Schools of the People’s Republic of China (“Non-public Education Promotion Law”) under gradual implementation

In 2017, Premier Li Keqiang announced the formulation and implementation of Modernization of China’s Education by 2030 in a bid to support China’s modernization through modernizing the nation’s education sector. With the increasing investment into the informatization of the education, incubating innovations in learning space, leaning method, curriculum design and organizational structure, which in turn accelerates the technological upgrading of education companies. China will drive the modernization of the education industry with application of IT technologies, promote the integrated innovation of IT technologies and education, and promote equality and quality of education.

In 2017, Several Opinions on the Amendment to Non-public Education Promotion Law (“the Opinions”) was published. The Opinions addressed issues including confusion around legal personality of schools, unclear property ownership, and difficulties in implementing supportive measures. The Opinions further clarifies the definitions of non-profit and for-profit schools, delineates the definitions of legal personality and property of schools, so as to encourage for-profit and non-profit private schools to play to their respective strengths and follow a justified path of growth.

On 10 August 2018, China’s Ministry of Justice published the Draft (for revision) Amendment to the Regulations for the Implementation of the Law on the Promotion of Non-public Schools of the People’s Republic of China (the “draft for revision”) to solicit public opinions, which is a necessary procedure before the enactment of the amended Non-public Education Promotion Law. The latest draft reflects changes made to the draft issued on 20 April 2018, which was made known to the public to solicit the people’s opinions. The draft for revision contains several modifications to the regulations published in April in an effort to reconcile the Non-public Education

Table 2: Changes to private education after enactment of the Amendment to the Non-public Education Promotion Law

<table>
<thead>
<tr>
<th></th>
<th>Fiscal allowance</th>
<th>Tax</th>
<th>Land</th>
<th>Tuition</th>
<th>Admission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-public education before reform</td>
<td>Relatively less compared with public education</td>
<td>Favorable tax policies hardly implemented</td>
<td>Favorable land policies unspecified</td>
<td>Degree-granting programs must be approved by relevant authorities. Non-degree programs should be reported to and documented by relevant authorities</td>
<td>Some extent of autonomy</td>
</tr>
<tr>
<td>Non-commercial private schools</td>
<td>Fiscal allowance has been raised, more similar to public schools</td>
<td>Tax reductions/ exemptions increased, cost of operation reduced</td>
<td>Multiple favorable land policies</td>
<td>Market-oriented reforms to achieve market-based pricing overtime</td>
<td>Certain level of state governance, autonomy in admission reduced</td>
</tr>
<tr>
<td>For-profit private schools</td>
<td>Fiscal allowance difficult to obtain, need to rely on other channels of financing</td>
<td>Few tax reductions/ exemptions, heavy tax burden</td>
<td>Favorable land policies hardly applicable</td>
<td>Market-based pricing</td>
<td>Full autonomy in admission</td>
</tr>
</tbody>
</table>

Source: Deloitte Research
Promotion Law with municipal and provincial regulations. The Regulations for the Implementation of the Law on the Promotion of Non-public Schools of PRC ("Regulations") provides significant guidance on the medium level, and its being promulgated by the Ministry of Finance rather than by the Ministry of Education foreshadows faster implementation. The Regulation is expected to be enforced by the end of 2018. However, the draft for revision remains a regulatory framework which does not specify the separate registration rules for non-profit and for-profit schools, which remains a critical issue. Most non-public schools find themselves operating in a grey area between "for-profit" and "non-profit ". The Non-public Education Promotion Law will not be effective until the Regulations specifies the registration government bodies for non-profit and for-profit schools.

1.2.2 Online and technology-powered education remain the most sought after area for investors, with various education companies listed in HK and US stock markets

China's education industry has been a hot target for capital investment. Education companies' stable cash flow based on the prepayment model, strong pricing power and gross margin generated by high value added, and new products and drivers brought by the integration of education and technological innovations make the industry particularly attractive for the capital market. Statistics from CVSource shows that since 2014, VC/PE funds have been frequently investing in education in terms of the rising total investment amount and increasing number of deals. By June 2018, the education market had seen 137 investment deals worth USD2.57 billion in total, surpassing the investments made throughout 2017(USD1.58 billion). In terms of the number of deals, STEAM education, vocational education and early childhood education were the top three investment targets in the first half of 2018.

We cannot overlook the role of government policies in the education companies’ rush for IPO. In addition to going public in the A-share market through reorganization and reverse merging, education companies are seeking public trading in HK and the US. Statistics from CVSource shows that from 2017 to 3 August 2018, 11 education companies went public in HK, and 7 in the US. With the enforcement of Non-public Education Promotion Law, more details and procedural issues will be addressed. It is estimated that there will be more companies go public.

Figure 11: Review of VC/PE investments in China’s education sector from 2011 to June 2018

![Figure 11: Review of VC/PE investments in China’s education sector from 2011 to June 2018](source: CVSource)
Table 3: IPOs of education companies since 2017

<table>
<thead>
<tr>
<th>Company</th>
<th>Date of IPO</th>
<th>Stock exchange</th>
<th>Base</th>
<th>Proceeds raised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hope Education Group</td>
<td>03/08/2018</td>
<td>SEHK MB</td>
<td>Sichuan</td>
<td>HKD3.059 billion</td>
</tr>
<tr>
<td>Bojun Education Co., Ltd.</td>
<td>31/07/2018</td>
<td>SEHK MB</td>
<td>Sichuan</td>
<td>HKD438 million</td>
</tr>
<tr>
<td>Pu Xin Education Group</td>
<td>15/06/2018</td>
<td>NYSE</td>
<td>Beijing</td>
<td>USD122.4 million</td>
</tr>
<tr>
<td>21st Century Education Group Co, Ltd.</td>
<td>29/05/2018</td>
<td>SEHK MB</td>
<td>Hebei</td>
<td>HKD406.8 million</td>
</tr>
<tr>
<td>Top Education Group Ltd.</td>
<td>11/05/2018</td>
<td>SEHK MB</td>
<td>Sydney</td>
<td>HKD173 million</td>
</tr>
<tr>
<td>Shanghai 1Smart Education Co., Ltd.</td>
<td>28/03/2018</td>
<td>NYSE</td>
<td>Shanghai</td>
<td>USD179.3 million</td>
</tr>
<tr>
<td>China Xinhua Education Group Ltd.</td>
<td>26/03/2018</td>
<td>SEHK MB</td>
<td>Anhui</td>
<td>HKD1.304 billion</td>
</tr>
<tr>
<td>Beijing Sunlands Online Education Co., Ltd.</td>
<td>23/03/2018</td>
<td>NYSE</td>
<td>Beijing</td>
<td>USD149.5 million</td>
</tr>
<tr>
<td>China Education Group Holdings Co., Ltd.</td>
<td>15/12/2017</td>
<td>SEHK MB</td>
<td>Hong Kong SAR</td>
<td>HKD3.225 billion</td>
</tr>
<tr>
<td>Shanghai Four Seasons Education Co., Ltd.</td>
<td>08/11/2017</td>
<td>NYSE</td>
<td>Shanghai</td>
<td>USD101 million</td>
</tr>
<tr>
<td>Beijing Ling Yu Tang Education Technology Development Co., Ltd.</td>
<td>20/10/2017</td>
<td>NASDAQ Global Market</td>
<td>Beijing</td>
<td>USD159.5 million</td>
</tr>
<tr>
<td>RYB Education, Inc.</td>
<td>27/09/2017</td>
<td>NYSE</td>
<td>Beijing</td>
<td>USD144.3 million</td>
</tr>
<tr>
<td>Tary Tech Co., Ltd.</td>
<td>22/06/2017</td>
<td>ASX</td>
<td>Shanghai</td>
<td>AUD22.5 million</td>
</tr>
<tr>
<td>Brightscholar Education Holdings Co., Ltd.</td>
<td>18/05/2017</td>
<td>NYSE</td>
<td>Guangdong</td>
<td>USD157.5 million</td>
</tr>
<tr>
<td>China New Higher Education Group</td>
<td>19/04/2017</td>
<td>SEHK MB</td>
<td>Beijing</td>
<td>HKD795.6916 million</td>
</tr>
<tr>
<td>Minsheng Education Group Co., Ltd.</td>
<td>22/03/2017</td>
<td>SEHK MB</td>
<td>Beijing</td>
<td>HKD1.38 billion</td>
</tr>
<tr>
<td>China Yuhua Education Group Co., Ltd.</td>
<td>28/02/2017</td>
<td>SEHK MB</td>
<td>Henan</td>
<td>HKD1.5375 billion</td>
</tr>
<tr>
<td>Dadi Education Holdings Limited</td>
<td>16/02/2017</td>
<td>SEHK GEM</td>
<td>Hong Kong SAR</td>
<td>HKD67.1840 million</td>
</tr>
<tr>
<td>Wisdom Education International Holdings Co., Ltd.</td>
<td>26/01/2017</td>
<td>SEHK MB</td>
<td>Guangdong</td>
<td>HKD850 million</td>
</tr>
</tbody>
</table>

Source: CVSource, Deloitte Research
1.3 Development opportunities in the new era

With policy changes and increase in demand, new trends are emerging in China's education market: international education, technological applications, talent management and operational management will bring opportunities to grow.

1. The appeal of international education continues to grow. Demand for international education rises with China's fast-burgeoning wealthy. The amendment to the Non-public Education Promotion Law will encourage the rise of private international schools, dual system schools, bilingual schools and international education, and boost the demand for language training, short-term study abroad programs and overseas education services. The upcoming flourishing of international education will see the number of private international schools surge from 367 in 2017 to over 600 in 2020. The combination of four driving forces—robust demand for overseas education, upgrading of consumption on education, harsh competition for school entry and quality-oriented education—will sustain the international education boom.

2. Emerging technologies are empowering education. The development of big data, artificial intelligence and stereoscopic technology are expected to alleviate some of the perennial issues in education, such as unbalanced allocation of resources. At present, the challenge looming before us is to leverage these new technologies for stronger empowerment.

3. Talent management challenges arise for non-public/private education industry. Capitals, foreseeing the substantial growth of private education, have been flowing into the market. Transformation of the industry and continually rising cost of labor are raising the requirements and challenges of talent management in education companies.

4. An in-depth appreciation of operational management challenges is critical in the new era. The inflow of capitals and the boom of education market may cause companies to lose focus, compromise the essence of education for profitability and be myopic in their development strategies. Companies unable to adapt to the digital transformation may stand still when overwhelmed with the rise of new technologies. Therefore we predict that a number of issues in market operation, efficiency improvement and risk control will challenge education companies, compelling them to find out the root causes of the issues, address them with finer management, ensure orderly development of business, grow fast and generate more value.
II. Empower students and schools with new education philosophies

China has the world's largest basic education market with the world's largest school-aged population. Over more than four decades of development, China's international schools have embarked on a differentiated journey with unique features. With increasingly robust demand for international education across the entire market, there is great potential for future growth. The listing of some private bilingual schools has become the primary driver for a competitive market, with increasingly fierce competition in tier-one cities, and a growing number of international schools in tier-two and tier-three cities. Influencing factors such as polices, technological innovation and social development bring about new challenges for future formats and expansion mode of international schools. Talent requirements in the 21st century and how to gain durable competitive advantages will become the key focus of international schools in the future.

2.1 International schools are still developing

With China's rapid economic growth and accelerated pace of globalization, 200 million Chinese new rich have become increasingly focused on organic integration of Chinese and foreign educational philosophy and methodology. Increasing market demand encourages participation of new players and promotes expansion and growth of existing schools. Generally speaking, there is still a promising prospect for existing international schools.

In broad sense, international schools fall into three categories. The first category is foreign international schools established within the territory of China by legitimate foreign institutions, foreign companies, international organizations in China and foreigners with residency permit, mainly accessible to children of expatriates from Hong Kong, Macau, Taiwan and foreign countries. Enrollment of students from Chinese families residing within the territory of China is not allowed. Examples of foreign international schools include International School of Beijing, Shekou International School, and Yew Chung International School of Shanghai. The second category is international divisions or classes established by Chinese-owned public schools, accessible to both Chinese and foreign students. Students from Hong Kong, Macau, Taiwan and foreign countries can study in international division, while Chinese students can apply for international class. This is an option mainly for high school students, with Shanghai High School International Division, High School Affiliated to Renmin University of China Joint Program, and Beijing No.4 High School International Class as representatives. The third category is private international schools, independently or jointly established by non-governmental organizations or individuals. Private international schools are accessible to Chinese students just as public schools of the same kind, and it is necessary for these schools to get relevant qualification before they are open to foreign students. Examples of private international schools include Shanghai United International School, Maple Leaf International School, and Vanke Meisha Academy, which provide international courses on independent campus, aligned with international standards regarding curriculum, educational philosophy, hardware facilities and students.
## Table 4: Differences of three categories of schools

<table>
<thead>
<tr>
<th></th>
<th>Foreign international schools</th>
<th>International divisions/classes of public schools</th>
<th>Private international schools</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Established by</strong></td>
<td>• Legitimate foreign institutions or foreigners with residency permit</td>
<td>• Domestic public high schools</td>
<td>• Non-governmental organizations or individuals</td>
</tr>
<tr>
<td><strong>Open to</strong></td>
<td>• Foreign students only (compulsory and high school education)</td>
<td>• International divisions are open to students from Hong Kong, Macau, Taiwan and foreign countries</td>
<td>• Both Chinese and foreign students (all education stage)</td>
</tr>
<tr>
<td></td>
<td>• Both foreign and Chinese students (kindergarten education)</td>
<td>• International classes (including sino-foreign joint program approved by provincial department of education, and international curriculum approved by municipal and county education bureau) are only open to Chinese students</td>
<td></td>
</tr>
<tr>
<td><strong>Education stage</strong></td>
<td><strong>Kindergarten</strong> • Well-established foreign curricular system with the adoption of foreign courses and teaching materials, aligned with the school’s features and educational philosophy. All courses are taught in English</td>
<td><strong>K12 education</strong> (provided by international divisions); high school education (provided by international classes)</td>
<td><strong>K12 education</strong> • Kindergarten education (provided by most schools)</td>
</tr>
<tr>
<td><strong>Curriculum</strong></td>
<td><strong>Kindergarten</strong> • Well-established foreign curricular system with the adoption of foreign courses and teaching materials, aligned with the school’s features and educational philosophy. All courses are taught in English</td>
<td><strong>N/A</strong></td>
<td>**Flexible bilingual courses aligned with the school’s features and educational philosophy, incorporating international educational philosophy</td>
</tr>
<tr>
<td></td>
<td><strong>Compulsory education</strong> • Well-established foreign curricular system with the adoption of foreign courses and teaching materials, aligned with the school’s features and educational philosophy. All courses are taught in English</td>
<td><strong>Compulsory education in line with syllabus, and high school education with featured courses</strong></td>
<td><strong>Courses and examinations based on syllabus by educational departments under the State Council, aligned with curricular standards by educational administration departments</strong></td>
</tr>
<tr>
<td></td>
<td><strong>High school</strong> • A-level, IB, AP and other international high school courses recognized by foreign universities</td>
<td><strong>A-level, IB, AP and other international high school curriculum recognized by foreign universities</strong></td>
<td><strong>A-level, IB, AP and other international high school courses recognized by foreign universities</strong></td>
</tr>
<tr>
<td></td>
<td>• TOEFL, SAT, AP and other courses for Chinese students (provided by international classes)</td>
<td><strong>Domestic high school courses</strong></td>
<td><strong>Domestic high school curriculums</strong></td>
</tr>
<tr>
<td></td>
<td>• Domestic high school courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Representatives</strong></td>
<td><strong>International School of Beijing</strong> • Shekou International School • Yew Chung International School of Shanghai</td>
<td><strong>Shanghai High School International Division</strong> • High School Affiliated to Renmin University of China Joint Program • Beijing No.4 High School International Class</td>
<td><strong>Shanghai United International School</strong> • Maple Leaf International School • Vanke Meisha Academy</td>
</tr>
</tbody>
</table>

Source: Deloitte Research
In terms of supply and demand, international schools are still in short supply.

From the demand side, the number of international school students was 250 thousand in 2017, with an estimated future growth rate of 10%. While the proportion of private education in developed countries such as U.S. and U.K. was 8% to 9%, Chinese international school students only accounted for 0.11% of the entire basic education market. Therefore, it is expected that private education will witness further growth in the entire basic education market. Meanwhile, government spending on education has slowed since 2012 (about 4% to 4.5% of GDP). Under the economic new normal, it is unlikely to increase educational appropriations per student within a short period of time, making it difficult for public schools, which are non-profit-oriented with a focus on fairness, to satisfy parents’ demand for differentiated education.

From the supply side, according to statistics from NewSchool Insight Media, the number of international schools was 734 in 2017. Among these schools, 367 were private bilingual schools, accounting for over 50% of the total, followed by international divisions of public schools and foreign international schools (33% and 17% respectively). Private bilingual schools have shown the fastest growth in 2017 at 23.4%, while the growth of foreign international schools slowed down to 7.7%. International divisions of public schools showed a limited growth at merely 4.8% due to policy restraints.

**Figure 13: Number of international school students (2010 - 2020F)**
Unit: 10,000

![Graph showing the number of international school students from 2010 to 2020F](image13)

Source: NewSchool Insight Media online library, Deloitte Research

**Figure 14: Government spending on education (% of GDP) (2010 - 2020F)**
Unit: RMB10,000 (left); % (right)

![Graph showing government spending on education as a percentage of GDP from 2010 to 2020F](image14)

Source: National Bureau of Statistics
In terms of geographic distribution, there is a high positive correlation between international schools and economic development, with most international schools located in developed provinces and municipalities. Guangdong has the largest number of international schools (129), followed by Shanghai (124) and Beijing (119), and then Jiangsu, Zhejiang, Shandong, Sichuan, Chongqing, etc. With a gradually saturated market in developed cities, international schools will doubtlessly expand into tier 3 and tier 4 cities as they further develop. Meanwhile, given great potential for further expansion, foreign schools will continue their development in China, with tier 2 and tier 3 cities as their target markets.

Source: NewSchool Insight Media online library

**Figure 15: Number of China’s international schools by category (2010 - 2017)**

<table>
<thead>
<tr>
<th>Year</th>
<th>International divisions of public schools</th>
<th>Private bilingual schools</th>
<th>Foreign international schools</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>332</td>
<td>75</td>
<td>173</td>
<td>734</td>
</tr>
<tr>
<td>2011</td>
<td>372</td>
<td>98</td>
<td>100</td>
<td>745</td>
</tr>
<tr>
<td>2012</td>
<td>410</td>
<td>82</td>
<td>107</td>
<td>599</td>
</tr>
<tr>
<td>2013</td>
<td>459</td>
<td>107</td>
<td>138</td>
<td>704</td>
</tr>
<tr>
<td>2014</td>
<td>507</td>
<td>112</td>
<td>175</td>
<td>894</td>
</tr>
<tr>
<td>2015</td>
<td>597</td>
<td>113</td>
<td>257</td>
<td>967</td>
</tr>
<tr>
<td>2016</td>
<td>661</td>
<td>122</td>
<td>321</td>
<td>1,104</td>
</tr>
<tr>
<td>2017</td>
<td>734</td>
<td>126</td>
<td>367</td>
<td>1,227</td>
</tr>
</tbody>
</table>

Source: NewSchool Insight Media online library

CAGR: 4.8% 23.4% 7.7% 12.0%
2.2 International schools develop rapidly driven by education and consumption upgrade

Generally speaking, private K12 schools are transitioning from the stage of rapid growth to integration despite considerable market demand, affected by policies and existing competition. While current leading education groups have continued their expansion leveraging M&A and asset-light mode. Real estate groups, investment funds and foreign investors are also tiptoeing into the area, thereby intensifying market competition.

2.2.1 Driving forces for the market growth of international schools

The market growth of international schools is mainly driven by population growth especially the explosion of high net worth individuals, the increase of Chinese urban residents' expenditure and willingness on education, and a growing number of students studying abroad.

Figure 16: Driving forces for the market growth of international schools

First of all, China’s rapid economic development brings an increasing number of high net worth individuals. According to China Private Wealth Report 2017 developed by Bain & Company in collaboration with China Merchants Bank, the number of Chinese individuals with investable assets greater than RMB10 million was 1.58 million in 2016, with a CAGR of 23% between 2014 and 2016. These high net worth individuals are less sensitive to tuition fees but highly value differentiated education resources that meet their expectations. As Hurun Report indicated, 53% of high net worth individuals would send their children abroad to study at high school age or younger, while 23% of them would send their children abroad for university education. Therefore, international schools become preferred choice for them. As the number of high net worth individuals continues to grow, the demand for international schools will rise accordingly.

In addition, increased disposable income of urban residents leads to greater interest in education expenditure. Chinese urban residents have shown increased willingness on education consumption, with growth rate of per capita education expenditure increased from 1.9% between 2006 and 2010 to 13.5% between 2010 and 2016. Meanwhile, Chinese urban residents’ education expenditure accounted for 5% of total per capita annual expenditures, which is twice of the percentage of America’s average household expenditure on education (about 2.1%). According to China Household Education Consumption White Paper 2017, K12 education expenditure accounted for 21% of annual household income, indicating willingness on education expenditure and great potential growth in the future as per capita disposable income increases.
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Figure 17: Urban residents’ per capita expenditure on education (2006 - 2016)
Unit: RMB per person

Source: Ministry of Education, Deloitte Research

Additionally, there is a rapid growth in the number of Chinese students studying abroad.
In 2017, the number of overseas Chinese students hit a record high of 600 thousand, increased by 11.7% compared with last year, with a CAGR of over 15% in recent ten years. International schools effectively satisfies the demand for overseas education among a growing number of younger students seeking for overseas education. According to survey results of China Household Education Consumption White Paper 2017, number of college-age or younger student accounts for 36% of total Chinese students studying abroad, constituting the major force of overseas education. For example, in 2015 and 2016 school year, there were 123 thousand Chinese postgraduates and 136 thousand Chinese undergraduates studying in the U.S. As of May 2017, there were a total of 37 thousand K12 students in the U.S. with a YoY growth rate of 40%, while the YoY growth rate of Chinese postgraduates and undergraduates in the U.S. were 2% and 9% respectively. According to statistics from New Oriental, about 27% of K12 students studying abroad were from international schools, about 3% higher than in 2015. In the future, undergraduates are expected to become the key driver for overseas education. With an increasing trend of studying abroad at a younger age, international schools may well satisfy the demand for international education at a younger age, while providing the best channel for those who plan to study in overseas universities.

With the increasing demand for education and consumption upgrade, the market size of international schools will reach RMB43.6 billion by 2020. It is expected that market size of private bilingual schools will grow by 14% to RMB23.1 billion by 2020. Meanwhile, international classes of public schools will register a flat growth due to policy factors, while the growth of foreign international schools will slow down to 6% with a relatively saturated market.

Figure 18: Number of Chinese students studying abroad by year (2007 - 2017)
Unit: 10,000 persons

Source: Ministry of Education
2.2.2 Competitive landscape of international schools

There is not yet an industry leader though relatively large international schools were established 15 to 25 years ago. This is partly because education is a slow process, just as the saying goes that it takes ten years to grow trees but a hundred years to rear people. When it comes to education, it turns out that quantity creating quality can be applied to any progression in study. At the same time, it takes a long time for school to make improvement on enrollment rate, scale and famous teachers which are key factors for parents to select to good schools. Additionally, in the early stage of development, education groups tend to adopt asset-heavy mode with great investment in capital and land, which, to some extent, restrained the growth.

International schools generally undergo four stages of development:

- **Nascent stage (1969-1989):** Pakistan Embassy College Beijing, the first international school in Beijing, and International School of Beijing, which mainly provides education for children of foreign embassies, were established. International schools at this stage are mainly established for children from expatriate families.

- **Exploration stage (1990-1999):** With China’s economic recovery driven by the reform and opening up, a multitude of foreign companies have entered the Chinese market, giving rise to great demand among expatriates for international education. Therefore, foreign international schools become the mainstay.

- **The stage of rapid growth (2000-2019):** Driven by increase of national income, rise of high net worth individuals, boom in studying abroad and adoption of two-child policy, international schools have experienced rapid growth at this stage. With the adoption of Interim Administrative Measures for High School International Programs in 2013, the number of international divisions of public schools began to decrease. Private bilingual schools have started to play a major role in the market as the key growth driver.

- **Integration stage (2020-future):** Leading international schools are taking shape as the market becomes further segmented. Branded and collectivized international school education groups will scale up with greater industry barrier, lower expansion rate and slower market growth.
During this decade, China has deepened its reform and opening up. As a result, China’s economy has experienced greater growth by further opening to the outside world. With a multitude of foreign companies entering the Chinese market, foreign international schools become the mainstay. As of 1999, there were 86 newly established international schools, including 10 international divisions of public schools, 39 private bilingual schools, and 28 foreign schools.

In 1973, International School of Beijing, the first international school in China which fully adopts foreign teaching and management system, was established, accessible only to children of foreign embassies.

In 1979, there were six international schools in China, including five foreign international schools and one international division of a public school.

In 1990, Pakistan Embassy College Beijing, the first international school in China, was established.

In 1993, Outline for Education Reform and Development in China was adopted, which clearly explained national policies regarding the development of private education for the first time.

In 1997, Regulations on the Running of Educational Institutions with Social Resources was adopted, which provided legal basis for private education for the first time. With vocational education, adult education and preschool education as the focus, it encourages educational institutions offering compulsory education while strictly controlling those offering higher education.

The adoption of Interim Administrative Measures for High School International Programs in 2013 put forward stricter requirements for the establishment of international divisions by public schools.

The adoption of Non-public Education Promotion Law of the People's Republic of China in 2002 marked a new era for the development of China's private higher education. For the first time, China has clearly encouraged private capital’s entry into the education sector and promoted the sound development of private education.

In 1997, the amendment of Classification of Educational Institutions of the People’s Republic of China was adopted, which provided a legal basis for the classification of educational institutions.

The adoption of Several Opinions of the State Council on Encouraging Social Resources to Invest in Education and Promote Sound Development of Non-public Education in 2016 highlighted the central party's leadership over private schools by developing classification management system and improving supporting system, in order to promote modern school system.

The amended Non-public Education Promotion Law in 2017 clearly prohibited for-profit schools for compulsory education.

In 2013, the market will become increasingly integrated as large domestic education groups constantly expand market share at faster expansion rate via M&As.

In 2020, the market will become increasingly integrated as large domestic education groups constantly expand market share at faster expansion rate via M&As.
It is a decentralized industry without established leaders

The market of international schools is highly decentralized due to high requirements on land, capital, teachers and brand history. According to Huachuang Securities, the concentration ratio of top eight market players is less than 20%, indicating a competitive market with low concentration. However, for new entrants, the barriers to enter the market will become higher because of the policy and brand factors. First of all, the amended Non-public Education Promotion Law clearly prohibits for-profit schools at the stage of compulsory education, which will lead to dumbbell-shaped development of K12 schools. This means that existing education groups of scale would focus on kindergarten and high school education, while adopting merit-based enrolment for elementary and junior high school students. For new entrants, however, the problem consists in how to invest in compulsory education. While coherent K12 education would be beneficial for the development of a mature education system, it is difficult to attract capital investment. Meanwhile, the government has put forward stricter compliance requirements for schools, both in terms of regulatory provisions and execution. However, if K12 schools provide for-profit kindergarten and high school education, they will face new challenges such as rising operation costs due to tax increases. After years of development, existing education groups have built up brand eminence especially in tier 1 cities where strong consumption is coupled with fierce competition. Therefore, it is necessary for new entrants to adopt differentiate strategies and get fully prepared in geographic selection and strategic positioning, etc.

Existing private international schools fall into the following three categories. The first category is large listed education groups, which originated from certain regions and expanded nationwide after getting listed such as Bright Scholar Education Group, Maple Leaf Educational System, Hailiang Education, and Virscend Education, etc. The second category is regional education groups, which rely on government resources at the early stage to build up reputation and brand eminence locally, and then gradually expand to surrounding regions. The third category is foreign education groups, which leverage overseas education resources and brands to expand in the high growth market of international schools in China. They would first enter tier 1 cities, and then expand to tier 2 cities with great economic strength and population growth. Examples of this category include Wellington College, Nord Anglia Education, and Dulwich College, etc.

Figure 21: Three categories of private international schools

<table>
<thead>
<tr>
<th>Large domestic listed education groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virscend Education</td>
</tr>
<tr>
<td>Hailiang Education</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Regional education groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shanghai United International School</td>
</tr>
<tr>
<td>PKU College</td>
</tr>
<tr>
<td>Shanghai World Foreign Language Academy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Foreign education groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wellington College</td>
</tr>
<tr>
<td>Nord Anglia Education</td>
</tr>
<tr>
<td>Dulwich College</td>
</tr>
</tbody>
</table>

Source: Deloitte Research
Large listed education groups have occupied certain market share with distinctive growth strategies after early stage of development. Collectivized operation of international schools requires brand awareness, high enrollment rate, cooperation with overseas teachers, unique curricular system and quality students, coupled with local resources. Therefore, domestic educational organizations are relatively advantaged in this area.

Initially, large listed education groups tend to adopt asset-heavy mode requiring significant investment in capital and land, and then gradually scale up. At the early stage of development, they would establish and operate schools independently to ensure good teaching quality. With five to ten years of brand development and industry experience, they tend to change their operation mode from "asset-heavy" to "asset-light".

For example, Maple Leaf Educational System established differentiated competitive advantages by focusing on high school education. It well satisfies market demands by offering British Columbia, Canada accredited dual-diploma high school program across China. Targeting at middle class families, Maple Leaf Educational System has a big customer base with lower tuition fees than other international schools. Currently, Maple Leaf Educational System achieves rapid expansion mainly by running international schools with partners holding land in tier 2 and tier 3 cities. Leveraging Country Garden’s vast real estate resources, coupled with increased brand influence after getting listed, Bright Scholar Education Group has begun to provide teaching management service, while integrating both internal and external resources for continued expansion of school network.

**Figure 22: Evolution of large domestic education groups**

<table>
<thead>
<tr>
<th>Inception</th>
<th>Maple Leaf Educational System</th>
<th>Bright Scholar Education Group</th>
<th>Hailiang Education</th>
<th>Virsceed Education</th>
<th>Wisdom Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>• Company founded</td>
<td>• The first 12-year consistent school opens in Country Garden community</td>
<td>• Company founded</td>
<td>• Company founded</td>
<td>• Company founded</td>
</tr>
<tr>
<td>1996</td>
<td>• The first school opens</td>
<td></td>
<td>• The first K12 school opens</td>
<td>• The first private middle school opens</td>
<td>• The first private middle school opens</td>
</tr>
<tr>
<td>1998</td>
<td>• Certified as BC Canada’s offshore school program</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>2000</td>
<td></td>
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<td>2002</td>
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<td>2003</td>
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<td>2004</td>
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</tbody>
</table>
Figure 22: Evolution of large domestic education groups

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<thead>
<tr>
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<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The 5th year</td>
<td>• 3 schools (no new school)</td>
<td>• 1 school (no new school)</td>
<td>• 1 school (no new school)</td>
<td>• 5 schools (no new school)</td>
<td>• 2 schools (no new school)</td>
</tr>
<tr>
<td></td>
<td>2001</td>
<td></td>
<td></td>
<td></td>
<td>• International courses offered in Dongguan Guangming High School</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Certified to offer IB’s programs including DP and MYP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The 10th year</td>
<td>2004</td>
<td>• 4 schools</td>
<td>2004</td>
<td>• 8 schools</td>
<td>2005</td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>• The first school for expatriates’ children opens</td>
<td>2007</td>
<td>• Certified to offer A-level and IGCSE programs</td>
<td>2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The first kindergarten opens</td>
<td></td>
<td></td>
<td>2012</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2007</td>
<td></td>
<td></td>
<td>2013</td>
</tr>
<tr>
<td>The 15th year</td>
<td>2009</td>
<td>• 21 schools</td>
<td>2009</td>
<td>• 13 schools</td>
<td>2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2011</td>
<td></td>
<td></td>
<td>2014</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Certified to offer IB’s Primary Years Program (PYP)</td>
<td></td>
<td>2015</td>
</tr>
<tr>
<td>The 20th year</td>
<td>2009</td>
<td>• Listed on HKEX</td>
<td>2014</td>
<td>• Country Garden Education Group founded</td>
<td>2015</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 44 schools</td>
<td></td>
<td>• 40 schools</td>
<td>2017</td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>• 44 schools</td>
<td></td>
<td></td>
<td>2016</td>
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<tr>
<td></td>
<td></td>
<td>2017</td>
<td></td>
<td></td>
<td>2017</td>
</tr>
<tr>
<td>Now</td>
<td>2017</td>
<td>• Listed on New York Stock Exchange</td>
<td>2017</td>
<td>• 44 schools</td>
<td>2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2017</td>
<td></td>
<td></td>
<td>2017</td>
</tr>
</tbody>
</table>

Number of schools (by education stage):

<table>
<thead>
<tr>
<th>Year/Stage</th>
<th>High school</th>
<th>Junior high school</th>
<th>Elementary school</th>
<th>Kindergarten</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>10</td>
<td>19</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>2000</td>
<td>72</td>
<td>5</td>
<td>17</td>
<td>34</td>
</tr>
<tr>
<td>2005</td>
<td>12</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2010</td>
<td>30</td>
<td>11</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>2015</td>
<td>11</td>
<td>11</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>2017</td>
<td>14</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Listed companies’ annual reports and prospectus, Deloitte Research
Regional education groups target tier 1 cities with quality education resources as key competitive advantage
Regional education groups mainly target one certain region, tier 1 cities in particular, including Beijing, Shanghai, Guangzhou, and Shenzhen, etc. They build brand awareness among local people, especially high net worth individuals. Their development strategy prioritizes deep dive into regional markets instead of rapid expansion through extended school network, with high-end positioning and brand premium as key competitiveness.

For example, Xiehe Education Group, with a relatively long history and rich education resources, has maintained a good market reputation based on the philosophy of “East Meets West”. With a lot of land owners in different cities seeking cooperation, Xiehe Education Group has applied asset-light mode to all its schools. Currently, Xiehe Education Group is committed to robust and high-quality expansion, taking quality of education as top priority. It targets tier 1 cities as key market and adopts a cautious approach to expansion in tier 2 and tier 3 cities.

Foreign international schools are mainly for foreign students with higher tuition fee
Given relatively long history, excellent overseas teaching staff and well-established educational system, most foreign international schools outperformed competitors in brand awareness, thereby charging higher tuition fee. At the early stage of development, foreign international schools were mainly recruiting foreign students in tier 1 cities. Later, they would gradually expand to tier 2 and tier 3 cities by establishing bilingual schools accessible to Chinese students.

Take Wellington College as an example. Wellington College International Shanghai provides K12 education for foreign students. At the same time, Wellington College Bilingual Shanghai and Wellington College Bilingual Hangzhou were established to meet the demand for domestic bilingual schools, with higher tuition fees than the average local level. For example, the tuition fee of Wellington College Bilingual Shanghai is RMB 220 thousand to 300 thousand per year.

Profitability and expansion rate of schools become crucial given high barrier to industry competition
The development of schools is a slow process limited by various factors such as land, policy and experience, thereby creating high barriers to entry. Meanwhile, the profitability of a school is directly affected by the time it takes to become fully subscribed since its establishment. The shorter time it takes, the higher profitability will be. Generally speaking, a school can achieve the break-even point when it is using 60 percent of its capacity. A fully subscribed school has limited potential for tuition to increase. However, high customer stickiness allows school to improve the profitability through extracurricular activities, winter/summer camps, and various kinds of examinations. For example, while supplementary education service contributed the least to Bright Scholar Education Group’s total revenue (3.5% of the total in 2016), it showed the fastest growth with a CAGR of 240% from 2014 to 2016, which is far higher than other services.

At the same time, the development of international schools is also dependent on the ability to expand, as a leading position in market share is crucial for future competition. In recent years, listed companies have accelerated expansion with rapidly increased market share. For example, Maple Leaf Education has established 14 schools in tier 2 and tier 3 cities in FY2017 and plans to open another 10 between 2017 and 2018. Bright Scholar Education will establish 10 schools in 2018, mainly in tier 2 and tier 3 cities. Hailiang Education is expected to establish about 10 schools in cooperation with Pate’s Grammar School from 2018 to 2020.

At present, regional leading education groups have already taken shape, while existing participants are proactively embracing market opportunities by improving profitability and expanding under the asset-light mode. It is expected that there will be an increase in market concentration of international schools in the future.
2.3 Empowering students and schools

The future of private K12 schools will mainly depend on the derivation and development of two dimensions – student enablement and school enablement.

From millennials to Generation Z, students' needs and the challenges they face have changed. Increasingly, the lines between different disciplines are beginning to blur under the impact of digital technologies. Under the background of globalization and global network, the steady accumulation of knowledge is already losing its value. It is now a new subject for educators to help students shift from knowledge workers towards innovators with logical thinking and acquire learning abilities to reshape knowledge.

Meanwhile, the expansion of private K12 schools is often closely associated with their acquisition of market shares. Schools may achieve fast performance growth through extended mergers and acquisitions, but the selection of targets and post-merger integration is often easier said than done. Therefore, it would be vital for education groups to seek organic growth and establish school-specific management systems.

2.3.1 Empowering students

A product of industrial revolution, standard processes and volume production are the labels of modern education system. However, with dramatic changes to the environments of industry, technology, politics and economy, the pattern of education industry remains unchanged with no iteration. Based on the study of Harvard University on global education innovation in the 21st century, education for students in the future will focus on four dimensions, which includes intrapersonal competencies, interpersonal competencies, cognitive competencies and values.

Harvard University's 21st century education map

**Competencies in the intrapersonal domain**
- Intellectual openness: Artistic and cultural appreciation, personal and social responsibility, cultural awareness, etc.
- Work ethic & conscientiousness: Initiative, self-direction, responsibility, self-reflection, self-evaluation, etc.

**Competencies in the interpersonal domain**
- Teamwork & collaboration: Communication, collaboration, teamwork, interpersonal skills, empathy/perspective taking, etc.
- Leadership: Leadership, responsibility, assertive communication, self-presentation, social influence with others, etc.

**Competencies in the cognitive domain**
- Cognitive processes: Critical thinking, problem solving, analysis, reasoning and argumentation, decision making, adaptive learning, and executive function
- Knowledge: Oral and written communication, active listening
- Creativity: Creativity and innovation

**Values and attitudes**
- Values: The values and attitudes cultivated in participants by each program will vary by country, region, philosophies, and other social and cultural factors.
- Values and attitudes are central to developing a person's character and shaping the beliefs, attitudes, decisions and actions of a person.
- It is important to ask each individual to explicitly name the particular values and attitudes they seek to nurture.

Creativity: Creativity and innovation

Source: Harvard University website
For educators, promoting active, engaging, and enabling education models will become a key challenge for schools to face. The shift involves not only teaching contents but also school operations. Specifically are:

Shift from teacher-centered “push-in” system to student-centered “pull-out” platform. In the teacher-centered school scenario, lessons are the same for all students and are given only within the classroom setting, with examination as the only measurement for evaluation. By contrast, under student-centered education system, the mainstream will be adopting a mixture of personalized learning based on students’ individual characteristics, online and offline multi-scene learning and a comprehensive evaluation system of cognitive/attainment. Take ETU School in Beijing as an example. ETU stresses on setting up its curriculum and teaching environment from perspectives of developing thinking pattern, skills and methodology. Based on the compulsory courses defined by the Ministry of Education, ETU adopts an 80 percent or above project-based scenario learning approach, with focus on knowledge learning as well as the cultivation of character, self-awareness, communication, collaboration and other skills. ETU also pays attention to student-centered needs through a group teaching approach with mixed-age classrooms of 15-18 students each and a faculty-student ratio of 1:8. In addition, ETU deploys an in-house IT system that administers teaching, school operation, faculty, school-home connection and other aspects to help comprehensively track performance of kids in terms of behavior, schoolwork, etc.

The focus is shifting from massive examination-oriented skills to extensive self-regulated learning ability. For students, the purpose for going to schools means not only to learn knowledge, but also to equip themselves with the ability to adapt in a changing world. Schools also need to place themselves in a boarder learning ecosystem to facilitate the development of talents capable of adapting to the future. Whittle School which is set to open in Shenzhen in 2019 by a group of educational specialists from around the world plans to build 36 campuses in 15 countries within the next 10 years. Aiming to develop students from individual, cultural and global perspectives, the school will design certain independent courses and activities for each student based on their individual interests, and establish personal mentoring system to help students develop their own development planning and learning plans; In the area of culture, Whittle School put emphasis on language, humanities and social science teaching, where students needs to acquire a third language skills apart from English and Chinese, and set up distinctive centers of excellence in various regions, such as the center of excellence in Nanjing featuring Chinese language, culture and history; Whittle School is establishing an international exchange learning system to enhance community practices and nurture students’ concept of world development rooted in their home country.

Shift from offering students with static accumulation of knowledge to promoting dynamic knowledge cycles. The role of knowledge in students’ competency for the future is descending, and critical thinking, social skills, complex problem solving ability and systemic decision making will be key to their success. Thus, it is of vital importance for schools to redesign their teaching processes. Established by Ali partners and opened last year in Hangzhou, Yungu School transforms its teaching model from four aspects. Firstly, the school sets up a mentoring system which mentors are assigned on a group basis with one mentor for every five students. Mentors take the emotional development and physical & mental health of each student as their primary focus and emphasize on developing life skills and interpersonal communication for junior students and nurture potentials and talent for seniors. Secondly, the school breaks up classes and puts students of different backgrounds and ages together as in colleges to help students transition to social environment. Thirdly, the school gradually adopts an optional class system for students enter a higher grade from junior to senior to facilitate their individual and differentiated development. Last, the school utilizes project-based and immersive learning to strengthen the cultivation of cross-disciplinary capabilities.

Regardless of the reform of the senior high school entrance examination or the national university entrance examination, the criteria of measuring academic performance are shifting from quantification and results-focus to quality and process-oriented evaluation. Driven by governments, educators and society, empowering students should be the key factor for the future of education in China.
2.3.2 Empowering schools
Under a high-growth market environment, how private K12 schools capture the market and stay ahead of competition would be key factors for establishing a strong foothold in the future. Expansion will be driven by external M&A and internal multi-level growth and output system.

As to external M&A, the targets for large domestic education groups are mainly domestic schools, which indicates that major market players wish to increase their market shares and accelerate expansion by acquiring sizable local schools with brand awareness at the stage of rapid development. Education groups tend to be more cautious about overseas M&A as it imposes greater challenges in terms of post-merger integration. There were only two major overseas M&As during 2016-2018. Depending on the purpose or the nature of targets for M&A, P/E ratio of private schools varies from 14 to 45. For example, when Maple Leaf Educational Systems acquired 52.4 percent of equity of Hainan Guokeyuan Experimental School, the P/E ratio was 15. In the other case, Wisdom Education acquired 70 percent of shareholder’s equity and 70 percent of property rights of Huanan Shida Yuedong Preparatory School with a 45 P/E ratio.

Cash merger is the main approach of M&A for domestic private schools, as it is simple and easy to operate with short transaction time, and involves no equity dilution. Backed by IPO funding, major education groups have sufficient cash in hand for expansion.

Table 5: Overview of M&As by listed education groups (2016-2018)

<table>
<thead>
<tr>
<th>Acquirer</th>
<th>Domestic/ overseas</th>
<th>Target</th>
<th>Target's business scope</th>
<th>Date of acquisition</th>
<th>Value (RMB)</th>
<th>Share of equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maple Leaf Education Systems</td>
<td>Domestic</td>
<td>Eastern Shenzhen International Academy</td>
<td>K12 education</td>
<td>Dec. 2017</td>
<td>89.045 m</td>
<td>55%</td>
</tr>
<tr>
<td></td>
<td>Domestic</td>
<td>Hainan Guokeyuan Experimental School</td>
<td>K12 education</td>
<td>Feb. 2017</td>
<td>85.412 m</td>
<td>52.4%</td>
</tr>
<tr>
<td></td>
<td>Domestic</td>
<td>Haikou Meishe Jiaohui Education Technology Co., Ltd</td>
<td>A boarding school providing elementary school service</td>
<td>Jan. 2018</td>
<td>90 m</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Domestic</td>
<td>Meiwenn Qianyan Management Co., Ltd</td>
<td>A boarding school providing elementary school service</td>
<td>Jan. 2018</td>
<td>40 m</td>
<td>100%</td>
</tr>
<tr>
<td>Bright Scholar Education Group</td>
<td>Overseas</td>
<td>Learning Care Group(LCG)</td>
<td>Early education</td>
<td>N/A</td>
<td>Cash</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Domestic</td>
<td>Five chain kindergartens from Wuhan New Jordan</td>
<td>Private kindergarten</td>
<td>2018</td>
<td>Cash</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td>Domestic</td>
<td>Can-Achieve Education</td>
<td>Education marketing and student recruitment for international schools</td>
<td>Jul. 2017</td>
<td>Holdings increase</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>Domestic</td>
<td>School placement &amp; education counselling APP</td>
<td>Education counselling APP management</td>
<td>Jul. 2018</td>
<td>N/A</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Domestic</td>
<td>Zhejiang art training school</td>
<td>Art school</td>
<td>Jul. 2018</td>
<td>N/A</td>
<td>70%</td>
</tr>
<tr>
<td>Yuhua Education</td>
<td>Domestic</td>
<td>Huibo Education</td>
<td>Private high school</td>
<td>Apr. 2018</td>
<td>107 m</td>
<td>70%</td>
</tr>
<tr>
<td></td>
<td>Domestic</td>
<td>LEI LIE YING LIMITED</td>
<td>Private university Mechanic school Vocational skills training center</td>
<td>Dec. 2017</td>
<td>1,430 m</td>
<td>65.71%</td>
</tr>
<tr>
<td>Hailiang Education Group</td>
<td>Domestic</td>
<td>Educational services for Xiantao No.1 Junior High School</td>
<td>Private secondary/high school</td>
<td>Jun. 2016</td>
<td>224 m</td>
<td>80%</td>
</tr>
<tr>
<td></td>
<td>Domestic</td>
<td>Zhejiang Nanrui Experimental School</td>
<td>Private primary/ secondary school</td>
<td>Jun. 2017</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Wisdom Education International</td>
<td>Domestic</td>
<td>Huanan Shida Yuedong Preparatory School</td>
<td>K12 education</td>
<td>Jun. 2017</td>
<td>224 m</td>
<td>70%</td>
</tr>
</tbody>
</table>

Source: Annual reports, Deloitte Research
Driven by increasingly fierce competition, international schools are developing towards branded groups. Branded development provides visible advantages, with shared and duplicable faculty training, system and resources under a common brand for efficient management, as well as high prevalence in the market with strong influence among users. Particularly, such advantages will maximize the benefits when expanding from tier 1 to tier 2/3 cities. At the new stage of competition for quality and school characteristics, premium education brand will become a key competitive factor for school corporations. Branding and educational service outputs will help boost expansion of schools. Therefore, private K12 schools are transforming from unidimensional asset-heavy operation towards a multi-dimensional management model with a mixture of management, module and human resources outputs.

Figure 24: Output model of multi-dimensional management

For school management output, there are three popular models, which are educational consulting, entrusted management and brand output. Buyers of these services are mostly governments and enterprises seeking for expansion via investment in education. Educational consulting generally uses existing operational teams for new school building and offers advice and recommendations in terms of educational philosophy, objectives, operational management, etc. through practices of branded education groups. Project period usually ranges from three to six months, with consulting reports as the final deliverable. In entrusted management, school owners aim to improve management of existing educational assets through professional education companies and provide the manager with certain amount of investment each year. Project cycle would normally follow the school’s academic cycle, with service period ranging from three to six years. Operation afterwards would depend on a school principal responsibility system. The ownership and subsequent management would rest on the school owner.

Lastly, under asset-light model output, school owners provide land, school buildings and other facilities and education groups enter as branded operators. Through this model, governments could stimulate growth of local economy or regional real estate market by bringing in education brands, while education groups benefit from expansion via asset-light operation. Compared to asset-heavy model, the asset-light model is more replicable from perspective of growth potentials. Under asset-heavy model, education companies expand with physical campuses and school operation models, which requires huge amount of initial investment and long period of preparation. Under the asset-light model, education companies expand only with their school operation models and the preparation period for expansion in new districts could be shortened utilizing partner’s local resources (e.g. helping education companies obtain quicker required licenses and approvals for new schools). However, there is a partnership risk under the asset-light model. If the partner no longer owns the land use right and property rights of school buildings, or terminates cooperation agreement unilaterally, education companies would have no places to operate. In terms of profitability, intrinsic rewards are higher at the beginning under the asset-light model, and are relatively lower under asset-heavy model as...
education companies purchase land use rights and build school houses on their own. As school operation stabilizes, education companies assume the depreciation and amortization of land use rights and school houses under the asset-heavy model, while under the asset-light model education companies assume the rent or provide a share of profits to the partner.

It should be noted that such projects usually originate from new urbanized districts, with a certain difference in the population and economic environment from downtown areas. As such, education groups need to conduct proper feasibility study to ensure future profitability.

Module output is to modularize products of education groups and extend their industry chain from the traditional B2C model to B2B model. Foreign education groups are expanding in China mostly through brand output, under which they authorize their brands to Chinese partners and charge for a fixed annual authorization fee or a fixed percentage of tuition revenues. Authorization fees range from millions to ten millions of RMB depending on the reputation of the brand. The scope of support provided varies in actual operations. Some put in heavy investment in guidance and alignment in respect of teaching and faculty, and some offer light investment with only communications on the overall operation strategy and directions. Digital system and curricula output are also good output models that create competitive edge and brand effects. Typical examples include Alt School in Silicon Valley and San Yu Education in Taiwan. Though Alt School has closed some of its school sites, the development and output of teaching platform products remains as its main business model, including a series of teaching tools, school-home connection platform and school management system. Taiwan’s San Yu Education owns more than 300 kindergartens in China, and is also well-known for its publishing business, especially picture books and textbooks for 0-6 year olds.

Talent output has been a difficult point for the development of many school management groups. If it could be properly addressed to meet market demands, which would generate business revenue and serve as a competitive moat to protect their own brand systems. A good example is Dipont, who provides comprehensive international education management services and support for its 27 schools and 34 international curricula centers in addition to its school investment and management business. As part of its international curricula management services, Dipont offers recruitment, cultivation and career development of teachers for partnering schools. A subsidiary of Dipont, Explore CRS focuses on talent recruitment and consulting agencies for teachers of international schools, and organizes teacher recruitment events annually in China to connect educators and bilingual schools. As of 2016, Dipont has more than 550 foreign teachers within its China network, which is one of the largest team of international teachers in China.

In a word, empowering students reflects on the essence and its extension of education from a first-principle perspective, while school enablement explores and develops the expansion models of education groups from multiple dimensions. These two concepts are complementary and interplay to shape new heights and breadth for the future K12 education.
New technologies have constantly emerged and penetrated into the education industry. With the advancements in big data, AI and stereoscopic technologies, imbalanced allocation of resources and other issues in the education industry may be addressed. The question of how to build an empowering education industry and make it more efficient by applying technologies has become a paramount issue. Currently, the technology applications in the education industry can be divided into three types: first, “indirect auxiliaries”, namely using technologies to support teaching, improve scores, enhance efficiency and develop students’ self-learning ability, including adaptive education, VR/AR education, online education, somatosensory education etc.; second, “direct learning”, which refers to introducing technological programs into teaching for improving the innovation and practical ability of students, including STEAM education, maker education etc.; third, “basic operation”, that is, utilizing technologies to improve school management and teaching quality, including smart campus and cloud-based education platforms. Generally speaking, “indirect auxiliaries” applications have the highest penetration rate in the after-school market. As such technologies can improve scores in a short period of time, many parents are willing to pay for it. However, its penetration rate in the school market is lower. The penetration rate of “direct learning” applications increases both in schools and the after-school market with the great policy and capital support. “Basic operation” applications have helped schools evolve from the early stage of campus informatization to the establishment of smart campus.
A New Era of Education  | III. New applied technologies have penetrated into the education industry

**Figure 25: Penetration rate of technology in education industry**

<table>
<thead>
<tr>
<th>High penetration rate</th>
<th>Low penetration rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indirect auxiliaries</strong></td>
<td><strong>Direct learning</strong></td>
</tr>
<tr>
<td>AI+</td>
<td>STEAM education</td>
</tr>
<tr>
<td>Adaptive learning</td>
<td>Robot education</td>
</tr>
<tr>
<td>Online assistant</td>
<td>3D printing teaching</td>
</tr>
<tr>
<td>Smart robot</td>
<td></td>
</tr>
<tr>
<td><strong>Online education</strong></td>
<td></td>
</tr>
<tr>
<td>Live streaming</td>
<td></td>
</tr>
<tr>
<td>Mobile App</td>
<td></td>
</tr>
<tr>
<td><strong>VR/AR education</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Basic operation</strong></td>
<td><strong>Smart campus</strong></td>
</tr>
<tr>
<td></td>
<td>Smart teaching resource</td>
</tr>
<tr>
<td></td>
<td>Smart teaching environment</td>
</tr>
<tr>
<td></td>
<td>Smart campus management</td>
</tr>
<tr>
<td></td>
<td>Smart campus service</td>
</tr>
<tr>
<td></td>
<td>Information security system</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>School</th>
<th>After-school</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kinder-garten</td>
<td>Elemen-tary school</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Deloitte Research
### 3.1 The diversified “indirect auxiliaries” education technologies

**Adaptive learning to be more widely applied**

In nature, adaptive learning is teaching students according to their aptitudes, which means finding the best learning method for each student based on the differences in learning capabilities and learning habits. Due to technology barriers and high costs, class was divided in line with vague standards. Nowadays, the sophisticated technologies such as AI can adjust teaching plans and teaching methods dynamically, organize large-scale adaptive learning, and satisfy the demands of students at different stratifications.

Adaptive learning covers five processes: firstly, collecting relevant data in the process of learning and practice, including effective learning time, the time spending on learning each knowledge point, accuracy etc.; secondly, identifying and selecting effective data with AI, clearing data and removing unnecessary memory, and storing data by category; thirdly, improving the proficiency of students by applying algorithms to help students review the learned knowledge points periodically according to the retention curve and application frequency; fourthly, analysing data in stages and informing students of their weaknesses with visualization technologies; finally, forming a closed loop by sending the analysis results to the initial point of the system and changing the teaching methods according to the learning habits and characteristics of students.

**Figure 26: The closed loop of adaptive learning**

Most adaptive learning platforms are designed to “improve scores”. The application of adaptive learning can be divided into two categories:

- First of all, K12 after-school tutoring is mainly targeting the junior and senior high school students for preparing Middle school entrance examination and University entrance examination. The penetration rate is the highest due to three factors: Firstly, it significantly improves the completion degree of teaching.

- Overseas examples indicate that adaptive learning increases the percentage of students who completing courses from 76% to 94% and improves their scores; Secondly, it charges lower than one-to-one tutoring. Adaptive learning costs less than face-to-face teaching since it’s easier for adaptive learning platforms to build large-scale question banks; Thirdly, the combination of teaching and testing could help parents and students better know their learning status. AI not only facilitates the communication between teachers and parents, but also tells students their weaknesses more intuitively. Second, language learning includes English study preparing for or not for study abroad such as the senior high school/university entrance English examination, CET4, CET6, TOEFL, SAT etc. Adaptive learning could achieve better performance in language learning than in K12 after-school tutoring.
A New Era of Education

III. New applied technologies have penetrated into the education industry

Language learning is quite popular in elementary and high schools for the following reasons: Firstly, English becomes more important for greater impact under the globalization trend; Secondly, as education authorities lower the examination requirements on English, school courses cannot meet the language learning requirements of students. It’s conducive for the after-school English tutoring market to build an integrated teaching ecosystem. Thirdly, because the number of Chinese oversea student increases and a younger trend, many elementary and high school students need to take examinations for study abroad; Fourthly, adaptive learning tutoring costs less than foreign teachers. As most teaching videos, test banks and vocabulary banks are free, only some premium services such as producing evaluation reports charge membership fees.

The adaptive learning is an inevitable trend. By 2020, China is expected to implement a series of new policies on the university entrance examination across the country, including cancelling the division between arts and sciences, separating English listening exam with English reading exam, and recruiting students based on comprehensive performance etc. After cancelling the division between arts and sciences, students need to find the best approach to learn different subjects in line with accurate evaluation standards; The policy of recruiting students based on comprehensive performance requires students to connect the knowledge of different subjects, reinforce weaknesses, and accurately adjust the pace of learning; Separating reading test from listening test lowers the difficulty of English examination, but raises the requirements on comprehensive application. It means that students will need a complete learning environment. Adaptive learning platforms could help teachers and students better adapt to new policies on the university entrance examination.

In spite of this, adaptive learning platforms still face two challenges: In terms of technology, the integration of adaptive learning platforms with AI is still at the primary stage and functions such as human-machine interaction and self AI upgrading need to be improved. Regarding the content, the splitting of knowledge points need to be refined. Adaptive learning is featured with flexible learning plans, but it may affect learning effectiveness if the splitting is rough or omits some content.
III. New applied technologies have penetrated into the education industry

Smart robots need to increase penetration rate in various education stages

In recent years, robot products have been widely applied in industries and are expanding to the civil market. Education robot is an emerging area. It’s imperative to introduce the knowledge on robot and its application in information technology education.

Smart robots are mainly applied in four education areas: Firstly, technology class robots, which can provide AI-based courseware and teacher resources including semantic understanding, intelligent retrieval, knowledge map, voice recognition, intelligent recommendations etc.; Secondly, smart campus robots, which are mainly used in schools to provide technology experience in the exhibition hall, handle information inquiries in the library, organize interest fostering activities in the lab, and facilitate entertainment activities in the assembly hall; Thirdly, smart online problem-solving robots, which can answer exercises and questions; Fourthly, smart robots for greeting and guidance, which are mainly used in reception and guidance. In general, smart robots have higher penetration rate in elementary schools and kindergartens. Smart campus robots are still under R&D, and most of them will be mainly used as campus administrator, interest enlightener as well as campus guide. They are quite suitable for elementary students with less study burden and strong curiosity.

Figure 27: Education robot ecosystem

The application of smart robots in the education sector faces three major challenges: Firstly, the products deployed in the market are quite different from those in the lab. The prototype of the smart robots boasts of powerful functions, but the education robots in the market are quite different. Moreover, because of the unclear and unreasonable product classification, most education robots are homogeneous and bland. In most cases, they will be introduced into schools. Most robots in the market are not recognizable enough for similar looking and functions (most products are designed to inquiry location, weather etc.). 99% of robots in the market have the function of voice chatting. They have only one core part—microphone, though with different plastic exterior. It will greatly affect the using experience of preschool children. Secondly, education robots are difficult to be widely used in classes due to the high price of host modules, sensors and other parts. Thirdly, over-marketing overdraws customers’ trust. Any products related to the concept of robot can be sold as smart education robots, even including cheap learning machines and chat robots with limited functions.

Live streaming education undergoes constant blowout growth and intense homogeneous competition

Driven by favourable policies, economy and environment, technology updates, and the rising demand for education, online education enters into an age of intelligence. Factors, including deepening mobility, constant product improvements and upgrades, the support of AI/big data, and the integration of online and offline education, will lead online education to a higher level. Especially, AI will bring more possibilities to online education:

1. Eliminating knowledge blindness with big data. Big data can help find out the logic between knowledge points and construct a new knowledge map by splitting and combining knowledge points. To help students quickly grasp all knowledge points, exams also can be used to detect their weaknesses and make accurate breakthroughs.
A New Era of Education  |  III. New applied technologies have penetrated into the education industry

2. **Customize teaching by providing students with personalized recommendations.**
   AI will show its potential and ability after acquiring a certain amount of data. For example, 171xue.com sends students explanation with different degrees of difficulty and perspectives based on the data from its AI-driven platform including the time students spending on doing exercises and the accuracy rate. The explanation on one knowledge point may inspire another one, students can learn how to solve the same kind of exercises.

3. **Real time feedback facilitates help student get closer to teachers.** Intelligent tools take over many repetitive work for teachers and allow them to focus on emotion communication, personalized guidance and creative thinking development. Besides, teachers can provide targeted mentoring according to the data from the AI-driven platforms.

**Figure 28: Online education enters into an age of intelligence**

- **Age of intelligence deepened mobility**
  The trend of studying with mobile devices will continue to grow. Except online foreign teacher platforms, test banks and test banks with picture search function, many new technologies will emerge.

- **Indispensable AI and big data technologies**
  The learning method and approach will experience more changes. To understand and meet the demands of users, online education will mainly depend on effective operation and accurate data mining.

- **Integration of online and offline education**
  Education enterprises constantly expand and integrate their industry chains. Offline and online education are likely to be integrated more closely, and both will develop harmoniously with different focuses.

- **Constant product improvement and upgrade**
  Growing user demands help to diversify online education products to better serve users.

Source: Deloitte Research
Online streaming education has become quite mature in recent years, but in most cases, it was applied in K12 after-school tutoring and language learning with an aim to improve scores. As for K12 after-school tutoring, students can enhance and expand knowledge and complete homework by taking online streaming classes. In terms of language learning, students can customize courses on the live streaming platforms and get to know foreign culture and foreign schools.

The pattern of online education + live streaming is widely applied in the after-school market (including elementary schools, junior high schools, senior high schools and universities) and enterprises. It was widely accepted in K12 education sector for several reasons: Firstly, the pattern of online education + live streaming can get teachers and students closer and improve teaching efficiency and performance via “the 2nd classrooms”, as students need to improve learning efficiency for high scores. Moreover, some students are too shy to ask questions in classes. Online streaming classes could significantly increase the frequency of raising questions and improve the autonomy of students. Secondly, teaching quality is under supervision. Students are allowed to comment on online streaming teaching by sending bullet screen and get refund at any time. And if students have any other teaching demands, they can contact teachers immediately.

It was also widely applied in language teaching for two factors: Firstly, examination. For academic English exams, due to the reform of university entrance examination on English, schools reduce English courses. The pattern of online education + live streaming allows students to take different English courses of other schools and education organizations through Apps on mobile phones. Regarding non-academic English exams, the market of study abroad expands for growing number of students, but the teaching resources are in shortage. Online streaming introduces foreign teachers and provides life-based language teaching at various places and in many situations. Secondly, detailed classification. English courses can be divided into more detailed parts: reading, listening, speaking, writing, vocabulary etc. In the market of study abroad, students even can find courses on introducing foreign schools and the social background of foreign countries. Offline tutoring courses are generally provided by certain teachers, however, online streaming education could realize personalized course combination.

The pattern of online education + live streaming is facing challenges from content and policy. On one hand, the pattern of online education + live streaming is very popular in recent years, but not all content is qualified. The essence of education not lies in diversified education methods but rich and accurate content. Many online streaming education platforms just adopt the pattern of live streaming, but not bring the content into full play through live streaming. On the other hand, China has begun to crackdown on disqualified after-school tutoring organizations since 2018, especially for online streaming education organizations.

**VR education to be an important education technology**

In 2018, the Ministry of Education (MOE) requires education departments to enhance the application of VR in teaching. MOE clarifies that the development of VR may bring huge changes to future education industry. The government allocates large amount of money to develop VR. All these indicate that VR + education will be one of the highlights in integrating technology and education. From the perspective of technology products, VR education is mainly achieved via Apps on mobile phones and other special devices: the camera on mobile phones and tablets capture relevant information of two-dimensional products and then show three-dimensional and dynamic images on screens; special devices can directly show human-machine interface to improve visual experience.
Currently, VR/AR is mainly used to provide VR-assisted early childhood education, K12 tutoring and higher vocational education. For virtual early childhood education, parents can download Apps or purchase early childhood learning machines to help children develop interests and develop stereoscopic thinking. It's a cheap and convenient way to arouse the interests of children. For K12 tutoring, visual reality technology could help students better understand time and space in history and geography classes, and conduct dangerous experiments in chemistry and physics classes. As for higher vocational education, VR education can help make three-dimensional product design and stimulate employment environment.

VR education (primarily augmented reality) is very popular in the after-school market, especially for children in kindergartens. Firstly, young parents constantly increase the spending on preschool education in recent years. The sales of VR-based on early childhood learning machines increases significantly and relevant Apps on mobile phones also can be downloaded easily. Secondly, children in kindergartens tend to accept dynamic and stereoscopic objects, such as picture books.

The penetration rate of VR education in schools is relative low, which is mainly applied in elementary and high schools. China’s virtual reality technology is still at an initial stage. Due to high price of VR helmet, few private schools or education organizations would purchase. Only a few public schools could afford it. Moreover, without ancillary products, VR helmet itself can not provide the best experience. To create favorable environment for students in elementary and high schools, VR education companies need to establish VR classrooms and fully utilize available resources. Finally, it is necessary to seek the guidance of professionals before using virtual reality helmets.

VR/AR education faces three challenges: Firstly, technological barriers. China has made breakthroughs in VR technology, however, we are still not good at applying VR into the education industry compared with foreign counterparts. Many Chinese schools adopt imported products since some domestic devices are unqualified and may cause dizziness after long time use. Chinese virtual reality devices are developed based on fundamental VR technologies, which could not provide enough video content. Secondly, weak profitability. A VR classroom may cost about RMB400 thousand to 1 million. Due to inadequate content, expensive price and low cost efficiency, the profitability of VR has been weak in the long run. Besides, most players in the VR industry are virtual reality technology companies with weak profitability. Fortunately, some Internet giants have begun to invest VR. And third, insufficient promotion. Some teachers point out that more technology guidance is required before using VR devices in teaching process. The public is more familiar with VR applications in the gaming and entertainment sectors and some parents think VR may bring negative impact for students.
3.2 The accelerating “direct learning” education technologies

STEAM education receives strong support

STEAM education market receives strong support. As the middle class expands, more young parents are willing to spend more money on education, thus STEAM education market enters into the period of rapid development. Moreover, favorable policies provide more room for development of STEAM education. In April 2018, the MOE released the Artificial Intelligence Innovation Action Plan for Higher Education Institutions. By 2020, it aims to form a new talent cultivation pattern of “AI + X”, launch 100 new majors featured with “AI + X”, and establish 50 AI academies, research institutes or interdisciplinary research centers. This Plan will further promote AI education, accelerate talent cultivation and benefit STEAM education.

Table 6: STEAM education benefits from policies

<table>
<thead>
<tr>
<th>Time</th>
<th>Publisher</th>
<th>Name</th>
<th>Main content</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2018</td>
<td>Ministry of Education</td>
<td>Artificial Intelligence Innovation Action Plan for Higher Education Institutions</td>
<td>It aims to form a new talent cultivation pattern of “AI + X”, launch 100 new majors featured with “AI + X”, and establish 50 AI academies, research institutes or interdisciplinary research centers by 2020.</td>
</tr>
<tr>
<td>March 2018</td>
<td>Ministry of Education</td>
<td>Work Priorities of the Educational Equipment Research and Development Center of the Ministry of Education for 2018</td>
<td>It proposes to develop plans on introducing educational equipment featured with interdisciplinary integration including labs, multi-function classrooms and maker space, create comprehensive teaching environment, utilize new technologies such as AI to promote the research and application of educational equipment, and apply big data to improve educational equipment, to effectively serve education and teaching.</td>
</tr>
<tr>
<td>January 2017</td>
<td>State Council</td>
<td>13th Five-Year Plan for Education Industry Development of the People's Republic of China</td>
<td>It proposes to help students develop the spirit and ability of innovation and entrepreneurship, establish a batch of demonstrative study travel destinations, and enhance aesthetic education.</td>
</tr>
<tr>
<td>January 2017</td>
<td>Department of Education of Zhejiang Province</td>
<td>New university admission plan of Zhejiang Province</td>
<td>Students can choose three subjects in the university entrance examination from Politics, History, Geography, Physics, Chemistry, Biology and Technology (including general technology and information technology) according to their interests, strengths and the requirements of the intended schools and majors.</td>
</tr>
</tbody>
</table>

Source: Information in the public domain

STEAM education can improve students’ practical and innovative thinking abilities. Robot education has become an important carrier of STEAM education. In the past, students obtained limited knowledge from books and couldn’t meet the criteria of interdisciplinary talents in technology and science. Nowadays, the robot teaching integrates the knowledge of several sectors including computer, mechanical engineering, electronics, communications, Controllology, etc. and encourages students to explore sciences, technologies, engineering, mathematics and arts. It aims to help students achieve all-around development and improve global competitiveness.

STEAM robot education is most widely applied in elementary and junior high schools as well as universities, with equal shares between schools and the after-school market. According to the Guidelines for Elementary and Junior High Schools on Organizing Comprehensive Practice Activities the MOE issued in September 2017, it emphasizes the significance of practice activities and aims to provide comprehensive practice activities for all students. These guidelines point out the importance of all-around development and encourage the application of STEAM education system. STEAM robot education requires strong hands-on abilities and critical thinking, so students in higher grades and junior high schools are the ideal recipients of robot education, not to mention they are free from heavy pressure and have the time to study robotics. In China's after-school market, the number of robot education organizations for elementary and junior high school
A New Era of Education

III. New applied technologies have penetrated into the education industry

The penetration rate of STEAM robot education in kindergartens is the lowest. Children in kindergartens cannot meet the requirements of practical abilities and critical thinking, they can only take part in certain STEAM toy assembling and elementary robotic courses, while core courses are not yet suitable for them.

STEAM robot education is challenged by misleading education philosophies, improper teaching methods, and inappropriate course designs.

1. Misleading educational philosophies: many after-school education organizations attract Chinese parents with branded teaching tools, not the STEAM teaching plans.

2. Improper teaching methods: in robot classes, most students only imitate the way teachers build models instead of creating by themselves. It violates the teaching principle of STEAM education, “hands-on and minds-on exploration”. Especially in classes with more than 10 students, teachers don't have enough time to lead each student to explore, so in many cases, students only imitate teachers or just accept the interference of teachers.

3. Inappropriate course designs: education organizations put too much emphasis on results but ignore the process, which violates the “flow theory” of STEAM education. For instance, parents would like to see their 4-year-old children build better models than peers if these children are given courses for 6-year-old. But, actually such courses are too difficult for 4-year-old children to understand. Under great challenges and strong sense of frustration, children can’t think and do things by themselves, but to imitate or ask for the help from teachers. For long, teachers would fell stressed and children may be less interested or bored.

3.3 The deepening “basic operation” education technologies

Smart campus steadily develops

Smart campus was put forward based on the construction of digital campus in the process of education informatization, which aims to deeply and effectively integrate information technologies with teaching and learning, by taking new technologies such as IoT, cloud computing and big data as the core technologies. It refers to the smart learning environment that could apply full-perception, intelligence, data, network and coordination into teaching, research, management and
life services, and look into and predict teaching and teaching management. Digital campus has primarily integrated the information system resource of higher education institutions, but their informatization efforts are confronted with two major challenges: inability to serve end users and incomplete application integration. Smart campus adopts the user-centric approach and aims to be demand-driven. It can intelligently satisfy personalized demands of campus network users and provide them with functional services, intelligently make relevant decisions, intelligently analyze digitalization progress, and deeply integrate campus activities under the principle of “people first”.

As the education reform intensifies, campus informatization has made significant progress. In many cases, schools purchase or develop information-based application systems for some particular demands and without any overall plans. Besides, independent digital campus construction has disabled resource sharing among schools, finally forming a “silos structure” composed of “data silo”, “application silo”, “hardware silo” and “resource silo”. To ensure high-quality and orderly smart campus construction, the Standardization Administration of the People’s Republic of China (SAC) under the State Administration for Market Regulation published the Smart Campus Overall Framework on 7 June 2018. It specifies five application areas and the construction system of smart campus and offers a new perspective on campus activities by combining big data, AI etc.

Figure 30: The Development trend of Smart campus

Source: Deloitte Research
Table 7: Framework of Smart Campus

<table>
<thead>
<tr>
<th>Smart campus framework</th>
<th>Application area</th>
<th>Construction system</th>
<th>Approaches to apply big data and AI</th>
</tr>
</thead>
</table>
| Smart teaching resources             | Resource generation, online learning                 | Infrastructure level – supporting platform level – application terminal – information system security system | 1. Deeply analyze the learning patterns of learners and provide targeted suggestions on adjustment based on scientific approaches  
2. Intelligently schedule courses with the classification algorithm based on deep neural network, considering students’ historic performance, evaluation data and the teaching quality of teachers |
| Smart teaching environment           | Multi-media classroom, smart classroom, maker, practical training environment | Infrastructure level – supporting platform level – application terminal – information system security system | Analyze the experience of teachers and students, provide feedbacks, and optimize online teaching environment                                                                 |
| Smart campus management              | Cooperative office system, human resource system, teaching management system, research management system, asset management system, financial management system | Infrastructure level – supporting platform level – application terminal – information system security system | Enable institutions that provide primary education, vocational education and higher education achieve fundamental, advanced and sophisticated intelligence respectively |
| Smart campus service                 | Campus security service, campus life service, e-library, operation and maintenance security service, virtual campus service | Infrastructure level – supporting platform level – application terminal – information system security system | Optimize network communication system and perception system to provide online users with smart services                                                                 |
| Information security system          | Personnel management, security management, key management, identity management | Infrastructure level – supporting platform level – application terminal – information system security system | Recognize faces and other identity features with identification technology to ensure campus security                                                                 |

The penetration rate of smart teaching resources in junior and senior high schools is moderate, among which public schools utilize more. With the support of local governments, many public smart teaching resource platforms are built to optimize resource allocation to public schools. Besides, considering heavy pressures on junior and senior high school students, schools may collaborate with enterprises to introduce educational Apps or develop online courses independently, to help students preview new knowledge, consolidate learned knowledge and achieve progress. Domestic online education market grows rapidly and is expected to exceed the scale of RMB23 million by 2018.

Regarding smart teaching environment, multi-media teaching has been widely applied across China. In 2017, the number of multi-media classrooms accounts for 70% of general classrooms, and 60% of general classrooms were equipped with multi-media teaching facilities. To better compete with public schools, private education organizations are actively creating smart teaching environment.

In terms of smart campus management, as new policies on the university entrance examination are implemented across the country, traditional classes will be split and the optional class system will become a normal state. Smart campus products such as electronic class card and attendance system will help to handle teaching management issues. In order to compete with public schools in student recruitment, some private schools start from improving smart campus management to attract parents and students.
As for smart campus services, as junior and senior high school students are under heavy pressure, the communication between parents and schools could help parents keep an eye on students’ study and life. Some high schools have rolled out smart card services to connect the systems of access control, attendance management and canteen services. Besides, in order to provide quality-oriented education, other personalized cultural and life services will also be included in.

The above four kinds of applications are more frequently seen in public universities. Local governments are providing great support to universities in building and improving smart campus with the advancements of technologies such as IoT. Although the campus management of universities, which covers teaching, scientific research, management, lives etc., is more complicated than high schools and kindergartens, universities sponsored by 211 and 985 projects take the leading role in smart campus construction. The main reason for that is, smart campus can optimize resource deployment in an all-round manner and provide more accurate records and feedback.

However, information security systems are most widely applied in kindergartens, especially in private kindergartens. Since frequent child abuse cases in kindergartens have aroused wide concern of the governments as well as the public in recent years, many kindergartens collaborate with enterprises to implement information management. 237 kindergartens in Hubei province have realized information management in all processes. The authorities and parents can check the state of kids at any time via mobile phones. Private kindergartens, particularly international kindergartens, target high-end customers and charge high tuition fees, so they perform well in informatization by adopting the practices of foreign kindergartens.

So far, smart campus still faces two challenges: first, insufficient cooperation among schools, governments and enterprises. According to the General Provisions on Digital Campus Construction of Elementary and High Schools (Trial) released by the MOE on 26 April 2018, a tripartite cooperation mechanism among schools, governments and enterprises will be established to promote digital campus cooperation among schools, local education authorities and IT companies. Though many policies encourage school-enterprise cooperation, enterprises still face insufficient institutional guarantee. Consequently, schools are not active in collaborating with enterprises but pay more attention to state-level resources instead of enterprise resources. Complete top-level design and institution establishment at state level are the guarantee of school-enterprise cooperation. Second, mismatched products. Smart campus construction requires smart products. However, many product designers don’t pay attention to and understand the design concept of smart campus. Therefore, many products ignore the user centric principle. For instance, some Apps designed for sharing smart education resources can’t provide complete course scheduling, equal course content, and adequate trial sessions (which may make it more difficult to find excellent courses).

Education technologies for the purposes of “indirect auxiliaries”, “direct learning” and “basic operation” are expected to infiltrate further and cover the whole education industry, especially in the fields of adaptive learning, smart robots, VR/AR education, STEAM education, etc. For “indirect auxiliaries” education technologies, “AI +” sector will gradually infiltrate from the after-school market into schools and from elder to younger groups. “Direct learning” education technologies will be enhanced to cultivate scarce all-round talents and comprehensively expand the horizon of students. “Basic operation” education technologies will be more widely applied to smart campus construction as technology upgrades, such as cloud computing and big data, and the demand of information management increases.
IV. New motivation models tackle the talent challenges

4.1 Talent management challenges faced by Chinese private education industry
In recent years, the private education industry has entered into rapid expansion under the close attention and great support from the government, consumers and investors. Deloitte's 2017-2018 A-share Listed Companies Executive Compensation and Incentive Report shows that, for education enterprises listed in the A-share market, the labor costs accounted for 53.5% of the operating revenues in 2017, ranking high for past three consecutive years (from 2015 to 2017). Due to the changing business environment, incoming informatization trend, and constantly increasing labor costs, private education enterprises are facing unprecedented requirements and challenges in talent management.

Figure 31: according to Deloitte's research, there are following major types of talents in the current private education industry

- **Technical talents**  
  Technical talents (e.g. software development engineer) are the core factor to drive the rapid development of education informatization enterprises and offline education enterprises' transformation toward online operation.

- **Teaching and research teams**  
  Teaching and research teams (e.g. teacher and research expert) are the core competence of education groups, which directly affect the teaching quality and results, acting as a powerful support in the expansion and branding of education enterprises.

- **Operation and management talents**  
  Operation and management talents (e.g. president, supervisor, regional operation manager etc.) are pivotal in realizing large-scale operation and standardized management and in maintaining long-term development.

- **Sales personnel**  
  Sales personnel directly motivate the business growth and expansion.
Figure 32: according to Deloitte, private education enterprises are faced with four main talent management challenges

1. Short talent supply: Currently, the private education industry is labor intensive, but the supply falls short of demand.

2. High staff turnover: As new entrants intensify the industry competition, talent competition heats up, and thus the high staff turnover rates gradually become a challenge.

3. Higher talent requirements: The education industry’s requirements on talents keep leveling up. An ideal candidate should be not only proficient in education and technology, but also equipped with business innovation and Internet thinking capabilities. It takes great efforts to find a suitable professional or costs plenty to train one.

4. Homogenized incentive mechanism: Traditional and homogenized incentive measures such as bonus, would make it difficult for enterprises to retain talents, especially senior managers and scarce interdisciplinary talents.

Figure 33: To help enterprises better cope with talent management challenges, Deloitte conducts a survey on enterprises engaging in K12 and early childhood education (50 enterprises that are listed in A-share market, Hong Kong, US or the National Equities Exchange and Quotations market (NEEQ)) and makes in-depth analysis on their senior management team profile, compensation mechanism, and the mid-and-long term incentive mechanisms. Main findings are as follows

Appendix: Explanation of survey data
The survey covers 50 enterprises, including:

- 39 K12 enterprises; 8 early childhood education enterprises; 3 K12 and early childhood education enterprises
- 4 listed in A-share market; 5 listed in Hong Kong, 12 listed in the US and 29 listed in NEEQ

Note 1: Data samples come from the industry company list of Wind database, “education—comprehensive customer service III—customer service II”, and revenues from early childhood education/K12 education businesses account for more than 10%.

Note 2: Enterprises listed in Hong Kong and the US refer to enterprises having main assets and businesses in China, but are indirectly listed in Hong Kong and the US via offshore companies registered overseas.

Note 3: 3 surveyed enterprises are engaged in both K12 education and early childhood education businesses. These businesses shall be considered separately when conducting data statistics and analysis.

Note 4: The data expire on 13 July 2018.

Source: Wind, Deloitte Research
4.2 Executive profile and trends in executive compensation

4.2.1 Executive profile: responsible for different areas, generally young

Based on positioning of the business and responsibilities of specific jobs, executives take charge of different areas, including operation, teaching and business development. For instance, the functions of human resources, strategic development, finance, compliance risk management and teaching may each be managed by a vice president. Besides this, the head of a pivotal branch/school may also be considered an executive role.

We sampled 554 executives from 50 companies and 89 founders of 46 companies. The resulting average age of executives is 43.95, and that of founders is 43.40.

Moreover, the executives’ average tenure is around 5 years, and a founder usually stays in his/her own firm for 8 years.

Figure 34: Typical executive positions

Executive positions typical to education enterprises listed in the US (Example)

<table>
<thead>
<tr>
<th>Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chairman, general manager(GM)</td>
</tr>
<tr>
<td>Member of the Board</td>
</tr>
<tr>
<td>Independent director</td>
</tr>
<tr>
<td>Director of Finance</td>
</tr>
<tr>
<td>Vice president (business development)</td>
</tr>
<tr>
<td>Vice president(compliance, strategic development)</td>
</tr>
<tr>
<td>Senior vice president(teaching)</td>
</tr>
<tr>
<td>Vice president(operation, HR, Party Committee Office, marketing, education management)</td>
</tr>
</tbody>
</table>

Executive positions typical to education enterprises listed in HK (Example)

<table>
<thead>
<tr>
<th>Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive director</td>
</tr>
<tr>
<td>Executive director and co-chair</td>
</tr>
<tr>
<td>Executive director and CEO</td>
</tr>
<tr>
<td>Chief financial officer</td>
</tr>
<tr>
<td>Vice president of strategic investment</td>
</tr>
<tr>
<td>Executive director, senior vice president &amp; CFO</td>
</tr>
<tr>
<td>Executive director, vice president &amp; global education director (excluding China)</td>
</tr>
<tr>
<td>Vice director of business in China and chief legal officer/ general counsel (China)</td>
</tr>
<tr>
<td>President and professor of the university</td>
</tr>
</tbody>
</table>

Source: Wind, annual reports and Deloitte Research

Figure 35: Average age of executives/founders

<table>
<thead>
<tr>
<th></th>
<th>Executives</th>
<th>Founders</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>43.95</td>
<td>43.40</td>
</tr>
<tr>
<td>K12</td>
<td>44.24</td>
<td></td>
</tr>
<tr>
<td>Early childhood</td>
<td>44.67</td>
<td></td>
</tr>
</tbody>
</table>

Figure 36: Average tenure of executives/founders

<table>
<thead>
<tr>
<th></th>
<th>Executives</th>
<th>Founders</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>5.23</td>
<td>7.92</td>
</tr>
<tr>
<td>K12</td>
<td>5.29</td>
<td>7.81</td>
</tr>
<tr>
<td>Early childhood</td>
<td>4.97</td>
<td>8.63</td>
</tr>
</tbody>
</table>

Source: Wind, annual reports, Deloitte Research

Explanation of survey data: The sample contains 554 executives from 50 companies and 89 founders of 46 enterprises; executive statistics is based on information published by listed companies.

Source: Wind, annual reports, Deloitte Consulting Analysis
4.2.2 Trend in executive incentives: fast growth in executive compensation shows companies have high willingness to pay

Over the past three years, the revenue, number of employees, productivity per capita and total executive compensation of K12 and early childhood education enterprises have all been on the rise. The revenue witnessed the largest growth among all items: the CAGR of K12 revenue was 68.2% and that of early childhood education was 22.2%.

In terms of executive compensation, companies listed in Hong Kong witnessed the fastest growth. Executive compensation of HK listed K12 companies grew at a CAGR of 94.7% while that of A-share and US listed companies grew respectively at 37.2% and 20.3%. The A-share listed companies’ executive compensation-to-revenue ratio was registered at 0.95%, followed by that of US listed (0.62%) and HK listed (0.55%) companies.

Figure 37: 2015-2017 CAGR of annual revenue, number of employees and productivity per capita of K12 and early childhood education enterprises

Figure 38: 2015-2017 CAGR of K12 enterprises’ executive compensation

Figure 39: K12 enterprises’ executive compensation-to-revenue ratio (2015-2017)

Note: Early childhood education enterprises and the NEEQ listed enterprises are not analyzed due to lack of published data.
Source: Wind, annual reports and Deloitte Research
4.2.3 Executive compensation varies among different positions with HK listed companies offering the most competitive cash compensation

Presidents are paid the highest. For this position, 75th percentile is RMB1,155,000, 50th percentile is RMB748,000, and 25th percentile is RMB411,000; the second highest-paid position is head of finance. The corresponding 75th percentile is RMB813,000, 50th percentile is RMB632,000 and 25th percentile is RMB416,000.

Among all listed companies, those traded in Hong Kong offer the most competitive compensation. The 50th percentiles of the compensation for president-level and head of finance-level positions are the highest, being RMB1,259,000 and RMB1,785,000 respectively.

Among HK listed companies, China Maple Leaf Educational Systems (1317.HK) offers the highest compensation for GM-level positions, followed by Wisdom Education (6068.HK).

Figure 40: Executive cash compensation (unit: RMB10, 000)

Note1: Analysis of the compensation for president-level positions (GM, president, administrative president and CEO) is based on 11 valid samples; analysis of the compensation for vice president-level positions (vice GM, vice president, executive vice president, senior executive vice president, senior vice president) is based on 32 valid samples; analysis of the compensation of head of finance-level positions (head of finance, director of finance, CFO, co-CFO and chief accountant) is based on 9 valid samples; analysis of the compensation of board secretary-level positions (board secretary, head of information disclosure, head of investor relations) is based on 7 valid samples.

Note 2: Compensation samples include annual cash compensation (excluding shares, may include perquisites).

Source: Wind, annual reports, Deloitte Research

Figure 41: Executive cash compensation - 50th percentile in each stock market

Note1: Analysis of president-level positions (GM, president, administrative president and CEO) is based on 4 valid samples from A-share stock market, 2 from NEEQ and 5 from Hong Kong stock market; analysis of vice president-level positions (vice GM, vice president, managing vice president, executive vice president, senior executive vice president, and senior vice president) is based on 21 valid samples from A-share stock market, 5 from NEEQ and 6 from Hong Kong stock market; analysis of head of finance-level positions (head of finance, director of finance, CFO, co-CFO and chief accountant) is based on 4 valid samples from A-share stock market, 2 from NEEQ and 3 from Hong Kong Stock Market; analysis of board secretary-level positions (board secretary, head of information disclosure, and head of investor relations) is based on 5 valid samples from A-share stock market and 2 from NEEQ.

Note 2: Compensation samples include annual cash compensation (excluding stock-based compensation, may include benefits).

Note 3: US listed companies have not disclosed information about executive compensation.

Source: Wind, annual reports, Deloitte Research
4.3 The trends towards long-term incentives

4.3.1 Share incentive schemes are common among K12 and early childhood education companies, and most widely adopted among enterprises listed in Hong Kong and US

34 out of 50 K12 and early childhood companies disclosed share incentive schemes (58 in total, 51 still in effect), most popular in HK and US listed firms. 100% of HK listed companies and 91.7% of US listed companies implement share incentives. Around 50% of enterprises listed in the A-share and NEEQ markets grant shares.

**Figure 42: Share incentive schemes**

<table>
<thead>
<tr>
<th>Stock Market</th>
<th>Number of Companies</th>
<th>Percentage Among Companies Listed in the Same Stock Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>US stock market</td>
<td>11</td>
<td>91.7%</td>
</tr>
<tr>
<td>Hong Kong stock market</td>
<td>5</td>
<td>100%</td>
</tr>
<tr>
<td>A-share stock market</td>
<td>2</td>
<td>50%</td>
</tr>
<tr>
<td>NEEQ</td>
<td>16</td>
<td>55.2%</td>
</tr>
</tbody>
</table>

Source: Wind, annual reports, Deloitte Research

4.3.2 Most HK and US listed companies implement share incentive schemes before going public

Among all the HK/US listed companies that offer share incentives, 81% opt to implement such schemes before going public.

64% of the companies that have disclosed the date of implementing the scheme started granting shares within one year prior to the public listing. The incentives are mostly given to key management roles and employees.

Most of the companies (16) listed on NEEQ made Employee Stock Ownership Plan before going public, while only 2 did so after the listing. Both of the two companies publicly traded on the A-share market announced the plan after going public.

**Figure 43: Implementation timeline of HK and US listed K12/early childhood education enterprises’ share incentive schemes**

**Figure 44: Implementation timeline of A-share and NEEQ listed K12/early childhood education enterprises’ share**

Note: 13 out of 16 samples listed in Hong Kong and US stock market launched share incentive schemes before public listing, of which 11 have disclosed implementation timeline.

Source: Wind, annual reports, Deloitte Research
4.3.3 US and HK listed K12/early childhood education enterprises tend to implement complex incentives while those listed in the A-share and NEEQ market prefer relatively simple schemes

Figure 45: Comparison of share incentive schemes

![Comparison of share incentive schemes](image)

Source: Wind, annual reports, Deloitte Research

4.3.4 US listed K12/early childhood education enterprises averagely offer 8.85% of the total number of outstanding shares to employees, higher than the percentages offered by companies listed in Hong Kong (3.15%) and the US (2.30%).

Figure 46: Average share incentive ratio (actual shares granted against total number of shares outstanding) of enterprises listed in A-share, Hong Kong and US stock markets

![Average share incentive ratio](image)

Note: Among the samples, 2 of A-share listed companies, 3 of HK-listed companies and 8 of US-listed companies disclosed information about actual shares granted and total number of shares outstanding, and the data includes 16 valid samples listed on NEEQ.

Source: Wind, annual reports, Deloitte Research
4.4 Partnership to be a new trend in education market
Over the past few years, partnership has been increasingly endorsed and applied by the private education industry. Deloitte believes that private education companies need to adopt partnership in a stratified and incremental manner with multiple incentives. For instance, listed companies may use incentive stock options and restricted stock, among other incentive schemes, on the headquarter/group level; unlisted companies may grant incentive equity ownership to employees or management based on mid-term and long-term strategic goals as well as capital operation and planning. Branches of a chain-style business may adopt partnership based on incentive stock scheme or cash reward for key personnel and implement flexible exit mechanism.

Partnerships need to be differentiated with clear paths of entry and exit, and diversified incentive measures.

Figure 48: Possible pathways for partnerships

For listed education groups/ headquarters
1.1 Listed
Incentives include stock options and restricted stock in the publically traded company
1.2 Unlisted
Equity incentives or equity ownership for management based on mid-to-long-term strategy and the company’s capital operations and planning

For branches
2.1 Primary
Implement cash-based partnership that engages core personnel (e.g. school principal, director, regional operational head) while making allowance for differences of branches
2.2 Advanced
Partnership based on ownership of equity in branches granted to key personnel, providing equity ownership exit pathway/mechanism

Source: Deloitte Research
Summary and outlook

The fast-changing business environment presents both challenges and opportunities for private education enterprises. On one hand, the rapidly developing private education industry has expanded the talent pool and channel to attract talents, improving the overall quality of professionals in the sector and opening up an opportunity for those who wish to cross industry boundaries from other fields; on the other hand, the inherent flexibility resulting from marketization of private education enterprises constitutes a critical advantage to conduct talent incentive mechanisms. We believe that, with the refinement of management, complex incentive plans and partnership may become important tools for corporate talent management.

Figure 49: Key areas of consideration in transformation into partnership

<table>
<thead>
<tr>
<th>Differentiation criteria</th>
<th>Entry &amp; exit</th>
<th>Diversification of incentive measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differentiated partnership model according to organizational structure of the company</td>
<td>Clarified entry criteria and exit pathway</td>
<td>Partners are entitled to different levels of benefits</td>
</tr>
<tr>
<td>Number of employees</td>
<td>Senior partner</td>
<td>Share/equity ownership at HQ-level</td>
</tr>
<tr>
<td>Stage in profitability</td>
<td>Medium-level partner</td>
<td>Performance milestone</td>
</tr>
<tr>
<td>Size of income</td>
<td>Junior partner</td>
<td>Share/equity ownership at branch-level</td>
</tr>
<tr>
<td>Positioning</td>
<td></td>
<td>Performance milestone</td>
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<tr>
<td>……</td>
<td></td>
<td>Share the profits from branches</td>
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</table>

Source: Deloitte Research
### Table 8: List of companies surveyed in the report

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<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Code</th>
<th>Name</th>
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<td><strong>A-share(4)</strong></td>
<td></td>
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<tr>
<td>000526.SZ</td>
<td>Xiamen Unigroup Xue</td>
<td>002261.SZ</td>
<td>TalkWeb</td>
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<td>600661.SH</td>
<td>Shanghai Jiao Da Nan Yang</td>
<td>002659.SZ</td>
<td>Kaiwen Education</td>
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<td><strong>NEEQ(29)</strong></td>
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<td>831797</td>
<td>Aileqi</td>
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<td>Dunshan Education</td>
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<td>871748</td>
<td>Thinktown</td>
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<td>Hua Shi Dai</td>
<td>871859</td>
<td>TomorrowEdu</td>
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<td>837491</td>
<td>East &amp; West International Education</td>
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<td>Shandong Dazhi Education</td>
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<tr>
<td>838468</td>
<td>Guanghua Education Group</td>
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<tr>
<td><strong>US stock market(12)</strong></td>
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<tr>
<td>BEDU.N</td>
<td>Bright Scholar</td>
<td>REDU.O</td>
<td>Rise Immersion Subject English</td>
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<tr>
<td>COE.N</td>
<td>51Talk</td>
<td>RYB.N</td>
<td>RYB Education</td>
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<td>China Distance Education</td>
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<td>New Oriental</td>
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<td>ONE.N</td>
<td>Jingrui Education</td>
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<td>FEDU.N</td>
<td>Four Seasons</td>
<td>NEW</td>
<td>Pu Xin Education</td>
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<td>Wisdom Education</td>
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<tr>
<td>01598</td>
<td>21st Century Education</td>
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</table>
V. New management system improves operational effectiveness

By releasing the Law on Promotion of Private Education and a series of other policies, China encourages and guides non-governmental capitals to run schools, advocates education organizations to implement autonomous management, and makes the education industry more market-oriented. Predictably, traditional school management will be more diversified and complicated with the introduction of commercial elements in the education industry, since the past management concepts and operating models purely for education purpose can't meet the current developmental needs anymore. With the participation of social capitals and commercial elements, education organizations expand the binary teaching-learning relationship to a more complicated relationship network, namely an inclusive industrial ecosystem. On the other hand, technological advancement will also usher the education industry into a new stage. The popularization of mobile terminals, communication technology upgrade, the wide application of big data and the evolution of AI-based algorithm will influence the development of education industry profoundly and extensively. In general, compared with traditional public schools, education organizations in the new era have more new traits: enterprise-like operation, diversified participation and digital upgrade.

With capital inflows and explosive growth of the education market, education organizations are prone to lose sight of the forest for the trees, ignore the essence and core of education and adopt short-sighted development strategies for short-term commercial interests. They may also hesitate to embrace new technologies, lost in the trend of digital transformation. Therefore, we think education organizations will face a series of problems including market operation, efficiency improvement and risk control under new circumstances. In order to achieve rapid growth, value increase as well as orderly business expansion, education organizations need to find out the root causes and solve these problems with refined management measures.

By analyzing the relationships among participants in the education industry, we summarize 6 efficiency and risk problems faced by education organizations internally and externally. These problems are mainly caused by unclear operational strategy, the ignorance of product quality and operational efficiency, and the absence of risk response mechanism and practical experience, etc.
5.1 Build core competence
No matter which sub-sector an education organization engages in, the core competence should be content research and development and the experience and effectiveness brought by its educational products. Because of low customer retention rates, it may be difficult for education organizations without core competence to maintain their business models. For example, though favored by capital, many online education organizations don’t focus on developing content and improving teaching quality making it easy to lose customers and fail in a short time. In many cases, due to low customer loyalty and too many homogeneous products, once customers find alternative services or products with lower costs, they would switch to other platforms without any hesitation. What could make customers more loyal to education organizations? The answer lies in quality of research and teaching, strong faculty and considerate services, which are the most important factors to operate education organizations. However, many of them don’t pay enough attention to services such as content, teaching method, class atmosphere, after-class communication, quality feedback and improvement, but allocate much more resources to marketing.

To build core competence, education organizations should focus on three aspects: technology, platform and teachers. Only powerful technical support and strong technical barrier can help maintain core competence in the digital era; based on technical support and deep mining of customer base, education organizations can maintain customer loyalty by establishing one-stop platforms with diversified services and products; finally, only strong and stable teachers team can ensure education organizations to provide high-quality services and products. Other than actively building the core competence, they also need to establish systemic governance framework and implement specific management measures during operation to handle risks such as business loss and low customer loyalty. For example, they could enhance behavior and performance management on teachers, adopt severe penalties, even elimination mechanisms; timely predict
problems when providing services with new technologies; establish collaborative relationship between technological research and business development and fully use new technologies and research resources to promote businesses.

5.2 Control marketing cost
With rising internet marketing costs and stagnant user conversion rate, the average cost of customer acquisition for all agencies has increased from a few dozens of yuan to thousands. There is no doubt that in the first round of student recruitment, education agencies still put in large sums of money for internet traffic and converse it into transaction orders. As a result, many education startups have to continue to raise more funds to fill in the bottomless hole of marketing expenses, which would cause a business landslide if they run out of cash. The ultimate reason why education agencies fail to control marketing costs is their extensive marketing model.

Online education agencies, for example, seldom examine the effectiveness and accuracy of their marketing efforts after spending large amounts buying traffic to obtain name lists, and the decision maker, executor and effect evaluator of marketing strategy are not properly aligned to establish a close loop of marketing strategy management. There is a lack of mechanism in their marketing strategies for post placement review to further optimize accuracy of the model. Thus, online education agencies could not formulate proper evaluation mechanisms for marketing related procurement.

More and more education agencies have realized that they are unable to control the cost as they spend large sums of money in internet traffic, and begin to explore more diverse marketing channels and precision marketing strategy from perspective of cost risk control. They are working to expand traditional offline channels and create more relationship marketing channels, e.g. integrating education related offline institutions and developing more distribution channels. At the same time, they establish a close management loop of marketing placement, optimize the marketing placement model in a dynamic manner and choose marketing channels that are more effective and efficient in acquiring customers.

5.3 Enhance teaching staff management
Education agencies are experiencing even greater challenges and risks than ever in managing teaching staff. For traditional education agencies, especially a great majority of public schools, teachers are actually their own assets and form part of their products. Whether bounded by labor contract or de facto employment, education agencies and teachers share the same interest. However, as more and more new education agencies emerge, the relationship between education agencies and teachers becomes less strong and more flexible. Teachers tend to serve part-time at education agencies, and turnover rate of teaching staff is high due to scarcity of high quality teacher resources in the market and continued poaching from competitors, which would significantly affect the quality of education. In general, it becomes a growing challenge for education agencies to manage their teachers in a new era, and poor management would result in a number of educational quality issues or even risks of students' safety.

Education agencies need to manage teachers through a comprehensive system covering recruitment and admission, training, teaching evaluation, and performance review. When recruiting and admitting teachers, it requires massive fine management efforts to confirm teachers' qualifications, morals and social backgrounds. For online education agencies in particular, their teaching staff are no longer bounded in a physical space and may locate in anywhere in the country or even around the world. As a result, they need to consider factors that are more complex and at the same time promote a unified shared platform of teachers' credit information, with a blacklist mechanism to prevent teachers with problems of misconducts from entering the industry. To ensure teaching quality, education agencies must step up the development of standardized curricula and teaching approach, further enhance the predominance of their own teaching study and contents and weaken the role teachers play in the teaching process via increased standardization of teaching procedures, making teachers reproducible and replaceable.

5.4 Prepare for reputation risks and public relations crisis
As the supervisor of basic education agencies, parents oversee a broad range of activities. Unlike external regulators' supervision, parents' supervision is more comprehensive and deeper as they are highly sensitive to how schools handle issues related to their kids. Education agencies, however, could not watch over and constrain teachers' behavior at all times in their daily operation. Therefore, whether there has been an actual risk issue or merely misunderstanding of communication, ultimately education agencies would have to mediate the dispute as an agent of risk incidents, in order to resolve public relations crisis and mitigate reputation risks. These risks and crisis result from a single major accident or the combination of multiple different accidents, probably leading to severe damages to education agencies' strategic goals, key assets and even the very existence of themselves. Public relations crisis, if not handled properly, could lead to operations being suspended for rectification, huge sums of compensation, or, the worst, collapse of brand image and business failure.
Therefore, it becomes critical for education agencies to establish crisis management systems and improve adaptability to crisis. Starting from top-level governance, crisis management must form part of education agency's sustainable development plan, and the related work should be organized and executed by the management. At policy level, education agencies need to establish a sound crisis management and control system so that both management team and functional departments may follow related policies and management rules and play their parts in handling crisis. A thorough set of measurement metrics and reporting mechanisms are also required to provide a unified standard for the evaluation management's performance in addressing the crisis. Lastly, a long-term accountability mechanism must be set up for the management and used to improve internal management.

5.5 Respond to regulatory changes and compliance risks
The market-oriented development of education industry has long been restricted by state laws and regulations. China is implementing a number of policies, with defined responsibilities and restrictions from perspectives of different authorities, including central and local authorities of education, information technologies (internet education), publicity, industry and commerce as well as human resources, in order to strengthen regulation on the entire education industry. Meanwhile, local governments including Shanghai are also tightening management and regulation over the education industry. As education is a complex systematic project involving education, internet, communication, culture and many other areas, regulators are exploring their way in balancing loosened control and enhanced oversight. Currently, regulation over the education industry is relatively loose in general, but tends to be tightened gradually. Education agencies need to have a clear understanding of regulatory requirements and closely follow regulatory changes, otherwise the regulatory situation would negatively impact their decision making and operations.

To respond to regulatory changes and development trends, it is suggested that education agencies fully understand regulatory requirements and take timely actions to ensure compliance. Fundamentally, education agencies should rationalize internal management structure and business processes, put in place granular management requirements on every step, and benchmark against regulatory requirements. In addition, education agencies may also seek advice from professional organizations to learn about leading industry practices and better balance regulatory compliance and actual business benefits.

5.6 Bring in corporate management thinking
As the management of education agencies covers increasingly broader aspects and scope as a result of the shift towards enterprise-oriented operation, which comprises a wide range of elements from strategic planning, organizational structure and human resources to financial management, risk control, operational management and technical support, the areas beyond reach of managers' hands are also gradually growing, and it becomes increasingly challenging for education agencies to achieve proper balance of power, responsibilities, and interests. Specifically, enterprises may struggle with a number of problems, including undefined strategic development goals, ambiguous lines of organizational structure, unclear power and responsibilities, inadequate coverage of management system, and defective governance mechanisms, which would hinder their growth.
For most private education start-ups, they must establish an effective and flexible self-loop type of management mechanisms for the execution of management strategy and enhancement of management during high-speed growth of the enterprise. Based on the actual situation, education agencies may improve their management by balancing efficiency and control, enhancing management of planning and execution, defining the positions and management responsibilities of internal functions, emphasizing on performance goals-oriented development, prioritizing profit distribution, identifying key risk areas and developing self-adjusting management mechanisms. However, for non-profit education institutions, public schools in particular, as they are not financed by their own funds and aim to maximize social benefits instead of profits, the primary goal of management is to enhance internal management, maximize the social value of each penny spent and prevent noncompliance and fraud risks. It is also very important for these institutions to establish fine and effective internal management systems. So far, the Basic Standards of the Ministry of Finance on Internal Controls of Administrative and Public Institutions, Guidelines of the Ministry of Education on Internal Controls of Colleges and Universities Directly under the Ministry of Education, and other regulations have all put forward framework requirements for the management of public colleges and universities. In actual management and control process, non-profit education institutions should focus on enhancing the management of revenue and expenses, tightening internal and external supervision and preventing related risks.

**Conclusion**

In order to stay ahead of competition in a new age and achieve final success, education agencies need to consider how they could establish core competitiveness, including differentiated products and services as well as standardized courses and teaching staff to build up competitive edges not easy to replicate. At the same time, they also need to externally develop and maintain streams of students with a corporate customer relationship management mindset to improve student loyalty; internally design and establish efficient operation model and develop sound systems of fine management and risk control to ensure continued growth and value increase.
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Fax: +86 512 6762 3338 / 3318

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A New Era of Education

III. New applied technologies have penetrated into the education industry
III. New applied technologies have penetrated into the education industry
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