2017 Deloitte Hong Kong Technology Fast 20 Research Report
To lead or to follow? Digital acceleration

Deloitte Research
Growth Enterprise Market & Services
September 2017
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Program Background

2017 Deloitte Hong Kong Technology Fast 20 Program ("Hong Kong TF20"), a sub-program of Deloitte China Technology Fast 50 Program ("China TF50"), is jointly hosted by Deloitte, together with Hong Kong Cyberport Management Company Limited ("Cyberport") and Hong Kong Science and Technology Parks Corporation ("HKSTP"). Once an enterprise achieves Hong Kong TF20, it automatically becomes eligible for entry to the China TF50 Program to compete with their peers across China.

Over the years, many companies of the Deloitte Technology Fast 50 ("TF50") have emerged to become global technology giants, with notable winners including Apple, Google, Facebook, Baidu, Alibaba, Tencent, Jingdong and Qihoo 360. As most of the TF50 companies were at their early growing stage when ranked, TF50 Program is also considered as the "Cradle of Rising Stars". China TF50 Program has become an important part of Deloitte Technology Fast 500 Asia Pacific Program, and companies achieving China TF50 ranking will automatically become candidates of Deloitte Technology Fast 500 Asia Pacific Program.

Eligibility

"2017 Deloitte Hong Kong Technology Fast 20 Program" announces Hong Kong TF20 companies according to the revenue growth rate of the past three years. This program opens to the technology, media and telecommunications (TMT) industries of candidate companies. The following criteria must be satisfied:

- Three years of business operation
- Headquarters based in Hong Kong
- Companies need to have achieved at least HK$ 1,000,000 in operating revenue during the first year of the analyzed three years
- Companies need to have proprietary intellectual property or proprietary technology and it brings significant operating revenue
Program Background

Diamond Sponsors

Chinney Shun Cheong Holdings Limited
Stevenson, Wong & Co.

Strategic Partners

Cyberport
HKSTP

Advisory Partner

ASTRI

Supporting Organisations
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<th>Rank</th>
<th>Company Logo</th>
<th>Company Name</th>
<th>Industry</th>
<th>Growth Rate</th>
<th>Company Profile</th>
</tr>
</thead>
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<tr>
<td>1</td>
<td>WeLab Holdings Limited</td>
<td>Financial Technology</td>
<td>7130%</td>
<td>Online lending platform, including mobile loan platform &quot;WeLab&quot; operating in the Mainland and online lending platform &quot;WeLend&quot; operating in Hong Kong.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>SenseTime Group Inc.</td>
<td>Software-AI</td>
<td>3636%</td>
<td>To use self-built in-depth learning supercomputer to develop multiple AI technologies for application in face recognition, video analysis and aided driving, etc.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>GoGo Tech Holdings Limited</td>
<td>Internet-E-commerce</td>
<td>3091%</td>
<td>A city-wide freight and logistics platform incorporated in Hong Kong, and combined with &quot;58 Suyun&quot; under &quot;58 Home&quot; in 2017.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>MoneyHero Global Limited</td>
<td>Financial Technology</td>
<td>1417%</td>
<td>The largest platform of financial products in Hong Kong for comparison of credit cards, travel insurance, medical insurance, personal loans and mortgages.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>WeiGang Holdings (Hong Kong) Limited</td>
<td>Clean Technologies</td>
<td>1090%</td>
<td>Engaged in environmental engineering and technical consulting, design, research and development and engineering construction services. The leading supplier of incineration solutions of hazardous wastes in the industry.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Prive Services Limited</td>
<td>Financial Technology</td>
<td>982%</td>
<td>A comprehensive wealth and asset management platform providing consulting engine service through proprietary bionics techniques</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Cyber Games Arena Limited</td>
<td>Internet-Media</td>
<td>786%</td>
<td>A platform for organization of Hong Kong cyber games, which is engaged in hosting and relaying cyber games.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>TFI Digital Media Limited</td>
<td>Software-Digital Media</td>
<td>468%</td>
<td>One-stop video solutions provider, of which the products including real-time video live, video coding and online video platform, etc.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Marvel Digital Limited</td>
<td>Hardware</td>
<td>434%</td>
<td>Devoted to researching and developing 3D products, and providing one-stop 3D contents producing, conversion and management services</td>
<td></td>
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<tr>
<td>10</td>
<td>MAD Mobile Application Development Limited</td>
<td>Software-Application Development</td>
<td>412%</td>
<td>Hong Kong mobile phone application developer</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>AfterShip</td>
<td>Internet-E-commerce</td>
<td>209%</td>
<td>Third party logistics service provider, providing one-stop tracking and management services for international</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>51wm Company Limited</td>
<td>Internet-E-commerce</td>
<td>147%</td>
<td>Integrated ordering and takeaway management system, providing takeaway orders management business for the operation of food and beverage chain enterprises</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Prenetics Limited</td>
<td>Life Science</td>
<td>110%</td>
<td>Genetic testing company, of which the products include non-invasive prenatal testing (NIPT) and adverse drug reaction testing, etc.</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Skytree Digital Limited</td>
<td>Software-Application Development</td>
<td>98%</td>
<td>Hong Kong mobile game developer</td>
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<tr>
<td>#</td>
<td>Company Name</td>
<td>Industry</td>
<td>Percentage</td>
<td>Description</td>
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<tr>
<td>15</td>
<td>Buyippee</td>
<td>Internet-E-commerce</td>
<td>85%</td>
<td>Provide one-stop global purchase and freight services to solve international transport issues</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>MYDRESS HOLDINGS LIMITED</td>
<td>Internet-E-commerce</td>
<td>71%</td>
<td>Fashion online shopping platform</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>KBQuest Hong Kong Limited</td>
<td>Software</td>
<td>68%</td>
<td>Provide IT consulting, system integration and software development services. Many years of experience in mobile solutions and design and development of</td>
<td></td>
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<tr>
<td>18</td>
<td>iLearners OpenPage Limited</td>
<td>Media-Education &amp;</td>
<td>64%</td>
<td>Publisher for comprehensive textbooks of moral education and citizenship education in Hong Kong</td>
<td></td>
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<tr>
<td>19</td>
<td>EFT Solutions Limited</td>
<td>Business Application</td>
<td>51%</td>
<td>Provide electronic payment terminal solutions, including electronic payment terminals, support service for electronic payment terminal systems and solution service for software customization</td>
<td></td>
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<tr>
<td>20</td>
<td>JAG Ideas Company Limited</td>
<td>Internet-E-commerce</td>
<td>24%</td>
<td>Internet advertising company, providing online advertising services for brand owners or advertising agencies</td>
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## 2017 Deloitte Hong Kong Rising Stars

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<tr>
<th>Company Logo</th>
<th>Company Name</th>
<th>Industry</th>
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<tbody>
<tr>
<td>Klook</td>
<td>Klook Travel Technology Limited</td>
<td>Internet-E-commerce</td>
</tr>
<tr>
<td>TNG</td>
<td>TNG (Asia) Limited</td>
<td>Financial Technology</td>
</tr>
<tr>
<td>Sanomics</td>
<td>Sanomics Limited</td>
<td>Biotechnology/Healthcare</td>
</tr>
<tr>
<td>GRST Energy</td>
<td>GRST Energy Limited</td>
<td>New Energy</td>
</tr>
<tr>
<td>Ribose</td>
<td>Ribose Group Inc.</td>
<td>Cloud Platform</td>
</tr>
<tr>
<td>Magnum</td>
<td>Magnum Research Limited</td>
<td>Financial Technology</td>
</tr>
<tr>
<td>IOE</td>
<td>IOE Technologies Limited</td>
<td>Software/Hardware</td>
</tr>
<tr>
<td>Origami</td>
<td>Origami Group Limited</td>
<td>Consumer Electronics</td>
</tr>
<tr>
<td>Sonikure</td>
<td>Sonikure Technology Limited</td>
<td>Biotechnology/Healthcare</td>
</tr>
<tr>
<td>Grand Leader</td>
<td>Grand Leader Technology Limited</td>
<td>Internet-E-commerce</td>
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Overview of Hong Kong Economics and Innovation Environment

With the recovery of global economy, the situation of labor market is getting better and the improvement of economic boom has stimulated the increase in local consumer demand. In the first half of 2017, Hong Kong economy apparently rebounded, with an increase rate of 4%. Previously, the economy of Hong Kong, as the center of entrepot trade, was seriously frustrated due to sluggish external demand environment caused by global economic downturn and slowdown in inland economic growth. In 2016, the economic growth rate in Hong Kong was slowed to 1.9%. With the strengthening of economy and weakening of external downside risks, many institutions in Hong Kong have also raised their annual economic growth rate from 2-3% to 3-4%.

Figure 1: Economic Growth Comparison between Hong Kong and Other Asian Countries

Since the 1990s, Hong Kong has gradually formed four economic pillar industries of financial services, trade and logistics, tourism, professional services and industrial and commercial support services, of which the output value accounts for nearly 60%¹ of Hong Kong GDP (as shown below). External demand and interest rate changes are largely related to Hong Kong's economic trends due to its outward nature and economic characteristics of high sensitivity to capital flows.

¹ Hong Kong Trade Development Council
Prosperous Financial Industry

As one of the international financial centers, financial industry plays a decisive role in the prosperity of Hong Kong economy. Since 1997, the share of financial service industry in Hong Kong's GDP has increased from 10% to 17.6% in 2015. Despite the sharp fluctuations in financial markets, the growth rate was significantly faster than the overall economic growth, which was a relatively stable support during the downturn in Hong Kong. Among them, banking industry was an important pillar industry in financial service industry, of which the growth accounted for up to 60% in the entire financial service industry. As at the end of 2016, there were a total of 195 approved banking institutions and 57 representative offices of foreign banks in Hong Kong, and about 70 of the top 100 banks in the world were operating in Hong Kong. The total amount of banking loans increased from HK$ 4.1 trillion at the end of 1997 to HK$8.5 trillion in April 2017; the total assets of Hong Kong banks increased from HK$ 6.5 trillion in 2003 to HK$ 20.7 trillion in 2016.

Thanks to Hong Kong's highly free and open capital environment, the market of securities industry has become one of the most active and liquid markets in the globe. The size of securities market transactions increased from HK$ 3.8 trillion in 1999 to HK$ 32.8 trillion in 2016 and once exceeded HK$ 50 trillion in 2015.

Hong Kong has become one of the most developed insurance markets in the Asia-Pacific region, with a high level of premium per capita. As at the end of March 2017, there were a total of 160 authorized insurance companies in Hong Kong, of which 94 were engaged in general business, 47 in long-term business and the remaining 19 in comprehensive business. The gross premium of general insurance business in Hong Kong increased from HK$ 19.58 billion in 1997 to HK$ 45.98 billion in 2015. The total premium of long-term

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Overview of Hong Kong Economics and Innovation Environment

effective personal life insurance policies increased from HK$ 23.01 billion in 1997 to HK$ 309.29 billion in 2015.

**Bottom-out of Retail Industry**

Hong Kong retail industry has signs of recovery. Since March this year, Hong Kong's retail sales have rebounded to HK$ 35.7 billion, with an increase of 3.1% YoY, ending a 24-month decline. After a 3-month period of slight increase, the decline of the total retail sales value in the first half of the year fell to less than 1%. Hong Kong's retail industry has remained in the downturn in the past two years and is showing signs of recovery this year, mainly due to the increase in consumption of visitors to Hong Kong and local residents. In the first half of this year, the number of visitors to Hong Kong increased by 2.4%. The turnaround of Hong Kong's economic situation also strongly boosted the consumption of local residents and further accelerated the recovery of retail industry. In the job market, the unemployment rate in Hong Kong remained at 3.1% in the first half of the year, basically in the state of full employment. In capital markets, the real estate market and stock market in Hong Kong this year are doing well, especially the stock market, outperforming the globe with two-year highs. The wealth effect of capital market has also stimulated local consumption. At the same time, the retail industry in Hong Kong has also begun to break through, including the development of Mainland-oriented cross-border E-commerce, the transfer from traditional business districts to industrial zones and living quarters and follow the transformation of tourism industry, which provide a more diversified support to the recovery of retail industry.

**Slow Growth of Emerging Industries**

With the rise of the global knowledge economy and technological innovation tide, the HKSAR Government proposed in 2009 to develop six competitive industries, including culture and creativity, healthcare, education, innovation and technology, testing and certification, and environmental protection, which were considered as Hong Kong's new economic growth points. However, the development of these six emerging industries is slow, of which the contribution to Hong Kong's economic growth and structural transformation was insignificant, since the investment of Hong Kong Government in scientific research is limited and Hong Kong's industrial structure is relatively solid, which takes up the important resources of funds, talents and land that are necessary for innovation, resulting in a weak impetus in Hong Kong's overall innovation. From 2010 to 2015, the proportion in GDP of the growth of these six industries increased by only 1% (from 7.9% to 8.9%). According to the growth rate of each subdivided industry, the growth of the remaining four industries had somewhat declined except that the healthcare industry and testing and certification industry remained a high growth rate, where the cultural and creative industries with large output value even had a negative growth in 2015 and the proportion in GDP of its growth fell to 4.7% correspondingly. (As shown below)

3 http://www.sohu.com/a/153977835_481887
4 China securities journal www.chinanews.com/cj/2017/08-07/8297967.shtml
Figure 3: Annual Growth Rate of Six Emerging Industries in Hong Kong (2013-2015)

Cultural and creative industries  Healthcare industry
Education industry  Innovative technology industry
Testing and certification industry  Environmental industry

Strong Overall Competitiveness but Prominent Disadvantage of Innovation Capability

- Insufficient Government Capital Investment in Scientific Research

According to the "Global Competitiveness Report 2016-2017" published by the World Economic Forum, Hong Kong is ranked 9th in 138 economies across the world because of its complete infrastructures, efficient and stable financial sector with sound credit mechanism, excellent commodities and labor market. Despite that the overall competitiveness is ranked among the top few, Hong Kong has been weak in respect of innovative eco-indicators in recent years, especially in technology application, potential market size, business dynamics and innovation capability. The report indicates that the problem of Hong Kong lies in the lack of competitiveness of innovation and the ranking of either Government-Industry-University-Institute collaboration, corporate R&D investment, supply of high-quality scientific research institutions and high-end innovative talents, or government procurement of innovative technologies, is after 20. By comparing with other developed economies in Asia, the disadvantage of Hong Kong's competitiveness of innovation is more prominent, especially the government and corporate investment in scientific research. Over the years, Hong Kong's research and development expenditures have remained at around 0.7% of its GDP, while the ratio of developed economies is more than 2%. The investment in scientific research by Japan and South Korea, with strong power in technology and innovation, has achieved 3.3% and 4.2% of GDP respectively. (As shown below)
Overview of Hong Kong Economics and Innovation Environment

Figure 4: Proportion of R&D Investment in GDP of Hong Kong and Other Regions

Data source: World Bank

- **Lack of Soil for Technology Innovation**

A comprehensive innovation system includes governmental policy support, tax preferential policies, technology innovation infrastructures, comprehensive financing system, and supply of high-quality scientific research institutions and sufficient talents. Innovation system in Hong Kong is still at its primary stage of development and is confronted with multiple challenges. As a global financial center, the financial industry in Hong Kong is highly developed, having a plenty of talents and capitals; for example, there are 13,000 business students graduating from colleges and universities in Hong Kong, in which only 700 are scientific research graduates. Shortage of talents is a big problem for scientific research development in Hong Kong. Comparing to the adjacent city-Shenzhen, Hong Kong has high-quality resources of colleges and universities and basic scientific research strength. However, Hong Kong Government is far behind in respect of attracting and maintaining foreign talents, which is a major obstacle impeding the improvement of Hong Kong's technology innovation capability. Additionally, Hong Kong is also deficient in purchasing local innovative products and services and supporting technology innovation enterprises to develop overseas market. Not only the government's financial support to technology innovation is limited but the investment in scientific research by scientific research institutions, colleges and universities and private companies is also at a relatively low level. Meanwhile, the sense of entrepreneurship is weak and the sense of risk aversion is strong in Hong Kong. In comparison to the high risk and uncertainty of starting a business, college/university graduates prefer traditional competitive industries, such as financial and real estate industries. More importantly, the weakest link in Hong Kong's entrepreneurship ecosystem lies in the lack of angel investors and venture capital institutions for high-quality early-phase projects. Moreover, since there has been no unicorn in Hong Kong for a long time, the angel investors'/VC's prospect of making profit and withdrawal is pessimistic. As a result, investment

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5 https://www.ourhkfoundation.org.hk/zh-hant/insight
institutions are more cautious. Targeting investment in mature project has limited the development of newly-established enterprises with growth potential.

- **Continuous Improvement of Innovation Environment**

In recent years, Hong Kong's innovative business environment has been gradually improved. As the economic growth significantly slows down and the pressure of Hong Kong's economic restructuring has increased sharply, accelerating technology innovation and landing, speeding up transformation and upgrading of traditional industries and creating new economic growth points have become the new political issues of Hong Kong Government. At the end of 2015, the Innovation and Technology Bureau was finally established after a three-year difficult period. In January 2017, HKSAR Government and Shenzhen Municipal Government signed a memorandum to develop LMC Loop of Hong Kong to be Hong Kong-Shenzhen Innovation and Technology Park, of which the land area was 4 times of the existing Science Park, to make up the shortfall in start-up business incubation and innovation infrastructures. In June, the Hong Kong Stock Exchange issued listing framework amendment suggestions to attract technology innovation companies to list in Hong Kong for fund-raising. According to the orientation of Hong Kong government policies over the years, to encourage Government-Industry-University-Institute collaboration is a major trend. Hong Kong colleges and universities have leading research teams and strength, but the progress of scientific research transfer and commercialization of research results is slow. Over the past year, Hong Kong has made positive progress in Industry-University-Institute collaboration, fiscal stimulating technology innovation, and establishing cascade financing platforms for start-up enterprises, including Guangzhou-Hong Kong Stem Cells and Regenerative Medicine Research Center established by Guangzhou Institute of Biomedicine and Health (GIBH), Chinese Academy of Sciences in Science Park, Hong Kong Entrepreneurs Fund launched by Alibaba with HK$ 1 billion, and Hong Kong X-Tech Startup Platform led by Sequoia Capital, etc. Meanwhile, in the new policy plan, Hong Kong Government planned to invest HK$ 18 billion to support technology innovation and to provide tax and financial preferences and other policies to support and attract Hong Kong and domestic and overseas start-ups. In order to encourage more funds to be invested in Hong Kong's innovative technology start-up enterprises, Hong Kong Government announced HK$ 2 billion venture capital matching fund in September this year to invest in Hong Kong's local innovative technology start-up enterprises together with private venture capital funds at an investment proportion of 1:2 and to help universities establish start-up enterprises and transform research results through the Funding Program for University Science and Technology Start-up Enterprises, so as to support the ecological development of innovative technologies.
Figure 5: HKSAR 2016-2017 Policy Address-Financial Support Plan for Technology Innovation Industry

- Increase WIFI hotspots: HK$500 million
- Cyberport’s investment budget for start-up enterprises: HK$200 million
- SME technology voucher scheme: HK$500 million
- Expansion of HK Science and Technology Park: HK$4.4 billion
- Venture capital matching fund: HK$2 billion
- Encourage mid-stream and application research of universities: HK$2 billion
- Develop advanced manufacturing industry and data center in Tseung Kwan O Industrial Estate: HK$8.2 billion

Data source: 2016-2017 Policy Address
Results of CEO Questionnaires

Deloitte distributed CEO Questionnaires during the TF20 Program and gained insight into the development process and the opportunities and challenges of high-tech companies through visits. Deloitte worked out the 2017 Deloitte Hong Kong Technology Fast 20 Survey Report by summarizing and analyzing the feedback from CEO Questionnaires in combination with field interviews.

Industry distribution: Internet companies account for the largest proportion of 35%, including innovative enterprises, such as E-commerce and O2O enterprises; the second largest is software industry, including artificial intelligence, mobile application development and enterprise-class custom software developers, accounting for 25%. In addition, companies engaged in financial technology, life sciences and hardware are also in the list.

Operating income: The group of enterprises whose annual operating income falls within 10-50 million Hong Kong dollars is the largest, accounting for 40%, and the group of enterprises whose annual operating income falls within 50-100 million Hong Kong dollars and 100-500 million Hong Kong dollars is the second, accounting for 25% respectively.

Figure 6: Distribution of Operating Income Samples  Figure 7: Industry Distribution of Sample Enterprises

![Diagram showing distribution of operating income samples.]

- HK$ 100-500 million: 25%
- HK$ 50-100 million: 25%
- HK$ 10-50 million: 40%
- Below HK$ 10 million: 10%

![Diagram showing industry distribution.]

- Internet: 35%
- Software: 25%
- Hardware: 15%
- Life Science: 5%
- Media: 5%
- FinTech: 5%
- Others: 10%
Strategic Thinking about Digital Acceleration of High-Tech Enterprises

At present, the global economy is stepping into an era of digital wisdom. The manufacturing industry led by developed countries in Europe and North America is recovering and targeting on high-end manufacturing market in combination with the Internet. Meanwhile, Asian economies are also involved actively to improve productivity and develop new business channels through the investment in digital infrastructure. Digitalization participants will have the opportunity to cross development barriers, especially for non-resource intensive economies focusing on services, digitalization will provide new growth points for economic development.

In Hong Kong, the current economic growth impetus is weak, overall economic structure is seriously solidified, industrial transformation channel is narrow and competitive advantage is relatively weakened. Hong Kong Government has made it clear that the next step is to refigure its functional advantages through restructuring. And digitalization construction will be one of the effective ways to build core competitiveness of Hong Kong enterprises, and Hong Kong has established a significant advantage in the construction of digital infrastructure: world-leading and developed information communication infrastructure.

From fragmented data to big data, from traditional computer room to cloud computing, from unilateral market to platform economy and from PC to mobile internet, digital economic infrastructure is developing at a surprising rate. In recent years, emerging digital technologies, such as VR, IOT and AI, have also been constantly integrated into the links of enterprise value chain. We believe that digitalization will have a significant impact on the driving force of economic development, business model of traditional industries, corporate organization and technology innovation. In addition, government departments, business enterprises and internet companies accumulated massive data and information; how to break these data silos, establish a shared data platform and dig out business opportunities behind these "sleeping" data will become a driving force of their future development.

In the context of all industries confronting with the impact of digital tide, the way for high-tech and high-growth enterprises to achieve further development is more worthy of attention. In response to the questionnaire survey and interviews with COOs of Hong Kong enterprises, Deloitte will analyze how high-tech companies will deal with challenges to promote their own growth and further to drive economic development in the era of digital economy from the perspective of enterprises.
1. HK enterprises' attitude to the prospect of technological change is cautious

According to the survey, almost half of the companies believe that technological change will grow exponentially over the next decade and exceed the historical level of their industry; 41% of the enterprises believe that the speed of technological change will be accelerated unexpectedly; about 7% of the enterprises believe that the speed of technological change will remain constant or be accelerated slowly. In contrast, Hong Kong's high-tech and high-growth companies are more conservative and cautious about technological change.

**Figure 8: Development Speed of Technological Change up to 2025**

- Accelerate faster, even faster than the historical level of other industries: 48.8%
- Accelerate at an unexpected speed: 41.5%
- Remain unchanged: 4.9%
- Others: 2.4%
- Accelerate slowly: 2.4%
Despite the relatively conservative expectations of the development process of technological change, Hong Kong's high-tech and high-growth companies believe that digitalization is of great significance to enhance the competitiveness of companies. The survey shows that nearly 80% of the respondents believe that technical means, including AI, VR and big data, may have a great or even subversive impact on the competitiveness of companies in the future. The survey also proves that digitalization on one hand brings great impact and risk of subversion to traditional business; on the other hand, it also contains great opportunities of the rise of new enterprises and the restructuring of industries.

Figure 9: Key Data Variables Deciding Competitiveness of Enterprises

2. Application of digitalization by HK enterprises is at the development phase

In the context of a severe oversupply, higher production rates and lower product costs have been unable to show that an enterprise is at the leading position. In the era of digital economy, the competitiveness of enterprises is more in the research of potential needs of consumers and accurate services. Therefore, it will very difficult for enterprises to rely solely on traditional consumer insight tools; they need to track and analyze the consumers’ massive behavioral data and customary models on the Internet, including social network, E-commerce platform and trading institutions, to find the relevance behind, understand and predict the potential needs of consumers, or even to dig out new needs from the pain points in inherent business models or services, so as to open up new markets.

The questionnaires indicate that nearly 37% of the enterprises have begun to understand customer behaviors and potential needs and enter into self-optimizing cycle based on real-time data; the other one-third of the companies are setting out to systematically collect and analyze more customer data and establish personalized solutions. Nearly 17% of the enterprises obtain more customer information through digital technology, but only limited to purchase behaviors and basic information. Only 2.8% of the companies have not yet entered into the phase of digital customer experience.
Digitalization will further affect corporate competitiveness. The mature digital customer experience is based on the establishment and maintenance of a better digital operation platform. According to our survey, over 70% of the enterprises may have mature digital platform operation and have already achieved digital asset security and initiative response strategies to ensure information security and possibly have set up a complete and extendable core technology platform; 13.9% of the enterprises have started to deploy standard-based core business integration platform to realize the standardized development of information security measures and process; 9.7% of the enterprises have started to build core technology platform and service of digital operation. Overall, the development of digital platforms of Hong Kong's Hi-tech and high-growth enterprises tends to be mature, because it is directly connected with Hong Kong's complete communication and IT infrastructure services to some extent.
The status quo of the development of digital customer experience and development of digital operation platform reflects correspondingly a company's digital strategy. According to the questionnaires, approximately 37% of the enterprises have made digital development the top priority; respectively, 25% of the enterprises are investing significantly and focusing on the weight and feedback of digital business, or promoting the development of digital customer experience and working on a clear and measurable approach to the effect of implementation; almost 10% of the enterprises have considered to promote the development of digital business without putting investments and priority.

**Figure 12: Importance of Digitalization to the Management**

- The development of digitalization enjoys top priority in the company, leading and driving the development of the whole industry: 36.5%
- The management invests vigorously and pays active attention to the weight of and feedback on the development of digital business: 25.4%
- The management promotes the development of digital business and puts forward a clear and measurable approach to the effect of implementation: 25.4%
- The management has considered to promote the development of digital business but fails to invest large amount of resources to make it a priority: 9.9%
- Others: 1.4%
- The management has not prepared a clear strategy to drive the development of digitalization: 1.4%
Organizational construction of digitalization, as the accelerator for the development of digital strategy, is currently in a gradual deepening process among Hong Kong enterprises. The survey shows that 38% of the enterprises have started to actively deploy digital business and achieve the sharing of digital support and skills in the whole company; almost 22% of the enterprises have already involved digital skills in each unit and level so as to achieve the self-optimizing cycle; 12% of the enterprises have started exploration in digital business and introduced experts for guidance; nearly 7% of the enterprises have no clear organization and skills for the development of digital business in the current stage.

**Figure 13: Distribution of Digital Organization in the Company**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actively deploy digital business and realize the sharing of digital support and skills in the whole company</td>
<td>38.5%</td>
</tr>
<tr>
<td>Involve digital technology and skills in each unit and level of the organization to achieve self-optimizing cycle.</td>
<td>21.9%</td>
</tr>
<tr>
<td>Carry out internal orientation training and employ external experts for the operation of digital products and business</td>
<td>20.5%</td>
</tr>
<tr>
<td>Establish a digital organization in core departments to explore digital business and introduce experts for guidance</td>
<td>12.3%</td>
</tr>
<tr>
<td>No clear organization and skills for the development of digital business and no training support</td>
<td>4.1%</td>
</tr>
<tr>
<td>Others</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

Digital transformation, on the one hand, represents the connection of various types of data in the entire life cycle of an enterprise, including upstream and downstream suppliers, related parties, sales channels (physical stores and network platforms) as well as customer contact terminals (PC, mobile phones, smart devices, etc.), and on the other hand, it also involves interchanges of multivariate data, covering both independent and closely related data information of business streams, logistics and cash flows of enterprises. For technology innovation SMEs having no ability in data platform deployment or data acquisition and mining, how they make use of big data tools of Internet giants or tools provided by a third party will have impact on the depth and breadth of the company's big data strategy.

According to the survey, over 60% of the enterprises have included digitalization in the ecosystem of the entire company and have started the innovation of main business model, or have even boosted the balanced development between the industrial
ecosystem and technical progress; nearly 17% of the enterprises are actively conducting cooperation and innovation in some areas, but their connections with external digital ecosystem is inadequate; and the rest of the enterprises have fallen behind, mainly cooperating in non-core business areas or still being in the development stage of simple partnership.

Figure 14: Status Quo of the Company's Digital Ecosystem Construction

- Drive and lead the balanced development between the ecosystem of the industry and technical progress, and jointly develop the innovation of business models (37.5%)
- Started to innovate main business models with a clear positioning in the whole ecosystem (25.0%)
- Actively conduct cooperation innovation in some areas, but with inadequate connection with external digital ecosystem (16.7%)
- Seek peer and cross-border assistance and conduct cooperation mainly in non-core business areas (13.9%)
- At present, the partnership with suppliers and channels is simple, focusing on traditional business and transactions (6.7%)

3. Digital acceleration is faced with challenges

Enterprises will inevitably meet challenges in implementing digital development strategy and the primary challenge for the respondents (63.4%) is the balance between innovation and supervision, which highlights the contradiction between enterprises driving innovation with data and maintaining existing business; the second most troublesome issue for companies is the combination of know-how and software, and 41.5% of the enterprises have checked this item. Other challenges include inadequate budget or investment (26.8%), technological development difficulties (26.8%), data security or hidden dangers (24.4%) and enterprise strategy and execution (19.5%). All these data have proved the importance of enterprises' soft power in digitalization as enterprises tend to have misunderstandings and improper application of data. One typical example is that enterprises have stored and accumulated massive data while having no capability of understanding, digging and using the data to promote innovation, enhance risk control and decrease operating cost.
Strategic Thinking about Digital Acceleration of High-Tech Enterprises

Digitalization is rapidly penetrating in the production, operation, sales and after-sales service of enterprises, and thus how to extract useful information of regular pattern from random data strings to help decision-makers learn about consumer demands, forecast market trend, prevent risk of loophole is of great significance to high-tech and high growth enterprises.

In the survey, many Hong Kong enterprises have very high expectations for the differences that digitalization will make to them in the next two years. 46.3% of the enterprises believe deepening digitalization can enhance its overall competitiveness in the next two years; another 46.3% of the enterprises consider that it will accelerate innovation and generate unknown impact; 39% of the enterprises believe that it will help understand customers’ using behaviors better; and there is also some enterprises holding the idea that deepening digitalization will improve the quality of products and services in the next two years (36.6%); help obtain insights in new products and new markets (31.7%), improve operational efficiency of the enterprise (24.4%) and improve service efficiency of resources (12.2%).

Figure 15: Challenges of Companies in Digital Acceleration

- Balance between innovation and supervision: 63.4%
- Deep combination of know-how and softwares: 41.5%
- Inadequate budget or investment: 26.8%
- Technological development difficulties: 26.8%
- Data security and hidden dangers: 24.4%
- Restrictions on enterprise information system and infrastructure: 22.0%
- Difficulties in system acquisition and analysis of data: 22.0%
- Enterprise strategy and execution: 19.5%
- Others: 17.1%
- Lack of digital culture in the company: 9.8%
Strategic Thinking about Digital Acceleration of High-Tech Enterprises

Figure 16: Impact of Deepening Digitalization on Enterprises in the Next Two Years

<table>
<thead>
<tr>
<th>Impact Area</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve the overall competitiveness of the enterprise</td>
<td>46.3%</td>
</tr>
<tr>
<td>Accelerate innovation and generate unknown effects</td>
<td>46.3%</td>
</tr>
<tr>
<td>Better understanding of customers' using behaviors</td>
<td>39.0%</td>
</tr>
<tr>
<td>Improve the quality of products and services</td>
<td>36.6%</td>
</tr>
<tr>
<td>Obtain insights in new products and new markets</td>
<td>31.7%</td>
</tr>
<tr>
<td>Improve operational efficiency of the enterprise</td>
<td>24.4%</td>
</tr>
<tr>
<td>Saving resources and energy or improve service efficiency of resources</td>
<td>12.2%</td>
</tr>
<tr>
<td>Others</td>
<td>4.9%</td>
</tr>
</tbody>
</table>

Asked about data capabilities that enterprises most need to improve, the enterprises have different investment options. 75.6%, 68.3% and 63.4% of the enterprises have selected to improve functionality, application ability and data analysis and computing abilities respectively, which indicates that they will purchase data analysis tools, adopt more data application trainings and purchase hardware. The survey result has once again explained the importance of soft power for digital development; more companies choose to improve digital technology (e.g., application ability, analysis ability and functionality).

Figure 17: Investment Options for Companies to Improve Digitalization in the Next Two Years

<table>
<thead>
<tr>
<th>Investment Option</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve functionality (e.g., purchase data analysis tools)</td>
<td>75.6%</td>
</tr>
<tr>
<td>Improve application ability (e.g., more data application trainings)</td>
<td>68.3%</td>
</tr>
<tr>
<td>Improve data analysis and computing abilities (e.g., purchase hardware)</td>
<td>63.4%</td>
</tr>
<tr>
<td>Improve mobility (e.g., purchase more mobile terminals)</td>
<td>41.5%</td>
</tr>
<tr>
<td>Improve data storage capacity (e.g., purchase servors or server space)</td>
<td>26.8%</td>
</tr>
<tr>
<td>Others</td>
<td>4.9%</td>
</tr>
</tbody>
</table>
Prospect of Digital Acceleration in High-Tech Industries of Hong Kong

Digital Transformation Opportunities for Traditional Competitive Industries

To take financial industry (a traditional competitive industry) as an example, commercial banks have accumulated massive transaction data and credit data. How to use these structural data to improve operation efficiency of enterprises and increase the ability in risk resistance (e.g., anti-fraud) is of great strategic importance to banks. Meanwhile, internet companies like social networks and E-commerce have stored and accumulated multi-dimensional and nonstructural data of customer behaviors and identity characteristics; financial institutions will focus more on the application of digital tools to accurately and efficiently capture, filter, clean, dig and analyze these data to provide a strong support for decision-making and innovation of enterprises. Furthermore, for the traditional banks in pursuit of scale economy, big data technology can also be adopted to involve in those previously ignored long tail demands, such as SME loans, micro-credit and P2P finance, of which the returns don’t match the risks, or even to open up new financial forms through technology innovation.

Digital Transformation Boosted by Strategy Rather Than Technology

MIT Sloan Management Review and Deloitte Digital Business Research Department find that the power of digital technologies (social media, mobile network, data analysis and cloud computing) lies not in an individual technology, but in how enterprises will integratedly apply these technologies to transform their business and work pattern. In addition, the difference between digitalization leaders and other leaders is that digitalization leaders need to have a clear digital strategy while combining it with the culture and leadership boosting digital transformation.

Only a clearly defined digital strategy may take the lead in the digital transformation, promising to be the talent of times in the digital era. A digital leader shall bear in the mind of the digital strategy distinctively, driving for the combination of digital transformation and leadership. These are endless examples in enterprises’ failures, which can be attributed to their over emphasis on the technology progress and neglect of investments in enterprise abilities that can guarantee the effects of such technology progress.

Attraction of Compound Digitalization Talents

Big data has fully penetrated into the links of production, supply chain, inventory, logistics, operation, sales and service of enterprise. First, a decision-maker needs to develop a big data strategy that identifies what data the enterprise needs, and verify if
the existing industry commonness-based data model is applicable to the enterprise itself. Then, it is more important to attract big data talents. In the era of digital-driven innovation, enterprises must be staffed with compound talents having both industry experience and skills in corresponding data tools to manage and analyze data. It is expected that data digging and analysis talents will become scarce resources in the future.

The existing talent supply structure in Hong Kong cannot meet the needs of digital transformation of enterprises, which has imposed higher requirements on talent reserve of high-tech and high-growth enterprises. They need to attract a large number of high-tech talents proficient in algorithm models and solving practical issues of the industry with data while recruiting traditional IT technicians. To some extent, this kind of compound talents also determines the depth and breadth in which the big data can be used by an enterprise.

Considering Hong Kong's circumstances, it can be solved by grasping the opportunity of resource integration under the background of "Guangdong-Hong Kong-Macao Greater Bay Area" and actively developing the coordinated R&D plan aimed at cross-border innovation, talents sharing and intensive knowledge communication, such as issue of united passports to founders as to attract high-technology talents. Moreover, Hong Kong enterprises can establish in-deep cooperation relationships with universities and industry organizations to obtain the required technologies and talents. In addition, self-cultivation is also another method for Hong Kong enterprises, that is, to continuously cultivate the technology abilities of their own talents at the same time of providing solutions to clients.
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