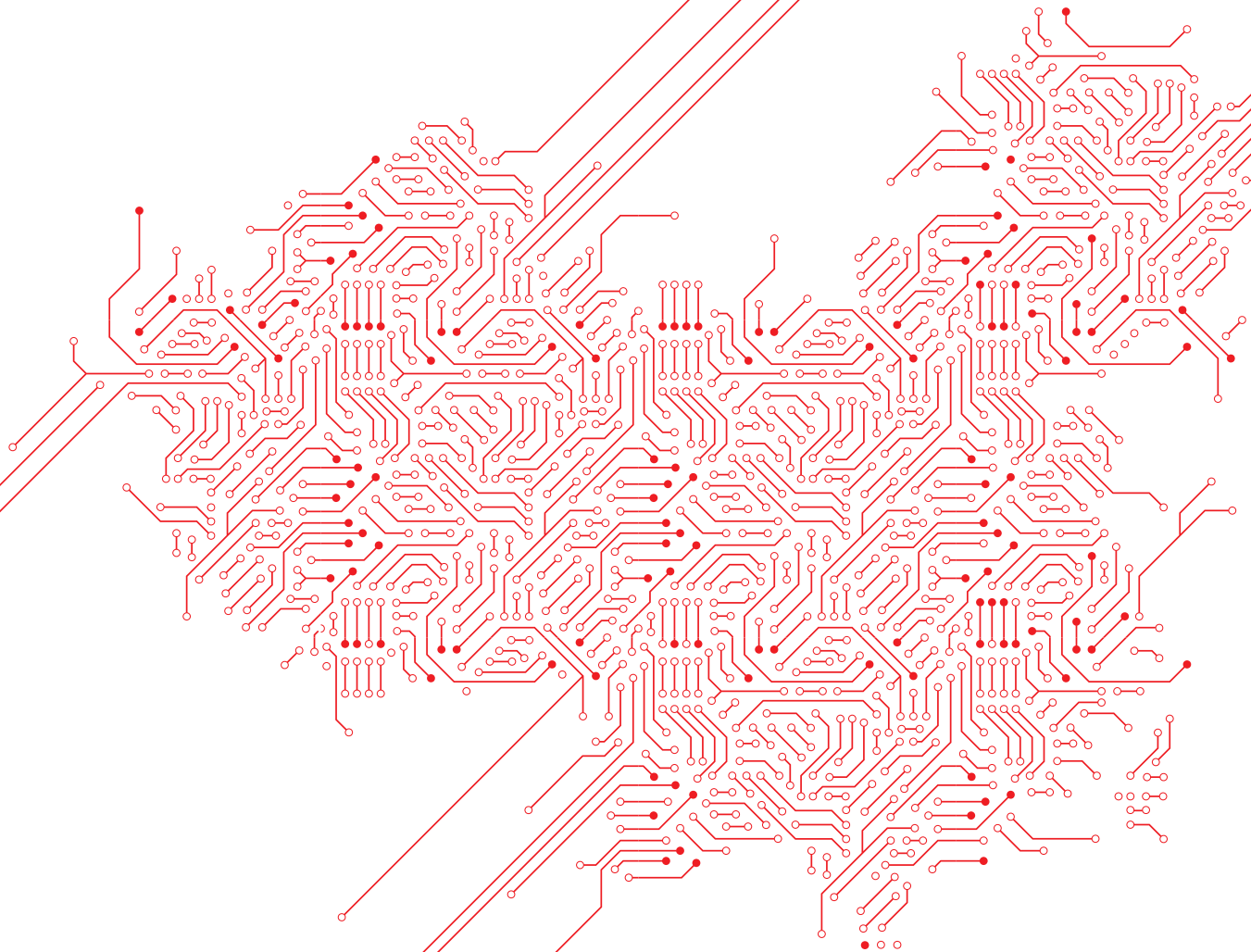


## BRIDGING THE GAP IN A NEW TECHNOLOGY PARADIGM



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## Executive summary

China's consumers lead the world in their fast adoption and frequent use of new technologies such as mobile payments, online financial management and e-commerce. With consumers setting the pace, Chinese companies are adopting new technologies to deliver products and services, and view this uptake as crucial for future success. While the world now hears much about China's big technology players Alibaba, Tencent and Baidu, less is known about smaller tech players or about the technology adoption of companies in traditional industries. To shed light on the latter, The Economist Intelligence Unit (EIU) surveyed 350 companies across China on their attitudes, plans and strategies toward adopting technology solutions to improve their products or services, with a focus on the finance, retail and healthcare industries. The key findings are:

- **Over two-thirds of companies say they have a clear vision and strategy for using new technologies in products and services.** They largely recognise the benefits that technology can bring to their firms, but somewhat contradictorily, they also rank "lack of need" as the chief challenge to greater uptake of technology in products and services. Strategy, however clear, might be imposed from governing bodies rather than developed internally; need may be synonymous with urgency and not prioritised in slow-moving industries due to both government and market forces.
- **The hand of government ownership guides both strategy and objectives in some legacy industries.** Companies are responding to policy objectives and playing a game of catch-up in adopting new technology, rather than considering it as a means of increasing profit or return on investment.
- **Partnerships with technology companies are driving much of the uptake.** For some sectors, these partnerships can bring many benefits: they can help traditional companies achieve scale, reach new markets, gain visibility over their users or even formulate new business models. However, relying too much on partnerships to drive technology uptake may leave companies merely as passive observers, rather than active drivers, of innovation.
- **Finance companies—having been stung by nimble fintech players—see the need to move toward greater technology adoption, but have been hamstrung by regulation.** As the regulatory environment potentially grows more favourable, however, they will likely increase their technology uptake, via both partnerships and endogenous development.
- **Retail players consider themselves innovative when stacked against the competition.** Some are leveraging their own expertise to offer integrated online and offline shopping and supply chain solutions.

This could allow them to excel in areas where their technology partners struggle, such as last-mile delivery. Largely free of government intervention, they also may experiment with different business models.

- **Healthcare's main objective for technology is to improve patient experience.**

Maintaining a technological edge is generally recognised as crucial to staying ahead of competitors, but healthcare respondents in

the survey feel less strongly about this than respondents in other industries. They have a different sense of what competition means to their industry, which government policy and objectives guide to a large extent.

How do these legacy companies define success? What is their strategy for achieving it? And what tools will they use to cross the technological bridge to compete nationally, if not globally?



## About the research

Our survey was conducted from February to March 2017 among companies headquartered in mainland China. We polled 50 respondents from each of the finance, retail and healthcare sectors, with the remainder spread across various industries. One in four respondents hailed from companies earning less than US\$200m in annual revenue, while 13% were from companies that earn US\$10bn or more. One in four held C-suite or board titles, while the remainder were senior executives and managers. Geographically, 39% work in Beijing, Chongqing, Guangzhou, Shanghai, Shenzhen or Tianjin, and the rest in smaller urban areas.

In addition to the survey, we conducted interviews with relevant experts and business executives. We would like to thank the following individuals (listed alphabetically by surname) for providing their insights:

- Daniel Fulton, deputy chief operating officer, United Family Healthcare
- Yasheng Huang, associate dean for International Programs and Action Learning and

professor of international management, MIT Sloan School of Management

- Mavis Hui, research director, China/Hong Kong consumer sector analyst, DBS Vickers
- Li Bin, chief technology officer, Shanghai No. 6 People's Hospital
- Andrew Yan, managing partner, SAIF Partners
- Zhang Guimin, senior marketing director, WeDoctor
- James Zhang, senior technology manager, China Everbright Bank
- Jeff Zhang, chief technology officer, Alibaba

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## Introduction: Upgrade-ready

Innovation in China has long been derided as little more than a game of copying the West. That stereotype is breaking down as China cultivates its own class of tech giants and a nimble cohort of start-ups. How the advances developed by these firms trickle out to companies in legacy industries will be key to a genuine technological upgrading of China's corporate world.

Many of these traditional players embrace partnering with the innovative technology companies that have, in some cases, disrupted their industries. From investment strategies to marketing to improving the customer experience, these legacy industries have reaped benefits from technology that their partners helped them achieve. However, in achieving technological mastery, legacy companies still face myriad challenges. Among these are risk-

averse company mindsets and a lack of need for innovations such as big data, cloud computing and artificial intelligence (AI), despite the hype surrounding them.

Nevertheless, many firms surveyed still plan to invest more in incorporating technology into products and services. Due to the challenges legacy firms face in leveraging technology talent and helping the risk-averse sections of their companies accept the need for greater tech uptake, tie-ups with technology firms are attractive in what is largely a game of catch-up and outmanoeuvring the pack. China's traditional consumer-facing healthcare, retail and finance industries may struggle in their adoption of cutting-edge technology, but they are adopting it all the same.

## 1

## Playing the technology game

In the push to bring Chinese service industries into the 21st century, a distinction must be drawn between adoption of external technologies and development of endogenous ones. Overall, 68% of companies polled told us they felt they had a clear vision and strategy behind the integration of new technologies into products and services. Yet these visions rarely involve building an entire technology infrastructure from the ground up, according to experts. Jeff Zhang, chief technology officer at tech giant Alibaba, notes that many legacy firms “don’t necessarily need to build a data centre, buy the hardware and software, or develop their own platforms, but can instead choose appropriate suppliers to provide these services”.

This sentiment dovetails with respondents’ attitudes toward their own firms’ levels of innovation: only 28% of respondents considered their companies more innovative than competitors. Two in five, however, rate themselves as better than the competition at using new technologies, suggesting that choosing and managing partnerships and suppliers in this space may be a strategic goal in and of itself.

In particular, the healthcare industry appears to lag behind in strategic confidence, with only 56% percent of respondents replying they had a clear vision for how to use technology in products and services. This is despite significant policy support from regulators, such as the National Health and Family Planning Commission, the National Development and

Reform Commission, and the Health Reform Commission. These bodies have set out technological objectives focused on efficient use of resources, according to emailed comments provided to us by a spokesperson at the National Health and Family Planning Commission. Hospitals are clear about these goals, according to Li Bin of Shanghai No. 6 People’s Hospital. “From a government perspective, the push is more for data, intelligence and creating linkages between departments and hospitals for efficiency of patient care,” he says.

Daniel Fulton of private healthcare provider United Family Healthcare notes that the improved efficiency technology provides can lead to heightened patient satisfaction, a key goal of the medical industry. “Everyone knows technology can help with the different pieces of healthcare services. The question is how? A lot of gains can be had in customer satisfaction,” he says.

Though hospitals may not consider patients “customers” in the same way other organisations do, there is a similar desire to achieve said satisfaction. In our survey, responsiveness to consumer needs was cited as the most important way organisations differentiate their products and services across all industries. For example, in the finance sector, China Everbright Bank uses Alibaba’s Ant Financial as a front-end credit inquiry system. Customers can use their credit rating from Ant Financial to apply for a credit card with partner banks, and are linked through to the partner bank from Ant Financial’s website

after sharing their credit score with their bank of choice. According to James Zhang, a senior technology manager at Everbright, this model creates new business for the bank as a much younger customer demographic is able to apply for credit cards than was the case previously.

Leveraging an expanded reach is top-of-mind for Chinese executives when investing in new technologies. Among respondents whose companies use new technologies in their products and services, two in five rank “access to new markets/customer bases” as the most prominent benefit to investing in new technologies, higher than any other factor. For retailers, this share balloons to 51% of respondents. It is not hard to see why. Brick-and-mortar retailers have taken aggressive steps to push through online-to-offline (O2O) strategies in an effort to attract more customers. GOME Electrical Appliances, for example, has adopted a strategy which the company says includes “fully promoting the integration of online and offline businesses” through technology. According to the company’s annual report, that strategy allowed GOME Online to increase revenue by 59% in 2016, with gross merchandise volume up by 110%.<sup>1</sup>

Retail analyst Mavis Hui of DBS Vickers says there is “a rising trend toward O2O development, given China’s huge land mass and relatively primitive logistics support in many cities. Thus, physical stores could continue to act as merchandise collection points for online orders, or as warehouses or hubs to direct and fulfil last-mile delivery needs.” Even the big e-commerce firms find the last mile difficult to facilitate and have sought out legacy companies for partnership, according to an article in *Investor’s Business Daily*, a newspaper. For example, in 2015 retail player Suning accepted US\$4.63bn in investment from Alibaba, and itself invested in Alibaba.<sup>2</sup> The tie-up supports Alibaba’s O2O strategy, as well as Suning’s plan to develop better technology support.<sup>3</sup>

## Leveraging an expanded reach is top-of-mind for Chinese executives when investing in new technologies.

In our survey sample, the benefits to greater technology uptake are clear, with 85% of companies convinced that unless they invest in the latest technologies, they will fall behind the competition. Among other advantages, our respondents ranked “improved visibility over existing markets/customer bases” a close second in terms of perceived benefit. In healthcare, this visibility is key to improving the patient experience. Mr Li, for instance, envisions for his hospital a data centre processing medical images which will lead to an early warning system for chronic diseases. Ultra-fast 5G internet connectivity, which nearly 50% of respondents—both overall and in healthcare—say their firms plan to use in future, will also enable the adoption of technologies that will provide better visibility over their users. So-called m-health will allow telemedicine to diagnose or even perform surgery remotely, particularly in rural areas without easily accessible facilities. Zhang Guimin of WeDoctor, an m-health platform heavily backed by internet giant Tencent, says one of his company’s top priorities is to develop such long-range medical services.

The legacy finance industry is also leveraging technology to gain greater market visibility. Much of this stems from insights provided by big data analytics. Indeed, survey respondents ranked “big data and cloud computing” as the most widely used technology in their firms. Among finance respondents, 46% say their company is using big data heavily, a far higher share than the equivalent response for other technologies. The harnessing of such user data was a key reason for the success of nimbler fintech start-ups, but Jiang Jianqing, chairman of Industrial and Commercial Bank (ICBC) of China, the world’s largest bank, noted in a 2015 interview with Caixin, a news service, that the brick-and-mortar players have many decades of

<sup>1</sup> “GOME Electrical Appliances Announces 2016 Annual Results”, GOME website, March 27th 2017, [http://www.GOME.com.hk/attachment/2017032712491217\\_en.pdf](http://www.GOME.com.hk/attachment/2017032712491217_en.pdf)

<sup>2</sup> “Alibaba invests \$4.6 billion in this Chinese consumer electronics giant”, *Fortune*, August 10th 2015, <http://fortune.com/2015/08/10/alibaba-suning/>

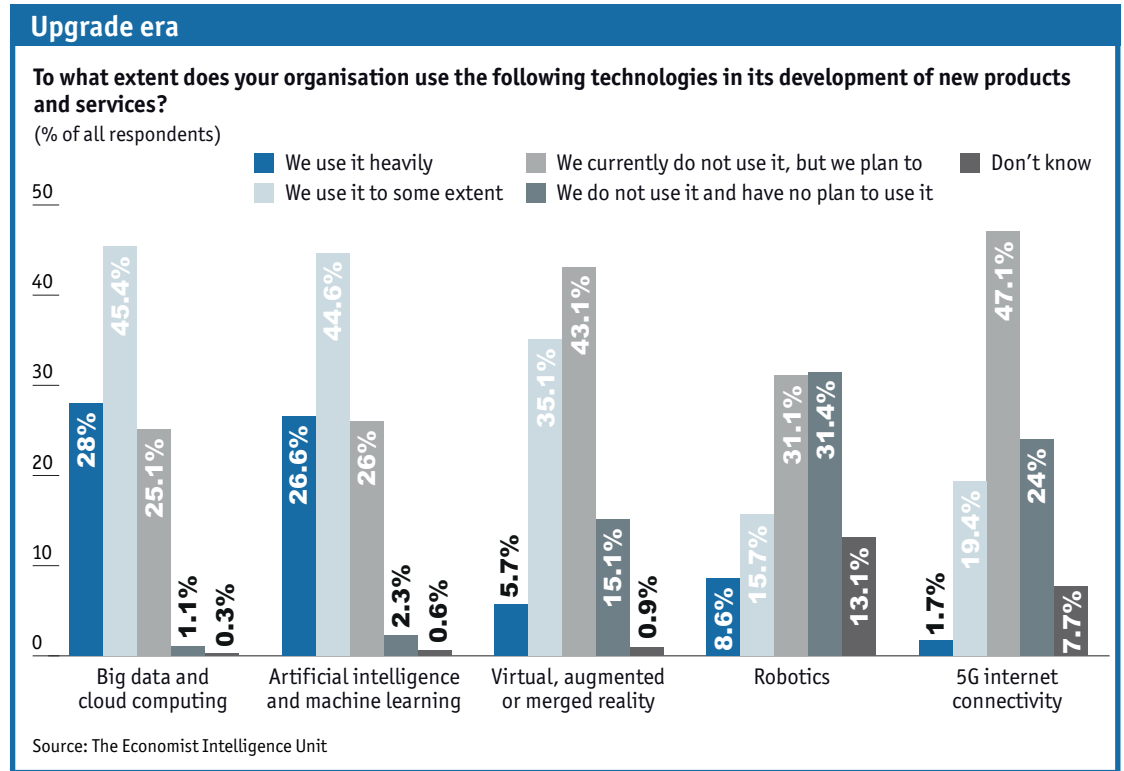
<sup>3</sup> “China’s Alibaba Bucks Baidu, JD, Tencent In Acquisition”, *Investment*, *Investor’s Business Daily*, April 13th 2016, <http://www.investors.com/news/technology/alibaba-bucks-baidu-jd-tencent-with-acquisitions-investments/>



historical information on customers that should keep them in the big data game.<sup>4</sup>

James Zhang of Everbright agrees, saying big data will be the focus for his firm over the next three years, even though “big banks don’t have big data analysis capabilities [on the same level

as fintech competitors] yet”. Still, Mr Zhang sees a potential wide roll-out of a “social-credit” rating system—under which citizens’ creditworthiness could be measured by a variety of factors, ranging from social-media behaviour to loan defaults—a key focus of finance firms’ future big-data efforts.



<sup>4</sup> “ICBC’s Jiang: How Bank, Tech Services Converge”, Caixin, September 29th 2015, <http://www.caixinglobal.com/2015-09-29/101012160.html>

## 2

## Challenges in a new paradigm

Hesitation to greater technology uptake persists, however, with 36% of respondents citing a “lack of need” as the main challenge to integrating technologies into products and services, higher than any other factor. This suggests some technologies are still viewed by many as a nice-to-have, rather than a crucial component of success.

This could be due to a kind of follow-the-herd mentality among firms, suggests Yasheng Huang of the Massachusetts Institute of Technology Sloan School of Management. Such a mindset may preclude a sense that such technologies are a necessary and integral part of a firm’s future competitiveness. “Once you are known for having placed the right bet, everybody wants to do exactly the same thing,” he notes. “One thing we see in China is the shock-and-awe role of the government, and this is one reason why China can scale so quickly; yet at the same time it is hard for firms to develop proprietary and business competitiveness. There are thousands of local governments who are willing and able to provide funding for everyone to go in the same direction.”

Another view explaining a lack of need could be that companies are still catching up and are in the initial stages of integrating technology, and view certain types of technology adoption as more urgent than others. Ingrained habits in certain industries make the concrete moves into AI or robotics, for example, difficult to operationalise when progress in big data management is priority. Mr Fulton notes that

“there is a timeline problem, not a technology problem”, when it comes to companies adopting new technology or knowing in what direction they need to go.

The government’s role in distorting competition in many areas may also influence the extent to which firms feel they need to adopt new technologies in order to thrive. For a sector such as healthcare, which does not emphasise profitability to the same degree as more competitive fields, the benefits to technology adoption do not need to show up on the bottom line. Indeed, among our overall survey sample, higher profit margins as a factor was ranked last as the chief benefit to greater technology adoption.

In healthcare in particular, a risk-averse corporate mindset was listed by our survey respondents as the chief impediment toward adopting new technologies, cited by 42% in that sector, versus only 32% overall. This leaves healthcare regulators as the main drivers behind technology adoption: Mr Li points out that government departments and medical industry associations are encouraging universities to establish departments focused on medical systems, medical data and medical information engineering, though the talent to manage such fields is in short supply. Yet this central government mandate is broad, focusing on the need to improve patient experience through technology. How that is implemented will be subject to regional differences and perhaps variances from hospital to hospital.

“Once you are known for having placed the right bet, everybody wants to do exactly the same thing.”

Yasheng Huang, Massachusetts Institute of Technology

For public hospitals, the benefits of implementing new technology systems are measured by activities such as the number of transactions, length of time of patient visit and length of stay in the hospital rather than traditional return-on-investment measures, says Mr Li. Under this framework, the return on technology investment, from the government’s point of view, is a more efficient healthcare system rather than more profits for the hospital.

In finance, the government plays a somewhat different role: 32% of finance respondents cited regulation as the chief impediment to adopting new technology, versus only 23% overall. This has contributed to a predicament in which banks have watched their role in the provision of many services dwindle in the face of competition from fast-moving and largely unregulated fintech players. Everbright’s Mr Zhang singles out mutual funds as an area that has completely changed for the legacy banks. “In China, clients rarely buy funds in banks, and usually go through JD Financial, Ant

Financial and EastMoney,” he says, citing three major fintech names. “These large application platforms have completely monopolised the channel of fund purchases.” In a number of banking departments, fintech firms have had a decidedly negative impact on profitability, he notes. In some areas, this competition spurred the industry to action, according to Mr Zhang. “Many banks came up with different solutions,” he says. “They improved their websites and apps and made them more flexible and responsive. They got much more agile technology. They thought of more ways to contact and attract the customers.”

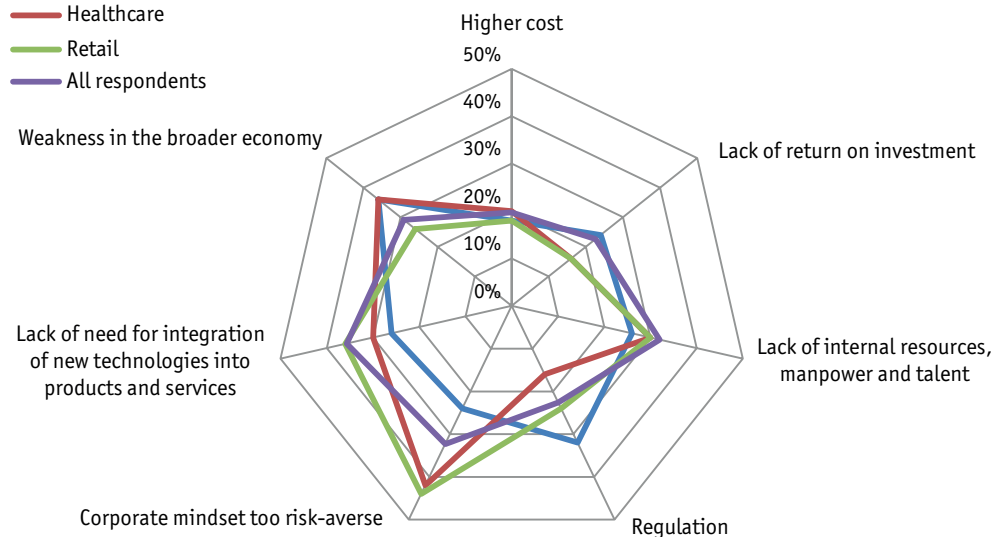
More recently, government regulatory bodies have focused on bringing fintech companies into the fold of the state-owned banking system, in part to lessen the impact on legacy banks. Initially set off by a liquidity crisis in the peer-to-peer lending industry, China’s financial regulators began issuing regulations from mid-2015 curbing the freedom of fintech players in the name of safety and market stability, first

### A challenging paradigm

**What is the most prominent challenge to incorporating new technologies into your organisation’s products and services?**

(% of respondents)

- Financial services
- Healthcare
- Retail
- All respondents



Source: The Economist Intelligence Unit

by requiring fintech firms' small business loans to go through the People's Bank of China, and later by issuing minimum and maximum loan requirements to such companies.<sup>5, 6, 7</sup>

Today, partnerships are a key vehicle for technology adoption by large Chinese banks. Everbright's Mr Zhang notes that banks' first steps into technology involved partnering with fintech firms on new marketing initiatives, piggy-backing on the data fintech firms collect.

At least in the finance industry, Mr Zhang says the tendency to partner is not likely to wane in the coming three years. "Technology services will be in greater demand. There will be more cooperation between banks and internet companies to reach third- and fourth-tier cities," he says. This is despite the fact that banks' technology investments, like hospitals', are not held to a return-on-investment model. According to Mr Zhang, banks' annual budget growth for technology is on average fixed at between 10% to 12% per year, with increased profits not the measure of success. ■

<sup>5</sup> "关于促进互联网金融健康发展的指导意见", 中华人民共和国财政部官方网站, July 20th 2015, [http://www.mof.gov.cn/zhengwuxinxi/zhengcefabu/201507/t20150720\\_1332370.htm](http://www.mof.gov.cn/zhengwuxinxi/zhengcefabu/201507/t20150720_1332370.htm)

<sup>6</sup> "互联网金融监管后时代", 《法人杂志》, March 6th 2017, [http://www.sohu.com/a/128047709\\_564210](http://www.sohu.com/a/128047709_564210)

<sup>7</sup> "互联网金融迎来政策落实年", 未央网, January 6th 2017, <http://www.weiyangx.com/226115.html>

## 3

## Building future bridges

Despite uncertainties surrounding why companies may need greater technology adoption in products and services, they expect even greater uptake going forward: 77% of respondents answered “a great deal” or “somewhat” in response to whether new technologies will play a crucial role in their products and services in the next three years. This may lead to a proliferation of new business models, particularly in spaces such as retail where the hand of government is light and market forces fierce. Mr Zhang of Alibaba predicts a consumer-to-business (C2B) model in which technology allows shoppers to pipe their demands directly to companies, which can heighten their responses to customer needs as a result.

Consider the trajectory of online retailer Ruhan E-Commerce, a traditional apparel manufacturer which a few years ago cut its advertising budget and hired model Zhang Dayi to represent the company online in social media live streams and chat rooms. With 500,000 online followers and a revenue sharing contract, these “cyber-celebrity” posts transformed Ruhan’s reputation, according to Mr Yan, who says the company’s sales went up five-fold in the first year of this initiative. A C2B model could take this kind of direct-to-consumer interaction further yet, with AI facial monitors capturing viewers’ expressions when looking at products on models and using algorithms to determine which colours or styles to bring to market.

Mr Zhang of Alibaba is similarly bullish about virtual reality (VR) technology. Indeed, virtual, augmented or merged reality technologies,

the latter two of which allow users to view a mix of computer-generated and physical objects simultaneously, garnered particular interest from our respondents, with 84% saying they currently use the technologies in their products or services or plan to in future. Key to VR shopping, 3D content production will likely create a different shopping experience for consumers, experts say.

**77% of respondents answered “a great deal” or “somewhat” in response to whether new technologies will play a crucial role in their products and services in the next three years.**

However these new business models emerge, exploring them is a top priority for Chinese executives, who ranked this aim first out of nine choices for current corporate goals. There is little doubt technology will play a part in this exploration going forward, and companies are investing accordingly, with half of the respondents saying their companies will invest at least 10% more in technology use in products and services over the next three years compared to current levels, and 15% saying they will up their spend by 30% or more. It remains to be seen where this investment will lead: will companies simply dilute the effectiveness of their technological solutions if they merely aim to imitate others? Will partnerships draw the bulk of this investment, leaving legacy companies mere passive observers in the race to not just adopt new technologies, but invent them?

In some contexts, legacy companies have an advantage over pure technology players in that they know their markets and customers, or offer expertise in a certain area, such as last-mile delivery as in the Suning example. As noted previously, retail is a space in which market forces are compelling companies to innovate to a higher degree than elsewhere, as evinced by the 42% of retail respondents who labelled their firms as more innovative than the competition. GOME Finance, for example, aims to bring financing solutions such as development loans and trade support—areas long ignored by banks—to the upstream supply chain, an area where GOME has the expertise to make the most impact.<sup>8</sup>

Yet government has not been entirely hands-off in its support of the retail space. Ms Hui

points out that retailers have benefited from programmes under which the government offered rebate schemes encouraging consumers to buy new gadgets, which has allowed traditional retailers to stay afloat, if not thrive.

Yet talent shortages hamstringing the ability of many companies to develop technology and incorporate it into products and services: one in three respondents cited this factor as the main challenge to greater uptake. For firms facing this bottleneck, partnering with tech players is the best or only option. The scale these firms can provide is often mind-boggling: according to Mr Zhang of WeDoctor, six years after market entry his platform has 150m registered users, 26,000 medical expert advisors, and has helped patients over 850m times while saving people 64,000 days of work.

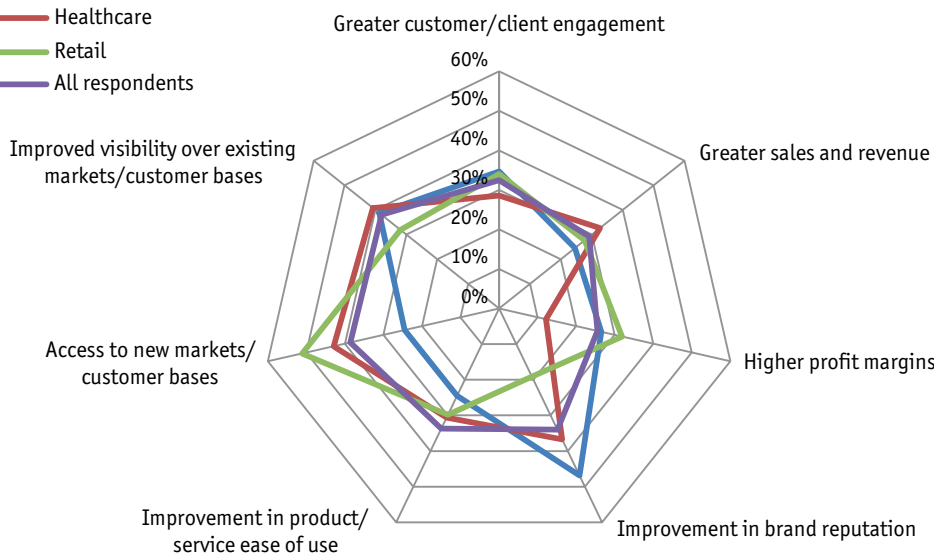


### Gaps in gains

**What is the most prominent benefit to incorporating new technologies into your organisation's products and services?**

(% of respondents)

- Financial services
- Healthcare
- Retail
- All respondents



Source: The Economist Intelligence Unit

<sup>8</sup> "Announcement of annual results for the nine months ended 31 December 2016", Gome Finance Technology Co, March 16th, 2017, [http://sinocreditframe.todayir.com/attachment/2017031612020100002748673\\_en.pdf](http://sinocreditframe.todayir.com/attachment/2017031612020100002748673_en.pdf)

## Conclusion: Legacies of innovation

For years technology has allowed companies in China to boost internal efficiency by speeding up internal processes, reducing input per unit of output and helping firms get better at going about business as usual. Now a new paradigm is emerging: the incorporation of cutting-edge technology such as cloud computing, big data and remote connectivity directly into products and services themselves. This is transforming the very nature of a firm's output, helping them reach new markets and please their customers, and in some cases laying the groundwork for entirely new business models.

The challenges for China's legacy industries, particularly those in the healthcare, finance and retail space, are to take more agency over the technological advances that are transforming

the Chinese business world and develop more in-house platforms that can help them reach their goals. In some cases this is already happening. Many, however, will need to forge or deepen partnerships with companies such as Tencent, Alibaba, Baidu or their smaller counterparts in the technology space, whose innovations will likely continue diffusing into the wider Chinese business world for the time being.

"In China, technology as a part of business has a high profile. There is a lot of hype," says Mr Yan. "Executives believe that if they don't get the best, newest technology, their company could fail. There is a lot of pressure to succeed." However firms in China cross this new technology bridge, those who do not risk falling behind in an increasingly challenging race.

While every effort has been taken to verify the accuracy of this information, The Economist Intelligence Unit Ltd. cannot accept any responsibility or liability for reliance by any person on this report or any of the information, opinions or conclusions set out in this report.



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