Accelerating China

Three steps to align China's higher education system to growth

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Aligning education with needed skills

With favorable demographics, China's economic growth has catapulted millions into the middle class and made China an essential element of global supply chains. However, as global business adapts to a rapid sequence of technological shocks, the skills that once could be relied upon to sustain ever-increasing growth are no longer sufficient. Disruptive technologies are creating new types of business and engagement models that require a different set of skills around creativity, collaboration, innovation, sophisticated analysis and communication. Chinese business leaders are identifying a widening gap between their rapidly changing needs and the types of skills higher education institutions are helping to build. This executive report provides a three-step approach to redress the growing skills and capabilities gap and help enable China to sustain its position as a global economic power.

China's economy in context

China's industrialization has been unprecedented. China has become a global industrial titan seamlessly integrated across global supply chains. Tens of millions of people have been lifted out of poverty and into the middle class. Rapid urbanization and infrastructure development has created a network of sophisticated metropolises across the nation.[1]

China's economy today is characterized by a triality. Vibrant, growing sectors have been, from their inception, exposed to intense market forces and able to successfully compete on a global stage – specifically, manufacturing, internet-oriented companies and digital businesses. The second element of the triality includes large industrial sectors, ranging from chemicals to banking, that have traditionally been more highly regulated. And third, there remains a significant non-urban agricultural sector, often still characterized by small, family operated farms.[2]

Despite its manifest success, China's GDP growth over recent quarters has tapered off. Commercial lending has not regained the peaks of the last decade, and some economic frictions have become more visible.[3] According to a recent IBM Institute for Business Value (IBV) global skills survey, Chinese executives say that they are, as a consequence, finding it more difficult to acquire the right mix of people skills to address the needs of rapidly changing global and domestic economies. The gap between skills demanded and available, as reported by executives surveyed, seems to be wider in China than in other competing economies, such as Australia, Germany, the United Kingdom and the United States (see Figure 1).[4]

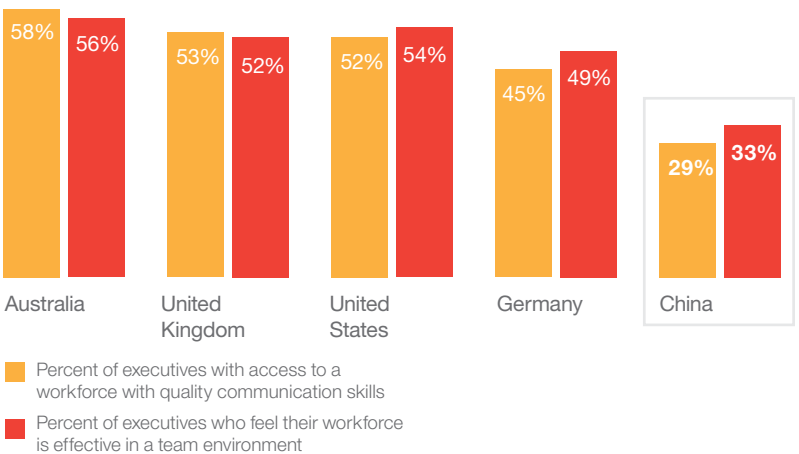
62% of China's executives say that the higher education model is no longer sufficiently aligned to the needs of business

72% of China's executives believe that industry and educators need to engage and collaborate more effectively to refine and develop new curricula

74% of China's executives say that industry and educators need to collaborate to more effectively deliver higher education to students

Figure 1

Chinese executives find it difficult to acquire a workforce with the right mix of skills



Source: 2016 IBM Institute for Business Value Global Skills Survey.

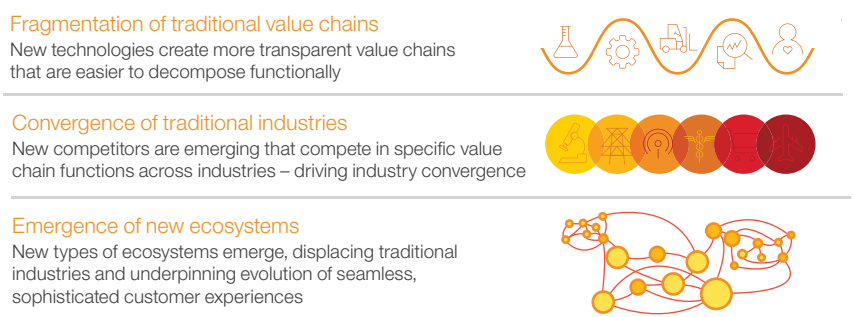
Overlain with technological disruption

As economic conditions globally are becoming more volatile, new digital technologies are making the business landscape changeable. Mobile technologies have become ubiquitous, with more than 20 billion devices in circulation globally predicted by 2020.[5] Spending on cloud is expected to top $400 billion USD within two years.[6] And investment in cognitive technologies is expected to top $12 billion USD over the same period.[7]

Implications of digital disruption on traditional industries are profound. New technologies create more transparent value chains that are easier to decompose into functional sub-categories. New non-traditional competitors are emerging that compete in specific value-chain functions across industries, further intensifying industry convergence. And new types of business ecosystems are displacing traditional industry models and underpinning the formation of seamless, sophisticated customer experiences (see Figure 2).

Figure 2

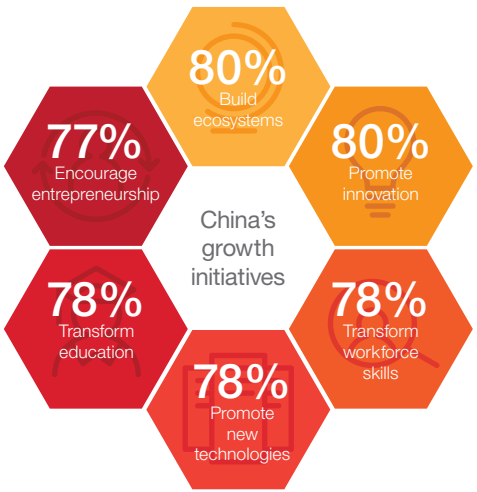
Impact of technological disruption



Source: IBM Institute for Business Value analysis.

Figure 3

Chinese executives target areas of global economic leadership



Source: 2016 IBM Institute for Business Value Future of China Survey, 2016.

In response, Chinese executives identify six key accelerators for China's economy (see Figure 3).

Both Chinese educators and business leaders adopt a significantly more pragmatic view of the role of higher education than leaders of other nations. While leaders outside China identify the role of higher education in abstract terms, such as imparting knowledge to future generations, creating the leaders of tomorrow and promoting social and economic mobility and equality, Chinese leaders have more tangible priorities. China's leaders say that higher education should deliver in four major areas: provide the basis for students to be informed and active, equip students with the fundamentals to launch a career, promote innovation in the economy and create the foundation of a skilled workforce (see Figure 4).

Figure 4

China has pursued a pragmatic approach to higher education aligned to economic growth

The top four most important roles of higher education

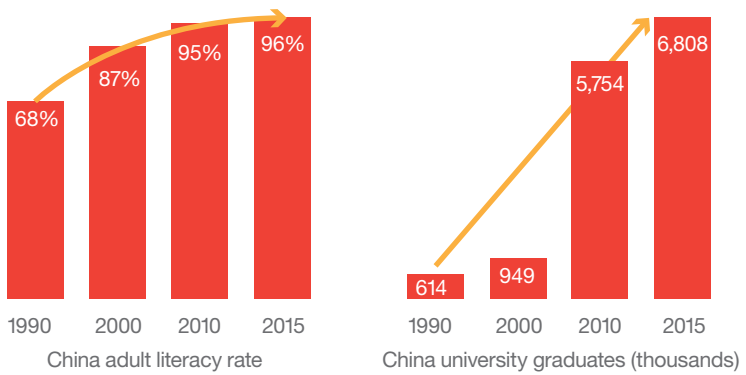
Responses of Chinese educators and business leaders	Responses of global educators and business leaders
To provide the basis for students to become fully active and informed citizens	To impart knowledge on future generations
To provide students with the fundamentals to launch a career	To create the leaders of tomorrow
To promote innovation	To promote greater and social economic mobility and equality
To provide businesses with a skilled workforce	To provide students with the fundamentals to launch a career

Source: IBM Institute for Business Value Global Education Survey 2015/2016.

The benefits of pragmatism to China have been manifest, with both literacy and graduation numbers increasing dramatically since 1990 (see Figure 5).

Figure 5

Change in adult literacy and graduation in China

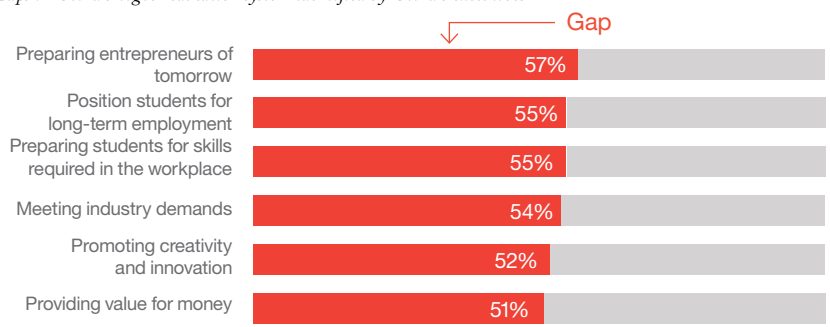


Source: Left chart: Adult literacy rate, population 15+ years, both sexes (%), World Bank Data, http://data.worldbank.org/indicator/SE.ADT.LITR.ZS China adult literacy rate, Statista; https://www.statista.com/statistics/271336/literacy-in-china/; Right chart: Number of university graduates in China between 2004 and 2014, Statista, https://www.statista.com/statistics/227272/number-of-university-graduates-in-china/; Can China become a global leader in HE innovation?', Dec 2015, University World News, http://www.universityworldnews.com/article.php?story=20151130150021240

But despite the significant achievements of China's higher education system over the past quarter century, demands of the digital economy on the labor force differ greatly from more traditional manufacturing type roles that have underpinned much recent growth. Capabilities, such as creativity, collaboration and innovation, and skills, such as communication, analytics and presentation, are now at a premium. And China's executives identify significant gaps in what they need versus what is obtainable (see Figure 6).

Figure 6

Gaps in China's higher education system identified by China's executives



Source: IBM Institute for Business Value Global Education Survey 2015/2016.

Assessing the views of leaders of the most successful Chinese businesses – those that rank highest in operating efficiency and revenue growth – two additional challenges associated with higher education are highlighted. Sixty-seven percent of executives of the highest-performing organizations say that the higher education culture is insufficiently responsive to change. And 62 percent say that education models as they currently stand are misaligned to the needs of businesses.[8]

Step 1: Continue to prioritize practical, applied educational experiences

China's business leaders surveyed agree that higher education continues to play a crucial role in supplying employable, productive workers across the economy. Fifty-two percent say that the higher education system has direct responsibility in equipping students to be job ready, 65 percent say that industry demands for skills should drive higher education strategies and priorities, and 65 percent conclude that job placement rates of students should be a key measure of higher education effectiveness.[9]

China's executives indicate that, in terms of skill development, the most important priorities on which higher education should focus are threefold: teaching students to collaborate more effectively and work in teams, teaching students to analyze problems and draw out possible solutions, and helping students communicate more effectively in a business context. But the same business leaders who identify those skills as most crucial also tell us that these are the areas where the current higher education system is weakest. Sixty-two percent of China's business leaders say that higher education is not fully succeeding in teaching students collaboration or analysis skills. And 57 percent say that higher education is not providing sufficient support to help students successfully communicate in workplace environments.[10]

As a consequence, Chinese businesses surveyed – specifically, corporate learning executives – are required to address skills shortfalls within their organizations through formal and informal on-the-job training. Onboarding costs are greater and productivity lower than would be the case if the higher education system was able to more completely meet employer expectations.

To improve skills and employability of graduates, the higher education system can become more practical and applied than what has been achieved in the past. And the most successful institutions are already becoming more practical and applied within new higher education programs based on these principles.

CRCC Asia, a leading provider of internships in collaboration with over 400 companies, provides students the opportunity to further their personal and professional development with training and education programs through higher education institutions and partner businesses across China. CRCC Asia has successfully grown from a pilot program in 2007 with as few as 20 interns, to more than 2,000 interns in recent years.[11]

Geely automotive has been at the vanguard of higher education innovation due to its deep commitment to industry training. Geely has made significant investments to establish universities and colleges, such as Beijing Geely University and Zhejiang Automotive Vocational and Technician College. With enrollments of over 40,000 students, these institutes offer nearly 10,000 graduates a year – including those with master's and doctoral degrees — to China's automobile industry.[12]

Action items for step 1

Identify high-value opportunities: Assess curricula to identify where opportunities exist to infuse experienced-based learning and new technologies or real-world learning experiences such as internships. Look for opportunities to leverage "flip" teaching in which students learn basic content outside the classroom, while focusing on problem solving in class.

Partner to extend and strengthen capabilities: Build alliances with industry partners to identify and validate needs and opportunities to build specific, relevant skills. Work with partners to expand programs for real-world learning and foster business investment in apprenticeships, internships or other practical programs.

Apply metrics and refine portfolios: Develop a benefits-realization plan to monitor and evaluate the impact of real-world learning programs on student skills and capabilities. Calibrate program portfolio decisions based on realized outcomes, be they successful or otherwise.

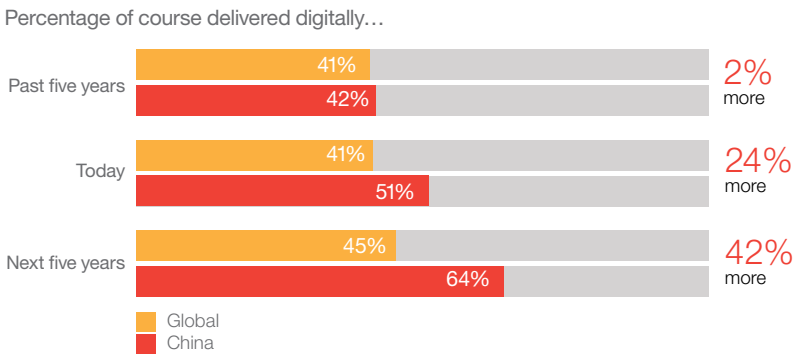
Step 2: Reimagine technology uses beyond delivery platforms

Technological change also directly impacts the mix of skills demanded by businesses. Corporate recruiters surveyed have told us that as much as 40 percent of the change in corporate recruiting needs over recent years can be directly attributed to changes in technology.[13] And this is expected to grow even more dramatically in the future.

Chinese business leaders are acutely aware that industries and the education sectors globally are in the midst of seismic technology-fueled shifts. Sixty-three percent say that technology is disrupting traditional higher education models, and 65 percent say that students in the future will be more likely to pursue alternative means and channels in achieving their educational objectives.[14]

China's business and education leaders are overwhelmingly of the view that the business case for adopting new technologies in education is self-evident. Almost 80 percent of Chinese executives say that the benefits of new technology applied to higher education are greater than the cost of adoption. This compares to a global average of only 51 percent. As a consequence, executives plan to invest more significantly in digital platforms for delivery of education services in China than elsewhere (see Figure 7).[15]

Figure 7
Investment in digital education platforms 2011-2021



Source: IBM Institute for Business Value Global Education Survey 2015/2016.

Chinese executives say that digital investment can significantly improve education outcomes across the board by:

- Providing greater access to educational content from a range of sources
- Expanding variety by encouraging pursuit of education beyond traditional higher education institutions
- Integrating physical and digital environments to create more compelling, engaging educational experiences
- Enabling improved decision making by focusing initiatives and programs that demonstrably improve student success.

The Smart Learning Institute was jointly established by Beijing Normal University and Huayu Education Company as a platform for experimentation and research and development related to education technology. The institute combines the research capabilities of various teaching departments from the university with Huayu Education's technological capabilities. The research team includes about 100 full- and part-time researchers, including leading professors and other experts. Students working in the research institute receive hands-on experience in education technology innovation. Research findings are applied not only in Normal University, but other universities and schools in China.[16]

Action items for step 2

Exploit current capabilities: Engage core customers to evaluate existing capabilities and mechanisms for providing access, experience and variety. Identify where opportunities for improvement exist. Evaluate analytics capabilities and decision support tools across the education ecosystem and identify new opportunities.

Extend capabilities through ecosystem partners: Identify, evaluate and invest in new opportunities to expand access, experience and variety of educational experiences through collaboration with ecosystem partners.

Experiment with new technologies: Monitor and validate new disruptive technologies, pursue opportunities to experiment and expand organization culture to explicitly recognize that, in the process of innovation, failures are inevitable.

Figure 8

Decomposing the value of business ecosystems – business leaders versus educationalists

Source: IBM Institute for Business Value Global Education Survey 2015/2016.

Step 3: Build and expand relationships with ecosystem partners

Industry and higher education leaders in China concur that increased collaboration through broadly representative ecosystems can improve the effectiveness of China's higher education system. Specifically, 72 percent of executives say that industry and higher education can more effectively collaborate to refine and develop new curricula. And 74 percent say that industry and higher education can collaborate more effectively to deliver higher education to students.[17]

Collaboration will increasingly occur within business and economic ecosystems. A recent IBM Institute for Business Value global survey on business ecosystems, conducted in collaboration with the Economist Intelligence Unit, revealed that Chinese executives are both familiar with emergent ecosystems and convinced of their value. Ninety-two percent of Chinese executives say they expect business ecosystems to change the primary activities of their organizations. Sixty-six percent foresee value creation as becoming increasingly ecosystem-centric, and as many as one-third of Chinese executives surveyed say that 25 percent or more of their overall business activities in the future will be conducted within or through emergent ecosystems.[18]

Compared to China's business leaders, China's higher education leaders surveyed seem less convinced of the full potential value of collaborating within business ecosystems, especially in relation to the ability of ecosystems to yield new skills, capabilities and funding possibilities that would not have accessible in ecosystems' absence (see Figure 8).

Defining business ecosystems

Business ecosystems comprise complex groups of interconnected organizations and individuals that possess mutual goals. Ecosystems are formed by means of engagement and interactions between participants and their environment. Ecosystems are typically associated with higher value creation among participants than would be possible if organizations acted alone. Globally, educational ecosystems are already advancing (see Figure).

Peking University Science Park serves as an ecosystem that enables technology transfer and innovation. The Peking University Science Park, established in 1992, is one of the first National University science parks in China. The park, founded in the strong scientific research capabilities of Peking University, is focused on transferring the university's research achievements to key industries, including electronics and biotechnology. The park collaborates closely with leading companies across industries and has developed a scientific innovation ecosystem that provides both platform and services to support transfer of scientific research, accelerated industrialization, company incubation, talent development and targeted capital investing. Peking University has built 14 science parks across China and one in the Silicon Valley in the United States.[19]

Action items for step 3

Identify the right partners and empower an orchestrator: Identify key partners, whether they be educational institutions, from industry or the public sector. Consider identifying an intermediary empowered to recruit partners and build consensus.

Crystalize vision, define objectives and facilitate commitment: Drive toward consensus around a clear and common vision and clearly defined commitments across ecosystem partners. Define business intelligence requirements and strategies for addressing data capture and sharing among partners.

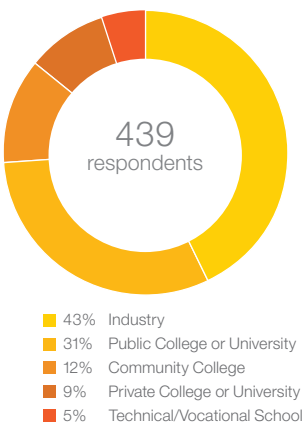
Formalize processes and design for sustainability: Define and formalize processes and accountability mechanisms to help partners remain engaged and committed. Encourage partners to align internal business metrics to ecosystem objectives and vision.

Key questions

- How can higher education institutions meet the needs of core customers and equip students with skills they need to be more competitive and effective in the workforce?
- What opportunities exist to expand these relationships between industry and higher education to improve student outcomes?
- How can more practical, applied educational opportunities that leverage experienced-based learning techniques, new technologies and real-world learning experiences (such as internships and apprenticeships) be added to curricula?
- How can new technologies be better leveraged to improve student access, experience, variety and outcomes?
- What opportunities exist for improvements in or expanded partnerships?

Study approach and methodology

To evaluate requirements for enabling China's higher education system to cope with the nation's skills challenges, the IBM Institute for Business Value surveyed 439 leaders from private industry and various types of higher education institutions.



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For more information

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