

# CHAPTER 6

## The role of a rising university in an emerging international metropolis

*Shiyi Chen*

### THE UNIVERSITY AND THE CITY IN THE AGE OF KNOWLEDGE SOCIETY

Colleges and universities are among the oldest type of organization, originating from the medieval age. In the long historical trajectory of this social institution, it is commonly recognized that colleges and universities evolved through three stages — from the British model of gentlemen education, through the German model of scientific research, to the American model of social service. A research university is nowadays a combination of the three. Most distinctively, the history of this evolution is also an irreversible path on which the university was transformed from an ivory tower to a social institution critical to social-economic development and the welfare of the human race.

The Glion Colloquium, launched in 1998, has closely captured the evolution of research universities in the past two decades. As succinctly summarized by Peter Scott in his 2015 review of the Glion Colloquium contributions, the 21st century is characterized by a global “knowledge economy” and “knowledge society” in which universities partner up with industries, actively engage in communities and have taken up a central position in a society, economy and culture shaped by globalization and global competitiveness (Scott, 2015, pp. 42-44). Against this backdrop, many Glion colloquium participants have noticed the rise of Asian universities, propelled by heavy investment and

---

unreserved support from governments that are determined to achieve economic growth and competitiveness through innovation stemming from university research. Howard Newby's and Peter Scott's contributions in 2015 both pointed out the contrast between the dwindling public funding and the intensified public doubt about universities in the West and the strong government support and public valuation of universities in Asian countries with universities on the rise. Newby even titled his 2015 contribution "The Divergent Fortunes of USA, Europe and Asia" (Newby, 2015, p. 53).

## THE NUANCES OF THE CHINA STORY

While governments and the general public in the West may indeed learn from Asia, it has historically been instrumental for Asian universities to learn from the universities in the Western world, especially those in the US, in order to realize their ambition to become "world-class universities". In China, the tradition for Chinese students to pursue their advanced study in Western universities and of Chinese universities to be staffed by overseas returnees who were educated or trained in Western universities has lasted for a century. Since the beginning of the new millennium, the Chinese central government has been heavily investing in the development of public universities governed by the Ministry of Education in order to avoid brain drain and to develop the capacity to cultivate local talents for national goals. Subsequently, the central government launched a series of initiatives in pursuit of "world-class universities" (Lin, 2017, p. 30). The government commitment has included not only funding but also policy support. The Chinese government has learned from extensive studies of the world's best universities that the advancement of universities cannot be achieved by relying on monetary investment solely, but must take into consideration the institutional structure and work culture, including governance, management, academic norms and professional ethics. This new approach has been captured in the Chinese government discourse by the term "the modern university system" (Lin, 2017). The central government's ensuing encouragement of system reforms and innovations inside and outside universities is inseparable from the legitimacy provided by the world's best universities in the global arena, and enforced through the universities' international exchanges and collaborations.

Dr Bernd Huber, President of Ludwig-Maximilians-Universität Munich, defines "the model of the modern university" as including essentially institutional autonomy, academic freedom, peer review and the embracement of competition (Huber, 2015, pp. 69-70). Both Scott and Newby expressed doubts about how much China has implemented "the mode of the modern universities" through the isomorphism process (DiMaggio & Powell, 1991),

and, very noticeably, both point out that the key concern is about some normative issues, such as the adoption of academic freedom, gender equity, etc. However, with 20 years' experience working in the United States and 14 years of working in China, I would like to affirm that if one looks into the complex reality of the innovative Chinese universities, one will see clearly that their learning from Western universities has delved into the normative depth of the academic profession. A crucial factor that enables this normative isomorphism is globalization, which effectively removes the walls between countries not only for mobility, but more importantly, for sharing values and ideas, and for the formation of a global academic profession.

In Scott's review, he lists the mobility of students and academic staff, the establishment of offshore campuses, and world university rankings (Scott, 2015, pp. 33-34) as prominent features of the globalization of higher education. While, according to Newby, globalization is in general perceived as "pre-eminently an economic and technological phenomenon" (p. 43). To the rising Chinese universities, globalization can mean much more than that. I would like to share with the reader my observation of several new rising universities in China and, in particular, my own experience of building a new university, the Southern University of Science and Technology, in an emerging metropolis, the City of Shenzhen. I hope my contribution can enrich the analysis of the evolution of universities and contextualize the phenomenon of the rise of Chinese universities.

## THE NEW INNOVATIVE UNIVERSITIES IN CHINA

Thomas Bender, the renowned historian at New York University, argues that a city without a major university is an incomplete city (Bender, 1991). Along with the economic development of Chinese cities, and cognizant of the huge gap between Chinese universities and the world's best universities, several major cities in China started to build whole new local universities with an ambition to develop them into institutions of world-class quality in a short span of time. Examples are SUSTech in Shenzhen in 2011, the University of the Chinese Academy of Sciences (UCAS) in Beijing in 2012, Shanghai University of Science and Technology (ShanghaiTech) in Shanghai in 2013 and West Lake University in Hangzhou in 2018. All four universities are supported by their local governments. SUSTech is 100% funded by governmental appropriation. UCAS and ShanghaiTech rely on the Chinese Academy of Sciences system to quickly assemble the necessary factors for operation, such as the faculty team, lab facilities, and degree conferral qualification, but they both receive capital funding from the local government to be able to build a state-of-the-art new campus, and to offer a competitive compensation package to overseas returnees. These three are public universities. In

contrast, West Lake is a private university starting initially only with graduate degree programs; undergraduate education might be added several years from now. In this case, it is again the local government that provides land and initial funding for buildings and research.

Another observation relates to the urban context. The city of Shenzhen is known for its paucity of higher education institutions in comparison to its large and young population and the prosperous economy dominated by successful private corporations. But the other three cities have already had world-renowned universities, such as Peking University and Tsinghua University in Beijing, Fudan University and Shanghai Jiaotong University in Shanghai, and Zhejiang University in Hangzhou. So why did they still commit to the creation of one more university? The answer is to create innovative universities that can truly adopt and implement a modern university system to ensure their success. The established universities carry too many conventions and history to reform their internal structures or really adopt practice proved to be successful by the world's top universities, such as the tenure-track system, the PI system, faculty governance of academic affairs, capability of generating high quality publications in the top English-language journals in the field, and a low student faculty ratio for substantial student faculty interaction, to name just a few.

These new universities almost exclusively focus on science and engineering. Not only are these subjects most directly pertinent to economic development. There have also been several successful precedents in the world which proved that the ambition of quick and major achievement is feasible. The role models include universities such as Warwick University in UK, Nanyang Technology University in Singapore, Postech in South Korea and Hong Kong University of Science and Technology in Hong Kong. Especially the success of the latter three Asian universities demonstrated to the sponsoring government and the founders of the new universities the effectiveness of borrowing from the Western university system.

While the central government has increased funding and policy commitment since 2000 to those universities under its governance, it has paid more attention to policy compliance and quantitative evaluation. The role the central government plays is that of a regulator. A significant difference between the central and local governments is the fact that the latter have a stronger sense of ownership in the higher education experiments and are more likely to form a real partnership with the universities. The local governments care more about the practical output and real impact of these new universities. On one hand, the universities work very hard and spend one year like three years; on the other hand, they attach great importance to media strategies in order to gain more confidence from the governments by generating positive publicity. By referring to the successful universities in

the world, they also work on persuading governments to be more patient and remind the latter of the importance of arm's length. As suggested by colleagues at the Colloquium, the "partnership" and the universities' institutional autonomy will be tested when the governments try to hold the universities accountable through any measurements or when the universities develop beyond the interests of the local governments. There is still a long way to go to generate true partnership between these universities and their local government, or to pave the policy ground for institutional autonomy, which shall be the very foundation for a sustainable development of these universities in the next 50 years toward excellence.

The above context is crucial to an understanding of the current advancement of the new Chinese universities. Very visibly, they all feature lavish government investment, but more significantly they are also sustained by institutional innovations, internationalization, and a close partnership with their cities. These features are most distinctive in the case of my own university, SUSTech, located in the City of Shenzhen, which I would like to use as an in-depth case study. In comparison with the other three peers, it has a simpler governance relationship with the government, plays a more instrumental role for the future development of the city and resonates more with the trailblazer spirit of the city itself: Shenzhen was established as the first special economic zone in China, the first window to the world in the post-Mao era, and the cradle for the Open and Reform Policy of China.

## **SUSTECH AND THE CITY OF SHENZHEN**

The idea of establishing SUSTech as Shenzhen's first research university was formed in 2007 by the municipal government when the city was officially 27 years old as China's first special economic zone and 28 years old as an administrative division on the Chinese city map. It had started in 1979 with a population of 300,000 and a rural economy featuring fishing. In 2007, the City had still only one teaching university, one polytechnic college for associate degrees, and three graduate schools as the branch campuses of Chinese universities from other cities. Since the higher education system was not able to catch up with the economic and urban development of the City, the City had favored a "borrowism" strategy by inviting famous universities in other major cities to establish their branch campus in Shenzhen, which was a fast approach to address the needs of fundamental research and high-level talents. In 2007, the municipal government eventually determined to invest in the creation of a local research university that could provide the original knowledge, technology innovation and talent development for a sustainable future of the city.

In 2009, SUSTech appointed its first president. In 2011, located on a borrowed campus, it had its first cohort of 44 undergraduate students, a

dozen faculty members, four departments, five degree programs, and a budget of US\$15 million. In 2012, it was officially recognized by the Ministry of Education. In 2012, the city had a population of 14 million with an average age of 27; the 4th largest GDP, and the most vibrant market economy with the largest number of private companies among Chinese cities.

In 2017, Shenzhen set the goal of becoming an international innovation hub for high-tech industries. In 2018, the City declared itself an international innovation hub for science and technology. Interestingly, the same year, Shenzhen was ranked No.2 by *Lonely Planet* among the ten cities in the world that are most deserving to be visited. The city now has a population of 21 million with an average age of 33; the 3rd largest GDP, the most fully developed industry supply chain among Chinese cities, and was ranked the 14th financial centre globally by the Global Financial Centers Index (London), released in March 2019. In particular, Shenzhen has been known as China's Silicon Valley but with strengths in both hardware and software, and has been the cradle to multinational corporate giants such as Tencent, Huawei and DJI.

In fall 2019, eight years after the enrolment of the first class, SUSTech has 4,205 undergraduate students, 2,214 graduate students (majority PhD students), 800 faculty members (about half are tenure line faculty members, half research and teaching faculty members), 15 departments and 29 degree programs that cover sciences, engineering, business, life science and medicine, with a budget close to \$500 million and a campus with construction areas of 522,000 square metres (to be doubled by the end of 2020).

The City of Shenzhen is gradually ascending to the status of an international metropolis. On 18 August 2019, the State Council of China issued a monumental directive to designate the City of Shenzhen as an exemplar city in China to pioneer and showcase the development of advanced urban civilization. The 30 areas in which this directive eagerly propels Shenzhen to excel include a national scientific research centre, medicine, creative design, financial market, digital currency and mobile pay, innovative digital economy, ecocivilization, talent policy, deep ocean research, to name just a few. Many of these areas, if not all of them, cry out for a prominent role to be played by research universities for the advancement and sustainability of the city, the country and the human society. It is especially encouraging that the directive reiterates the importance of sticking to the course of internationalization and open-door.

The University has benefited enormously from the City's steady growth and rising status. Although SUSTech is still too young to see a large number of distinguished alumni contribute to the development of the City, for three years in a row the University has been acknowledged by the City as the best talent-recruiting institution for the remarkable number of its senior academic

hires. The University has made remarkable progress in building strong research programs and state-of-the-art facilities in particular areas, such as the third generation semiconductor, quantum physics, brain research, artificial intelligence, robotics and advanced manufacturing. They will enable the City to venture into the future frontiers of technology innovation, in the next era of economic development of the Greater Bay and of globalization.

Needless to say, the development of the University is also a process to obtain an indigenous adaption to Chinese society by working on problems imperative to the local area. For example, the University's College of Environmental Science and Engineering established the Institute of Research on Sustainable Development to address the urban and environmental problems while Shenzhen is fast growing into a mega-metropolis. The University states its development principle as being "rooted in China and striving to achieve world-class quality".

More comprehensible for a wider public is the rise of SUSTech in the university rankings. According to the 2019 and 2020 World University Ranking by Times Higher Education, SUSTech was ranked No. 8 and No. 9 respectively among mainland Chinese universities, with the highest publication quality in China, and ranked between 300-350 in the world. The THE Young Universities Ranking has SUSTech at No. 55 in the world. *Nature Index 2019* placed SUSTech 28th in China, 183 in the world, 4th in the list of Rising Stars. The international rankings are really helpful to the University to flag up for the general public who we are, and for the government to know where our standing is in the university system. This is especially important since SUSTech is not a "985" or "211" project institution nor does it belong to the "Double First Class University Plan" in the MOE-managed system.

I think it is fair to say that we have seized the historical opportunity China has offered to her higher education. More importantly, we must have done something right. Among Chinese public universities, SUSTech has the only governance system featuring a Board of Regents, a collective board comprised of the University senior management and other representatives, the executive of the Municipal Government, and leaders of the larger social sector, from business and education. We are also the only Chinese public university that selects its own president through the Board of Regents rather than accepting appointment from the government, and the first Chinese public university that admits 100% of the students not solely through the national college entrance exam (Gaokao) but a rigorous admission procedure with all-round assessment (the "631" model) that is based 60% on the Gaokao, 30% on a SUSTech-administered test and interview, and 10% on the previous high school performance.

The University is international, English-speaking, innovative and entrepreneurial. The overall strategic development of the University is guided by

---

an International Advisory Council (IAC) comprised of 16 university presidents or former presidents; 90% of the faculty members have been trained or had previous appointments abroad, 60% of them from the world's top 100 universities, and about 30% are foreign or Hong Kong passport-holders. All tenure line faculty members receive generous start-up funding so they can focus on meaningful work. Teaching affairs, hiring and promotion are decided by academic committees constituted of academic department chairs. Faculty members collectively design the curriculum and individually decide how to teach, while being evaluated by students and faculty peers.

More than 70% of the required undergraduate courses are taught in English. The students enjoy a student faculty ratio of 10:1, a living learning environment that relies on both classroom learning and a residential college system for whole-person development. All faculty members, including the university's senior academic leaders, are assigned to a residential college as faculty advisors; 100% of the undergraduate students participate in research. Study-abroad programs are an essential part of the undergraduate education. The students do not have to claim a major until as late as the end of their second year and are strongly encouraged to look for their true passion, using the help and clues they can get through research, advising or individualized course taking. The science and engineering curriculum is complemented by a large number of course choices in the humanities, social sciences and arts. SUSTech is the first Chinese public university that has implemented a requirement of writing courses to train the students in critical thinking and communication.

Both faculty members and students are encouraged to engage in entrepreneurship. Faculty members are assisted by the Technology Transfer Office to collaborate with industries or start their own spinoffs. Since 2015, the University has seen the establishment of more than 50 companies. Due to the fact that we foster relevance to the local economy, the students have more internship choices and receive a variety of real-world problems contributed by local companies for their senior capstone project.

The university has implemented international models of university governance and education within a Chinese context to ensure institutional autonomy, student-centred education and high-quality research. The international partnerships provide us with the evaluation, recognition and endorsement by the top universities outside China, and, what's most important, legitimacy and protection. SUSTech is able to innovate in ways very different from established Chinese universities, while still being acceptable to the sponsoring local government and being in alignment with the monitoring government agencies at the provincial and national levels. In 2016, China's Chairman, Xi Jinping, depicted a conceptual framework for development which emphasizes the leading role of science and technology, and



the propelling power of innovation. This national discourse enforces what has been embedded in the mission of the University, namely to serve the City's sustainable socio-economic development and to be the engine that propels the City's continuous prosperity. Through the success of its actions, SUSTech has built confidence within the Municipal Government in the importance and the promise of universities for a city's prosperity. As a result, Shenzhen now plans to invest in the establishment of several additional new universities over the next five years.

## RESEARCH UNIVERSITIES AND THE FUTURE OF THEIR GLOBAL COMMUNITY

We at SUSTech are not worry-free. It was true in the past that the idea of the university embraced a knowledge production and dissemination that were open to all. It is also true now that the relationship between universities and the knowledge society seems to create boundaries for what can be shared publicly and what cannot be. Professor James Duderstadt in his 2017 contribution to the Glion Colloquium succinctly summarized:

*In this knowledge economy, where the key assets driving prosperity are intellectual capital, education has become a power political force, both nationally and on a global scale. (Duderstadt, 2017, p. 194)*

This is the political landscape in which the research universities of the world are now situated, perhaps partly because we have done too good a job in serving economic society. The innovative new Chinese universities are the intellectual offspring of the modern university, the latter's indigenous adaptation in China and a new member of the international community. These universities maintain the openness of Chinese society to the world. That is perhaps true to the role of any university playing for its country and culture. It will be devastating to the universities in any country to sever the exchange and communication with the global scholarly community.

What the rise of Chinese universities mean is yet to be determined by how much significant contribution they can make to the human world, but not by the numbers of publication or citation index. I hope that the case study of SUSTech and the City of Shenzhen may be of help in our examination of the current situation, as an example of how indispensable research universities are to human society and a sustainable world.

## REFERENCES

- Bender, T. Ed. (1991). *The university and the city: From medieval origins to the present*. Oxford University Press.

- 
- DiMaggio, P. & Powell, W. (1991). "The iron cage revisited: Institutional isomorphism and collective rationality in organization fields". In *The institutionalism of organizational analysis*, DiMaggio, P. & Powell, W., Eds, The University of Chicago Press, Chicago.
- Duderstadt, J. J. (2017). "Preparing the American University for 2030". In *The future of the university in a polarizing world*, Weber L. E. & Newby, H., Eds. (Glion Colloquium Series No. 11, pp. 67-81). Geneva.
- Huber, B. (2015). "The future of universities: Academic freedom, the autonomy of universities, and competition in academic revisited". In *University priorities and constraints*, Weber, L. E. & Duderstadt, J., Eds. (Glion Colloquium Series No. 9, pp. 67-81). London, Paris, Geneva.
- Lin, J. (2017). "The evolution and missions of universities in China". In *The future of the university in a polarizing world*, Weber, L. E. & Newby, H., Eds. (Glion Colloquium Series No. 11, pp. 29-34). Geneva.
- Long Finance (2019) GFCI 25 Rank. Archived on <https://www.longfinance.net>. Retrieved May 2019.
- Newby, H. (2015). "Global diversity in higher education systems: The divergent fortunes of USA, Europe and Asia". In *University priorities and constraints*, Weber L. E. & Duderstadt, J., Eds. (Glion Colloquium Series No. 9, pp. 53-66). London, Paris, Geneva.
- Scott, P. (2015). "Glion colloquium: A retrospective." In *University priorities and constraints*, Weber, L. E. & Duderstadt, J., Eds. (Glion Colloquium Series No. 9, pp. 23-50). London, Paris, Geneva.