

# 8 Student Incubators in China

## The Cases in Shanghai and Wuhan

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### **Abstract**

This chapter focuses on the impact of environmental contextual characteristics on incubator practice. Environmental contextual characteristics refer to both the organizational character of the host university and the regional features where the university incubator is located, which intertwine and jointly shape the current profile of university incubators. Drawing upon two case studies of incubators in two universities with varying disciplinary strength (science and engineering, and teacher education) in two different cities (Shanghai and Wuhan), this chapter examines management policies and practices of the two student incubators and how such incubator profiles are framed by environmental contextual perspectives. This chapter first demonstrates the entrepreneurship initiative and student entrepreneurship development as background of the generation of university incubators, followed by an introduction to the two cases of university incubators. It then compares the varied incubation policies, structures, and practices in the two cases underpinned by regional characteristics and organizational institutions, supplying empirical evidence for further policy recommendations regarding student incubators and entrepreneurship in China.

### **Introduction**

The construction of student incubators in higher education as the innovation engine is a mirror image of the broad set of government-university-industry interaction in a triple helix context (Etzkowitz, 2002; Etzkowitz & Leydesdorff, 2000; Etzkowitz & Zhou, 2017; Mian, 1996). Student incubators at universities worldwide have developed significantly during the past decade, attracting rising number of students and alumni, involving expanding networks from diverse stakeholders, transforming technology and skills into an array of enterprises, and meanwhile relieving the harsh graduate unemployment in the

regional labour market (Etzkowitz, 2003; McAdam et al., 2006; McAdam & McAdam, 2008; Stal et al., 2016). And China is no exception. To date, almost all higher education institutions in the Chinese context have established diverse forms of incubators to encourage the entrepreneurial activities of both students and staff (such as student incubators, technology parks, entrepreneurial schools, university science, and technology zone), especially after the top-down initiation of “universal innovation and entrepreneurship” in 2014 (State Council, 2015a).

However, despite of the increasing scholarly work on general growth of business incubators and start-ups (Akomak, 2009), very few empirical studies have been conducted in the Chinese context. There is rising scholarly work in the Chinese literature during recent years (Lu & Etzkowitz, 2008), discussing the theoretical importance of student incubators in alignment with the enhancement of regional innovation level or describing the designing and running of the Chinese student incubators in comparison with incubators in the Western sphere such as the “Stanford-Silicon Valley collaboration” (Cheng et al., 2019; Jongwanich et al., 2014; Kim et al., 2012; Lu, 2008; Matt & Tang, 2010). Yet little ink has been spilled over the specialties of the student incubators in Chinese universities. Moreover, Chinese incubators do not necessarily employ a unified model. One reason is that economic development in China is rather unbalanced. Developed, coastal regions such as Shanghai can solely contribute a GDP over 10 trillion RMB annually and attract most innovative enterprises and international networks, suggesting rich entrepreneurial activities, business cooperative culture, and behaviour codes as references to incubator practices in the area. However, inland provinces in central and western China endeavour to upgrade their industry to attract more investment and therefore may demonstrate varied regional involvement in incubator activities. Moreover, Chinese higher education highlights itself as a highly hierarchical system (Ying et al., 2017), where top universities are prioritized in terms of financial resources, top-student recruitment, industrial alignment, and alumni networks. This suggests that student incubators in different universities may activate different resources and display diverse models. To date, we know precious little about how the environmental contextual characteristics shape the profile of university incubators, what lessons can be learnt after the top-down government initiative of “universal innovation and entrepreneurship” since 2014, and what timely feedback can be collected to support policy adjustments and incubator preparedness in the future.

This chapter focuses on the impact of environmental contextual characteristics on incubator practice. Environmental contextual characteristics refer to both the organizational character of the host university and the regional features where the university incubator is located, which intertwine and jointly shape the current profile of university incubators. Drawing upon two case studies of incubators in two universities with varying disciplinary strength (science and engineering, and teacher education) in two different cities (Shanghai and Wuhan), this chapter examines management policies and practices of the two

student incubators and how such incubator profiles are framed by environmental contextual perspectives. This chapter first demonstrates the entrepreneurship initiative and student entrepreneurship development as background of the generation of university incubators, followed by an introduction to the two cases of university incubators. It then compares the varied incubation policies, structures, and practices in the two cases underpinned by regional characteristics and organizational institutions, supplying empirical evidence for further policy recommendations regarding student incubators and entrepreneurship in China.

### **Entrepreneurship initiation, student entrepreneurship, and university incubators in China: a top-down process**

The knowledge transformation and technology industrialization required in incubation and entrepreneurial activities in the Chinese academic context can be traced back to the 1950s. Even though there were no guideline policies and regulations concerning university-industry collaboration back then, universities would offer technical solutions for industries under request (Zhou, 2008). This is the initial stage of the knowledge and technology transfer in Chinese higher education. From the 1980s, the government has published a series of policies and regulations regarding entrepreneurship in general in the society. Among these, the most cited is the document issued by the State Council: *Opinions on Further Efforts Relating to Employment and Entrepreneurship under New Circumstances* (State Council, 2015a) (hereafter referred to as *Opinions*). Measures include building the innovation and entrepreneurship platform at diverse levels (nationally, provincially, and regionally), introducing tax reduction and allowance to entrepreneurs, involving and encouraging more funding and financial sources, to enhance the interpleural service at diverse levels.

Documents targeting knowledge industrialization (or, in some analysis, knowledge or technology commercialization (Wu, 2010)) in higher education have appeared more frequently during the past decade to implement entrepreneurial education in universities and to establish service sectors (known as entrepreneurship and innovation colleges, university incubators, science and technology parks, or innovation centres) to serve the needs of entrepreneurship and innovation activities. Notably, industry was specially targeted by the government from two perspectives. Firstly, it suggests involving experienced entrepreneurs and investors from industry in the entrepreneurial education (such as guest lecturers, presenters, or entrepreneurial tutors). And secondly, the government encourages local societies, companies, organizations, or individuals to contribute to the capital funds or other types of financial support for student entrepreneurs.

The top-down innovation and entrepreneurship initiation in China is driven by two forces – firstly, the need of facilitating the economic transformation from relying heavily on manufacturing to a knowledge-based and innovation-led sector. And the university, as a key institution for scientific and technological

achievements, plays a central role in this process. Ever since the Reform and Opening-up from 1978 (Gan & Zheng, 2009) and the continuous efforts to promote educational and technological innovation, Chinese higher education has gone through significant development in terms of improved research capabilities and academic productivity, with rising expenditures allocated in education and research (Yang et al., 2018). The second driven force is the dramatic growth of the university graduates flowing into the labour market, after the dramatic expansion of Chinese higher education since 1999 (Liu, 2014; Mok, 2016). The number of higher education graduates has risen by 2–5% annually since 2010, and reached 8.34 million in 2019, leading to heavy burdens in the graduate labour market. To encourage and to facilitate student entrepreneurship has become a necessary choice of relieving the graduate employment pressure (Li et al., 2003; Zhou & Xu, 2012). Besides emphasizing entrepreneurship in sectors of high technology and innovation, the government also uplifts the entrepreneurship in social service. In 2020, a jointly issued document by seven government departments (including Ministry of Human Resources and Social Security) was published in 2020, namely, *Notice on Guiding and Encouraging College Graduates to Work and Start Business in Urban and Rural Communities* (Xinhua Net, 2020), which motivates graduates seeking employment or conducting entrepreneurial activities targeting serving household communities.

Under this top-down initiation towards innovation and entrepreneurship, the number of university students involved in or expressing interest in starting up both during and after graduation has increased greatly. A recent report from Renmin University based on a national survey revealed that 26% of graduates among all surveyed participants would like to be involved in entrepreneurship, while this number was 18% in 2016. According to the report, the leading motivation and incentive of the students for becoming involved in entrepreneurship is to seek autonomy and freedom in career and life, followed by economic incentives such as earning money. The number of students who actually started up their own business also rose across the country. The percentage of graduate entrepreneurs has doubled during the past 5 years from 1.6% in 2011 and remained at around 3% to date. The report also reveals that graduate entrepreneurship focuses on industrial fields with low thresholds such as accommodation and catering, as well as early-childhood education (private tutoring centres for pre-school children). Despite the increasing economic support at different levels, most graduates received their start-up funding from private network-related resources (with 37% from self-funding, 25% from partners, and around 10% from family). Lack of funding remains the biggest challenge for graduates inhibiting starting up immediately. Additionally, the success ratio of student enterprises was rather low. Most of the entrepreneurial activities failed to continue after graduation or after a certain period of graduation (MyCOS, 2015–2019; Renmin University of China, 2019).

Under the requirement of *State Council Opinions* (State Council, 2015b), student incubators (regardless of varying names such as entrepreneurial park, entrepreneurial valley, innovation park, technology park, university science

park<sup>1</sup>) have been built in almost all higher education campuses, and universities are the main operators of the incubators. Incubators offer service, assisting the transferring and commercialization of research products to students as well as academic faculties. The association between incubation and regional innovation and technological development is confirmed in recent studies. For example, drawing upon a provincial-level panel dataset over the 1997–2009 period together with adopting patents as an indicator of innovative capacity, Jongwanich and colleagues (2014) showed that incubators (science parks) had a significantly positive impact on regional patenting. More importantly, science parks play a key role in coordinating research and development (R&D) collaboration across various R&D performers within the region and indirectly contribute to upgrading the regional technological ladder.

Student incubators in China are in majority university-owned and operated, where students or graduates within 3–5 years submit applications to the university, and the university selects those with competitive entrepreneurial ideas to be the “incubatees”. The successful applicants will then be assisted by the university to fulfil the ideas, consistent with the university arrangement. However, in many cases, student incubators may also have diverse sponsors including government sectors, companies, investors, and other social groups. For example, the municipal government in Wuhan in 2013 established the first 25 incubators covering 4,000 square metres, targeting student entrepreneurship. Successful student applicants can use the facilities for up to 2 years without rent, meanwhile receiving a starting capital of 5,000–20,000 Yuan. Optics Valley Startup Café was established in 2013 in Wuhan by a group of experienced and successful entrepreneurs, aiming at building a hybrid platform and offering incubation and training for university students. The non-university-owned incubators, especially technology incubators, are always in close connection with universities. They regard universities as the source of new technology and actively seek collaboration and endeavour to facilitate knowledge commercialization. The positive consequence of industry-academy cooperation (Guimón, 2013) is supported by research. Chen et al. (2016) examined the influence of cooperation on high-tech firms. On the basis of an investigation of 552 high-tech firms and 56 universities, they found that the high-tech firms can improve the economic situation via cooperation with universities on the platform. Moreover, principal discoveries demonstrate that the economic performance of high-tech firms is positively related to the cooperation projects.

### **Method: field sites, cases, and participants**

This study is part of the ongoing research on university student entrepreneurship in China, and the chapter presents case studies of two on-campus student incubators conducted in 2018: student incubator of University-S (U-S) at Shanghai (hereafter referred to as U-S incubator) and student incubator of University-W (U-W) at Wuhan (hereafter referred to as U-W incubator). Both U-S and U-W are top-tier universities in Chinese higher education, which are

included in either the 985 project<sup>2</sup> or the 211 project.<sup>3</sup> They both are under the direct administration of Ministry of Education and receive a large amount of funds annually for research, innovation, and, more recently, entrepreneurship activities. U-S is traditionally strong in science and engineering, while U-W is strong in social science disciplines.

The activities of the two incubators also benefit from the geographic locations: Shanghai and Wuhan. The former city, Shanghai, is recognized as an international centre for finance and innovation (The Global Financial Centres Index 26, 2019). It is also home of the Shanghai Stock Exchange and the Shanghai Free-Trade Zone. The population of Shanghai reached 24.2 million in 2019, and it is the most populous urban area in China. The six largest industries of the city, namely IT, finance, commercial circulation, automotive manufacturing, equipment manufacturing, and real estate, contribute to half the city's GDP (Shanghai Municipal Statistics Bureau, 2014). There are 64 higher education institutions in Shanghai as of 2019 with a higher education population of over half a million, including four 985 project universities. The latter city, Wuhan, is the most populous city in Central China, with over 11 million residents. For decades, the city has been a hub for traditional manufacturing and enterprises for industrial modernization. To date, Wuhan has 3 national development zones, 4 scientific and technological development parks, over 350 research institutes, and 1,656 high-tech enterprises. There are 89 higher education institutions in the city (including two 985 project universities and seven 211 project universities), with a higher education student population of over 1 million.

This study adopts a qualitative case study approach to conduct the investigation of the student incubators, and the incubator (organization) constitutes the level of analysis. In the case studies, visit to the incubators, observation, and documentation were conducted to better understand the entrepreneurial context as well as the activities taking place in the incubators. Additionally, interviews were conducted with both the incubator administrative staff (two at each) and student entrepreneurs (representatives from 10 different teams at each incubator) whose team was selected to reside in the incubators. Questions were asked regarding their experiences, opinions, and reflections about the incubators. Participants were accessed through snowball sampling, and personal privacy and ethnicity were guaranteed during data collection.<sup>4</sup> Data were analysed following a comparative approach which is further demonstrated in the following text.

## **Data and analysis: a comparative perspective**

### ***Structure and managerial style of the incubators***

Even though both incubators function to facilitate the student entrepreneurship and hence enhance the innovation and knowledge transfer of the universities, they employ two varying managerial structure and operation models.

U-W incubator is part of the U-W Entrepreneurship School, which is under the operation of the U-W entrepreneurship company, a wholly owned subsidiary of U-W. The administrative staff of the Entrepreneurship School are both personnel of the firm and also from administrative department of the university. Unlike other schools which offer courses in normal teaching and research, the Entrepreneurship School works on three projects – firstly, to build labs for entrepreneurial training and practice. The completed labs (VR, AI, and 3D printer), however, have limited student participation, as such labs are not open for all and closed most of the academic year. The contact person explains that the maintenance of the labs requires considerable funds and resources, and hence they are not ready for public use yet. The second project is constructing a multi-functional cultural space for student recreation. Facilities at the space include a student cafe, bookstore, souvenir stores, and to-be-constructed campus cinema, which recruit student teams to run the facilities. Although it claims to be innovative, the second project awards limited autonomy to the students to initiate their entrepreneurial ideas but rather to fill the positions offered in the project. The third project is to run the U-W incubator, administrating the application and activities of the student entrepreneurial teams. Early-stage entrepreneurial teams, upon passing the proposal evaluation and presentation, will be offered working tables for a period of 3 months. They will be replaced by other teams if they are unable to register as a firm. The registered firms, upon being selected, will be allocated office area in the school. Notably, in order to reside in an U-W incubator, entrepreneurial teams must meet the requirement demanded by U-W: to include the name of the university in the registered names and to allow U-W entrepreneurship company a 5%-share ownership of the new firms.

The U-W incubator to date has only one full-time staff as a contact person. He is also an employee from the U-W administration. His major duties are to collect registration information of the incubatees and inform them of relevant regulations and university policies and daily logistics of the incubator (such as assuring that the teams pay electricity bills and rent on time). The micro-management approach at the U-W incubator partly explains the limited interest in applying for joining the incubator – the number of the teams is kept at a limit of 30, and most of the current teams are in the incubator over years. Occasionally the incubator administration organizes communicative activities between entrepreneurs and students (2–5 activities per academic year). The low frequency of the events and the inconsistent connection between regional industry and the incubator make it challenging to build a continuous communicative rapport, which can function as a resource hub to the student entrepreneurs and teams.

U-S, on the other hand, employs a more decentralized approach in the daily management of the incubator. The U-S incubator is under the administration of the U-S university committee of communist youth league. The incubator basic functions are structured in incubator handbooks, including information about entrepreneurship policies and entrepreneurial activity regulations

such as company-registration process and tax payment; to provide necessary entrepreneurial facilities such as office rooms, computers, or even labs; to offer financial support such as rent deduction; to award starting capital for successful applicants; and to facilitate the entrepreneurship education and create an innovative and entrepreneurial climate on campus. The daily operation, however, is decentralized to a whole student team from all 28 faculties of the U-S. The student operation team was divided into six groups, responsible respectively for project matching, resource exploration, logistics, activity planning, creative design, and public relations and media connection. In 2017, the operation team was updated and reorganized as the innovation and entrepreneurship service team, which is comprised of a student committee, an innovation department, and an entrepreneurship department (even though the two terms are not distinguished and in most cases are interchangeably used). Besides the aforementioned six groups, more specified groups are added, serving the needs of student entrepreneurs in terms of popularization of science, competition preparation, external communication, and human resources. To date, the service team has 68 students from all over the university. Their serving hours and work at the incubator can be recognized as credits in the U-S system. University administrative departments will not disturb the operation practice of the service team but offer them required resources and support.

It is challenging to reveal the relationship between incubator managerial structure and the efficiency of entrepreneurial activities, due to lack of data at the current stage. However, the micro-management of the U-W incubator seems to have blurred the focus of supplying incubation service into bureaucratic administrative procedures. Reviewing the operating documents of the two incubators, the U-W incubator administration has allocated considerable time and resources to demanding and checking the behaviours of the entrepreneurial teams, such as a minimum three working days at U-W incubator offices per week (those who do not meet will be moved out), timely payment of the rent and electricity expense, and spending two-thirds of the summer in the office. In contrast, the U-S incubator service team has a clearer target to serve the needs and facilitate the core activities of student entrepreneurship. The contrast can be seen in the organized activities of the two incubators. In 2017, the U-S incubator service team organized almost 600 activities (with over 70% in entrepreneurship seminars, 16% in competition preparation, resource matching, and team building) and the annual Student Innovation Training Program (SITP) (95% of the registered participants have passed the evaluation). Over 80 teams have successfully registered as firms. In addition, over 30 teams won competitions at either national or municipal level in the year. The U-W incubator, on the other hand, archived two meetings with the student entrepreneurs and three entrepreneurship seminars in the same year.

The difference of adopting a decentralized approach at the U-S and a micro-managed approach at the U-W can be explained by the varied entrepreneurship circumstances embedded in the two cities. Even though it is debatable whether the city policies contribute to fostering talent and boosting entrepreneurship,

Table 8.1 Stakeholder groups

|                          | <i>U-S incubator</i>   | <i>U-W incubator</i>   |
|--------------------------|--|--|
| Government sectors       | Funding source, co-organizer of activities   | Funding source, co-organizer of activities   |
| Social enterprises       | Funding source, co-organizer of activities, speakers in entrepreneurship seminars  | Funding source, speakers in entrepreneurship seminars  |
| Investors                | Funding source, co-organizer of activities, long-term or short-term tutors in training programmes, speakers in entrepreneurship seminars | Funding source, speakers in entrepreneurship seminars  |
| Alumni                   | Funding source, co-organizer of activities, long-term or short-term tutors in training programmes, speakers in entrepreneurship seminars | Funding source, occasional tutor in training programmes, speakers in entrepreneurship seminars |
| Individual entrepreneurs | Funding source, co-organizer of activities, long-term or short-term tutors in training programmes  | Funding source, occasional tutor in training programmes, speakers in entrepreneurship seminars |
| Other incubators         | Co-organizer of activities   | Co-organizer of activities   |
| Partners institutions    | Co-organizer of training programmes and activities   | Co-organizer of training programmes and activities   |

Shanghai highlights itself as an entrepreneurship city, featuring in a clear government stance of attracting capital and talents, and stabled neo-liberal entrepreneurial strategies and practices in expanded global connections and market mechanisms (Zheng, 2011). Shanghai outpaces Wuhan in almost all entrepreneurial environment index, including government programmes, research and development transfer, commercial and professional infrastructure, and business behavioural norms (Yang & Yu, 2007). Comparatively, market reforms proceed more slowly in Wuhan, and bureaucratic procedures remain functional in the society.

### ***Stakeholder involvement***

Stakeholders are involved in the practice of both incubators at diverse levels (as shown in Table 8.1), except that U-W incubator relies more on the alumni network to design its innovation training programmes, which take place in a limited way at U-W, while the U-S incubator manages to activate resources from multiple perspectives.

Entrepreneurship in nature requires communal and adaptive efforts in which multiple stakeholders are gathered together to perform valuable service (Shane & Venkataraman, 2000). This is especially essential in university incubator activities

where the major actors are all inexperienced entrepreneurs. Stakeholder involvement was stressed by all interviewed student entrepreneurs. During the interview, U-W students regretted the limited activities that involve stakeholders on campus; they also expressed dissatisfaction towards the U-W incubator leadership who demonstrated no concrete strategies and hence no efforts in bringing relevant stakeholders. In contrast, the U-S entrepreneurs appreciated the expanded social network brought by stakeholders and their valuable first-hand experience sharing. In fact, a considerable number of stakeholders were also funders, potential employers, or investors in selective activities. Additionally, the stakeholders contribute to the entrepreneurship education, in both the formal curriculum and informal activities. All these echo literature analysis on the positive impact of stakeholder involvement on entrepreneurial outcomes (Bischoff et al., 2018; Dew & Sarasvathy, 2007). As reflected by all the U-S entrepreneurs, the U-S incubator seemed to display an ideal benefit-sharing win-win model between incubatees and stakeholders. In this model, stakeholders contribute time in guidance and advice, and capital as seed money to incubate. And in return, the stakeholders get access to innovative entrepreneurial ideas supported by sound knowledge base at the U-S and a chance to invest in advance potential business.

The deepened involvement of stakeholders in the U-S incubator might be partly explained by the geographic location of the incubator. Shanghai as the international finance and trade centre naturally contains more dynamic business networks, creating a spontaneous connection between industry and higher education in knowledge commercialization. Another explanation might be the reputation of the U-S as a 985-project university endorsed by the government, which leads stakeholders to easily trust its qualifications and seek collaborations. In addition, the U-S is strong in STEM disciplines like science and engineering, which are prioritized in current entrepreneurship programmes. In fact, student entrepreneurs from non-STEM disciplines of both universities have expressed the confusion of the role of humanities and social sciences in entrepreneurship and innovation. Some of them started up in low-threshold entrepreneurship such as private tutoring, with limited involvement of high technology. This makes them feel they are “stealing the quota, and are ashamed when seeing other STEM-teams”, as described by one U-W student entrepreneur.

### ***Entrepreneurial mindset readiness of student entrepreneurs***

The general attitudes of student entrepreneurs towards university incubators are rather controversial. On the one hand, all entrepreneurs expressed the appreciation of the entrepreneurship atmosphere on campus, which contributed to the vigour of their campus life and widened network and vision. They also gave positive feedback concerning university efforts in incubation. The following illustration is representative among student entrepreneurs in both universities.

I was dragged into the entrepreneurship trend. . . . I feel like everybody is talking about entrepreneurship overnight, so many entrepreneurial

activities take place every day, this cannot be imagined years ago, we have caught a good time. . . . I also appreciate that I take the opportunity bravely when our teachers send us the registration form. . . . I probably will take a totally different career path, going to job fairs, sending CVs and waiting for interviews. . . . This brings so many possibilities for us.

On the other hand, most interviewees have not decided on whether to continue with the entrepreneurship after graduation, or to continue with postgraduate study, or to follow a traditional job-seeking path and give up entrepreneurial activities totally. Reasons for the uncertainties are manifold. For the first, universities play an ambiguous role in the share of the ownership of the registered firms. U-W incubator has stated clearly in its guidebook that the U-W would share partially the firms' ownership upon their successful registration. The U-W students expressed in the interview that the conflict between registered student enterprises and incubator is unavoidable. Entrepreneurs do not regard the U-W support as worthy of a share of firm ownership, while the incubator presumes that student entrepreneurs should be grateful and pay back after leaving the incubator. At the U-S, the negotiation regarding firm ownership is not shared; however, debates about patent use are voiced out. For the second reason, current guidelines at university incubators appear incomplete, failing to cover diverse aspects that the students care about. For example, students at U-S find no clear regulations concerning detaching the incubator due to patent argument. For the third, students are uncertain about the real capability of surviving in market competitions of their firms. The teams are well protected during the incubation. When the free or cheap office support facilities on campus, university-related funding, and networks are not accessible, are they really qualified as an entrepreneur?

The worries of the student entrepreneurs reflect that current university incubator profile is not yet able to prepare the students with an entrepreneurial mindset. Students are generally adopting a try-out perspective instead of being determined in their entrepreneurial activities. While this exit out of entrepreneurship of university graduates remains a universal problem (Zamfir et al., 2018), the practices of two incubators suggest a possible solution to develop the entrepreneurial mindset of student entrepreneurs in a proper way. That is, universities decentralize the routine management of incubators to student bodies and award a high level of autonomy in their daily practice, while regional industries open to intensive and continuous collaboration, aiming at a mutual-beneficial win-win model.

## **Discussion and conclusion**

This chapter illustrates the administration, operation, and stakeholder connections of two on-campus student incubators in China. It is found that universities have relevant high autonomy to design the managerial structure and operation model of the incubators, even though the student entrepreneurship and

establishment of student incubators are under the top-down initiation of the government. The chapter highlights that the decentralized, service-oriented model in incubator administration and management facilitates the richness of activities, as well as the productivity of the incubator. Students entrepreneurs are also more motivated in daily practice. On the contrast, the micro-management model will sacrifice the efficiency of incubation and student motivations. This suggests the need of updating the administration logic from management-oriented into service-oriented, not only in incubator administration but also in Chinese higher education administration, given that the on-campus incubator management is also structured in the university administrative system.

The differing performance of the two incubators described in the chapter implies the important role of regional and organizational characteristics in boosting entrepreneurship and innovation – a perspective which is only limitedly examined in current literature. At the regional level, the entrepreneurial environment functions as a contextual foundation, significantly impacting stakeholder involvement, entrepreneurial training, and the incubator entrepreneurial climate both implicitly and explicitly. At the organizational level, instead of passively following the government guidelines with measures such as setting entrepreneurial credits and entrepreneurial apprenticeship/tutoring mechanism, universities are able to actively mobilize resources, design entrepreneurship programmes, and seek cooperation. While regional development exerts more requirements regarding policy inclinations and resource allocation, organizational improvement can be achieved in a more timely way by adopting a neo-liberal, creative, and open-minded approach, involving stakeholders and mobilizing resources. It would be thought-provoking in future research to conduct more case studies in diverse regions and higher education institutions in a hierarchy system in China, to compare their daily practices and structures, to collect effective regional and organizational characteristics, and to offer references to each context.

This chapter also highlights that an entrepreneurial mindset among students is not yet developed, regardless of the government initiatives and “universal entrepreneurship” campaign for years. While the reluctance of the entrepreneurial mindset is a universal issue, a few reasons could be mentioned which lead to the unreadiness of the student entrepreneurial mindsets in the Chinese context. Firstly, the role of higher education in fostering regional innovations is not fully accepted and understood in the current higher education system. The conservative perception of looking at higher education as an educational site offering teaching and learning is still influential. Accordingly, most higher education programmes have limited relevance to the labour market. Curriculum design is still isolated from the enhanced academy-industry alignment oriented towards innovation and entrepreneurship, especially in non-STEM disciplines. In this context, boosting entrepreneurial activities in many universities appears to be quota-filling behaviour, accomplishing tasks demanded in the “mass entrepreneurship” initiative, such as the U-W incubator practice described in the chapter. Secondly, a systematic training programme to develop future

entrepreneurs as well as entrepreneurial education is needed in incubator practice and the higher education curriculum. Current entrepreneurship training at incubators has been largely outsourced to stakeholders who are experienced in business activities and have connections with the universities. As valid as such individual stakeholder cases are, entrepreneurship training and mindset building demand consistent and sound framework support, both theoretically and pragmatically. Literature confirms the positive association between entrepreneurial education, entrepreneurial mindset, and entrepreneurship intent (Cui et al., 2019). Universities in China have, to date, established a wide variety of entrepreneurial education programmes; the next step is to build a quality system to ensure the qualification and consistency of such programmes and to embed the education in entrepreneurship activities on campus in future endeavours.

## Notes

- 1 All these names are obtained and directly translated from the university-run incubators in China.
- 2 Project 985 is a project launched by Chinese government to support the development of the Chinese higher education system. The project involves both national and local governments which allocate large amounts of funding to selected universities to facilitate the academic strength, research productivity, and internationalization. In the latest Academic Ranking of World Universities 2018/19 and the Times Higher Education World University Rankings 2019/20, most of the 39 universities in project 985 are ranked among top 500 universities in the world.
- 3 Project 211 is a project aiming to improve the research qualification of Chinese universities with research fund allocation and support. During 1996 to 2000 (first phase), approximately US\$2.2 billion was distributed to selected universities. China has 116 universities which meet the 211 project criteria including scientific qualifications, degree programmes, and research outputs. Project 211 universities train four-fifths of doctoral students and one-third of undergraduates in Chinese higher education. They run over 90% of the national key laboratories, taking 70% of scientific research funding. In the latest Academic Ranking of World Universities 2018/19 and the Times Higher Education World University Rankings 2019/20, most of the 39 universities in Project 985 are ranked among top 500 universities in the world.
- 4 Both incubators own limited space to host entrepreneurial activities. It is therefore not challenging to identify the personal information of the student entrepreneurs, if detailed information about universities or names of the incubators are given. This chapter hence uses abbreviations (U-S, U-W, U-S incubator, and U-W incubator) to refer to the universities and incubators.

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