

## **Changing the Culture of Innovation in Shanghai: Open Innovation Spaces**

Clément Renaud, Post-Doctoral student, Telecom ParisTech, UMR I3

Clement.Renaud@telecom-paristech.fr

Valerie Fernandez, Professor, Telecom ParisTech, UMR I3

Valerie.Fernandez@telecom-paristech.fr

Gilles Puel Associate Professor, University of Toulouse, LEREPS

Gilles.Puel@univ-tlse2.fr

### **Abstract**

The concepts of ‘open innovation’ and ‘third places’ are at the heart of the new innovation economy. This study is part of a larger research program on these new innovation dynamics in China and focuses specifically on the city of Shanghai. It documents the emergence of several spaces that provide resources for creative, technological and/or entrepreneurial practice communities. It also identifies different urban models, whether initiated by local communities or government, that served as a foundation for developing a network of innovators.

### **Keywords**

Shanghai, open innovation, third places, makers, communities, urban development, immaterial goods

Following the desire of China's central government (Sanjuan, 2001), since 1949 Shanghai's mission has been to welcome new industrial trends and to house innovative forms of manufacturing, seeking become the top destination for creative industries in particular. To support this major initiative, the city government drew on global examples, primarily the so-called cluster policy. This policy meant building and restoring large office spaces to house young companies that were to become the future jewels in the city's crown. Since the launch of these clusters, the results have been quite mixed. These gigantic building complexes enabled the growth of a real estate model that was certainly very profitable, but failed to bring forth a network of individuals and small innovative companies that would support the growth of local industry. Yet outside these office buildings, a group of actors were able to build a solid network, which resulted in many success stories involving technological, cultural, and social innovations.<sup>1</sup>

In response to this semi-failure of the clusters, local initiatives started by communities themselves developed alternative urban forms based on the ideas of sharing, making, and creativity. This movement, influenced by similar experiments in North America and Europe, was encouraged by state and local public policies. The purpose of this article is to show that local actors' adoption of innovation models in dedicated spaces, inspired by open innovation dynamics, drove the growth of innovation and a change in the very culture of innovation.

The first part of this article retraces the forms of the crisis in Shanghai's innovation model. The second part presents our research protocol, followed by the initial results and an analysis of the emergence of these new urban forms of open innovation.

### **Shanghai: A City of Cultural Industries**

Shanghai, which has been exposed to cultural influences from around the world for several decades (Henri & Zheng 1999), is largely focused on the creative and cultural industries (Greenspan, 2014): "as a large metropolis, Shanghai has a large creative sector regularly coming in the top three

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<sup>1</sup> Various incubation programs such as *Transist*, *Chinaccelerator* and *StartupWeekend* enabled tens of companies to be created.

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Chinese cities on the various league tables and indexes of cultural infrastructure and output” (O'Connor & Gu, 2014).

In fact, Shanghai became the keystone of China’s policy to increase its soft power internationally, which has been a major part of the country’s political agenda since the eleventh five-year plan in 2006. The “Outline for the Cultural Development Planning for Shanghai 2004-2010,” published by the Shanghai municipal government, highlights the importance of creating Creative Industry Clusters (CIC). These spaces are tasked with bringing together companies in the cultural sector to foster their development. Starting in 2005, the Shanghai city government began to develop multiple clusters, either renovating abandoned factories as in the case of Tian Zi Fang and M50 (Lu Pan, 2008) or building new business centres for companies. This cluster policy in Shanghai serves as more than a micro-economic initiative; rather, it expresses an ideology of urban development based on the creative economy (O'Connor & Gu 2014), which in turn is supposed to create the conditions for a creative class to emerge, able to modernize the country's economy.

### **The Relative Failure of the Cluster Model in Generating Innovation**

While their number increased from two to more than 90 in 10 years, clusters have failed to foster the emergence of a creative economic network and a ‘creative class’ (Zheng, 2014). The objective of redistributing and sharing expertise, which was the main idea behind the clusters, instead had the opposite result, as resources were concentrated in the hands of large, often state-owned companies (Zhou & Jianfei, 2013). Moreover, the clusters seemed incapable of welcoming foreign companies, due to a lack of a culture of hospitality and the absence of protection of the rights of employees and companies (Jianfei, 2011):

We urgently need to create an ecosystem for this sector, including professional training, protection of intellectual property, and appropriate regulations and public policies...We must combine international experience

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and local practice.<sup>2</sup>

The relative failure of this cluster policy, created by the government and local industry, reflected a broader failure of the project to meet its original goal of supporting local SMEs, recognized as the leading producers of innovative practices and solutions. This ‘innovation crisis’ was a crisis in the institutional vision of what innovation is and what approach to take to foster it. Moreover, this vision had insufficiently taken into account the intangible assets involved, which are termed ‘cultural’ in that they precede operations and management style and a shared understanding of work and its aims.

As Keane notes (2012), “the top level is concerned with creativity but doesn’t really understand it” Indeed, political and business decision-makers often have a difficult time understanding the growing importance of a creative space for their employees in the company’s value creation chain.

On the margins of traditional institutions, many organizations have nevertheless begun reflecting on changing working patterns. Bringing together vast epistemic communities in their experiments with the media, self-employment, or entrepreneurship, these organisations have played crucial role in creating new practices (Holzner & Marx, 1979). In Shanghai, the ecosystem bringing together artists, curators, advertisers, investors, start-ups, and the media has largely been created by small independent organizations (Lindtner, 2012). These organisations play a synaptic role in establishing an international network that locally supports the economic development of the participants in this ecosystem.

## **Open Innovation in China**

Open innovation can be defined as an innovation process in which the sources of knowledge for innovation are widely distributed in the economy (Chesbrough, 2003, 2014). More than a precise

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2 Shanghai Municipal Government Information Office, *Development of Shanghai’s cultural and creative industries*, 2013, accessed 13 April 2015, <http://en.shio.gov.cn/presscon/2013/07/12/1152451.html>

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framework for working, open innovation refers to an environment in which organizations create a ‘capacity to absorb’ enabling them to use the spillovers generated by their competitors’ R&D or, in the context of a digital economy and society, those spillovers from individuals who create innovative products or services. Open innovation invites people to go beyond the paradigm of innovation driven by large companies and their R & D labs, toward one in which innovation is created by intra-preneurs and entrepreneurs. In this paradigm, innovation happens from the ‘bottom up’. This paradigm also includes the issue of intellectual property rights and is rather broadly based on the ideology and the practices of open source (software as well as hardware). Finally, the knowledge enabling innovation is disseminated over the Internet but also within communities and micro-organisations, which are crucibles for new ideas and knowledge sharing. Such “third places” (Oldenburg, 1989) are today at the heart of the open innovation paradigm. Coworking spaces, hackerspaces, and fab labs are all emblematic spaces for bringing together innovation actors and locating them in a physical place (Fernandez & Puel, 2013).

China offers a unique case for reflecting on this subject in its various dimensions. The Chinese legal system, or rather its application in practice, has largely invalidated western notions of the intellectual property of companies, leading many companies to copy existing products. This counterfeiting phenomenon has resulted in an iterative wave of new products, often called *shanzhai* (Puel, 2014), which can be considered as an innovation process (Keane & Zhao, 2012). In this case, spillovers involve an entire swath of the market, which is then flooded with technical and business models. The market rapidly benefits from these spillovers, since every time a new asset is acquired, it is disseminated throughout the ecosystem and all members benefit. The major firms of the Chinese web have largely benefited from the ban on their foreign competitors and have developed a vast market (Renaud, 2014). On the question of third places, China follows the same path as the movement in the West, but with particular aspects linked to the local scale and work mobility (Zhen & al, 2015).

## **Research Protocol**

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The innovation economy is built around the circulation of so-called intangible assets (such as ideas, designs, creative skills, and design thinking) that constitute the intellectual capital of economic actors (individuals, businesses, manufacturers) (Dumay et al., 2013). Research adopting a relational perspective toward economic actors (Bathelt & Glückler, 2011) has led to new approaches based on econometrics,<sup>3</sup> showing, for example, the importance of non-economic activities in increasing businesses' productivity (Corrado et al., 2014).

Examining the dynamics of open innovation, driven by “third places,” requires an eminently relational approach. This approach is based on the assumption that a given city or area's ability to innovate is based on situated processes of creation and knowledge transfer, and on the area's ability to bring together local actors and connect them with other actors in complementary businesses outside the given area. The present study examined the places that served as synapses in a physical and virtual network for creating intellectual capital, and the key actors in these places who were the focal points of the network.

Research for this study was conducted in three different phases.

The first was an extended period of participatory observation in Shanghai in 2011, which enabled the identification of third-places and a cartography of these spaces and their associated actors. Four meta-models of ‘third places’ were identified. Three of these models corresponded to contemporary forms of digital third-places identified in the relevant literature: coworking spaces, hackerspaces, and a hybrid model of these two. Although the places examined can be grouped into distinct categories based on their purposes, their business models varied. Xindanwei, a coworking space, counted on memberships or events, whereas the hackerspace XinCheJian earned money by renting the space; both, however, has the same purpose: to enable their members and users to develop new skills by carrying out professional or personal projects in their space. The business

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<sup>3</sup><http://www.oecdilibrary.org/docserver/download/5k4522wkw1r8.pdf?expires=1444294492&id=id&acname=guest&checksum=OD1156DA45F93C93B2CFE0BAEEC4E447>, accessed 14 April 2015.

model of the coworking space, People Squared, was based on promoting the building. People Squared's main objective was to support start-ups working in the Internet and mobile applications.

The second phase of research the following year involved desk research to validate and document these models, particularly regarding their specificities in China. During this phase, a fourth model was uncovered, that of "innovation houses," which are specific to China. Their business model is based on state funding, with an initial investment by the central government and then later support from the local community of residents (homeowners' unions). The goal of these houses is the transmission of the manual skills and know-how of technology to young schoolchildren.

In the third phase of research, we returned to China for fieldwork from March to October 2014. We focused on the physical spaces that played an important role in building communities of people who wanted to experiment with new design methods. Some of these places were important zones of contact with international culture in art, design and innovation, primarily Californian and European. The key places and their actors were first identified by mapping the physical as well as relational spaces in order to identify the unique character of the place, and this was done for each previously identified model. Using the person-to-person method of the Chicago School (Gotman & Blanchet 1992), we gradually validated or enriched our study design for questioning these networks' key informants.

For each of these places, an investigation was conducted *in situ*, including visits, drawing up an inventory of the various objects and equipment, and interviews with one or many of the key actors of these spaces. In all, 17 actors at the core of these communities were interviewed. The topics covered were the place's value proposition and business model, the sociological profiles of the users, relations with local and international actors (institutions, users, competitors, etc.), the idea and the practice of open source in their daily work context, as well as in Shanghai and in China generally. We also interviewed the users of these places, and the users' profiles varied

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according to the space.<sup>4</sup>

These investigations *in situ* were supplemented by meetings with several important figures of the innovation ecosystem in Shanghai in the area of recruitment, research, and entrepreneurship.<sup>5</sup>

## **Results: Open Innovation Places in Shanghai**

### Xindanwei

Xindanwei is a coworking space founded by a group of artists and digital art curators. It shows how the creation of a network of individuals on the margins of institutional dynamics enabled a rapid development of new ideas and practices, some of which were imported.

Created in 2011, Xindaweï was instrumental in promoting and developing new ways of working and designing in Shanghai. The name Xindanwei means ‘new work unit’ (*danwei* means ‘work unit’ and was used to designate a communist factory). For several years, the place has hosted workshops, conferences, and discussions on new modes of design and changes in the world of work in Shanghai and in the world. Despite its closure in 2013, it stands out as an important step in the development of a network of organizations and individuals interested in new collaborative ways of working in Shanghai.

The project was launched by Aajiao, an IT specialist turned artist, and Liu Yan, a former curator at the Electronic Art Festival who had recently returned from Holland. After arriving in Shanghai, they organized several meetings and discussion involving a diverse group of people, about new modes of expression and creation by the media. Liu Yan said:

“We organized a lot of very interdisciplinary meetups me and Aajiao. It was all about the

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<sup>4</sup> Fifty interviews were conducted from 2013-2014 in three different waves with a questionnaire translated from French into English and Chinese.

<sup>5</sup> All of the data is housed on a server of the French National Research Agency (**ANR as open data**). As part of the larger research project funded by the French National Research Agency (<http://www.agence-nationale-recherche.fr/?Project=ANR-13-SOIN-0006>), other ‘third place’ models of innovation were examined in other regions of China (Shenzhen and Nankin) that corresponded to different socio-economic configurations.

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processes between new media and design, you know all this stuff that had never been seen in china. We wanted to just show different way of making art because he is an artist and he was looking for new collaborators.

As the meetings were increasingly successful, the need for a regular space to organize these events and meetings became obvious. The Zendai Museum of Modern Art in Pudhong, and later the Shanghai Art Festival, made their premises available for hosting events. Gradually, the project put down roots in the centre of Shanghai and became the Xindanwei Coworking Space, as Liu Yan explains:

*To be quite honest, people were not attracted to this coworking concept at all. Most people come in just to be inspired, to be connected to other people, to hear about new ideas, new projects and then they just go home and they would not stay there for work.*

To ensure the survival of the place, the events were gradually charged an entry fee because, as Liu Yan said, *“Charging money, one way is to cover the expenses and secondly to filter some non engaging audience out.”* The community continued to grow rapidly: *“It was always full, people just loved every subject we bring and we also start to empower people to bring some people with ideas, contents.” ...*

While the place received increasing media attention and attracted many speakers and entrepreneurs, it still had problems generating enough revenue according to Liu Yan:

*We put our energy, 90% of our energy to maintaining space finding tenants and providing good service to them, you know. But still, I’m not too excited about this, it is not really my business model and I’m not really excited to grow this is as a model.*

In her interview, Liu Yan stated that the diversity of the people involved made managing the place difficult: “We were just a bunch of artists and we wanted to connect with everybody for the sake of being creative, for the sake of being innovative. This model is why it is difficult to manage a space where disciplines are melted there.” After the experience, she felt, “Personally, I would just want to

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work with the highly talented people, highly selective people and not just everybody.”

In 2013, as a second Xindanwei space had just opened its doors, the founders of Xindanwei decide to close shop for each of the founders to pursue other directions. Despite its short duration, the Xindanwei adventure remained very influential and was a turning point in the meeting of the new world of design and the culture of new media in Shanghai. Many companies started there, in social entrepreneurship<sup>6</sup> in particular. The very Western architecture of the second premises (located at the beginning of the French quarter in Shanghai) offered an atmosphere where foreign newcomers and Shanghainese people met, shared their experiences on specific topics (urban planning, design, technology, etc.) at specific events. As real learning platform, Xindanwei offered a place to meet and exchange (the ground floor was a cafe) and also spaces to experiment with working in an open framework (meeting rooms and offices).

### **XinCheJian: "Created in China" and the new culture of Chinese makers**

XinCheJian, a hackerspace association dedicated to technological experimentation, demonstrates the importance of non-profit and non-politically-affiliated models in building a sustainable ecosystem, including creating a relatively neutral space for discussion and learning.

XinCheJian is often considered the first hackerspace in China. Created in 2011, this non-profit organization welcomes the curious and technologists, whether engineers or not, who want to come together to work on the creation of digital and technological objects. Originally a small club of ‘geeks’ housed in the Xindanwei coworking space, this organisation grew rapidly, moving three times in less than five years, from an old factory to an office right in the heart of the city centre. Amanda, who manages the place, explains, “We try to attract more people that actually do stuff, instead of sit there and talk.”

Its growing success led the place to rewrite its role and mission, which has widened

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6 The creation of the Chinese branch of the Make Sense community, housed at Xindanwei, has supported several social entrepreneurship projects.

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considerably. The description of the space written by the members of XinCheJian on the website hackerspaces.org shows these changes. In 2010, XinCheJian was destined for “all those who are interested in understanding how things work and are happy to get their hands dirty.” At the end of 2014, the message became more assertive: “Our long term goal is to spread the concept and philosophy throughout China and inspire the creation of hackerspaces in every major city from the East to West.”

Indeed, this rather inconspicuous place has become emblematic of the new forms of innovation in China. In recent years, the Chinese government has paid close attention to these informal communities of technologists, often referred to as ‘makers’ (*chuangke* in Chinese). The announcement made in 2011 to open one hundred hackerspaces in the city of Shanghai is today being carried out<sup>7</sup> (see below). The Chinese Minister for Industry and Research recently visited XinCheJian<sup>8</sup> to express the support of the central government, which relies on hackerspaces to promote innovation at the heart of the new industrial modernization plan entitled ‘Made in China 2025’.<sup>9</sup> Xu Yuyan, director of the Minhang Development Zone and member of the government of Shanghai said during a visit to XinCheJian:

XinCheJian has succeeded in developing an entrepreneurial culture and a unique atmosphere very conducive to innovation...This place has had important impacts on industry today. It offers us guidance and support that is very helpful. We need more practical exchanges to understand each other and to enable others to benefit more broadly from our innovation

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7 *Chinese hackerspaces, or what happens when a government is run by engineers*, 27 November 2011, <http://hackaday.com/2011/11/27/chinese-hackerspaces-or-what-happens-when-a-government-is-run-by-engineers/>, accessed 14 April 2015.

8 “Maker Movement is getting a lot of attentions from the Chinese governments these days. China Minister of Science and Technology Wan Gang visited 新车间 [XinCheJian] on Saturday,” David Li on XinCheJian's Official Facebook Page, <https://www.facebook.com/taweili/posts/10153570475541562>, accessed 14 April 2015.

9 “大力推动中小企业创业基地和创客空间发展 [we must strongly support the creation of SMEs and the development of hackerspaces],” *Made in China 2025, the Pathway to Building a Strong Nation* Xinhua, 15 March 2015, [http://news.xinhuanet.com/comments/2015-03/23/c\\_1114725622.htm](http://news.xinhuanet.com/comments/2015-03/23/c_1114725622.htm), accessed 14 April 2015.

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system.<sup>10</sup>

While the word hacker (*heike*) has a strongly negative connotation, the more politically correct word ‘maker’ is now widely used in an attempt to get rid of the shadowy image of the hacker. This is an important change in the image of technology, and is also perfectly related to the shift that the Chinese government is trying to bring about in claiming Made in China’s as the leader of maker culture. The Chinese translation *chuangke* therefore takes the word ‘hacker’ and adds to it the concept of innovation and creation (*chuang*). Discussions about the translation of this new technological culture, and many others, have found a home in Shanghai in the XinCheJian space. One of the founders, David Li, has today become the evangelist of the maker cause in China. He has brought together technologists of all kinds around new innovation models in building the community. Originally from Taiwan and having lived for many years in the United States, for the last several years David has worked for traditional Chinese industry to encounter the hacker culture inherited from California (Le Dantec & Lindtner, 2012):

People are starting to learn about manufacturing again. We have lost the knowledge of the manufacturers. ... Jack [founder of Innoconn, the incubator for Foxconn] came here to do a presentation of what manufacture is. I mean the real manufacturing: how do you go from one to ten millions. ... All the terms in his slides they don’t exist in Wikipedia. TFM, TBD, everything manufacture-related are not in the Wikipedia. Nobody recall that knowledge.

Less than five years after its creation, XinCheJian has become one of the nerve centres for innovation in China, where manufacturers (Intel, Qualcomm, etc.), academics, young designers, and young students meet. Yet XinCheJian keeps a bit of distance from sponsors and institutions, as Amanda, who helps run the place, explains:

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<sup>10</sup> This quote, as well as all quotes of government officials and those interviewed at the Innovation House, were originally in Mandarin Chinese and have been translated by the authors and translator. Renaud, C., Puel, G., & Fernandez, V. (2016). Changing the Culture of Innovation in Shanghai: Open Innovation Spaces. In GeoInnov2016. Toulouse: EUROLIO.

you know, in hackerspaces like to keep our freedom, do our own thing. We have sponsorship documents we send to potential sponsors, companies or persons that might be interested in sponsoring Xincejian. We tell them specifically that the only thing Xincejian can do is recognize their position as sponsors, we will put their logos at Xincejian space and also on our social media and newsletter. That will be all what we will do.

The place, funded entirely by its members, seeks to preserve its original mission: to welcome those who want to find a place to learn and turn their technological ideas into reality.

Many people came with no idea what they are gonna do. Some people come to Xincejian having certain skills and wanting to see what they can do with it. And some people just come to develop some products or sth, to use the tools we have. They have one goal and that's all. (Ibid)

Based on learning, the XinCheJian hackerspace itself drew on existing examples around the world, such as Noisebridge in San Francisco whose founder makes regular visits to China. Today, many hackerspaces are emerging in cities throughout China such as Qingdao and Nanjing. XinCheJian has become a model for bringing together innovative communities in cities.

### **People Squared: Scaling Entrepreneurial Culture**

People Squared, a coworking space for web entrepreneurs, demonstrates how a model can become systematized and also the obstacles encountered when reproducing a culture developed in one space in other spaces.

People Squared is a company in Shanghai that offers independent workers and small teams coworking spaces in which to work and meet with other teams, primarily in IT and high-tech. People Squared consists of approximately 70% private offices and 30% open space offices. “We are hosting over 130 startups and teams over the all spaces. Most of them are early-stage, some of

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them have raised series A , series B. ” said Bob Zheng, one of the founders.

The two People Squared spaces visited<sup>11</sup> in the city centre of Shanghai (near Jing’an Temple) are mainly used by young start-ups and entrepreneurs, most of whom work in the field of mobile applications and social networking. The hackerspace XinCheJian, housed in one of these premises, seeks to generate a dynamic around the Internet of Things, which has led several start-ups in this field to be created there.

Founded in 2011, People Squared started through the initiative of Bob Zheng:

*We didn't start a coworking space intentionally. Our first space was actually my old office. I was running my own startup as well after I came back from Canada and our company was bought by another one. All of my team they actually moved to the new company, then we have the space pretty much open up and we are kind of looking for something to do.*

Four years later, the company has six spaces in Shanghai and two in Beijing with a total of 5000m<sup>2</sup> of office space and more than 130 start-ups, from complete beginners to series B. People Squared's mission is to provide optimal development conditions for young businesses by creating an ‘open’ and adapted environment. According to Bob:

A lot of people came to us just wanted to use us as an office space. We said yes to a lot of teams like that and they specifically ask us “okay, can we have a blind wall to separate us from the different teams. I dont want to see other teams.” But later we found that actually, it is those teams who won't come out and talk to the others – we called those teams ??? teams – because they are using the space but they are not using it correctly. We call it negative energy and sometimes, it will spread inside the space. So that's why we put loose

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<sup>11</sup> At the time, these were the only two that existed. Since, the company has expanded and there are now several spaces.

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inside our contract, our service agreement saying : “okay those are the things you need to do. Each of you need to share inside the brainstorming sessions, it is actually a must and there is other rules you need to follow before using such a space”

This culture of entrepreneurial development through openness and collaboration has developed today in Shanghai. Yet Bob Zheng believes that there is still a lot of work to do:

Before, when a team comes to us, the first question they are asking is : “how much is the rent ?”. Now, more and more, they are asking : “what are the teams inside the space ?”. They must the right team for you to get in. We find when we were entering Beijing, such awareness is actually not in there. The problems we faced couple of years ago, we even forget them, now they come back. So, if you are asking me the difference between Shanghai versus other cities, this market is a bit more educated.

By multiplying initiatives in order to sustain the community of entrepreneurs both in the coworking spaces but also in connection with those spaces (newsletters, events, etc.), People Squared enabled the systematization of energies and projects by offering a culture of open innovation codified through rules. The challenge was to create entrepreneurial successes by defining the basic principles of information sharing, group thinking, and business development models.

### **Innovation House (社区创新屋): the Shanghai Government’s Response**

Finally, the Innovation Houses, an educational project created by the city of Shanghai, offers a hundred places located within the residential communities throughout the city for new kinds of education based on design and making. They are used by schoolchildren and local residents.

The city government of Shanghai is also trying to respond to the need for infrastructure that can continue to expand the creative economy in the city. The municipality has placed its bets on the education sector and the construction of dedicated spaces in residential areas. Placing education at

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the centre of methods, practices, and tools of innovation, in 2014 the city's Science and Technology Department announced the opening of a hundred spaces, termed 'innovation houses' (*chuangxin wo*) located in the heart of the main residential areas of the city. Mainly aimed at retired people and children, the mission of these Innovation Houses is to bring a different relationship to work and production to the Chinese school system. The manager of the space in the Hongqiao neighbourhood explains:

The schools have special classes (*xingquban*) or courses and they come into my space to study woodworking. Every week, they come to a class for an afternoon. I am the teacher. With other schools, we have different arrangements and some have discovery programs where each class comes only once.

The physical space of this Innovation House is divided between worktables for manual activities and space for machinery, dedicated primarily to woodworking. For each area, the content sometimes differs widely depending on the team managing the premises, and the municipality does not provide a detailed program of the courses offered. Operating costs (wages and maintenance) are the responsibility of the residential area. Access is free for users, who are mainly the families residing in the area, except for materials, which are paid for by the users. Some workshops charge attendance (maximum 50RMB) in order to pay the teachers. These workshops are primarily to teach children to use the machines and, in particular, to know how to transform their ideas into reality. While the content of the activities is not specifically organized by the municipality, the decoration of the space communicates the official program, summarized in four words: "I create, I design, I use my hands, I produce" (*wo chuangyi, wo sheji, wo dongshou, wo zhizuo*). "As long as the activities are related to these four words, there are no rules about the subjects for the workshops. The main thing is that everyone uses their hands," said the manager of the place.

Shanshan, a member of the hackerspace XinCheJian, regularly works in these Innovation

Houses. She founded her company Make for Kids to offer introductory workshops on electronics to children based on open-source technologies. She recounted the creation of the project:

About 2 years ago, the government came to XinCheJian to discuss the creation of new spaces. They wanted to build a hundred spaces. They also wanted to know the details of the construction of this type of spaces, how to ensure that they become something new, something innovative.

### **Discussion: The Urban Fabric and Spatial Models of Innovation in Shanghai**

Spaces such as Xindanwei, XinCheJian, and People Squared are in direct contact with international communities of actors in their areas of expertise or with similar sites abroad. First, their founders all lived several years abroad (Canada, the Netherlands, the USA). Thus, each space is part of specific networks, whether they have an accreditation or not: that of hackerspaces for XinCheJian and coworking for People Squared and Xindaweï. These spaces' leaders participate in the activities of the global community: events, shared websites, etc. XinCheJian for example, has set up a "hacker passport" system with Noisebridge in San Francisco and others around the world, whereby its members can work in other participating hackerspaces. The coworking spaces also currently have memberships that allow access to other coworking spaces abroad.

The actors of these respective communities thus meet regularly. Each year, XinCheJian organizes a 'China Tour' for people from around the world who want to visit the world of Chinese electronics, or flagship events such as the Maker Karnival or TEDx that also bring together people from several countries. The various origins of people who attend these events reflect the diversity of these communities, with many Chinese and foreigners.

The Innovation Houses' program, however, remains local. In our interviews mapping the actors, no international participant was mentioned. However, these houses do have some international visibility through XinCheJian, thanks to Shanshan, the founder of Make for Kids and a member of the hackerspace.

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The four spaces presented here are all part of the same network dynamic, despite their relatively different character. The XinCheJian hackerspace was born out of the creative energy of the Xindanwei coworking space, which has since closed. That hackerspace then found refuge in another coworking space, People Squared, which supports web entrepreneurs. As for the city government, it decided to create its own educational model, drawing on practices found in these spaces and finding support within these existing communities. The threads that weave together innovators and entrepreneurs in the city of Shanghai, therefore, consist of closely related groups, each occupying a specific function. The XinCheJian hackerspace is central and seems to serve as the link between the different spaces. However, multiple models emerged at the end of this study: non-profit models of a ‘banyan tree’, an incubator, and an institutionalized model.

### **A Framework for Creating and Disseminating Knowledge and Skills**

Xindanwei, despite its closing, was an important driver in the development of this innovation culture in Shanghai. By hosting brainstorming and practice groups from its first days (which would eventually give rise to the XinCheJian hackerspace), the place offered the necessary space for creating and establishing the bases for the growth of today’s most important actors. Liu Yan, the founder of Xindanwei, described this model which she calls the ‘banyan tree’ model:

Xindanwei is probably more of a public center than an openspace. ... That's what I call the Banyan tree model. You know in India, there's a tree called the Banyan tree. While the mother tree probably already dead, the branches have become new trees. So, for me, that's the most, the biggest to accomplish, is to get the all community to grow out of this open innovation platform because that's open innovation. I don't like to licensed the model and don't want ot say : “this is our model”

By closing its business, Xindanwei decided not to try to reproduce a particular model of a space, but instead to lead an emerging and experimental culture to change scale, which is a risky and

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difficult challenge. The community that was created in this space then developed into a network, which subsequently spun off into many initiatives of which XinCheJian is one example of success. Conversely, People Squared, created at the same time as Xindanwei, chose a different route: to systematize their model in the more traditional form of an incubator.

The growth of Xindanwei's then XinCheJian's influence shows the key role that non-profit organisations can play in developing innovation in a city. The political and economic climate of Shanghai created a highly competitive environment, in which it is rather difficult for a new arrival to create trusted networks and share knowledge and skills fairly. The creation of learning spaces based on the support of its members enabled not only more independent experiments and greater risk-taking, but also a warmer welcome from sometimes competing initiatives. Here, the creation of a climate fostering open innovation enabled more fluid discussion and led to unexpected encounters. As rightly noted by the director of the Minhang cluster during her visit to XinCheJian, "The ability to attract entrepreneurs and innovators in the same environment and atmosphere is a resource and an important asset for the city of Shanghai." Thus, the creation of spaces enabling knowledge transfer is a key issue. Access to learning resources, including knowledge and know-how, is probably the most important component of Xindanwei and XinCheJian's success. By allowing newcomers to develop not only their skills but also their confidence and their networks, these places created an environment conducive to the success of innovative projects.

### **Institutionalization: Open Innovation as a Model for Learning**

Institutionalizing these places across areas as vast as the megalopolis of Shanghai is a risky gamble. With the Innovation Houses, the Shanghai municipality adopted the idea of the hackerspace but changed the location (extension outside the city centre) and the group targeted (families, not young technology enthusiasts), while retaining the learning model: openness and availability of materials, workshops, projects, and courses in the form of conferences. By institutionalizing these learning modes, the end goal is to create a new generation of young Chinese people who will know how to

think and design, how to be ‘creative’, and most importantly, be able to make their ideas a reality.

This learning model seeks to address several pressing needs in Chinese education:

- Weakness of the traditional education system: school learning mainly focuses on theoretical knowledge, leaving the practical skills to specialized schools (*jixiao*) that often have a poor reputation;
- Difficulty in reforming institutions: the complexity of relationships among educational actors and the urgent need for reforms in the Chinese system are entirely incompatible. By outsourcing a part of the answer to third places, the Shanghai government seeks to modernize education from the outside;
- Access to skills and information: the low trust that exists between different parts of society (school, family, government, etc.) makes it difficult to discuss and to circulate and transfer information. By creating open places, the government seeks to facilitate external contributions, allowing those interested to offer occasional workshops or regular talks.

The government’s educational objective converges with a social role of building neighbourhood places around schools, or rather, around the knowledge and the know-how of its inhabitants. This concept of open places is similar to that of *maisons de quartiers* or ‘neighbourhood houses’ in France, while nevertheless adding the challenge of creating a common culture based on ‘maker’ practices. The central role of work in this educational program reflects modern Chinese society. Nevertheless, the reactivity of local governments and their ability to understand and adapt to different management systems in order to reorganize the education system is astounding. Using new kinds of education to reform the somewhat obsolete models of industry and school can indeed rely on a newly developed set of practices that promotes learning by doing. Rather than focusing only competitive aspects, it is possible to establish modes of collaboration among different people and organizations in order to transmit knowledge and skills. Designing environments adapted that foster exchange and group learning constituted one of the keys to the success of this type of model.

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It remains to be seen how these organisations will last over time and what the response of residents and users will be.

## **Conclusion**

The innovation culture in Shanghai is largely driven by non-state actors who are interested in collaborative work practices and technology design. Coworking spaces and hackerspaces demonstrate the importance of these renewed forms of open innovation in a city like Shanghai. Another model of open places, but institutionalized, are those dedicated to learning ‘making’ in neighbourhood communities in Shanghai. These different places of acculturation to innovation through ‘making’ and social interactions supports the idea that spatial models promoting openness can provide the bases necessary for developing an network of innovators. Whether initiated by communities or by state actors, both try to respond to a double crisis in the competitive innovation model and in the outdated Chinese education model. As such, open innovation, understood as supporting learning through interaction, appears as a new paradigm. However, a fully assessment of these movements requires observation over a longer period of time, especially to see whether these models can be exported to other Chinese cities that do not have Shanghai’s tradition of openness nor its history of innovation.

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