

SEPTEMBER 2015



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2015

CHINA'S INNOVATION INCUBATORS: PLATFORMS FOR PARTNERSHIPS

CANADIAN VIEWS ON ASIA

CHINA'S INNOVATION INCUBATORS: PLATFORMS FOR PARTNERSHIPS

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The authors would like to acknowledge the valuable assistance of officials of the governments of Canada and China, and the leaders of numerous Canadian and Chinese innovation incubators and related organisations in the preparation of this paper, as well as colleagues from the Asia Pacific Foundation of Canada.



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INTRODUCTION

One important contribution of the Asia Pacific Foundation of Canada is its ability to identify best practices in one bilateral relationship that might work well in another. This paper derives from observing the business model of the successful Canada-India partnership between Ryerson University and the Bombay Stock Exchange Institute Ltd. (BIL), which provides academic training for 10,000 students per year in the financial sector in India. The BIL had wanted to develop an incubator and has now done so in partnership with Ryerson Futures Inc. (RFI). Now their two incubators are twinned through cross-appointment of key managers, with joint and complementary activities.² Furthermore, this partnership is now expanding to include other universities and other countries.

Is it possible or desirable for Canada to replicate this partnership, or some of its attributes, with China? This paper will address the question as to the potential for Canada-China partnerships at the incubator, accelerator, or even the start-up level. Certainly Canada has a rich experience of collaboration with other countries, including China, on technology development through university research partnerships, as well as through commercial and other research platforms. While some incubators in each country are already working together in various ways, there are challenges too, particularly those that are unique to the Chinese market. Is it possible for Canadian incubators and companies to obviate these challenges, or for China to reduce them?

²“Governor General opens BIL-Ryerson DMZ in India” at http://www.ryerson.ca/news/news/General_Public/20140303-official-opening-of-bombay-stock-exchange-dmz.html

Our research methodology was to conduct interviews with the leaders of selected incubators and accelerators in both countries representing a range of organisations, while considering relevant government policies and academic analysis. The paper does not purport to review all incubators in both countries, or the intersections of bilateral activities across all, but rather a cross-section that will provide an indication of the types of partnerships that are working, and will suggest the potential for more that could be done. The paper also proposes factors that should be kept in mind by Canadian and Chinese incubators, and by governments that may be considering initiating or deepening partnerships from an incubator platform.

Throughout, we are addressing incubators and accelerators that: 1) may be for-profit or not-for-profit; 2) are focused on technology products or services from a technology platform (as opposed to more general business incubators); and, 3) with incubators generally dealing with early start-ups, while accelerators help to boost a young company forward to become established in the marketplace, though references to incubator policy generally include accelerators as well.

It should be remembered throughout that dynamic high-tech innovation incubators and their role in nurturing start-ups are still fairly new in both Canada and China --- within a decade in Canada and closer to five years in China (recognizing that more traditional business incubators have been in both countries since the late 1980's). This is a story that is still being written, and Canadian incubators have an opportunity for market and innovation advantage if they develop partnerships early --- and under the right conditions.

CONTEXT

This is a time of change under the new leadership of China, as much in the area of science and technology as in other sectors of the economy. With President Xi Jinping signalling that innovation will be the driver of the Chinese economy, a new focus is being placed on how the current research and development landscape can be boosted to reinforce economic growth. Changes in S&T governance launched by President Xi in October 2014 are transferring decision-making authority for S&T program funding from line departments such as the Ministry of Science and Technology and the Ministry of Industry and Information Technology to new “professional agencies” which will be arms-length from government for more transparent and impartial decision processes.² Key S&T funding programs that have been in place for decades, such as 863, 973, Spark and Torch, are being assessed, merged, and reorganized as the budgets for R&D and commercialisation are reset. In the process, the suite of financial incentives available to companies and researchers in China is being transformed by a committee chaired by Minister of Science and Technology Wan Gang and supported by the powerful National Development and Reform Commission (NDRC)

² Interview with government officials, Institute of S&T System and Management, Chinese Academy of Science and Technology for Development (CASTED), Ministry of Science and Technology, June 16, 2015.

and the Ministry of Finance.³ With the recent economic downturn, it is now even more important to China’s government that innovation be enhanced as an engine of growth. Consequently, this is a time of great opportunity for Chinese businesses and netizens with innovative ideas for new technologies and services. Companies are being encouraged to partner more closely with universities, and researchers are being encouraged to turn their technology ideas into new products for both the Chinese and global markets.

One key platform for innovation in recent years has been innovation incubators which grow start-up companies to the point where they can navigate the business world on their own. While business incubators were introduced in China as far back as 1987⁴, these were the more traditional model of a number of companies housed together in an office building with common office sup-

³ For details of these changes see McCuaig-Johnston and Zhang, “China Embarks on Major Changes in Science and Technology”, *Occasional Paper Series*, China Institute, University of Alberta, June 2015 at http://www.china.ualberta.ca/en/EventsandAnnouncements/2015/June/~/_media/China%20Institute/Documents/Publication/Occasional%20Paper/STMcCuaigJohnstonZhang201506.pdf

⁴ The first incubator was in Wuhan Donghu Innovation Centre in 1987, according to Hu Ping in “Business Incubator Industry in China: Past, Present and Future” in *Tech Monitor*, September-October 2005, p. 25.

port services sometimes available. According to Hu Ping of Renmin University in Beijing, China's business incubator model has undergone a development quite different from those of other countries. Such incubators were found to be driven primarily by government subsidies with low corporate income, even in business incubators with more technology orientation such as the Tsinghua University Business Incubator.⁵ Furthermore, incubators in China's many Science Parks were being called into question as their growth was seen to be a top-down initiative from government with science parks being instructed to build and run incubators to help construct an innovation-based economy.⁶ In addition, in the 1990s and 2000s, there were few people in the "incubator industry" as it was known who had experience in developing and managing enterprises so they were not functioning effectively. As a consequence, the government began to withdraw from its person-

5 Ibid, p. 27.

6 Margaret Dalziel, in the International Comparison section of "A Study of Business Incubators and Business Accelerators in Canada", October 2012, p. 28 at www.theevidencenetwork.com/media/3639/ten_2012_bis_bas.pdf

nel management of the incubators to focus on its role as regulator and rule-maker, and encourage different forms of incubators.⁷ Government still endorses and funds some incubators but no longer has a role in running them as it once did.⁸

The innovation incubators of recent years in China follow much more the North American model of high tech start-ups being nurtured through in house training, mentoring, venture capital investment, and other supports needed by start-up companies developing new consumer technology products or advanced services to businesses. There tends to be a regional focus of incubators, with Beijing focusing on internet services, Shanghai on internet and makerspaces, Shenzhen on electronic hardware, and Chengdu on software, games and culture.⁹

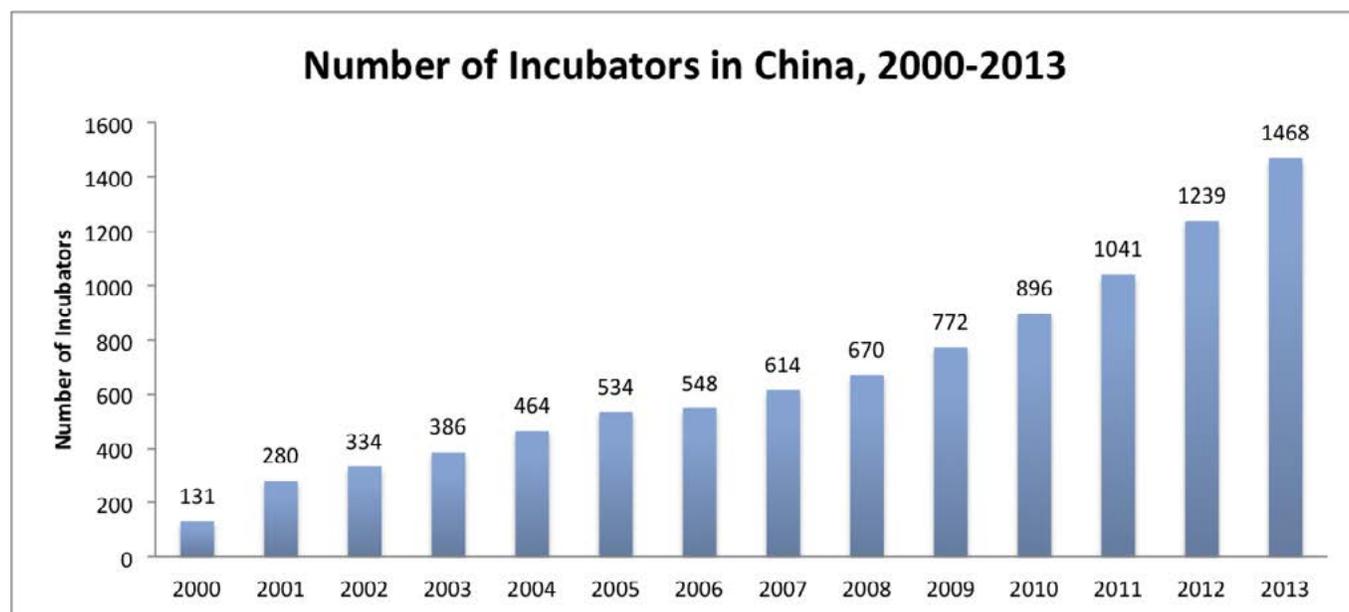
The senior leaders of the country have been highlighting the importance of start-ups and

7 Hu Ping, pp. 27-28.

8 Interview with Wang Hangbo, Investor and Partner, Chengdu Hi-coffee Incubator, June 18, 2015.

9 Ibid.

10 Torch Program website : <http://www.chinatorch.gov.cn>



Source: Torch Program⁹

incubators in the new landscape of innovation in China. Premier Li Keqiang has been visiting key incubators with considerable media coverage. The number of incubators in China has increased steadily, with the most recent statistics showing 1,468 in 2013 nation-wide.

Moreover, at a briefing for the National People’s Congress on March 11, 2015, Minister of S&T Wan Gang cited more than 1,600 technology incubators in place as of that date, with 49 start-ups being launched daily in the high technology Zhongguancun area of Beijing.¹¹ At the same time, it is known that only 1% of start-ups in China succeed, compared with 25% in the west.¹² But this just makes the role of incubators that much more important to increasing the success rate of China’s start-ups.

Within the official tally of incubators in China, there is a classification of those that are designated as “national” and those that are not. Nationally identified incubators enjoy preferential policies and subsidies. The Ministry of Science and Technology (MOST) is responsible for the designation and sets the criteria, procedure for application, and the approval process for nationally identified incubators.¹³ These incubators often receive Torch Program funding, and benefit in branding terms from the endorsement of the government which comes with the designation.

11 “China’s Silicon Valley Sparking 49 Technology Start-ups a Day” *Bloomberg Business*, March 11, 2015 at <http://www.bloomberg.com/news/articles/2015-03-11/china-s-silicon-valley-sparking-49-technology-startups-a-day> Note that the number of incubators includes some government centres, and centres for returning Chinese ex-pats.

12 Fiona Huang, “The Chinese Startup Scene, a Gold Rush or a Minefield?” in *The Entrepreneur Handbook*, February 19, 2014 at <http://www.entrepreneurhandbook.co.uk/the-chinese-startup-scene-a-gold-rush-or-minefield/>

13 ‘Identification and Management Methods of S&T incubators. Available at: http://www.most.gov.cn/fggw/zfwj/zfwj2010/201103/t20110308_85180.htm

Designation of incubators (2012 and 2013 only)			
Incubated firms	2012	2013	% Increase
Total	1,239	1,468	18.5
Nationally identified	435	504	15.9
Others	804	964	19.9

Source: Torch Program, Ministry of Science and Technology¹⁴

Financial data for the companies in China’s incubators is also impressive, as indicated below.

Financial overview of S&T firms in incubators			
Data for incubated firms	2012	2013	% Increase
R&D investment (100 million Yuan)	378.8	376.9	-0.5
Accumulated venture capital acquired (100 million Yuan)	357.6	436.2	22.0
Accumulated fiscal subsidy acquired (100 million Yuan)	151.6	142.5	-6.0

Source: Torch Program, Ministry of Science and Technology¹⁵

In a further effort to highlight the importance of incubators and improve their operations, the State Council recently issued two “Opinions”, which are similar to Cabinet decisions in Canada. The first was issued on March 11, 2015 and addressed incubators, makerspaces, a new form of incubator for individuals who invent new products, as well as “mass innovation” which in China refers to encouraging the citizenry in general to be involved with innovative processes in their communities. It also promoted the implementa-

14 Torch Program website: <http://www.chinatorch.gov.cn/kjb/tjnb/201501/64ee69d30ec84dc69e540231e75bc9fb.shtml>

15 Ibid.

tion of coffee incubators such as those that will be described in section 3 of this paper, and called for the funding of small scientific start-ups and technology commercialisation. (See Appendix 2 for more details on the March 11 Opinions.)

The second Opinions document was issued on June 16, 2015 and provides more detailed direction for implementing mass innovation and entrepreneurship. It establishes a broader array of policies and actions to accelerate incubation services, and it highlights as positive models several specific incubators mentioned in this paper, Innovation Works and Garage Café. Furthermore, it would link incubators with angel and venvap investors and strengthen collaborations abroad in innovation platforms including domestic capital investment. In addition, foreign talent will be encouraged to come to China and Chinese talent will be encouraged to go abroad in an innovation context. (See Appendix 3 for more details on the June 16 Opinions.)

In the lead-up to the issuance of the second Opinions document, at a June 4, 2015 conference of the State Council, Premier Li Keqiang urged local governments to give tax incentives to incubators, start-ups, and angel investors. He also announced that the government would be allowing for domestic listings of start-up firms that have some foreign ownership.¹⁶ This is an indication of a shift in policy in the government's rules against foreign ownership in China's internet sector and related industries, first signalled in the February 2015 release of a new draft Foreign Investment Law relating to variable interest entities (VIEs) which include some China-based technology start-ups. Listings of such firms in China rather

¹⁶ Reuters, "Chinese Premier encourages startup firms to list locally", *Globe and Mail*, June 5, 2015 available at <http://www.theglobeandmail.com/report-on-business/small-business/sb-growth/going-global/chinese-premier-encourages-startup-firms-to-list-locally/article24819501/>

than abroad will now be encouraged where control of the firm is in the hands of Chinese nationals but there is foreign ownership. In addition, there will be a loosening of the approval system for foreign investment.¹⁷

In recent years, other Chinese government measures have also encouraged incubator development. For example, the incubators in not-for-profit university science parks have been the recipients of business income tax concessions. It is thought that this will encourage universities to undertake more research and technology transfer, thereby accumulating more funding to reinvest in R&D.¹⁸

With respect to international connections, there is a concern in China that there are many entrepreneurs now, and they could go abroad so incubators are developing platforms that will encourage them to stay in China.¹⁹ As asserted by Wu Qing, Senior Research Fellow in the Development Research Center of the State Council Office (the counterpart to Canada's Privy Council Office), "... money is cheap in China now --- it's the team that is expensive".²⁰ China is taking significant measures to nurture their incubators to retain their top innovators and entrepreneurs.

Comparable, accurate up to date statistics for Canadian incubators and accelerators are not avail-

¹⁷ Major Tian, "What's Next for the Variable Interest Entity Structure?" in *CKGSB Knowledge*, February 5, 2015 at <http://knowledge.ckgsb.edu.cn/2015/02/05/finance-and-investment/whats-next-for-the-variable-interest-entity-structure/>

¹⁸ De-Jin Su, Murad Ali, and Dong-Won Sohn, "A Model to create high-tech start-ups from the academic environment: The case of Peking University (PKU) and Tsinghua University (THU)" *African Journal of Business Management*, Volume 5 (26), October 28, 2011, p. 10829.

¹⁹ Wang Hongbo, June 18, 2015.

²⁰ Interview with Dr. Wu Qing, Senior Research Fellow, Research Institute of Finance in the Development Research Centre of the State Council of the PRC, June 18, 2015.

able at time of publication. A Statistics Canada survey of incubators performed in 2007 identified (from a 70% response rate) 97 business incubators of which 55 offered either primarily technology incubation services (16) or both business and technology incubation services (39).²¹ Since the 2007 Statistics Canada survey was performed, the number of incubators and accelerators in the country has increased significantly. According to Gail Gillian-Bain, President of the Canadian Association of Business Incubation (CABI), there are now just under 200 business incubators in Canada, though more than 400 organisations say that they offer business incubation services.²² Innovation incubators are a further subset of business incubators. A report supported by the federal government is being prepared with Canadian and global statistics; it has a planned release in the fall of 2015. It is also noted that CABI is leading an important measure for Canada's incubator sector with an initiative to provide accreditation for best practices; the accreditation process itself is currently under development.²³ For the purpose of this paper, other statistical sources were sought and four additional reports listing Canadian incubators and accelerators were identified.²⁴ However,

21 Statistics Canada, *Survey of Business Incubation*, April 28, 2008. The population of organisations within the survey frame was determined with the assistance of the Canadian Association of Business Incubators and Industry Canada, and all units (listed incubators) were sampled. There was a further breakdown according to regional, sectoral, co-location, partnerships and other factors, but the statistics are now significantly out of date. See link at <http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=5095>

22 Interview with Gail Gillian-Bain, President of the Canadian Association of Business Incubation, August 21, 2015. See also www.cabi.ca

23 Ibid.

24 Rob Lewis, "The Comprehensive List of Canadian Incubators and Accelerators" in *TechVibes*, April 13, 2011. This article identifies only 20. See <http://www.techvibes.com/blog/the-comprehensive-list-of-canadian-incubators-and-accelerators-2011-04-13>

Fundica, "Incubators and Accelerators in Canada", August 2,

er, the lists were not consistent with one another. Given the emerging importance of incubators and accelerators in Canada's innovation system, it would seem that an update and enhancement of the 2007 Statistics Canada of the Survey of Business Incubation could be a useful complement to CABI's activities.

The National Research Council's Industrial Research Assistance Program (IRAP) had managed the Canada Accelerator and Incubator Program (CAIP) to fund outstanding groups at up to \$5 million each for a total of \$100M over five years. The program was launched on September 23, 2013 and ended on October 30, 2013, having received close to 100 applications; announcements of 22 successful organisations have been made in the years since then, and a number of these are implementing their plan in groups of two or three. A notable allocation under the program was the March 17, 2015 announcement of \$10.7M over five years assigned jointly to Ryerson University, Simon Fraser University (SFU) and the University of Ontario Institute of Technology (UOIT) to establish a national research-driven incubator network.²⁵ This initiative has tremendous potential to facilitate international collaboration, including with China, provided ongoing funding is identified when the government's funds are expended.

2012. This site lists 111 business and innovation incubators and accelerators, and a large majority of those involve technology and would be considered innovation incubators. See https://www.fundica.com/blog/d9dc1cd74e94a2cd/Incubators_and_Accelerators_in_Canada.html

"Tech Resources in Canada: Accelerators and Incubators" focuses on technology incubators and identifies 132. See <http://www.backbonemag.com/Tech-Resources-for-Companies-in-Canada/accelerators-and-incubators.aspx> Margaret Dalziel, "A Study of Business Incubators and Business Accelerators in Canada", October 2012, pp 32-41 identifies 150.

25 NRC-IRAP, Canada Accelerator and Incubator Program (CAIP), March 16, 2015 at <http://news.gc.ca/web/article-en.do?nid=949979>

FOUR INCUBATOR/ ACCELERATOR MODELS, AND THEIR CHINA/CANADA COLLABORATIONS

The starting point for this paper was the unique partnership that has developed between Ryerson Futures and its associated incubator, the Digital Media Zone (DMZ) and the Bombay Stock Exchange Institute's Zone Startups India (ZSI), a Mumbai-based incubator for entrepreneurs to fast-track their start-ups and connect with mentors, customers and investors. Looking at the DMZ/ZSI model, features such as the cross-appointment of a DMZ leader to the Advisory committee of ZSI, and incubator space in each for companies from the other country are making it a truly operational partnership rather than simply an occasional collaboration.

And the partnership also includes Simon Fraser University in British Columbia and the University of the Witwatersrand in South Africa.²⁶ This initiative, less than two years old, is already starting to reap benefits of access to other markets for business-to-business start-ups and consumer services in each country, and is attracting new investments that are building start-ups into innovative companies. So, could a similar partnership work with China?

²⁶ "New partnership forged with India, South Africa incubators" at http://www.ryerson.ca/news/news/General_Public/20150209-new-partnership-forged-with-incubators-in-india-south-africa.html



The focus of this paper is innovation incubators and accelerators in China and Canada --- those focused on innovative technologies or innovative services from a technology platform, as opposed to business incubators or industrial science parks more broadly. Four incubator models of various size and operational models were identified, with similar incubators operating in each country in most cases with some level of China/Canada collaboration already happening or planned.

In China, the Torch Program has been the source of funding for the launch and operation of many of the Chinese incubators and accelerators. However, the program is one of numerous government S&T programs that are now being merged,

disbanded or renewed under President Xi Jinping’s restructuring initiative referred to above, and its new parameters and funding levels are yet to be determined.²⁷ In Canada, incubators and accelerators have often received national, provincial and/or municipal funding, either directly in the form of infrastructure support and other grants, or indirectly through university financial allocations.

The descriptions below of each incubator and its international partnerships are drawn from interviews with at least one of the leaders of each incubator as well as the organisation’s website and published brochures, unless otherwise indicated. These sources are contained in Appendix 1.

1. INCUBATORS WITH A PROPERTY-BASED FOUNDATION

The leading property-based²⁸ or real estate-based incubator in China is **Hanhai Zhiye**, generally known as Hanhai, which has locations across China as well as incubators in other countries.

²⁷ See description of the Torch Program in McCuaig-Johnston and Zhang, pp 63-64, along with analysis of the broader reorganisation of China’s S&T governance and programs.

²⁸ “Property-based enablers” is a term sometimes used broadly to refer to incubators, accelerators, science parks, technology transfer offices and other similar intermediaries (see Margaret Dalziel and Wei Yao, *Innovation Intermediaries in China*, 2010, p.1, available at SSRN: <http://ssrn.com/abstract+2630739>). In this case, “property-based” is intended to refer to those incubators where a building is constructed or rented with the intention of filling it with start-ups and other companies.

HANHAI ZHIYE INVESTMENT & MANAGEMENT GROUP

- Started as a commercial real estate company
- In 2003 added incubator service to attract start-ups to locate in their commercial space.
- Largest of the Chinese “innovation parks”; in office buildings rather than industrial parks
- Five national level incubators in China
- 3 million square feet of incubation space in China alone
- 10 thousand square metres
- As many as 100 companies at one location in China.
- 3 Sino-US Innovation Centres in Beijing, Shenzhen and Qinhuangdao
- Science & Technology Parks in Boston (IT, biotech), Los Angeles (culture and film collaboration), Munich (advanced manufacturing), and two in Silicon Valley (one with Zhongguancun, the other life sciences)
- Partner with local organisation to avoid business culture barriers;
- Management of each park is usually a local hire
- Invest in companies (dozens in each building) and provide training, legal and other services
- No loans; take % share of company – no top limit or fixed percentage
- Selection by team of experts; evaluation every 3 months once selected
- MOST and its Torch program strongly support Hanhai

According to Wang Shaokai, Vice-President of Hanhai, his was the first Chinese company to establish incubators abroad, in 2011, with significant branch incubators in the U.S and Germany with Hanhai’s role as investing with percentage ownership in local companies. Following its international engagement model to build international S&T service platforms, while leading the international development of China’s S&T incubators, Hanhai bought a building in Toronto and on October 9, 2013 with senior company and government officials in attendance, held a high profile announcement of a new China Canada Innovation Park, as well as a planned China-Canada Enterprises Innovation Centre (CCEIC) in

collaboration with the Ontario Centres of Excellence. Its objectives were to build a Sino-Canada technological exchange and promote technology transfer and economic development.

Unfortunately, the deal for the building had to be stopped when, during due diligence, an oil leak was found. But Hanhai was able to recover its \$2 million investment in this real estate, and for the time being, the three member staff are focused on partnering with current Canadian incubators such as OneEleven, government agencies and others to identify Canadian firms for investment with their \$39 million investment fund.

According to William Li, President of Canada Hanhai Investment Ltd., the sectors covered in Toronto by Hanhai are IT, medical devices, environmental protection and advanced manufacturing; it specifically excludes energy and resources. Hanhai leadership emphasizes that many smaller incubators focus on online services whereas Hanhai invests in “actual” technology, particularly IT and digital media. Hanhai also maintains working relations with angel investors in Burlington and Waterloo regarding early stage companies, and venture capital companies for later stage.

Mr. Li explains that it is not easy to decide on the right Canadian partner to engage with a Chinese partner, and he sees his role in part as a dating service as well as an investor. One of Hanhai’s attractions for Canadian start-ups and small businesses is that they provide three months’ time at a Hanhai facility in China, preceded by a team coming to Canada to brief company staff on what to expect in China, and ongoing mentorship. It is up to Hanhai staff in Toronto as to whether a Canadian company is ready to take that step. To date, two have met that mark: a pharmaceutical company and one with flexible plastics technology with automotive applications. Both have gone

to Shenzhen and have had what Hanhai refers to as a soft landing.



The Chairman of Hanhai Zhiye, Wang Hanguang, travelled to Vancouver in June 2015 to discuss Hanhai’s plans to launch an investment service there, focussing on new energy, new materials, and environmental technologies, while being open to other potential sectors of focus. According to Vice-President Wang, rather than building or acquiring a building, it could be possible to partner with a Chinese company with real estate in Vancouver already. This plan builds on the visit to Beijing of the President of the University of British Columbia in April 2015, as well as a previous meeting with the President of Simon Fraser University. In working with Canadian universities, organisations like Hanhai will soon find that the operational culture is not the same as that in China, with authority much more distributed in Canada rather than top down as in China. In addition, Canadian universities do not have the same deep pockets of private donors for matching investments that Hanhai may have seen in some US universities.

Hanhai’s attraction for Canadian industry and governments more broadly is that it can accelerate research results, let Canadian companies

know the needs of businesses and consumers in China, and bring Canadian products to China and promote them. However, this would depend on what the Canadian start-up wants to do with the IP of the company and its long term prospects. When asked how intellectual property is handled at Hanhai, Vice-President Wang indicated that this is often complex, and often buying the IP rights directly is most practical.

The closest comparable significant Canadian incubator platform to Hanhai is **MaRS** in Toronto which was funded in 2003 and opened in 2005 to focus on medical research, and which now covers a much broader range of innovation technologies. It was described by the federal government in its funding announcement as a virtual network of discovery linking universities, hospitals and companies.²⁹

MaRS has many international connections, and according to Earl Miller, Director of Global Initiatives, MaRS has a broad strategy of partnering in other countries with innovation hubs and incubators that already have a physical presence on the ground. This helps to provide networks for MaRS companies in entering the marketplace. This is particularly important in China which has a distinctly different business culture than that in North America. China too needs partners who can help its companies enter the North American market.

MARS

- Opened in 2005 as Medical and Related Sciences (MaRS)
- Now also covers broader technologies in cleantech, ICT, lifesciences, healthcare
- Partnership of governments, business, universities and NGOs
- Large complex built in Toronto to house technology companies, research and partners (87 tenants in 2015)
- Virtual network of discovery linking universities, hospitals and companies
- 1,000 companies (180 in cleantech), with 60-70 of those housed in the building in 2015, primarily life sciences, plus partner services
- Offers suite of incubator services and administers Ontario government's Investment Accelerator Fund (IAF) at \$500,000/company and Youth IAF with \$250,000 for under 30s
- JOLT accelerator program: workspace, market intelligence and \$30,000 investment

²⁹ Government of Canada, *The Budget Plan 2003*, Ottawa: Department of Finance, p. 128.

With this reciprocity in mind, MaRS and the **Shanghai Technology Innovation Center (STIC)** negotiated an agreement which was signed when Ontario Premier Kathleen Wynne visited Shanghai in October 2014. Each organisation will, in effect, be building a bridge into the marketplace of the other country. In addition to the framework agreement, there are annual strategic objectives and actions identified. Each will make available to companies a curated, tailored program of networking and contacts with key players, education about the Canadian market, one-on-one mentorship, meetings with potential clients, and other services to facilitate a soft landing in the other country. Certain costs will be borne by companies.

SHANGHAI TECHNOLOGY INNOVATION CENTER

- Not-for-profit under the Shanghai Municipality S&T Commission
- Innovation incubator for start-ups, accelerator space for entrepreneurs
- Impressive real estate facilities
- Rental fees charged for space and each service
- Training in entrepreneurship, management, legal, taxation, patent, professional technologies
- Financial and MBA courses
- Linkages with financial and venture capital supports
- Receives Torch funding

An added attraction for MaRS' companies is that STIC is linked extensively with other countries such as Germany, France and South Korea, and is a host and participant in numerous events with other countries at which Canadian companies can be showcased with global exposure in Shanghai. Of course, it would be up to MaRS companies as to which of the services they would like to take advantage.

The programs are now being delineated in detail by both MaRS and STIC with companies then being carefully selected to participate. While there are approximately 70 companies in the MaRS physical space, services such as this connection into China are potentially available to all the approximately 1,000 MaRS client-base of companies if selected. It is unlikely that new start-ups will participate; rather, it is expected to attract the more mature small and medium-sized enterprises (SMEs) among MaRS' young companies, with products already rather than those in the ideas stage.

There had also been an initial discussion between MaRS and the Toronto office of Hanhai, but Hanhai were interested in acquiring real estate assets by purchase, not rental, and MaRS' real estate is its own and not for sale to other organisations. According to Ian Philp, Director of Partnerships in MaRS Cleantech, other partnerships that MaRS has with China include the China Energy Conservation and Environmental Protection Group (CECEP) which is an SOE and the largest buyer of clean energy technology in China, as well as the Tianjin Technology and Economic Development Area which is designing Tianjin as an energy efficient, low carbon city aided by Canadian wood technologies. Every year, many Chinese organisation delegations (including ZDG described below) are hosted at MaRS for discussions as to how it operates, as it is seen by many as a source of informal advice on innovation governance and as a leader in the field.

2. INCUBATORS AND ACCELERATORS FOR MATURE START-UPS

The most common incubator model in Canada, the US and elsewhere, involves innovation companies that start as an idea or project in a university or similar innovative environment, and then find an incubator or hub suite of services that meets their needs at the time. As they grow they can leave the incubator and move to an accelerator that meets their more developed financial assets and market needs, allowing them to grow further and ultimately leave the hub to either break out on their own or be acquired.

HAX (formerly HaxLr8r) is an interesting incubator/accelerator platform based in Shenzhen, China, and one that Canadian companies have used. While HAX leaders have visited the Velocity incubator at the University of Waterloo, and a senior Velocity leader has visited HAX, there is no formal agreement. Rather, they have built a constructive relationship by Velocity simply making HAX information and deadline dates available to their start-ups so that they can take advantage of this opportunity if they are ready. In this way, HAX has brought six Velocity companies to date to Shenzhen to develop their idea, their prototype, and move into production. The HAX platform in Shenzhen could be a potential partner for other incubators in Canada who are developing electronics and other hardware products and solutions. And in September 2015 HAX is launching Hax Boost, a six week program through which hardware start-ups can hone their strategies, develop their supply chain and logistics, learn how to build a sales organisation, and connect with

HAX

- Hybrid of incubators, accelerators and quasi-vc components under HAX
- Board is three partners who select companies, not products or technologies
- Thousands of applicants; two month selection process
- Company has to come to Shenzhen
- Provide investment funding and advisors on how to run a sustainable company
- But not formal training in HR, IP etc
- Develop prototypes, production and scaling
- Like a guild: crafting, helping each other, respect for elders' (mentors') advice
- In Shenzhen, with marketing and distribution in San Francisco
- Also in San Francisco with 45 day boot camp
- Provide up to \$200,000 to up to 20 companies per year
- Also work with Kickstarter crowdfunding average \$350,000
- Too much government funding can kill the spirit with "serial grantpreneurs"
- Started in 2012 with 10 companies
- Will have graduated 80 by September 2015
- 50% American teams, 10% Canadian (8), 20% European, 20% Asian
- Electronics, biotech, food-related
- 20% business-to-business; 80% consumer
- 300 hardware founders available for advice
- Unlike most vcaps where 10% of investment is expected to result in profitable companies, Hax want 90% to succeed

potential retail partners and distributors.³⁰ In the meantime, HAX founder and Managing Director, Cyril Ebersweiler, is developing an education component; he gave a course at Stanford last year and is developing a MOOC curriculum for growing start-ups that he plans to make available to American and Canadian universities in future. He says that HAX founders have been "shocked"

³⁰ Ryan Lawler, "Haxlr8r Rebrands as Hax, Announces New Accelerator Program and Matching Funds for Graduates" in *TechCrunch*, May 11, 2015. See also John Biggs, "China's HAXLR* Hardware Accelerator Projects Hit Over \$3.5 Million in Funding" in *Tech Crunch*, May 13, 2014.

at how good Canadian start-ups are compared to those of other countries, and we expect that this is in no small part due to the incubation they have gone through in Canada before they go abroad. A similar group to HAX is Chinaccelerator located in Shanghai, but focused exclusively on Chinese domestic companies; its focus is the internet and development of apps.

A Chengdu-based incubator with a growing impact is known by two names: **Hi-coffice** and **Hero Island** (pinyin: Xiake Dao) --- the latter originates from the term in the novels by a famous Chinese author Jin Yong (Louis Cha). It has been in place for less than a year with another incubator planned for next year, and its Investor and Partner Wang Hongbo says that it is modelled on the We-Work offices and labs in the US. It is also similar to the respected **Innovation Works** which provides services and capital with later-stage incubation, and is considered to have developed a viable model for incubators, taking them mainstream in China.³¹ Hi-coffice is putting companies together in the expectation that there will be a “chemical reaction” that will lead to new innovative products and services. Wang says that he has a high tolerance for risk for his incubator, and that China’s market has many angel investors for investments of 500,000 to 1 million RMB. Technologies include an auto insurance app, and an online platform for artists in Tibet to fabricate to customers’ designs. With the focus of Chengdu’s incubators on software, games and culture, Canadian universities such as Ryerson and OCADU may find a positive connection for collaboration. And being a so-called western city, its costs for rent and company support are considerably lower than those in Beijing, Shanghai and Shenzhen, and Chengdu’s infrastructure is good. Interestingly, there is an association of all the incu-

bators in Chengdu, another good sign that they are maximizing the impact of this platform for innovation.

CHENGDU HI-COFFICE / HERO ISLAND

- Shared office for companies with fewer than 20 people
- Low rental costs: three months free, then low rent up to six months, then fee or shares
- Support services such as IT, design, HR, administration, legal
- Coffee shop, library provided
- 8 companies, 10 projects to date
- Consumer products and business-to-business
- Assistance to find investors (for fee or shares up to 5%)
- Fees go into a fund to be used to invest in others
- Core members of team must be full time employees
- Connection with Startup Bootcamp, NLD

³¹ Matthew Fulco, “Kickstarters: China’s Innovation Incubators”, May 14, 2013 at <http://knowledge.cgsb.edu.cn/2013/05/14/finance-and-investment/kickstarters-chinas-innovation-incubators/>

OneEleven is primarily focused on the North American market. China and South Korea are secondary as interesting markets. OneEleven's President Bilal Khan visited Hanhai in Beijing in 2014 where he saw first-hand the real estate focus of this incubator model. He has collaborated with Hanhai in Toronto to identify and develop partnerships between Canadian and Chinese companies, and as a team OneEleven's management considers when one of its companies might be ready to engage with Hanhai. Indeed, they feel that their companies would have difficulty entering the Chinese market without Hanhai's assistance --- and Khan has given a video endorsement of Hanhai which now appears on the company's overview video about the Hanhai incubators. In addition, South Korea has been identified as a potential entrance point into the Chinese marketplace for OneEleven's Canadian companies. This strategy will conceivably be made easier with the July 20, 2015 announcement that Canada and South Korea have completed negotiation of an agreement on science, technology and innovation between the two countries, similar to one that Canada already has with China. The agreement is intended to enhance "business-to-business linkages between Canada and South Korea" and "to provide significant commercialization opportunities for highly innovative Canadian companies".³²

In April 2014, the **Invest Ottawa** accelerator's role was supplemented with a new separate but complementary incubator managed under a joint commercial agreement with State-Owned Enterprise Zhongguancun Development Group (ZDG)³³

³² Government of Canada news release and background "Canada-South Korea Agreement on Science, Technology and Innovation", July 20, 2015 at: <http://www.international.gc.ca/media/comm/news-communications/2015/07/20b.aspx?lang=eng> and http://www.international.gc.ca/media/comm/news-communications/2015/07/20b_bg.aspx?lang=eng

³³ Zhongguancun Development Group is the umbrella organisation for 25 subsidiaries consisting of groups

ONEELEVEN

- Next stage companies after DMZ (see below)
- Post-seed funding (from family and angel investors) but pre-series A (first institutional financing and venture capital)
- Mature start-ups with \$2-3 million, but not yet their own space
- Provides advice from partner companies including legal and investment services
- Provides introductions to many other players in the marketplace
- In return, companies pay annual financial contribution and rent
- Started in November 2013; by May 2015, already had had 22 companies on one floor of a building in prime downtown Toronto space
- Sector scope is primarily companies using big data in various ways
- 6-18 months at which point they would be strong enough to be out on their own or would be in a position to command a good price in an acquisition.
- Incubator has had 6 exits up to May 2015: 3 with financing and capacity to go out on their own, and 3 acquisitions (two in California and one in Waterloo).

in Beijing, also known as Z Park, creating the new **ZDG Ottawa International Incubation Centre** (ZDGOIIC). Indeed, as will be seen below with the coffee shop incubators in China, the name "Zhongguancun" has become a symbol or brand in China denoting innovation, in a similar manner as Silicon Valley, Waterloo and Kanata have become identified with advanced technology and the development of highly qualified people. ZDG manages \$11 billion in assets, with plans to invest \$1.5 billion abroad from 2013 to 2018.

At the ZDG / Invest Ottawa joint incubator, companies can work in incubator space paid for by ZDG through its rental payments to Invest Ottawa, and they receive the same Invest Ot-

managing science parks, real estate holdings, micro-credit investment and other functions, largely focused on innovation. The commercial agreement and ongoing partnership is with the headquarters umbrella organisation.

INVEST OTTAWA

- Created in 2012 from merger of Ontario Centre for Regional Innovation (OCRI) and Ottawa Life Sciences Council
- Mounts major innovation events and trade missions
- Operates an incubator / accelerator for approximately 45 companies for 6 months to a year
- Companies that are close to prototype with a bright future
- Provides strategic innovation advice and networks for Ottawa companies
- Provides mentorship, business, management advice
- Hosts 16 week summer Start-up Garage program for students covering prototypes, legal, financial human resources and other issues, bringing total incubating companies to 57 during Start-up Garage weeks
- 6-8 ZDG-funded companies are in addition to the 45-57 Invest Ottawa incubating companies

tawa services offered to its larger accelerator such as business, IP and management advice as well as mentorship. Invest Ottawa’s contribution is strictly in-kind support. To become a part of the ZDGOIIC incubator, a company must be identified by Invest Ottawa as a recommended candidate. To date, Invest Ottawa has screened approximately 90 companies, and six have been chosen and are now being incubated.³⁴ Most to date have come from the Invest Ottawa accelerator, but this is not a requirement, and some have been identified from other contacts and networks. There are no full time ZDG staff in Canada, but ZDG officials come to Ottawa four times a year to approve companies for admission to their joint incubator. ZDG’s only other North American location is in Silicon Valley.³⁵

34 The six companies currently in the incubator are: GREnergyTEC (electricity devices), iNano Medical Inc. (medical device services), Viscore (photonics), CanShielding (shielding fabrics), Artanga (biotech), and Neuroqore (medical).

35 “Zhongguancun Development Group Incubation Center in Silicon Valley” is located within the joint Zhongguancun Hanhai Technology Park in Silicon Valley. See <http://www.hanhaizhiye.com.cn/en/newscon.aspx?id=125>

The advantage for the Ottawa company of being in the joint incubator is that they can continue to receive the full suite of services from the Invest Ottawa accelerator, plus ZDG will provide a financial investment in the company from a \$10 million investment fund designated for the Ottawa group of companies. The amount of investment will vary depending on the company’s needs and the Invest Ottawa / ZDG assessment of future prospects. The investment brings with it part ownership by ZDG, up to 35% of the value of the company; ZDG’s policy is never to take controlling interest in the company. At the same time, the companies can be recipients of angel, venvap, and government funding (eg., Industrial Research Assistance Program, Ontario Centres of Excellence, Business Development Bank of Canada). An important condition is that the R&D is to stay in Canada. Moreover, the intellectual property continues to be owned by the company, and ZDG would have no special access to it.

Participation in this incubator gives the company access to the enormous Chinese market and facilitates the customization of the product to Chinese market needs. Furthermore, the start-ups that are chosen to participate in the ZDGOIIC incubator are provided training and mentoring on how to do business in China. Company officials normally take multiple trips to China as they are being incubated in Ottawa with ZDG introducing them to potential partners in China, and at the point that the companies are ready, ZDG will provide them with incubation space and other support in China so that they can begin to introduce their products to the Chinese market. Moreover, the companies are treated in China as domestic companies for the purposes of mainland-based commercial deals that are otherwise closed to foreign companies.

Invest Ottawa further supplements the ZDGOIIC [hanhaizhiye.com.cn/en/newscon.aspx?id=125](http://www.hanhaizhiye.com.cn/en/newscon.aspx?id=125)

with initiatives linking Ottawa companies with opportunities in China, underscored with substantive economic and statistical analysis of the market in China and potential opportunities for Ottawa-area companies. It is also working with other cities in the Consider Canada City Alliance on its international trade priorities including China. In the two year period ending in September 2014, Invest Ottawa had organized nine missions to China, and received 20 delegations from China, linking more than 120 Ottawa technology companies with Chinese partners through trade, investment and partnership activities.

A Vancouver-based incubator, **Istuary Innovation Group**, is operated by a Chinese-Canadian, Ethan Sun, and serves as a technology incubator platform that provides start-ups and young companies with mentoring, business and marketing support and access to venture capital. In addition, they mount half day invitation-only events for project pitches, demos and keynote presentations. It also has locations in seven cities in China, so is able to provide a strong network for Canadian companies into the Chinese market. Twice a year, there is an Istuary China Mission to foster connection and business opportunities between Canadian and Chinese entrepreneurs.

The **Canada/China Business Council (CCBC)** is also using a form of the incubator model for their members, though in these cases they can be companies beyond the start-up stage. CCBC in recent years has opened space in their offices in Beijing, Shanghai, Montreal and Calgary so that companies can take advantage of the CCBC office support and facilitation as well as advice on entering the country's market for the first time. According to Zhang Wei, Deputy General Manager in the Beijing office, member companies taking advantage of the incubator space with a six month rental also benefit from one year free CCBC membership, a \$1,500 value. There are currently

companies in each of the four centres except the Calgary incubator which was announced in June 2015.

3. UNIVERSITY-BASED AND COFFEE INCUBATORS

With the success of the partnership in India with the Bombay Stock Exchange Institute, senior executives of the **Digital Media Zone (DMZ) / Ryerson Futures Inc. (RFI)** considered whether such a partnership could work with start-up incubators in China, and they travelled to Beijing, Shanghai, and Hong Kong. Ryerson Futures Inc. is the accelerator for DMZ, and according to RFI President Matthew Saunders, they found that the conditions in China were not right at this time, including the government policy framework and the lack of willingness on the part of Chinese companies to source technology solutions from start-ups and smaller companies without a track record proven in China. Rather, there was interest only in licensing Canadian technology or buying out the company. The market in China is very focused on consumers, and therefore start-ups and early stage companies there are more focused on the consumer market, whereas DMZ is still very much in the business-to-business space.



Photo by Lisa Sakulensky

DIGITAL MEDIA ZONE (DMZ)

- Ryerson DMZ incubator, with 85 start-up companies (in May 2015) ; it is a department of the university
- On five floors in an open collaborative culture in prime real estate of downtown Toronto
- Capacity for 450 innovators at a time
- In addition to start-ups led by Ryerson student, faculty and alumni, local companies now make up over 50% of the DMZ
- In addition they have launched an “innovation for hire” model for corporate customers
- Ryerson Futures Inc. is an accelerator co-located with DMZ
- Provides funding raised from vcap firms
- DMZ provides additional programming to help nascent firms
- Also help with early stage prototype development; stay one year
- Successes like Sensibill with receipts appearing in bank accounts
- Some firms when ready can move on to an incubator such as OneEleven (described above).
- DMZ companies benefit from its reputation as number 5 in the world on the Global University Business Incubators in 2014 (UBI Global)

In addition, to be successful in mainland China, a firm needs to develop relationships and be there for a long time before expecting success; SMEs are small for that investment of resources. Hong Kong too was considered but its economy is more focused on retail and corporate services such as legal and financial, rather than high tech. Singapore, on the other hand, is more open as a next market for DMZ/RFI. This is not to say that the door with China is closed. Saunders indicates that developments in DMZ’s areas “can happen fast and the situation could change to open up in China, so DMZ will continue to engage with them and in future something might work. In the meantime, there are significant markets for DMZ companies in Canada and the US.”

Despite this conclusion, DMZ at Ryerson Univer-

sity continues to pursue other collaborations with China. For example, in August 2015, the Ted Rogers School of Management and DMZ co-hosted the Annual Conference of Academy of Innovation and Entrepreneurship with Tsinghua University's National Entrepreneurship Research Centre and its long-standing **Tsinghua University Incubator**. If Canadian students were to spend a term at Tsinghua, they would be able to participate in most of the incubator activities. For example, foreign students can register projects with x-lab if at least one of the core team members is a full time Tsinghua student or faculty member. In addition, foreigners can register a company using Tsinghua x-lab work space as the official business address. While most activities and resources are in Chinese, some are also in English.

TSINGHUA UNIVERSITY INCUBATOR

- Tsinghua is known as the MIT of China
- Incubator created in 2001
- Tasked to provide services to high tech SMEs in 2005
- x-lab houses 330 project teams
- 90 registered as companies, with incubator address
- ICT, health/medical, manufacturing, energy, others
- Full range of incubator services and advice
- Projects are matched with investors

Tsinghua has already set up an incubator abroad. In January 2012, **InnoSpring** was established in Silicon Valley (Santa Clara) as a Sino-US technology start-up incubator, a joint venture with Silicon Valley Bank, Northern Light Venture Capital, and Shui On Group. In its first year, the incubator had approximately 40 entrepreneurial teams³⁶ and by the end of two years had incubated more than 100 start-ups³⁷, providing services such as financ-

ing, business advice, mentoring, facilities, and other start-up services. It also facilitates marketing in China and collaboration with other organisations with Chinese links. Tsinghua University Science Park President Wang Jiwu indicated that more such bases would be established abroad.³⁸

³⁶ "University Science Park Sets Up Incubator Abroad", *Tsinghua Newsletter*, Issue 22, January 2013.

³⁷ Qidong Zhang, "The start-up games in Silicon Valley", *China Daily USA*, December 20, 2013, at http://usa.chinadaily.com.cn/epaper/2013-12/20/content_17186858.

[htm](#)

³⁸ "University Science Park Sets Up Incubator Abroad", *Tsinghua Newsletter*, Issue 22, January 2013.

Velocity (mentioned above in connection with HAX in Shenzhen) is a Canadian incubator in the high-tech ecosystem of the Waterloo/Kitchener region, also known as Canada's Silicon Valley. The area has been home to the dynamic industry-led innovation centre called Communitech, global companies such as Blackberry, and hundreds of start-ups. Many of those start-ups were launched at the University of Waterloo, renowned for its co-op program, where the Conrad Business, Entrepreneurship and Technology Centre provides students with an academic program focused on new venture creation, and the Velocity incubator nurtures them and other start-ups to prepare to launch --- companies like Pebble Technologies that makes the Pebble Watch. As indicated above, Velocity and the HAX accelerator have discussed synergies and travelled to each other's sites. Velocity encourages their start-ups to consider HAX at the point when they are ready, and makes deadline dates and application requirement information available to them. In the past several years, six companies have moved from Velocity to HAX, returning with their full product, marketing and supply chain ready to go. One such start-up spent time at HAX in Shenzhen, which led to a rebranding to "Bartesian"; it markets home cocktails for Keurig machines.³⁹ At HAX, they developed their product from rudimentary to final form while also developing a get-to-market strategy.⁴⁰ Similarly, Velocity company Voltera, which makes electronic circuit board printers by using conductive ink technology, spent time in Shenzhen refining their product, and with a goal of \$70,000 were able to raise \$502,310.⁴¹ Mike Kirkup, Director of Velocity, says that his incubator has had a lot of success with HAX because it is providing great value-added to Velocity's companies. He sees it as a great relationship and not

39 Company profile at www.hax.co/companies/bartesian/

40 "Bartesian Takes on HAX Part 2" at <http://velocity.uwaterloo.ca/2015/05/bartesian-takes-on-hax-part-2/>

41 Company profile at www.hax.co/companies/voltera/

VELOCITY

- On campus, complementary to UofW's academic program
- Runs programs at UofW and in broader Waterloo region
- Students and alumni build start-ups and launch products
- Inventor owns the intellectual property
- No fees, no equity taken
- Funding from combination of UofW, donors, federal and provincial governments
- Award competitions for \$5,000 to \$25,000 (total \$350,000 per year) in pitch competitions
- \$190M invested in Velocity companies to date
- More than 65 start-ups at any time
- More than 120 companies incubated to date
- Up to 70 student entrepreneurs can live at Velocity Residence
- Velocity Foundry: 11,000 sq ft, 30 hardware and life science start-ups
- Velocity Garage: 7,000 sq ft, 30 software start-ups
- Velocity Alpha: 12 events/4 months -- workshops, panels on building companies
- Velocity Science: Discovery lab, mentoring, coaching for life or material science start-ups

one requiring a formal agreement or partnership. And with the strong innovation system in Waterloo with Communitech and important high-tech industry, most companies return to the region and few feel the need to venture even to Toronto, as they have the support and high-performing manufacturing base that they need in Waterloo. Those Velocity companies that have gone to China to manufacture have often experienced problems of business culture, supply chain and manufacturing challenges with which the Canadian firms have difficulty dealing.

One vibrant and unique model in China is coffee incubators --- coffee houses where one can go in the morning, buy a single cup of coffee, and settle in for the day at tables where other innovators and budding entrepreneurs are gathered. A number of these coffee incubators have been

ZHONGGUANCUN (ZGC) INNOWAY COFFEE INCUBATORS

- ZGC Innoway is administrator for the coffee houses on the street
- Z-Innoway is an association of incubators; see www.z-innoway.com
- Coffee houses each have many tables and chairs, light food
- Table number often provides company registration address for early stage start-ups
- Separate rooms on other floors for group training, presentations
- Advice on legal, intellectual property, financial, human

resources

- Average 20 activities/presentations per week for hundreds of people
- Forum to talk candidly with other start-ups about common challenges
- Also get feedback on technology / product ideas from others
- Each coffee incubator is developing contacts re potential for coffee + incubator abroad
- Entrepreneurs coming back from Baidu, Sina, Facebook to take roles in start-ups

supported in Beijing by the Zhongguancun umbrella committee, and half a dozen are gathered in **Innoway**, a street devoted to innovation in the area of Beijing surrounded by 39 universities including China’s top institutions, 7 science parks, thousands of technology companies, hundreds of research institutes, and the Beijing S&T Commission.⁴² It is in a very vibrant part of the city with many university students who populate the coffee incubators.

to discuss incubators and start-ups with young entrepreneurs. Photos of Premier Li appeared widely in the media, and people came to 3W from all over Beijing to sit at the same table and drink the same coffee as Premier Li. This has given a huge boost to coffee incubators which were already well subscribed for the services they offer to up and coming innovation entrepreneurs. The environment is very much one of mutual support and learning from one another. In addition to 3W, we visited **Garage Café** and **36Kr**, and all three incubators indicated that they are developing plans to link internationally.

3W COFFEE AND NEXT BIG INCUBATOR

- Teams selected; in internet services
- 20 companies in incubator; 6 months
- Table # is company registration #
- Sites in Shenzhen and Guangzhou
- 3W - Lagou Recruiting for internet companies
- 3W Media makes videos for start-ups
- 3W Fund ¥500,000 per project

These coffee incubators were given a significant boost in China’s innovation ecosystem when, on May 7, 2015, Premier Li Keqiang visited several of them, including **3W Coffee** in Beijing’s Innoway,



Premier Li Keqiang chats with young entrepreneurs at 3W Coffee Photo Source: english.gov.cn⁴³

⁴² Su, De-jin, Murad Ali, and Dong-Won Sohn, “A model to create high-techstart-ups from the academic environment: The case of Peking University (PKU) and Tsinghua University (THU)”, *African Journal of Business Management*, Vol. 5(26), p. 10830, and Margaret Dalziel and Wei Yao, *Innovation Intermediaries in China*, p. 12.

⁴³ “At incubator cafe, Premier urges start-ups to brew success” at <http://english.gov.cn/premier/>

In fact, in 2014 Garage Café launched a branch next to Stanford University and in the community of many angel investment companies. At this site, customers pay \$19US per day (an expensive cup of coffee!) to use the café's high-speed internet connection including for video conference calls.⁴⁴ Highly successful companies have been launched in China's coffee incubators such as Lagou, a job-seeker-centred website for the IT sector started at 3W Coffee.⁴⁵ In addition, foreign companies have been incubated there such as Singapore's Viscovery, a cloud-based image recognition technology company that was incubated in China at 36 Kr.⁴⁶

36KR

- Kr – Krypton
- Kr-Space is incubator
- Teams selected
- 10-20, for 3 months
- Kr tech media co. with 180 staff
- Provide virtual services to their own incubators as well as others
- Kr Investment co. - pooled fund (eg Sequoia Capital)
- Already have shop in Silicon Valley
- Considering Canada and elsewhere in US

There is such a compelling buzz at the coffee incubators on Innway, the popular media are now covering it --- and even the foreign media. When we went to the street one day in June, CTV Asia Bureau Chief and journalist, Janis Mackey

photos/2015/05/07/content_281475103050693.htm and "Li Keqiang sees China's future in the coffee shops of Zhongguancun" at <http://www.clb.org.hk/en/blogs/geoff/li-keqiang-sees-china%E2%80%99s-future-coffee-shops-zhongguancun>

44 Yuan Yuan, Business Incubator: Beijing's Zhongguancun sees its Silicon Valley dream come true" in *ChinaAfrica*, Vol. 6, November 2014, at http://www.chinafrica.cn/english/business/txt/2014-11/04/content_649389.htm

45 Lagou company introduction. Available at: <http://www.lagou.com/gongsi/147.html>

46 Viscovery - About us: <http://viscovery.co/about/about-viscovery/>

GARAGE CAFÉ

- Open to all
- 2 Cisco boardrooms for full video links to link with overseas partners
- Developing Plan for "You + Apt" – coffee incubator + apartments upstairs
- May take it to commercial scale in US and Canada
- Connections already with Silicon Valley
- Their entrepreneurs are interested in talking with Canadians

Frayer, and her camera crew were filming a successful start-up team outside 3W Coffee. A few weeks later on her national television news item on China's coffee and university incubators, Mackey Frayer said in part:

"... Becoming China's next tycoon is fuelling a start-up frenzy here of entrepreneurs eager to follow the rags-to-riches rise of billionaires like Alibaba's Jack Ma and Xiaomi phone king Lei Jun. And a chief supporter of the start-up fever is the Communist Government. It's building an incubator system dubbed China's Silicon Valley where entrepreneurs like Liu Xiaoyang can work rent free to launch a business. China's government is trying to reinvent the economy here. A shift from traditional manufacturing to small business could keep workers occupied in a tough job market ... Nearly 3.6 million new companies were registered in China last year ... The start-up culture targets the so-called post-1990 generation here that has been raised on high tech and connectivity, and tales of people who made it to the top."⁴⁷

While there are no similar coffee shop incubators in Canada so far as we could determine, when one sees the number of university students working at tables in Starbucks and Second Cup for hours on end, one has to conclude that it is a model that could very well work in our country. No doubt there are some innovative coffee incubator leaders from China who could show us how to do it!

47 Janis Mackey Frayer on CTV National News, July 17, 2015



4. MAKERSPACES

Makerspaces, sometimes known as hackerspaces, are places where people can go to use 3D printers, advanced equipment, robotic technologies and various materials to create new products and innovations, talk with others who have similar creative interests, and get support to take their products into the marketplace if they so choose. While some makerspaces are very basic, others are thought of today in the same context as incubators, as many are indeed incubators for those who would like to make electronic, wearable technology, and other products as prototypes and products as they get their start-up company off the ground. And many makerspace incubators provide the same services as other innovation / business / entrepreneurship incubators such as advice on business management, intellectual property protection, legal issues, financial management and human resources --- as well as offering investment financing or facilitating linkages to vencap and other sources of funding for start-ups.

According to Wang Shenglin, CEO of Beijing Makerspace (BM), there are 40,000 to 50,000

makers in China.⁴⁸ Professor Silvia Lindtner of the University of Michigan who has studied the maker movement in China says it is viewed as “a new form of citizen engagement” and a “path to turn passive consumers into active participants in state affairs and the market”.⁴⁹ Tsinghua University is building a 16,000 square metre building that will be the “biggest hackerspace in the world”, and has already held the first annual Tsinghua Maker’s Day. The prestige of Tsinghua is expected to enhance even further the profile of makerspaces.⁵⁰

The maker community in China was given higher profile in Premier Li Keqiang’s March 5, 2015 Government Work Report which attributed the rise of China’s makers to the government’s efforts to restructure industry to identify new drivers to boost the slowing economy. He referred to makers as a group that is “coming thick and fast”. During a visit to Chaihuo Makerspace in January 2015, Premier Li was attracted by a robot that could roll over and had a robotic arm, its software having been created by young makers. He said that people with workable ideas show creativity that will serve as a lasting engine of China’s economic growth and that they should be helped to set up their own businesses adding that “I will stoke the fire of innovation with more wood”.⁵¹

The Government of China is now investing significantly in the future of a new maker (“chuangke”) generation with its new policy to put 3D printers in all 400,000 elementary schools by 2017. Such

⁴⁸ Xinhua, “Makers included in premier’s report” in *Global Times*, March 9, 2015.

⁴⁹ Wade Shepard, “Li’s Shenzhen tour gives boost to China’s innovators” in *South China Morning Post*, April 10, 2015 at <http://www.scmp.com/article/topics/invest-china/1754120/lis-shenzhen-tour-gives-boost-chinas-innovators>

⁵⁰ Mitch Altman, “China and Its Hackerspaces” in *Makery*, March 24, 2015 at <http://www.makery.info/en/2015/03/24/le-reveil-de-la-chine-et-ses-hackerspaces-par-mitch-altman/>

⁵¹ Xinhua, “Makers included in premier’s report”.

printers are now available for \$400 to \$500 each, and up to \$3,000 for printers with more features, a not insignificant number when multiplied by 400,000. According to Jenny Lawton, former MakerBot CEO, 3D printing will become mainstream when a full cycle of education has been exposed to the technology, just as computer technology is now accessible almost universally compared with the 1990s.⁵² This 3D printer purchase represents a very expensive price tag for China, but perhaps a visionary one for a country wanting to become a world leader in innovation. Will Canada be making the same investment in our innovation future? While education is a provincial jurisdiction in Canada, perhaps the national Computers for Schools Program could be expanded to include new and used 3D printers.

Shenzhen is seen to be the heart of the maker-space community for China, and indeed for Asia more widely as it hosts an annual Shenzhen MakerFaire including maker workshops, a “creative bazaar” showcasing new technologies from all over Asia, and a Forum with speakers from all over the world including Canada. Shenzhen’s economic focus on electronics makes it a natural center for the maker community. Tiny companies in makerspaces are making phones to rival Apple’s, but targeting unique markets with new features rather than just making the same product at a lower cost.⁵³

Liu Dezhi (Kevin Lau) is CEO of **Chaihuo Makerspace** and Vice President of **SEED Studios**, a hardware development platform for makers, and he is also Chair of the Shenzhen MakerFaire. Thousands of makers from all over the world contact his companies each year. Liu feels that there is benefit in networking, and he points to the UK Trade and Investment ministry which is facilitating UK makers working together. Makers from the US and China attend one another’s MakerFaires, and Liu suggests that Canada could take these practices from the UK and the US for their own maker movements. According to Liu, such collaboration is leading to joint manufacturing and trade. 90% of Shenzhen’s business is with other countries; it was once 99% but China’s domestic share is increasing. In addition, Chaihuo Makerspace often invites start-ups in other countries to join the community and show their prototypes in Shenzhen.

CHAIHUO MAKERSPACE/HACKERSPACE, SHENZHEN

- Licensed by MakerMedia Global which sets standards and networks for makerspaces internationally; 115 now licensed in the world
- Membership fee at low level
- 1,000 members
- Workshops with digital tools, that can scale up
- Brings artists and designers together
- “A Hollywood for makers”
- Promoting the culture of innovation and society of start-ups
- Developing a website to link makers across China to share experiences and resources
- Currently 6,000 makers and some vencap in online group

⁵² Brian Krassenstein, “Chinese Government to Put 3D Printers in All 400,000 Elementary Schools by Next Year” in 3D PrintBoard.com at <http://3dprintboard.com/showthread.php?12059-400-000-3D-Printers-to-Go-in-Chinese-Schools-Next-Year>

⁵³ David Li, “New Shanzhai (copycat): democratizing innovation in China” in *SJTU ParisTech Review*, December 13, 2014.

Liu has had substantive engagement with **ARCHEloft** in Calgary, Canada's first wearables lab and makerspace. For several years he has collaborated with Shannon and Maria Hoover whose company MakeFashion works out of ARCHEloft helping people create dramatic electronic ensembles and costumes. Calgary is also the location of an annual Mini MakerFaire which brings together engineers and designers. Also at the Shenzhen MakerFaire and Forum was Patricia Derbyshire who owns Calgary's Torch Motorcycles manufacturing individually designed women's motorcycles and motorbike technology wearables; for example, with sealed LED lights (sourced from SEED Studios which was their original connection to the Shenzhen MakerFaire) linked to Bluetooth on the jacket that light up when you brake -- and if you drop the bike at speed it can send a message to 911 with the GPS location and the individual's health information such as blood type and allergies). In several years the power supply has gone from the size of a deck of cards to a quarter. Torch's longer term plan is a space where individuals can build their bike themselves. The Calgary companies are connecting in China to see how closer linkages between ARCHEloft's makerspace and others' in China and elsewhere in the world can help their member companies and individual makers. Their presence at the MakerFaire made a positive statement about the strength and creativity of makerspaces in Canada.

ARCHELOFT IN CALGARY

- Makerspace for wide range of products
- Wearable technology to drones
- Three zones in space: starters, conception/prototype, go-to-market
- Range of 3D printers and other equipment for a fee
- Run workshops for a fee
- Fees pay for makerspace manager
- Also retail and a coffee shop

Another prominent makerspace in China is the **Beijing Makerspace (BM) and Maker Academy**. Successes include a company that makes visual reality glasses which attracted an investment of RMB 150 million from US-based Sequoia Capital. BM has joint collaboration with the London School of the Arts in the area of innovation in design. There is also collaboration with companies and a makerspace in the San Francisco Bay area. The Maker Academy runs a summer camp sending students (for a fee) to the Bay area to see start-ups, Stanford, Silicon Valley and other sites. According to Wang Chenwei, Project Manager at BM and a design engineering student in London, the Shanghai Makerspace (China's first) also has international connections, notably with Spain, and is now more of a network or association than an incubator. With Shenzhen focussing on start-ups in incubators, Beijing Makerspace is a combination of the two.

BEIJING MAKERSPACE AND MAKER ACADEMY

- Considered Asia's biggest makerspace
- 18 staff; services such as accounting and IT
- For very early start-ups with 1-2 employees
- Connecting makers with seed funds and investors
- Help investors decide which makers to fund
- Hardware, smart wearables, 3D printing
- Courses for young makers and teachers
- Education kits designed
- Government subsidizes space for 3 years; 4th BM pays but rent is low
- Companies' brand with BM investment
- Also funds after events, once results are shown

The **Ontario College of Art and Design University (OCADU)** operates **Imagination Catalyst**, a maker-oriented incubator of companies making consumer products and offering business services. For OCADU, the consumer market in China and OCADU's maker incubator provide a great congruence of potential. The challenge with any connection to China is that there is great opportunity but tactically it is difficult. According to OCADU President Sara Diamond, OCADU's focus with China to date has been through its students, particularly those who come from China and have family and a network there. Several OCADU-generated companies have had products fabricated in China. The students themselves provide a bridge: they can see the opportunities and can navigate the culture. According to Katherine Roos, Executive Director of Imagination Catalyst, two "ICat" students will travel to China this year to see what business opportunities they can develop from their OCADU designs. In addition, Imagination Catalyst is networked with the Association of Chinese-Canadian Entrepreneurs and the China Canada Angels Alliance (CCAA), a Canadian not-for-profit group of 28 angel investors, primarily from China as well as 11 private investment funds. The CCAA has recently launched an important initiative to create, with the Ontario Centres of Excellence, a virtual incubation program called the China Angels Mentorship Program (CAMP) which will match Canadian start-ups with inves-

tors and partners in China.⁵⁴ Another opportunity is also provided through OCADU's exchanges of faculty and students with the Chinese Academy of Fine Arts (CAFA) according to Dr. Diamond who puts a priority on these linkages.

The **University of Ottawa (U of O) Entrepreneurship Hub** is focused on student innovations as a virtual hub network encouraging an entrepreneurial spirit. The agenda with China is in the development stage at U of O, with a plan to mount student partnerships where there is co-development of innovations with start-ups in Shenzhen from the beginning of the innovation process, particularly in a makerspace context. According to Luc Lalande, Executive Director of the Entrepreneurship Hub, "technology innovations are moving so quickly that in weeks, others have leapfrogged them. We need to co-design and co-develop with people in China from the beginning,

OCADU IMAGINATION CATALYST

- Full range of incubator/accelerator services
- More maker-oriented than DMZ
- 17 companies, growing to 25
- Both business-to-business services and consumer products
- Design focus in all start-ups
- 57 alumni engaged (each self-employed as start-up)

UNIVERSITY OF OTTAWA HUB AND MAKERSPACE

- Start-up Garage three month intensive immersion for students operated through UofO Tech Transfer & Business Enterprise Office (see Invest Ottawa above), for students of UofO, Carleton University, Algonquin College and Cite Collegiale as well as recent graduates (within 2 years)
- Student-run makerspace at the Engineering School of UofO with students innovating on such 3D printing technologies as artificial hands for amputee patients
- Makerspace had 2,000 makers in 9 months
- Ehub Proto-Ventures as signature program to pursue opportunity sweet spots with multidisciplinary teams of student on apprenticeships
- UofO STEAMakers Guild linking artists and engineers.

⁵⁴ Ontario Centres of Excellence, "New virtual incubator will help Ontario start-ups learn about and gain access to Chinese markets", April 29, 2015. See <http://www.oce-ontario.org/news-events/news/news-archives/2015/04/29/new-virtual-incubator-will-help-ontario-start-ups-learn-about-and-gain-access-to-chinese-markets>

leveraging the innovation ecosystem in places like Shenzhen and leave IP protection for deep science such as advanced nanotechnology application.”

Ottawa has now achieved designation by MakerMedia Global for Canada’s only full MakerFaire, with Mini MakerFaires being held in cities such as Calgary and Ottawa since 2010 through organisations such as Artengine. A new 19,000 square foot makerspace called **Makerspace North** has now opened in Ottawa to serve a maker community that ranges from crafts to home furnishings to food to drones and 3D printers. It will provide office space for technology start-ups and small companies as well as workshop and event space. One tenant is the Ottawa Tool Library that loans out construction tools.⁵⁵ An international MakerFaire event is now planned for Ottawa in November 2015. In addition, the Ottawa Innovation Centre is now implementing a plan to co-locate all the incubators in Ottawa at a new location in the city with permanent space for start-up companies to be incubated and to interact with one another.

⁵⁵ Adam Feibel, “Makerspace North invites Ottawa’s creative minds with official opening”, *Ottawa Citizen*, August 22, 2015.

CONSIDERATIONS FOR GOVERNMENTS AND INCUBATORS

What can we conclude from the illustrations described in this paper? Is there potential for more partnerships of Canadian and Chinese incubators? If so, what types of partnerships? And what can Canadian incubators' companies and start-ups expect in bringing their technologies and products to China? Will it be an impossible struggle and time-waster, or open up tremendous new opportunities in both the research and the marketplace? What are the considerations that incubators and governments should keep in mind to ensure that there will be a soft landing in both directions?

China is now being seen as a major player in innovation and entrepreneurship. Annually it has high numbers of graduates in science and engineering --- 1,288,999 in 2014.⁵⁶ Its governments are making huge investments in innovation. Its private sector is being given much more freedom and encouragement than in past to push the limits of

56 Jackie Kraemer and Jennifer Crow, "Statistic of the Month: Engineering and Science Degree Attainment by Country" at Center on International Education and Benchmarking, May 27, 2014, p. 1 at <http://www.ncee.org/2014/05/statistic-of-the-month-engineering-and-science-degree-attainment-by-country/>

innovation.⁵⁷ Canada's start-up companies have a lot to gain by partnering on product design with young innovators in China --- including access to the massive Chinese market. But they also have a lot to lose because they are still operating with tight balance sheets. They cannot afford to take missteps in China.

Incubators and accelerators in Canada can help those start-ups that are interested in making a move into China. By assessing the opportunities and array of possible bridges to China, they can help to position our companies for success in that challenging market. Putting in place formal or informal relationships with incubators or accelerators in China can be the key to ensuring that Canadian companies can work with China's best innovators and best companies --- and find an entrée into the world's biggest market.

A significant barrier identified by incubators in Canada --- the reluctance of Chinese companies to contract to small companies for business-to-business services --- is one agreed with by everyone

57 For more details on the new emphasis by China on innovation as a driver of its economy, see McCuaig-Johnston and Zhang, June 2015.

we met with in China. Dr. Yi Deer of the Beijing Municipal Commission for Science and Technology suggested that more comprehensive training and preparation / incubation of start-ups could go some way to strengthening their capacity, thereby reassuring larger Chinese companies.⁵⁸ It seems to be a significant problem also faced by small China-based companies. In time, with the emphasis that the Government of China is putting on encouraging start-ups, larger companies will learn that they can meet the needs of many Chinese companies. In addition, a Canadian company with a strong Chinese partner and even Chinese financial investment may find that doors to business-to-business deals are open to them.

As this paper has shown, “partnerships” of incubators can range from a loose practice such as providing Canadian start-ups with timely information and advice about opportunities for joining an incubator or accelerator in China, to makerspaces visiting one another’s spaces for creative exchanges, to a company getting vencap funding from an incubator in the other country, through to a formal incubator to incubator commercial agreement which involves a significant financial investment by a Chinese incubator corporation in the Canadian company. Interestingly, none yet has the cross-appointment of team members that the Ryerson DMZ / Bombay Stock Exchange Institute collaboration has.

The following are factors that governments should consider in order to ensure that the conditions are in place to allow incubators and companies to partner effectively with those in the other country in order to take advantage of broader markets and innovation expertise. In addition, there are factors that incubators should consider carefully in exploring options for closer collabora-

tions or partnerships with incubators and accelerators in the other country.

CONSIDERATIONS FOR GOVERNMENTS:

1. **Positive Chinese Government policy support is critically important to the success of foreign companies moving into China:** Business climate is always one of the most important factors in business decisions. One can see that the growing emphasis in recent years on “home-grown innovation” and “domestic innovation” in the Chinese Government’s policy statements (such as the current *Fifteen Year Medium- to Long- term Plan*) is sending signals that the government may be closing the door to technologies and companies from abroad. That is a serious barrier to bilateral and multilateral collaboration with Chinese companies and researchers. While Chinese government leaders speak of their commitment to fostering bilateral technology development, government policies that move the country in another direction will be seen very quickly as the real policy direction. As an example, the Government direction to companies not to lose money abroad makes companies even more conservative in partnering in other countries. Nevertheless, the March and June 2015 State Council Opinions signal a significant policy focus on incubators, accelerators and makerspaces, and the implementation of their international collaboration elements should provide opportunities for Canadian and Chinese incubators and businesses to work together.

⁵⁸ Interview with Yi Deer, Division for International Cooperation on S&T, Beijing Municipal Commission on Science and Technology, June 18, 2015.



difficult for companies in other countries to break into the Chinese market, despite its size and appearance of diversity. A Chinese company or incubator partner with a strong brand can go some way to overcome this business culture constraint, but businesses have to be prepared to buy, and business-to-business sales can be difficult. The Government of China should continue to persuade its companies to do business with start-ups from incubators and accelerators, including those from other countries.

2. A strong entrepreneurial culture fed by universities and colleges is important in fostering the ecosystem for start-ups:

North American incubators and start-ups need to know that there is an economic and market environment that values their role in the marketplace and provides support and incentives for growth, and is aimed at reducing any barriers in their operation. This will be a challenge for the Chinese government and its agencies to promote, given that risk aversion is more often the economic culture. However, one can see that this is changing with recent government policies and directives, and with the profile being given to start-ups in incubators, and a new focus on products geared to the consumer market.

3. The willingness of large and medium sized Chinese companies to source technology solutions from smaller companies and start-ups can be key, and the Government of China can help: Many Chinese companies are risk averse and rely almost exclusively on known brands and solutions for their business needs. That makes it extremely

4. Good information on potential incubator partners is important to a decision on whether to collaborate: A substantive investment in the relationship is usually required in partnering with Chinese organisations. Information as to the effectiveness of an incubator can be reassuring for both partners. Companies such as The Evidence Network (TEN) in Canada provide standardized assessments of performance effectiveness that can help potential partners to make those critical decisions, by correcting for whether the incubator's companies would have reached the same level of success without the incubator. These are assessments that the incubators themselves can commission, but they are also in the interest of governments in both China and Canada to understand the true effectiveness of incubators in which governments are making financial investments. Both governments can encourage incubators in their own country to undertake such assessments, or even make them a requirement of funding. In addition, much foundational work has been undertaken by Statistics Canada with the 2007 Survey of Business Incubation. While accurate at the time that the survey was performed, it is now

out of date. It is not expected that CABI's upcoming report will have the richness of a Statistics Canada survey. It would therefore be timely for Statistics Canada to develop an updated survey questionnaire with the assistance of a consortium of interested organisations. This would lead to the collection of new data that could inform government policy and lead to enhanced industry actions relating to these important innovation intermediaries.

5. Governments' financial support has been critical to incubator development, and can reinforce international collaboration:

The financial investment by China's Torch Program and the Canada Accelerator and Incubator Program (CAIP) has been critical to the development of the increasingly important incubator sector. But Torch is now being integrated into other Key programs in China, with budgets being reset. And CAIP's funding has now all been allocated and announced. This is an opportunity for both governments to renew their commitment to the sector by ensuring a positive business and economic climate as well as funding for those incubators performing well. In addition, Canada has recently announced its new Canadian International Innovation Program (CIIP) as a Canadian source of funding for joint initiatives under the Canada-China Joint Committee on S&T. Along with an Innovation Dialogue such as China has with the US and other countries, the CIIP could support collaborative initiatives for incubators and/or their start-ups.

CONSIDERATIONS FOR INCUBATORS AND ACCELERATORS:

6. China's large market is attractive, but incubators and companies should also be looking for ways to partner with China's creative innovators to design new products and services:

The energy of its young people is one of China's greatest resources. These highly skilled innovators are connected with the rest of the world through the internet and are brimming with ideas to develop for the marketplace. While Canadian companies often express a hope of tapping into the market in China, they should also be looking for ways of engaging with innovators themselves. Incubators, accelerators and maker-spaces in both countries provide potential platforms for exchanges of ideas and synergies for both sides.

7. Success can often depend on finding a Chinese partner that is already an accepted part of the innovation and industry ecosphere:

Partnering on an equal footing or in a complementary arrangement with a Chinese company is one way for a North American small company or growing start-up to enter the Chinese market with an ally who can facilitate connections (guanxi) and advise and consult, perhaps by demonstrating the Canadian company's technology in its own facilities. The nature of that all important relationship is crucial, and consideration should be given to underwriting it with a formal legal foundation by way of a commercial agree-

ment. In addition, Canadian-Chinese employees in the Canadian start-up can go a long way to facilitating a move into the very different business culture and language environment of China. This is a barrier that has not been experienced as much in the DMZ/BIL collaboration in India where English is a common language.

8. Partnering with an investment incubator agent such as Hanhai or Zhongguancun Development Group can, in some cases, provide a soft landing in China for a Canadian company:

While the usual Hanhai model abroad of renting large real estate to house start-up and junior companies has not yet taken off in Canada, the Hanhai Investment Fund of \$39M for the Canadian market may allow investments in Canadian firms as they need venture capital to get established, and at the same time facilitate some of the introductions leading to partnerships that would allow Canadian companies to become established in China. And ZDG's model of partnering with a Canadian incubator and investing up to 35% in each Canadian start-up can also serve as a bridge to China when the company is given space in a Chinese incubator, and through recognition of the company as "Chinese-owned" for some purposes.

9. Partnering an incubator in one country with an accelerator in another may provide the best progression route for start-ups to move to a more market-oriented array of services:

A start-up in a university-based incubator in Canada has already developed its basic product concept and often has benefited from early financial investments. To get to the next level, they need to refine their product for market needs, and get significant



investment and marketing advice to break into the marketplace. Often an accelerator can provide that stimulus, and if the start-up feels it could make it in the Chinese market, an accelerator in China could be just what it needs to make that leap.

10. Protecting intellectual property is always important, particularly in the situation of young companies on the cutting edge of technology:

It has been considered critical that the company undertake good legal protections in both Canada and China, and not share the detail of their innovations until they have good protection. Legal recourse in China, while much improved just in the past few years, is still not as straightforward as in North America. At the same time, in some technology sectors, products are changing so quickly that IP protection may not be required, with the company's product offering evolving to new versions almost constantly.

11. Targeting growth and licensing can allow Canadian companies to get the benefit of the Chinese market with fewer risks:

Some Canadian companies will be content to license their technologies to Chinese companies that will bear the costs and risks of introducing the technology in China, but the Canadian company will want to ensure that the licensing fees and conditions are right, and that they would not see the same technology come back to the North American market from a Chinese company. Incubator collaborations can help the Canadian company to identify a potential partner.

12. Targeting growth and acquisition can allow Canadian companies to grow to a point where a Chinese company would want to acquire them: Rather than relying on a growth strategy to launch a Canadian company into China with a view to getting a significant part of the market, young innovators can position their start-up to grow to a size that would interest a Chinese company in acquiring it, allowing the profits to be plowed back into more technology development in the innovator's newer products in Canada. Again, incubator networks with the other country can help identify potential buyers.

13. Forums and exchanges for makerspaces to exchange ideas and best practices while also exploring supply chain, production and export opportunities are important for both countries: Product innovation can benefit immediately and tangibly when shared with makers in other countries. Some makers in Canada are already setting up business relationships in China. Others would benefit from the stimulation and exposure to a creative environment that is bursting with innovation, particularly in the electronics sector.

14. If not China, then incubator initiatives in other countries may be of interest to Canadian incubators and their start-up companies: Wang Hongbo at Hi-coffee in Chengdu mentioned their connection with the Startupbootcamp in the Netherlands which has run an accelerator program since 2010 in 12 countries (so far) incubating 241 start-ups (to date) throughout the world. There have been none yet in Canada but a Canadian incubator or accelerator could partner with Startupbootcamp to deliver it in this country, and/or Canadian start-ups could attend one of the three month sessions in one of the countries offering them. Perhaps they will even meet Chinese start-ups through the sessions themselves or through the Alumni Growth Program.

These considerations reflect some lessons learned to date in Chinese-Canadian innovation incubator partnerships, and they could be key to the success of Canadian companies in China over the next few years. The one thing that is certain is that the technology landscape in China is evolving quickly, and Canadian innovation hubs, start-ups and SMEs will need to pivot as they see the opportunities come up --- and be ready to evolve if they see new barriers raised.

APPENDIX 1

SOURCES OF INCUBATOR INFORMATION

INCUBATORS IN CHINA:

36 Kr – www.36kr.com

Bonnie Zheng, Assistant to CEO - Interview June 17, 2015

3W Coffee – www.3wcoffee.com

Xie Jing (Joyce Xie), Manager, Government Relations - Interview June 15, 2015

Beijing Makerspace and Maker Academy – www.bjmakerspace.com

Wang Chenwei, Project Manager - Interview June 15, 2015

Chaihuo Makerspace – www.chaihuo.com

Liu Dezhi (Kevin), CEO Chaihuo, Chair Shenzhen MakerFaire – Interview June 19, 2015

Garage Café – www.chekucafe.com

Sun Yu (Sunny), Businesses and Media Manager - Interview June 17, 2015

HAX – www.haxlr8r.com

Cyril Ebersweiler, Managing Director, Founder – Interview June 19, 2015

Hanghai – www.hanhaizhiye.com.cn

Wang Shaokai, Vice-President – Interview June 16, 2015

William Li, President & General Manager, Canada Hanghai Inv't - Interview May 1, 2015

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Wang Hongbo, Investor and Partner - Interview June 18, 2015

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Tsinghua University Incubator – www.x-lab.tsinghua.edu.cn

INCUBATORS IN CANADA:

ARCHEloft – www.archeloft.com

Patricia Derbyshire, Founder of ARCHEloft, CEO Torch – Interview June 20, 2015

Canada/China Business Council – www.ccbc.com

Zhang Wei, Deputy General Manager, Beijing - Interview June 17, 2015

Digital Media Zone (DMZ) – www.dmz.ryerson.ca

Matthew Saunders, President, Ryerson Futures Inc - Interview May 1, 2015

Imagination Catalyst, OCADU – www.ocadu.ca

Sara Diamond, President, OCADU - Interview May 1, 2015

Katherine Roos, Executive Director, Imagination Catalyst - Interview May 1, 2015

Invest Ottawa / Zhongguancun Development Group Incubation Centre – www.investottawa.ca

Sophie Chen, Senior Business Development Manager – Interviews May 22, July 17, 2015

Istuary Innovation Group – www.istuary.com

MaRS – www.marsdd.com

Earl Miller, Director, Global Initiatives – Interview July 8, 2015

Ian Philp, Director of Partnerships, Advanced Energy Centre - Interview June 29, 2015

OneEleven – www.oneeleven.com

Bilal Khan, President & Managing Director – Interview May 1, 2015

University of Ottawa Entrepreneurship Hub – <http://entrepreneurship.uottawa.ca/>

Luc Lalande, Executive Director – Interview May 12, 2015

Velocity – www.velocity.uwaterloo.ca

Mike Kirkup, Director – Interview July 22, 2015

APPENDIX 2

March 11, 2015 ‘Guiding Opinions of the General Office of the State Council on Developing Mass Makerspaces and Incubators, and Promoting Mass Innovation and Entrepreneurship’⁵⁹

1. GENERAL REQUIREMENTS

1.1 Guiding thoughts

Fully follow the spirit of the 18th National Congress of the Communist Party and second, third and fourth Plenary Session of 18th CPC Central Committee of China, the target is to form a good innovation ecosystem; the principle is to stimulate the society’s vigor in innovation and entrepreneurship; the carriers are the platforms such as makerspaces and incubators; integrate the resource effectively and implement the policies; optimize the models of services and form the culture of innovation

1.2 Basic principles

Adhere to the market-oriented strategy - promote the connection between innovation and the social resources as well as demand;

Strengthen policy integration - streamline administration; reduce the cost of entrepreneurship; optimize the competition environment and promote the institute decentralization;

Open and sharing – establish an open innovation platform by utilizing internet resources; strengthen cross-region and cross country technology transfers; integrate and utilize global resources

Innovation of the service models - effectively integrate the innovation resources; utilize capital, cultivate the entrepreneurship spirit and improve the efficiency of entrepreneurship

1.3 Target of development:

By 2020 establish a number of professional innovation platforms that can serve the demand of mass innovation; establish a number of angel investors and VCs; establish a number of innovation bases for small and micro businesses; improve employment by entrepreneurship

2. KEY TASKS

- 2.1 Accelerate the establishment of mass innovation space - summarize and develop incubation models such as innovation coffee, innovation works. Utilize the social resources such as science parks and research institutes to form a number of low cost, full-service mass innovation spaces; realize the combination of incubation and investment, innovation, entrepreneurship and employment; provide good working environment and network resources for entrepreneurs.

⁵⁹ In Chinese ‘国务院办公厅关于发展众创空间推进大众创新创业的指导意见’. Original document available at: http://www.gov.cn/zhengce/content/2015-03/11/content_9519.htm Translated by Moxi Zhang.

- 2.2 Lower the threshold of innovation and entrepreneurship - deepen the reform of business mechanisms; for the new type of incubators provide services and policies to support the easy start and exit of businesses; provide financial subsidies (such as rental), internet access and tools for development to the new type of incubators if possible
- 2.3 Encourage scientific personnel and students to become entrepreneurs - provide training and guidance, as well as public services, space and financial support to university students
- 2.4 Support the public services of innovation and entrepreneurship - utilize measurements such as government procurement, grants and awards to support the construction of service platforms; support service organizations to provide services including IPR, finance, consulting, product inspection and technology transfer etc.; promote open and sharing of the basic platforms; prioritize the examination of small and micro companies' patents
- 2.5 Strengthen financial guidance - guide the venture capital to be invested in S&T start-ups; the emphasis should be the strategic new industries and the innovative start-ups; use financial policies to support the angel investments and promote mass innovation
- 2.6 Optimize the financial mechanism for start-ups - provide comprehensive financial services to innovative companies; develop the internet crowd funding pilots; optimize mechanisms of the exit and flow of angel investment; encourage banks to provide related services for science and technology SMEs
- 2.7 Enrich the innovation activities - encourage mass innovation through public activities such as competitions; create platforms to connect entrepreneurs and investors; establish and optimize the mentorship mechanism; support the social activities such as the entrepreneurship salons, forms and trainings
- 2.8 Form the climate of innovation - be tolerant of mistakes; educate on the entrepreneurship and maker spirit; enhance the media advertisement on innovation and form the climate of innovation and entrepreneurship

3. ORGANIZATION AND IMPLEMENTATION

- 3.1 Strengthen the leadership - each region and department should be clear with the responsibilities and actively implement the policies; make the localized measurements in implementation; increase the financial input and enhance the policy support
- 3.2 Strengthen the guidance and demonstration; develop demonstrations in the innovation zones; national high-tech industrial districts, innovation bases and university science parks; encourage all areas to explore and promote the new mechanisms of innovation, optimize the services and form a climate of innovation and entrepreneurship
- 3.3 Strengthen the link and coordination - enhance the coordination between MOST and other departments; research and promote policies on innovation and entrepreneurship; conduct survey, statistics and reports on the progress of implementation.

APPENDIX 3

Summary of June 16, 2015 ‘Opinions of the State Council on Several Policies and Measures for Vigorously Advancing the Popular Entrepreneurship and Innovation’⁶⁰

(Note: Key passages related to incubators and collaborators from other countries are highlighted)

1. The importance and meaning of mass innovation and entrepreneurship
 - 1.1 The promotion of mass innovation and entrepreneurship is an inevitable tendency and momentum of economic development
 - 1.2 The promotion of mass innovation and entrepreneurship is a fundamental measure of creating employment opportunities and social wealth
 - 1.3 The promotion of mass innovation and entrepreneurship is an effective path of stimulating the society’s potential and vigor in innovation

2. General strategy
 - 2.1 Deepen the reform and from the entrepreneurial environment
 - 2.2 Stick to the principle of demand- oriented and release the entrepreneurial vigor
 - 2.3 Ensure good coordination of policies and the implementation
 - 2.4 Keep being open and sharing; promote the innovation in models (integrate and utilize the global innovation resources, realize the cross-regional, cross-sectoral flow of talents and other new innovation elements)

3. Innovation in the system and mechanism; facilitate the process of starting businesses
 - 3.1 Optimize the market environment and ensure fair competition through various regulations
 - 3.2 Deepen the reform of business mechanism; provide services and policies to support the easy start and exit of businesses
 - 3.3 Enhance the protection of IPR through improving the related legislation
 - 3.4 Optimize the mechanism of cultivation of entrepreneurs; including the entrepreneurial spirit education as part of national education system; facilitate the social insurance reforms and make sure the free flow of talents

⁶⁰ Original document published by the State Council on June 16, 2015. In Chinese: 国务院关于大力推进大众创业万众创新若干政策措施的意见. Available at: http://www.gov.cn/zhengce/content/2015-06/16/content_9855.htm Translation by Moxi Zhang.

4. Optimize the financial policies and strengthen the support of entrepreneurship
 - 4.1 Increase the financial support and coordinate the use of funds for SMEs and innovation
 - 4.2 Improve the tax policies; make favorable policies to the S&T incubators (and qualified makerspaces), university science parks and R&D expenditures; popularize the pilot tax policies at Zhongguancun national demonstration zone
 - 4.3 Support entrepreneurship through government procurement

5. Enliven the financial market to enable the convenient financing
 - 5.1 Optimize the financial market
 - 5.2 Innovate the supporting methods of bank and enhance collaboration between banks and other financial institutes
 - 5.3 Diversify the financial models for start-ups

6. Increase the investment and support the start-ups
 - 6.1 Establish and optimize the guiding mechanism for investments
 - 6.2 Expand the channels of investments; establish a number of demonstration bases of ‘innovation and entrepreneurship’ and guide the social funds to support start-ups
 - 6.3 Develop policies and mechanisms to encourage the state capital to be invested in innovation
 - 6.4 Promote investment to be ‘brought in’ and ‘go global’; revise the regulations regarding foreign investment; (according to the management principle of domestic investment consistent with the foreign investment); loosen the regulations regarding foreign investment’s access to China; optimize and simplify the management of foreign venture capital investment; encourage the development of joint venture investment institutions; guide and encourage the investment institutions to invest in overseas high-end R&D projects and share the technology results; optimize the management of venture capital investment according to their fields, purpose and scale.

7. Develop the services and ecosystem for entrepreneurship
 - 7.1 Accelerate the incubation services - strive to develop the new type of incubators such as Innovation Works and Garage Café; strengthen and expand the mass makerspaces and optimize the incubation services; guide the incubators to combine with the angel investment and venture capital investments; promote the combination of incubation and the technology transfer (technologies from the universities and research institutes); guide and encourage domestic capital to collaborate overseas and establish new type of innovation platforms – bring in the advanced incubation models and improve the capacity of incubation
 - 7.2 Strive to develop third party services; accelerate the development of services including business management, financial consulting, marketing, human resources, legal consulting, IPR, product inspection and modern logistics.

- 7.3 Develop ‘Internet +’ (or ‘Internet Plus’⁶¹) services and establish a number of innovation bases for small and micro businesses; promote the combination of innovation, entrepreneurship and employment.
- 7.4 Research and explore new models of innovation and entrepreneurship and provide services to start-ups such as training, consulting and design; regulate the management and gradually form the reproducible experience
8. Improve the innovation platforms and provide strong support to them
- 8.1 Create the public innovation platforms and strengthen the integration of information related to innovation (examples: innovation forums, entrepreneurship training, innovation and entrepreneurship competition etc.)
- 8.2 Utilize the innovation platforms; establish the mechanism of opening scientific infrastructures and patents to the whole society (examples: 3D printers, network manufacture etc.)
- 8.3 Develop the regional platform for innovation and entrepreneurship; the demonstration provinces, areas and cities are encouraged to play their leading role and explore the mechanisms of innovation and entrepreneurship
9. Stimulate the creativities and develop the innovative start-ups
- 9.1 Support the scientific personnel to be entrepreneurs and carry out related supporting policies
- 9.2 Support the university students to become entrepreneurs, integrate related funds, provide training and guidance
- 9.3 Support foreign talents to be entrepreneurs in China; let the returned overseas talents (and high-end talents in particular) play their leading role in entrepreneurship; continually open the human resources market, establish and optimize the mechanism of talent introduction; further loosen the restrictions on visa, permanent resident applications for oversea high-end talents; guide the local seed funds to invest in the returned high-end and overseas talents who start high-tech enterprises, and optimize the supporting measures (examples: medical services, insurances, spouse employment and children education etc.); strengthen the establishment of overseas S&T bases and introduce more innovation resources to China
10. Expand the urban and rural entrepreneurship channels
- 10.1 Support the e-commerce to be extended to the organizations at grass-roots level
- 10.2 Support the agglomeration and development of returning-home entrepreneurs; develop agricul-

⁶¹ ‘Internet Plus’ or ‘Internet +’ is from Premier Li Keqiang in his government work report in March 2015 - “We will develop the ‘Internet Plus’ action plan to integrate the mobile Internet, cloud computing, big data, and the Internet of Things with modern manufacturing, to encourage the healthy development of e-commerce, industrial networks, and Internet banking, and to guide Internet-based companies to increase their presence in the international market”. *‘Internet Plus’: Premier Li’s new tech tool*. gov.cn. March 13, 2015. Available at: http://english.gov.cn/premier/news/2015/03/13/content_281475070887811.htm

tural services, tourism and other new rural businesses

10.3 Improve the services for grass-root level entrepreneurship; improve the public services such as social insurance system and medical services and optimize the transition of start-ups

11. Strengthen and optimize the coordination

11.1 Strengthen the leadership; establish the cross-ministerial committee on mass innovation and entrepreneurship which will be led by NDRC

11.2 Strengthen the link and coordination of departments at different levels and areas; organize the published policies and measures on innovation and enhance coordination

11.3 Strengthen the supervision of the innovation policies and make sure they are implemented

LIST OF ACRONYMS

- ACCE – Association of Chinese-Canadian Entrepreneurs
- APFC – Asia-Pacific Foundation of Canada
- BDC – Business Development Corporation
- BIL – Bombay Stock Exchange Institute Ltd.
- BM – Beijing Makerspace
- CABI – Canadian Association of Business Incubation
- CAFA – Chinese Academy of Fine Arts
- CAIP – Canada Accelerator and Incubator Program
- CAMP – China Angels Mentorship Program
- CCAA – China Canada Angels Alliance
- CCBC – Canada China Business Council
- CCEIP – China-Canada Enterprises Innovation Centre
- CCIP – China Canada Innovation Park
- CIIP – Canadian International Innovation Program
- CECEP – China Energy Conservation Environment Protection Group
- DMZ – Digital Media Zone at Ryerson University
- HAX – Haxlr8r (former name)
- IAF – Investment Accelerator Fund managed by MaRS
- IT – information technology
- IRAP – Industrial Research Assistance Program

- MOOC – Massive Open Online Course
- MOST – Ministry of Science and Technology
- NDRC – National Development and Reform Commission
- OCE – Ontario Centres of Excellence
- RFI – Ryerson Futures Inc.
- R&D – research and development
- S&T – science and technology
- SME – Small and Medium Sized Enterprise
- SOE – State-Owned Enterprise
- STIC – Shanghai Technology Innovation Centre
- UofO – University of Ottawa
- UofW – University of Waterloo
- VIE – variable interest entity
- ZDG – Zhongguancun Development Group
- ZDGOIIC – ZDG Ottawa International Incubation Centre
- ZGC – Zhongguancun
- ZSI – Zone Startups India

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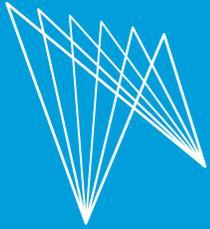
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