A Global Accelerator: The ICT Ecosystem in Shenzhen and Hong Kong

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Background: As part of the Creating Digital Opportunity partnership at the Munk School of Global Affairs, and under the supervision of Professor Joseph Wong, I interviewed local and Canadian bureaucrats and business executives in Hong Kong and Shenzhen in January 2018 in regards to the practices, opportunities, and challenges in accessing local and global value chains in the information and communication technology (ICT) sector. These interviews were enriched with a survey of eight Canadian companies previously incubated in the HAX accelerator in Shenzhen, as well as interviews in Vancouver and Toronto.

Key findings:

- Despite notable differences in their regulatory frameworks and the unique strengths and challenges in each city, Shenzhen and Hong Kong should be studied as one ecosystem because of their interwoven networks of entrepreneurs, suppliers, manufacturers, and investors.
- Hong Kong is trying to position itself as a hub not only to China but also to the Belt and Road Initiative and increasingly to South East Asia.
- The business-friendly environment, respect of the rule of law, access to international capital, geographic location, and knowledge of English by locals are seen as the main strengths of Hong Kong.
- Shenzhen has transformed itself from “a sweatshop to the world” to the “world’s hardware business accelerator”.
- Shenzhen has transformed its Shanzhai production system into a high-tech, innovative, and collaborative ecosystem. It has a clear advantage in easily and directly accessing materials and people with extensive knowledge of hardware, which translates to a significant reduction in cost and time for creating prototypes and overall manufacturing.
- Having presence in Shenzhen can also help access global markets. Interviews and a survey with Canadian companies there suggest that the main incentive to locate in Shenzhen is not to access the Chinese market but, rather, prototype and manufacture faster and more cheaply, build relationships with local suppliers and investors, and network with distributors elsewhere. This international experience and network can then translate to opportunities in North America, which is what the majority of companies indicated as their primary interest.
- China is a big market with opportunities in the ICT sector but has many constraints and obstacles such as regulations, tax laws, IP risks, and cultural barriers. China also tries to become self-sustained by introducing policies such as the “Made in China 2025” and by reducing investments going out of the country. Therefore, foreign companies need to be committed to being based, working, and doing R&D in China in order to access the market.
- For the above reasons, larger Small and medium-sized enterprises (SMEs) have a greater chance of succeeding in China as they have the capacity to plan for the long term and invest in the required intangible assets.
- Strategies employed by Chinese firms in North America can be seen as approaches to be adopted by foreign companies in China. Examples include partnerships and investments by Huawei and Tencent in Canada.
- There is a consensus that, to a large extent, Canadian SMEs are innovative and have strong, creative, and cost-effective R&D, but they have no scale and no patience and they are not export-ready. They are also criticized as being less ambitious and aggressive.
- Canadian firms have the advantage of carrying certifications from North America, which is important for Chinese original equipment manufacturers (OEMs), firms, and governments.

Shenzhen and Hong Kong are often seen as two separate innovation ecosystems because of their very different laws, regulations, opportunities, and challenges. They are also often studied and compared as gateways to China under the assumption that foreign companies go there primarily to access the vast Chinese market. The argument of this paper is that both of these premises are problematic. First, they are increasingly becoming more interwoven and there are specific plans from both sides to accelerate this process. In that sense, Shenzhen and Hong Kong should be studied as one large ecosystem. Second, researchers often make the assumption that foreign companies go there primarily to enter the Chinese market. Therefore, comparisons between the two cities often focus on their connectedness to the Chinese market, value chains, and production networks. This paper, based on interviews and a survey in Shenzhen and Hong Kong, suggests that Canadian companies go to Shenzhen (especially) and Hong Kong primarily for other reasons, such as getting access to local suppliers, manufacturers, and investors. Specifically, a survey of Canadian startups in Shenzhen demonstrates that none of the eight participating companies indicated entering the Chinese market as one of the main reasons to locate in Shenzhen.

For Shenzhen, providing opportunities for fast and cheap prototyping is clearly its main strength. Through our interviews with companies there and a survey with Canadian companies at HAX, it was evident that having access to and building relationships with local suppliers is the main reason why companies move there. In Shenzhen, not only can ideas turn into prototypes in as little as one-fifth the time and at half the cost compared to North America[1], but, as many of our interviewees highlighted, entrepreneurs can significantly improve their products or design new ones. Local suppliers and manufacturers have decades-long experience in prototyping and manufacturing a diverse range of products, which, in combination with having quick access to locally-produced hardware, puts them in a unique position to suggest alternative designs and products. These networks operate at a new, much higher, level than before – for example, Shenzhen's Nanshan district has a higher income per capita than Hong Kong, spends over 6% of its GDP on R&D which is three times more – and of higher quality – than the Chinese average, and is home to about 125 listed firms with a combined market value of nearly US$400bn[2].

It is common for foreign entrepreneurs and product designers to browse through markets selling hardware for alternative solutions, designs, and material and brainstorm with sellers. These are open markets selling anything from microchips to switches and small robotic parts, and sellers are usually experienced and have ties with local manufacturers. Suppliers often contribute to product design by suggesting better and cheaper parts than originally planned, and they often suggest solutions that Canadian startups and SMEs are unaware of because they are not available in Canada. Therefore, access to these markets is important mainly for three reasons. First, having direct access to local and experienced suppliers often results in better and cheaper solutions or even new products, which had not been possible or viable with the limited access to and price of hardware in North America. Second, the quick transition from testing to prototyping and then production saves a lot of time, which translates into testing alternatives for each product multiple times and going to the market faster and without additional funding rounds. Third, having access to these networks can often result in opportunities abroad (see HAX case below).

Hong Kong is trying to position itself as a hub to not only China but also the One Road One Belt Initiative and increasingly to South East Asia. Many interviewees mentioned that Hong Kong used to be considered the 'gateway' to China, but since Chinese companies have significantly improved their ability to partner with foreign companies, many choose to go to mainland China directly. On the other hand, because Hong Kong provides a more business-friendly environment overall, access to international investors, and protection of IP, and is centrally located between China and East and Southeast Asia, many foreign companies choose to establish their regional headquarters there. Hong Kong also provides opportunities for foreign companies through the

[1] http://mckinseychina.com/the-china-effect-on-global-innovation/

[2] https://www.economist.com/news/special-report/21720076-copycats-are-out-innovators-are-shenzhen-hothouse-innovation

multinational corporations based there, and local authorities, such as Invest Hong Kong and the Hong Kong Science and Technology Parks Corporation, provide significant help to large foreign companies moving there. Therefore, it is very common for foreign companies to have presence in both Shenzhen and Hong Kong and utilize the strengths of both sides of the border. A new technology park has been proposed – called the "Lok Ma Chau Loop" – which will unify the larger Shenzhen-Hong Kong innovation ecosystem. This project is supposed to allow for easier cross-border transportation and communication and will operate as a global incubator.

The nature of investment opportunities is one of the few areas where there is a significant difference across the border. Investment networks in Shenzhen and Hong Kong are different as the former relies mostly on domestic Chinese networks and the latter on international or local Hong Kong networks. Investors in Mainland China and especially in Shenzhen have experience in manufacturing and usually invest in companies related to hardware or manufacturing, while investors in Hong Kong have experience in finance and services and usually invest in companies in these sectors. Another notable difference is that investors in Shenzhen are more interested in products targeting business-to-business and business-to-government operations rather than services to individual customers, which still remains important in Hong Kong.

Even though there is an overlap in investments between the two cities, the regulations of the People's Republic of China government curbing outbound investments have made the distinction between the two even sharper. The impact of this policy – at least in relation to investment opportunities for Canadian companies – is more notable in Hong Kong as a few of them relied on investments from Mainland China. In particular, smaller firms who were targeting investors based in Beijing for their future rounds of investment have had to change their strategy. The role of the Business Development Bank of Canada (BDC) has been instrumental in assisting Canadian SMEs find capital and customers on both sides of the border through their office in Hong Kong.

There is also a notable difference between startups and small SMEs with larger companies in regards to their interest and strategies in accessing the Chinese market. Even though the Chinese market is vast and provides significant opportunities for foreign companies, it also has a lot of constraints. Issues related to regulations, tax laws, IP risks, and cultural barriers make accessing the market harder. These obstacles require significant commitments and effort from foreign companies in order to be overcome. Companies need to be committed to being based, working, and doing R&D in China in order to access the market, something that requires resources and long-term planning. Even though the impact of new policies such as "Made in China 2025" is still to be determined, there was an increasing concern among interviewees that only large companies will be able to meet these standards. This is especially concerning for Canada as most of the domestic market consists of small and medium SMEs. The objective of this policy is to promote 'indigenous innovation' so China can become self-sufficient – this does not necessarily exclude foreign firms, but it does exclude foreign technologies. Foreign companies would need to align their own value propositions with China's[3].

In general, among Canadian and local experts, there is a consensus that Canadian firms are innovative, but, except the larger ones, they have no scale and no patience and they often are not export-ready. They are also less ambitious and aggressive. One of the advantages of Canadian companies is their potential research capacity, as R&D in Canada is cheaper and researchers are seen as more creative. For example, an average salary of a full-stack developer in China is roughly CAD$81,000-$121,000 and continues to rise because of talent shortages[4]. In contrast, the Canadian average is at the lowest point of this range and is rising less rapidly. The cost of research as a whole in Canada is low as well. As a reference, Canada has lower costs in R&D than all G7 countries and others such as Australia and the Netherlands[5].

[3] http://www.europeanchamber.com.cn/en/china-manufacturing-2025
[4] https://www.hays.cn/en/salary-guide/index.htm
[5] https://www.competitivealternatives.com/reports/compalt2016_report_vol1_en.pdf

Canadian companies receive significant help from the Trade Commissioner Service (which has become a key component of their entry strategy), the BDC, some of their home provinces, and the Canadian Chamber of Commerce in Hong Kong, although the role of the latter is declining. One of the difficulties in supporting companies in the ICT sector is that the required services are increasingly too technical and Canadian officers on the ground do not have the knowledge or capacity to provide tailored services.

The Canadian brand is strong and being a Canadian company opens doors and gives credibility. Canadian ICT firms also have the advantage of carrying certifications from North America, which is important for OEMs but also local governments and companies. Trade shows, exhibitions, and visits by Premiers and others help to raise the profile of the Canadian tech ecosystem. Although not widely known in Canada, Canadian firms in Hong Kong have recently seen some success and have signed significant contracts. Canadian universities are valued but more can be done to translate that to business and research partnerships and success.

Lastly, it is worth exploring the strategies employed by Chinese companies in Canada not only because of their impact in the Canadian ecosystem but perhaps as an indicator of an approach to access the Chinese market. As a starting point, we should notice that large Chinese companies that are already successful in their domestic market have not yet utilized opportunities in non-Asian markets despite their opportunities. One possible reason is that they cannot simply copy and paste their product from China to North America and compete with already established domestic companies there. The two main strategies employed by Chinese companies are to partner with or invest in domestic companies or open research centres to tap into local talent. These are both long-term strategies which are worth considering for foreign companies interested in accessing the Chinese market.

Some of the Chinese investments in Canada showcasing this approach are employed by Tencent and Huawei – both multibillion dollar companies based in Shenzhen. Tencent has recently completed some major investments in Canada, including leading a CAD$51 million investment in Canadian startup Wattpad in January 2018. This follows several other large investments in the last two years alone, including taking part in a CAD$102 million funding round for Montreal-based Element AI Inc., investing CAD$50 million in Ontario-based Kik Interactive, and investing CAD$28 million in Kindred Systems, an AI robot-manufacturing startup based in Toronto.

Huawei follows a similar strategy in Canada, although at a larger scale. It initially failed in the US and, although Sino-American politics played a key role, this could be partly explained by their inability to adapt to the cultural norms and regulatory environment of the US. Huawei then moved to Canada and has since made significant investments in both research centres and other companies and has committed in investing CAD$500 million in R&D in Canada. A Huawei executive in Shenzhen discussed that Huawei will now diversify their investments in Canada and will largely focus on acquiring 10-20% of more companies than larger acquisitions. This is important as it differs from most Chinese companies; during the interview, it was mentioned that it is a strategic decision to not dominate their value chain. This is for two main reasons: first, many of their competitors are also clients (e.g. Vodafone), therefore dominating the value chain might hurt their business, and, second, they want to tap into the talent in Canada – especially in AI – but allow these companies to grow independently. It was highlighted that Huawei values significantly R&D in Canada as being more creative and "pushing the envelope"[6].

Case study: HAX Accelerator in Shenzhen

The HAX Accelerator is considered one of the most active early stage investors and the world's largest accelerator in hardware. With offices in Shenzhen and San Francisco and investors mainly from the USA, HAX utilizes Shenzhen's strengths and assists startups to build their product fast, scale up, and reach a global market.

[6] Interview with Huawei executive in Huawei HQ, Shenzhen in January 10, 2018.

This case study includes in-person interviews with executives from HAX and Canadian startups and a survey of eight of the nine Canadian companies that HAX has supported in the past years. From these eight companies, five have their HQ in Ontario, one in the US, and two in Quebec, although one of them is moving their HQ to the US as well. British Columbia has considerable strength in the ICT sector but the presence of startups from BC in Shenzhen is limited. In the case of HAX, this perhaps is also a result of their focus on Ontario and Quebec, with frequent visits and communication with local institutions. Not surprisingly, none of the companies has a manufacturing facility in Hong Kong or in the US – they all do part of their manufacturing in their home provinces of Ontario or Quebec and three out of eight have also kept part of their manufacturing in Shenzhen. It is common to prototype in Shenzhen and then – if the product allows – continue with ordering parts from Shenzhen and assembling in Canada. A significant percentage (50% from next year) of those companies has presence in the US, with access to finance and talent being the main reasons. It is important to highlight that from the four companies who still maintain presence in Shenzhen, none identified marketing or business development for the Chinese market as their core activities.

Almost all survey respondents mentioned that their experience in Shenzhen had a positive impact on the cost and speed of their prototype and production process and helped them understand the manufacturing and supply side of business better. Only one out of eight respondents mentioned that they considered accessing the Chinese market after they moved to Shenzhen. Along the same lines, none of the survey respondents indicated access to the Chinese market as one of the three main factors that they moved to Shenzhen for. In addition, some of the respondents mentioned that this "had not even crossed our mind". A possible explanation is that foreign companies going to Shenzhen intend to use the local network to accelerate their prototype and manufacturing process in order to access global, not Chinese, production networks. Two of the interviewees mentioned that if a company wants to access the Chinese market and grow, they would go to Shanghai or Beijing, not Shenzhen.

A case demonstrating that going to Shenzhen can also help in accessing global markets is one Ontario-based company which, after being incubated at HAX, was able to access opportunities in Toronto. As part of a HAX delegation to Shanghai and San Francisco, the co-founders met with a major company based at the MaRS Discovery District in Toronto, which offered them a collaboration opportunity. As one of the co-founders noted, they would not have been able to access this opportunity had they stayed in Ontario, as they could not even conceive their product as compatible with the MaRS-based company. Similarly, a Quebec-based company mentioned that through the network of local suppliers in Shenzhen they came in contact with distributors in Japan and South Korea interested in importing their product. Even though these examples are limited, they are an indication of the possibility of using Shenzhen as a springboard to access global production networks and markets. As distributors from around the world are contacting local suppliers, global networks are often overlapping as entrepreneurs, suppliers, and distributors have increased chances of meeting and forming collaborations.

Conclusion

It is often overlooked that China is trying to play a central role in global production and innovation networks. Most foreign policies target the Chinese consumer market because of its size, but tremendous opportunities are provided through the utilization of production networks there or collaborations for the creation of new products. China is focusing on indigenous innovation for the domestic market and Chinese firms are trying to globalize. As international partners with experience and R&D capabilities are required, Canadian firms need to make long-term investments and governments to adjust their strategies for grasping these opportunities.

Selected survey figures