Article

Ecosystem, Education and Mindset of Startups in Canada's Capital

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Abstract: Many countries around the world have been working to implement economic development policies focusing on innovation and technology. This paper studies the ecosystem, education, mindset of startups in Canada's capital city, Ottawa. Methodologically, we conducted in-person and telephone interviews and online surveys with eight stakeholders of the Ottawa startup community including startup founders, an educator, and publicly and privately funded organizations. Findings show that the startup ecosystem of the city of Ottawa is in need of second level funding for fast growing startups, and there is a lack of direct international flights for international investors. Regarding startup education, Ottawa should start startup education early on from the high school level and encourage more female and migrant students to enroll in startup education and training programs. Finally, the mindset of startups in Ottawa reveals that startup immigrants are more willing to take risks in business. All startups should focus on developing just one product and try to go beyond the US and Canada markets.

Keywords: *startups, ecosystem, education, mindset, Canada*
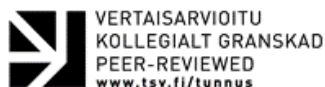
1   Introduction

Many countries around the world have been working to implement economic development policies focusing on innovation and technology. This paper studies the ecosystem, education, mindset of startups in Canada's capital city, Ottawa. It has a population of around 1 million, and it is very much a government town as it is the location of the Canadian federal parliament and its ministries to plan national policies applicable to all Canadian provinces and territories. Foreign government embassies are also situated in the city of Ottawa (see the map below). A good portion of Ottawa's economy consists of technology (tech)communities. There is a big tech hub area in the suburb of Kanata North. Ottawa has the largest percentage of workers employed in high tech in North America, higher than the Bay Area of the Silicon Valley (Sali, 2020) and also has the highest percentage of citizens with post-graduate degrees in Canada (Statistics Canada, 2017). Currently, the most outstanding local tech company is Shopify. This company started off as a startup in 2004 and still has its headquarters in downtown Ottawa along with other offices in 11 countries. Shopify is now one of the world's e-commerce platform leaders and the

Canada's most valuable company with revenue in 2019 of US$ 1.578 billion (Vandaelle, 2020). In terms of the local government support, tech startups are classified as one of the economic development areas of focus under the knowledge-based business category (City of Ottawa, 2020).

Map: Map of Canada, Source: www.worldofmaps.net (under open access licensing retrieved August 21, 2020).

Despite the success stories of startups in Ottawa and the clear government policies to support startups, we think there is still a need to investigate the current situation including challenges related to the ecosystem, education and mindset of startups in Canada's capital city. This paper puts forward new evidence and lessons learned from the data collection through our community and stakeholder engagement. We want to provide an opportunity for the Ottawa startup community's voices to be heard within the academic research. In addition to the utility of this work to Ottawa itself, our findings could also

prove useful for policy makers in economic development in other cities or countries as a case study.

2   Related works

Regarding the startup ecosystem, a study by Jáki et al. (2019) reports that the Hungarian startup ecosystem plays a key role in organizing social events for meetups and networking which were found to be the most important characteristics of their entrepreneurial ecosystem. However, the startup ecosystem in Hungary still faces challenges regarding how to help startup founders who have previously failed and trying to help them to restart their business again. In Singapore, the government focuses on building a startup ecosystem that promotes public-private partnerships to ensure startups create products that respond to real industry and market demands (Cheah et al., 2016). In Korea, tech startups have shown that they help to increase the employment rate and create new job opportunities (Kim et al., 2014).In terms of making the startup ecosystem more equal for female founders, Berger & Kuckertz (2016) suggest that it is crucial to have more gender-specific policies in startup ecosystem development to encourage more female entrepreneurship in high-tech startups worldwide.

Concerning startup education, a systematic review by Chanin et al. (2018) reports that in order to have an excellent software startup education, the learning experience must be based on the real world projects with in the right learning environment that provides a good set of tools, promotes critical thinking and problem solving skills, and also gives students experience working in multidisciplinary teams. In addition, Chanin et al. (2018) suggest that the software startup education in universities around the world should improve their teaching by making their courses include more practical work away from traditional lecture-based learning. Teachers should introduce a mock-up startup project for students to come up with their own ideas and business plans while also inviting students from other disciplines to be a part of the startup courses, particularly students from business and management schools. Another study about startup education by Harms (2015) discusses how modern startup education should focus on team-based learning. Every learner needs to work to be good at self-regulation and develop a good understanding of how to make other people in the team to feel good working alongside them towards creating a work environment that is good for everyone.

With respect to the startup mindset, a study by Harsono & Fitri (2020) shows that the entrepreneurial mindset of startups tends to be about being resilient and becoming a person who likes to find new ways to solve problems. Similarly, the work of Gundolf et al. (2017) indicates that the mindset of startup founders is someone who always has a new way of thinking in terms of product design and making sales, and importantly, they also have to be familiar with the competitiveness of the business world.

3   Methodology

We interviewed and surveyed eight stakeholders from Ottawa's tech startup community in-person, via telephone, and through an online survey form for participants who did not want to talk in-person but still wanted to participate in this research project. Being able to type in their thoughts was preferable mainly

due to their hectic work schedules. The data collection happened between May 2019 and February 2020. The participants included public and private partnership organizations, tech startup founders and an educator. All verbal interviews were audio-recorded and then transcribed to use in the data analysis process. All interviews and online survey answers were in English, though a French language option (Canada's other official language) was offered but no participant wanted to do an interview in the French language. We aimed to understand the current situation, challenges and recommendations to improve future of the tech startup ecosystem, education and mindset in Ottawa. We recruited participants by approaching them directly with a formal email with an explanation about the research project. We used email addresses that were found on Ottawa startup community websites. There was no financial compensation for their participation. The data was clustered based on patterns identified through thematic analysis. In the findings section, we omitted all identifiable information including participants' names and organizations. We used pseudonyms for our participants in this paper.

4   Findings

4.1   Ecosystem

Need for second level funding for fast growing startups

According to our data, six out of eight participants indicated that the city of Ottawa has long been offering new startups varied access to seed funding, mentorship and training programs, but that there is still a lack of second level funding for fast growing startups. Such facilities make a huge difference in the tech startup entrepreneurial ecosystem. The city provides startups with the knowledge they need including peer-to-peer groups so they can talk with experts to develop new strategies. There are also several technology-related entrepreneurial conferences and meetups throughout the year in the city. The events often offer an opportunity for startups to find investors, raise money and do networking to scale up their companies. Participant #8 thinks that many tech startups in Ottawa would not have been where they are now without government support incentives both in terms of funding and training programs. Whereas, our Participant #6 points out some concerns about startup funding with the recent change of the Ontario provincial government that is the main funder of startup programs in the city of Ottawa stating that "the grant system is quite good, the only problem is the new government has slashed a lot of the grants."

However, Participant#8 does not think the provincial government's budget funding cut to the startup community in Ottawa will have a greatly negatively impact on new startups. This assessment is due to the low cost of starting a tech startup as well as the abundance of free training and mentoring programs already existing in Ottawa. Startups can be successful as long as the new startups put their hard work in first and make sure the team have the knowledge, particularly software startups. They could go far without having a lot of money to begin with. However, they may face problems later on in terms of scaling up. Funding should not be an excuse to not starting a startup. Participant#8 argues that new tech startups could begin with few costs, stating that "Right now, if you need a laptop that costs some hundred dollars. Get the Internet access from the Starbucks and you can learn how to code."

As the city of Ottawa already does a good job in helping new tech startups by spreading seed funding, there is still a need for second level funding for growing startups, so they could grow as fast as possible. As Participant #1 mentions "I have often to talk about the funding aspect where a lot of these companies would not talk even about how do you fundraise or how do you help them to fundraise?…We do not really talk about what [will]happen after the funding finished.". The selected startups for second level funding would create a positive impact on the city in terms of the number of new jobs created. This needs a kind of venture capital that could come from the government or private sector.

Furthermore, Participant #8 tells usthat "The [current startup funding] program is very horizontal in the sense that they do not double down the progress of the company. I think it would be very interesting could be the possibility for startups that perform well to have additional resources. It is kind like having resources target to their metrics. So like right now it is kind a flat program that applies to everyone and they do not take in consideration of the progress for the ones that do well". Likewise, Participant#4 shares the same concerns about the lack of second level funding for growing startups in Ottawa, stating that "More risk capital for companies between the Seed –Series A companies[second level funding]. Too many companies die due to lack of critical funding in this stage. Additionally, Participant #2 expresses if they receive second level funding, they will use it to build up their team. They felt that second level funding would provide "More funding to hire more developers to assist with building of features". As well, Participant #5expressesthe importance of second level funding that, "Revenue growth is constrained by capital available. Long sales cycle due to nature of software requiring business process changes."

Lack of direct international flights for international investors

Due to the fact that Ottawa is a government town where all of Canada's federal government ministries and agencies, as well as the national parliament, are located, there is not much demand for international flights compared to the nearby industrially and commercially oriented cities like Toronto and Montreal. Participants#8 and #4 believe the lack of direct international flights to and from Ottawa creates problems and inconveniences for investors from other parts of Canada and abroad who want to come to provide second level financial support for fast growing startups as described above. Participant#8 explains to us that "Ottawa really does not have a real international airport. It is kind like if you have to fly somewhere [you] have to go to Montreal or Toronto for international flights. But they have flights to Europe: London and Frankfurt but it is once a week.". Moreover Participant#4 shares their own challenges with Ottawa logistics when trying to fundraise, do marketing, or make sales with local and international investors:

"The feedback from the west coast investors[particularly San Francisco and San Jose of Silicon Valley, US]is that getting to Ottawa is hard –takes an entire day for them to get here. There are no direct flights to any of the major funding hubs from Ottawa. There is concern that there are no real VCs[venture capitalists] in Ottawa. International investors really want local investors to participate and help with governance. Local investors provide much lower valuations compared to international investors. International investors are really concerned on the lack of talent for growth. Toronto and Montreal have much stronger AI ecosystems, whereas Ottawa seems to be lacking on this aspect as well. VCs are thinking, how are you going to hire your 151st employee – especially for an AI-first company."

4.2   Education

Starting startup education early on and encouraging more female and migrant students

As was touched on previously, the lack of direct international flights to Ottawa is cause for concern among international investors due to a perceived lack of local talent to support the fast-growing startups that are candidates for investment. This need for a lot of qualified staff for startups does not only affect conversations on the startup ecosystem, but also around education. The talent aspect is discussed by Participants#7, #5, #8 with specific concerns about Ottawa's education system in order to help students to develop the entrepreneurial and technical skills needed to respond to industry demands. Participant #5 recommends that Ottawa's public education department introduce entrepreneurial classes staring early on at the high school level to prepare students for the realities of business and tech startups. On the other hand, Participant #7's recommendation more focus on university students by arguing that there are not a lot of programs to help and teach students how to sell their products which is a huge part of entrepreneurship and the lack of selling knowledge has become a barrier for students who are interested in tech startup endeavours.

Regarding women in startup education, Participant #7 indicates that it is normal now to see more women entering entrepreneurship. Female students when enrolled in startup programs at the university level perform quite well. They do not do any better or worse than male students. They are both equal in terms of learning performance. However, it has not been easy to get more female students to apply to startup programs and training. There are not as many female student applicants as the male student applicants. Participant #8 agrees on this point about the gender issue in startup education and wants to encourage more women to enter tech startups by stating that "I think tech is democratizing the work. Because I could take a laptop and go to compete with everyone around the world. They would not know that I am male or female or I am white or black. It is levelled the field even more." Furthermore, Participant #8 also shares positive thoughts about the increasing amounts of female startups in Ottawa:

"It [female startups]is growing… I see more and more. My opinion is, I read a bit about it. It is more of the question having[to]send an invite to females to go to technical studies: engineering and stuff like that to encourage… I think there are growing numbers of female founders. It has been advantageous. Ido not[know]why but I think females when they work, they work better than men… They are just better.".

The fact that Ottawa has several universities and community colleges with a high number of international or migrant students is also relevant to the local startup community. Our research participants view startup education in Ottawa as being very welcoming to talents from away who were not born in Ottawa. They are arguably the ones really moving forward the city's startup culture and it should continue that way. However, in recent years there have been controversial provincial funding cuts for tech startup education in Ottawa. Participant #7 tells us that the government budget cut in startup education was a huge hit. It makes it more difficult for universities to do outreach programs to encourage more female students and international students to get involved in

startups in Ottawa as well as other technology-related entrepreneurial initiatives.

4.3   Mindset

Startup immigrants are more willing to take risks in business

In the relation to the above mentioned, connection between startup education immigrant students and foreign investors coming to Ottawa, our participants also further discuss about the immigrants' mindset; their greater willingness to take risks in business. According to Participant #1 "Generally speaking, people from outside [immigrants] they are more flexible, more entrepreneurial, they are more risk takers because they come down all the way to Canada. They understand what is like to taking risks. Local ones are very strict on what they want, they want to get the job done and they want to move on. Very a few that have that kind of mindset…". Moreover, Participant #8 indicates that it is true that there are a lot of immigrants who moved to Ottawa to start a business. Canada has a startup visa, but it does not seem to have taken off that much. The city of Ottawa should run a campaign to welcome more foreign talents to start a tech business here. Participant #8 also points out that, "If you look at Shopify [a world leading e-commerce company with the headquarter in Ottawa], Tobi [Shopify's founder and billionaire entrepreneur] is German. It is founded by an immigrant."

Focus on developing just one product and try to go beyond the US and Canada markets

The basic element of the entrepreneurial mindset is always thinking about how to develop new products that markets want. As a result, there are several ideas happened and often startups want to try them all. This mindset becomes a challenge for many startups in Ottawa. Due to limited resources, tech startups should learn to focus on developing just one product that they think they are very good at and it will able to generate revenue. Startups tend to be distracted by the possibility of making money on their new ideas. Successful startups are the ones that are persistent and have a very clear goal in their head what they want and go for it with no other distractions. Participant #8 states that "If you [startups] spread resources around, then you are done. You are not the big corporations that can try like Google can try 150 different markets just for fun. If you are the startup, you do not have that amount of money and it has to last."

Speaking of diverse markets, startups in Ottawa are recommended to try and go beyond the US and Canada markets. This is especially the case in the current political climate where the US is using protectionist policies for their domestic producers. This may create consequences for the tech industry in Ottawa. Therefore, it could be advantageous for startups in Ottawa to think, from day one, of how they would go to other markets beyond the domestic and the US markets. Going internationally is not easy, as you do know the culture, language, and other things but having that kind of international market mindset opens a start up to more opportunities already on its own.

5   Discussion

If we look closer at the findings above, we will see that the ecosystem, education and mindset of startups are actually closely interconnected. Funding

issues link to foreign investors and foreign talent. One of many ways to get more foreign talents could be by having open immigration policies both for study and work purposes. This could be favourable as immigrants seem to have the mindset of risk taking which is an extremely important characteristics of entrepreneurs. According to research by Spigel (2017) worker talent is a social attribute of entrepreneurial ecosystems driving success. Human capital is extremely crucial for the knowledge economy and particularly for tech startups.

In addition, we think highly skilled tech immigrants to Ottawa also bring global connections with them which are extremely beneficial for local startups when they want to expand to new international markets or design a product targeting a specific region which could be the same region tech immigrants are originally from. In terms of tech startups in Ottawa to expanding to new markets beyond the domestic and US markets, from our personal observations, this practice is still not yet very common within the Ottawa startup communities with the exception of very big companies like Shopify. They now have offices or operational units in China, India, Japan and Singapore, among other countries. We think the city of Ottawa's tech communities should start to focus on global scaleup. So far, there are some internationalized programs already existing, but we think that there should be even more such offerings.

The long history of strong trade partnership between Canada and US makes it more difficult for tech startups to change their entrepreneurial mindset to find new markets of which they might know nothing or little. For a long time, startups in Canada have usually ended up being bought by American firms or American companies who will outsource some tasks to Canadian tech companies or startups because it is cheaper to get Canadians to do the work, with the Canadian dollar at a lower exchange rate with the US dollar. Insome cases, there are even tax breaks for the jobs if they are done in Canada, facilitated by the Canadian government. However, since the election of the Trump administration, many things have changed surprisingly including the international trade rules and tariffs under the North American Free Trade Agreement (NAFTA). Recently the Canadian steel and aluminum industry has been badly hurt with the new NAFTA regulations introduced by US. What we are trying to say here that there is no sure thing in business or bilateral partnership. It is always nice to have another option like the phrase "do not put all your eggs in one basket". This is the mindset that startups in Ottawa must try to remember and remind themselves to start searching for new international markets or partnerships in order to diversify their risk. The question from now on is how and what the city of Ottawa could do to change its entrepreneurial ecosystem and education to match with the new conditions of high-tech industry. Small startups one day could become big and call Ottawa their home, including their headquarters. We think the city of Ottawa might need a whole system change to support its startup community in a changing world.

The COVID-19 global pandemic has been disrupting business operations. However, the tech industry has been gaining benefits from the public health crisis because it left only one way of communication that humans can do safely: going online. This includes online shopping, online learning or online socializing through social media. During this ongoing crisis, Shopify, Ottawa's e-commerce giant, announced that they had decided to close their physical offices in Ottawa and other cities in Canada and in other countries until a further notice with a note that some of the staff are moving to permanent remote work from their homes (Davis, 2020). This new normal of working culture raises a new challenging question of how the city of Ottawa is going to

adjust the ecosystem, education and mindset of the local startup community. Yes, there is a huge demand for tech and online products but how to support those new startups virtually is a new future research question that we urgently have to attempt to answer.

Additionally, COVID-19 has also changed the venture capital landscape since Ottawa is already lacking direct international flights. The pandemic makes it even worse because now the US venture capital stays in the US completely since there is no possibility at the time of writing to fly into Canada due Covid-19 causing the international border (US and Canada) closure. Even though the meeting between startups and investors could be done by video conference, we think investors would prefer to discuss in-person to fully see the potential of long-term growth particularly in the case of startups trying to raise large amounts of money. Therefore, there likely will be a decreasing international venture capital financing for startups in Ottawa during the COVID-19.

6   Conclusion

This paper presents findings about the ecosystem, education and mindset of the startup community in Ottawa, Canada's capital city. This is one example of a case study in Canada and the same study should be done concerning other cities or regions in the future. Startups in Ottawa are facing unique challenges of their own as discussed in this paper including second level funding, finding more talent, and at the same time are coping with the limitations of location and logistics such as the lack of direct international flights. Education and mindset are also equally important in contributing to the success of tech startups. All discussed aspects of ecosystem, education and mindset of tech startups are truly interlinked and inseparable.

Acknowledgement

References

Berger, E. S., & Kuckertz, A. (2016). Female entrepreneurship in startup ecosystems worldwide. *Journal of Business Research*, *69*(11), 5163–5168.

Chanin, R., Khanna, D., Kemell, K. K., Wang, X., Sales, A., Prikladnicki, R., & Abrahamsson, P. (2018). Software startup education around the world: A preliminary analysis. In *CEUR Workshop Proceedings* (No. 2305). RWTH Aachen University.

Chanin, R., Sales, A., Pompermaier, L., & Prikladnicki, R. (2018, June). A systematic mapping study on software startups education. In *Proceedings of the 22nd International Conference on Evaluation and Assessment in Software Engineering 2018* (pp. 163–168).

Cheah, S., Ho, Y. P., & Lim, P. (2016). Role of public science in fostering the innovation and startup ecosystem in Singapore. *Asian Research Policy*, *7*(1), 78–93.

City of Ottawa. (2020). Economic development areas of focus. Retrieved from https://ottawa.ca/en/business/economic-development-areas-focus

Davis, B. (2020). Shopify offices remaining closed until 2021, with most staff shifting to permanent remote work. Retrieved from https://www.therecord.com/business/2020/05/21/shopify-offices-remaining-closed-until-2021-with-most-staff-shifting-to-permanent-remote-work.html

Gundolf, K., Gast, J., & Géraudel, M. (2017). Startup's innovation behaviour: An investigation into the role of entrepreneurial motivations. *International Journal of Innovation Management*, *21*(07), 1750054.

Harms, R. (2015). Self-regulated learning, team learning and project performance in entrepreneurship education: Learning in a lean startup environment. *Technological Forecasting and Social Change*, 100, 21–28.

Harsono, A. A., & Fitri, S. (2020). Innovation mindset: SMES vs startups. *International Journal of Business and Economy*, *2*(2), 53–60.

Jáki, E., Molnár, E. M., & Kádár, B. (2019). Characteristics and challenges of the Hungarian startup ecosystem. Vezetéstudomány-Budapest *Management Review*, *50*(5), 2–12.

Kim, H. S., Lee, Y., & Kim, H. R. (2014). Technology venture startup invigoration strategy for building infrastructures for the business startup ecosystem. In *Advances in Computer Science and its Applications* (pp. 1303–1309). Springer.

Sali, D. (2020). 'Brain drain'of tech grads could stunt sector's growth in capital, experts say. Retrieved from https://obj.ca/article/techopia-brain-drain-tech-grads-could-stunt-sectors-growth-capital-experts-say?

Spigel, B. (2017). The relational organization of entrepreneurial ecosystems. *Entrepreneurship Theory and Practice*, *41*(1), 49–72.

Statistics Canada. (2017). Education in Canada: Key results from the 2016 Census. Retrieved from https://www150.statcan.gc.ca/n1/daily-quotidien/171129/dq171129a-eng.htm

Vandaelle, I. (2020). Shopify displaces RBC to become Canada's most valuable company. Retrieved from https://www.bnnbloomberg.ca/shopify-displaces-rbc-to-become-canada-s-most-valuable-company-1.1432436