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The Case of a Home Grown High-Tech Sector in a Small Canadian City

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Abstract

High-tech firms are associated with innovation and efficiency, and the attraction of such firms is a coveted goal for the economic development of most urban centres. This research examines the location decision factors of high-tech firms in the small Canadian city of Kamloops, British Columbia. Semi-structured interviews were used to collect information from 18 high-tech firms in Kamloops about their reasons for locating in a small city. The data was analysed with quantitative and qualitative techniques. The results indicate that a combination of soft and hard factors was influential in the decision to locate in Kamloops with soft factors associated with quality of life factors dominating the decision. The results also suggest that business supports have played a significant role in the success of some firms. The research results are expected to be valuable to policymakers concerned with economic development in small urban centres.

Keywords: high-tech; economic development; urban development; location theory; Canada

1.0 Introduction

The development and growth of a high-tech sector have become a coveted goal for economic development organizations in many urban centres. High-tech sectors are considered to be desirable for their efficiency, innovation and production of "goods and services that drive economic growth by improving productivity and profitability for all types of businesses, while at the same time providing relatively high-wage employment" (Shrier, 2017, p1). When thinking about the location of high-tech firms, places such as Silicon Valley and Research Triangle in the U.S. first come to mind. While Canada does not have high-tech mega clusters, the cities of Halifax, Montreal, Ottawa, Waterloo, Calgary, and Vancouver are all home to numerous high-tech firms (Hamilton, 2018). Small and relatively remote cities are rarely thought of as a location of choice for high-tech firms. Kamloops is such a city; with a population less than 100,000, it is located in a mountain valley in the interior of British Columbia with a vast rural surround, and a three and a half-hour

drive to Vancouver, the nearest large metropolitan centre. Although Kamloops is most definitely not a high-tech hub on par with those mentioned above, evidence suggests that its high-tech sector has grown over the past decade. The objective of this research is to determine the most critical location decision factors of high-tech[1] firms in this small Canadian city. The results are expected to be of interest to economic development organizations and policy makers whom seek to develop and grow a high-tech sector in their small cities.

A firm's decision to locate or relocate is critical as it involves substantial expenditures and can affect success (Indarti, 2004). While the overall objective of the location decision is typically to maximize profits by providing a competitive advantage (Porter, 2000; Laulajainen & Stafford, 1996), the decision factors have evolved and tend to vary by industry (Chavda, 2004). A review of the relevant literature on business location decisions provides a foundation for the research methodology described in section 2.

The origins of classical location theory date back to the seminal work of Weber (1929) in the early 1900s who recognized that geographically fixed input resources and distance transportation costs play vital roles in location decisions (McCann, 1998). Classical location theory underscores the role of direct cost factors, also known as hard factors, emphasizing the significance of availability of inputs, infrastructure, labour force, transportation costs and competition in firm location and re-location decisions (Plaziak, M., & Szymańska, 2014b; Blakely & Bradshaw, 2002; Johnson & Rasker, 1995, McCann, 1998). Marshall (1920) contributed to location theory by highlighting the importance of agglomeration economies[2] providing the background for research on the benefits of industrial clusters.

In more recent decades, with advances in communication, technology and transportation, intangible and qualitative factors, also known as soft factors, have gained prominence in explaining business location decisions. These factors include quality of life, crime rates, work-life balance, local cultural, and local and regional government attitudes (Plaziak, M., & Szymańska, 2014a; Karakya & Canel, 1988). Plaziak and Szymańska (2014) found that soft factors are rising in importance as the business world changes with technological advances, more reliable transportation, and an emphasis on global business as barriers to trade have become less obtrusive. These changes to the way we do business are allowing soft factors associated with quality of life to become priorities for business owners. This is particularly true for smaller, regional high-tech firms which have been known to prioritize lifestyle, location ambiance, and city image as top reasons to locate a business (Casnocha, 2008).

Past research suggests that location decision factors differ from industry to industry (Chavda, 2004). Research on the high-tech industry indicates the most important factors include the availability of an educated labour force, distance to transportation infrastructure (land, water, and air), an attractive community environment, the costs of doing business, and proximity to major research universities (Chavda, 2004;

[1] The term "high-tech" is used consistently throughout this paper although not all firms in Kamloops' sector are cutting-edge science.

[2] Agglomeration economies are the cost savings to firms associated with their co-location with similar firms, such in the case of clusters. Examples of sources of agglomeration economies include supply networks, transportation links, access to workers with specialised skills and infrastructure built for a specific industry.

Galbraith & Noble, 1988). A study on the location decisions of knowledge-intensive service firms in Spain found that entrepreneurs who chose to start their firms in rural areas were largely driven by personal motivation factors such as the presence of entrepreneurial examples and if the founder was born or raised in the area. (Vaillant, Lafuente & Serarols, 2012).

Survey research on 46 high-tech firms in Ann Arbor, Michigan, found that most of the relatively small fast-growing firms were attracted to the area for the universities, quality of life, transportation networks and labour force (Jarboe, 1986). The findings also note that factors affecting the location decision of high-tech firms are unique from other industries and thus affect economic development strategies required to attract such firms. Survey research, with a sample of 691 high-tech company executives, covering the different regions within the U.S., found that soft quality of life factors dominated hard factors. The highest-ranked factors included proximity to a university, which ranked above taxes, as well as community attributes such as good schools, space for expansion, good local transportation and recreational amenities (Blair & Premus, 1987; Premus, 1982).

Another area of research addresses business location decisions in the high-tech sector in the context of choosing to locate in a cluster, often in a large urban setting, versus locating in a small centre. The clustering literature dates back to the mid-1990s when the onset of the knowledge-based economy, epitomized by an expanding and influential ICT sector and an increasingly important role for knowledge and ideas, took hold. The literature contends that the production and transfer of new knowledge are most effectively achieved when firms are co-located with other firms in the same industry, universities and research institutions specializing in their areas (Wolfe & Gertler, 2004; Bathelt, Malmberg & Maskell, 2004; Maskell, 2001; Porter, 2000).

Another stream of literature contends that clustering may be less prevalent in a knowledge-based economy, as ICT has made it efficient for firms to communicate and pass on knowledge over distances (Kolko, 2002). In essence, ICT has made it possible for firms to locate far from clusters to benefit from cheaper land and a preferred lifestyle. This alternative view, which has been called the "forty acres and a modem" (Kolko, 2002, p. 4)view, creates visions of a firm on a farm, a yacht or a mountain top, and also applies to the more common decision to locate in a small city away from an industrial cluster (Kolko, 2002).

As far back as the mid-1990s, a study on firms in Yellowstone National Park, five hours from Salt Lake City, found that advances in ICT allowed firms in some industries to locate remotely to enjoy a desired quality of life while remaining competitive (Johnson & Rasker, 1995). Research on the development of the high-tech sector in Boulder, Colorado, revealed that the original venture capital leaders prioritized their desire to live in the mountains over the cost of travel and the absence of an existing high-tech industry (Casnocha, 2008).

In sum, past literature suggests that the decision of where to locate or relocate a business is determined by both hard factors, mostly related to the cost of setting up and doing business and soft factors, essentially grounded in the quality of life. It is hypothesized that high-tech firms have located in Kamloops for a combination of reasons related to both hard factors and soft factors. In addition, it is hypothesized that the 'forty acres and a modem' view holds true for Kamloops' experience with high-tech firms.

The research methodology is described in section 2, followed by the results in section 3 and a discussion of results, policy implications and conclusion is in section 4.

2. Methodology

Primary data was collected from a sample of high-tech firms in the City of Kamloops to determine their reasons for locating in Kamloops. A convenience sample method was used to draw from all high-tech firms in Kamloops with no restrictions on size, age, or type of high-tech activity. The sample of 18 high-tech firms was identified mainly through Internet searches[3]. The sample consisted of data centers and supporting businesses, telecommunications, hardware manufacturing, software development, secure cloud storage, online marketing, and supporting organizations for Kamloops' tech industry.

2.1 Kamloops' High-Tech Sector

The technology sector in Kamloops consists of close to 200 technology-driven businesses[4] whose focus ranges from ICT to data centres and cloud storage, telecommunications and marketing, and tech-enabled firms (Venture Kamloops, 2019, http://www.venturekamloops.com/about-us/).

The high- tech sector has largely germinated out of Kamloops' history as a natural resource city providing opportunities for those wanting to use technology to benefit the natural resource sector. For instance, firms in the high-tech sector develop software to help natural resource companies keep track of their people and assets and streamline their operations. Firms who concentrate on hardware build components that allow natural resource firms to multitask and reduce labour and hazardous situations in the forestry and mining sectors. In fact, close to 30% of the interview sample had a connection with the natural resource sector, either providing a service or product.

In addition, Kamloops has a comparative advantage as an ideal geographic location for data centres, being removed from seismic zones and flood plains coupled with the fact that it is a testing site for Telus high-speed fiber optics.

2.2 Data Collection and Analysis

Semi-structured interviews were used to collect data from the firms' CEOs or decision-makers. Due to the nature of the business of one of the firms, a partial interview was conducted. Thus, the sample size was either 17 or 18 respondents, depending on the interview topic/question.

The semi-structured interviews were mainly conducted face-to-face, with the exception of three conducted via Skype. The interviews ranged in duration from 30 to 60 minutes and took place between June 21 and July 15, 2017. Each interview

[3] A few suggestions were made by community members.

[4] The estimate of 200 is a best approximation by Venture Kamloops, the economic development arm of the City of Kamloops. The city's current business licensing methods do not break down business services into sub-categories, thus most high-tech firms fall in the same category as a broad range of service related businesses including everything from pet grooming to landscaping.

consisted of some closed-ended and mostly open-ended questions to allow for probing.

Each interview consisted of three sections. The first section asked questions about the firm's reason for locating in Kamloops including whether the initial reasons continue to be valid in the present, if other cities were considered as an alternative, whether they would recommend Kamloops to other high-tech firms, and labour market conditions. The second section covered the availability of business supports including the existence and usefulness of business organizations and connections with the local university. Questions were also asked about suppliers, competition, and the local government. Business and personal life questions were asked in section three, including the age of the firm and the length of time spent in Kamloops as well as opinions on lifestyle options such as housing, theatre, sports, and other activities.

The data analysis consisted of quantitative and qualitative methods. The quantitative analysis consisted of summary statistics, including frequencies. Qualitative analysis was used mostly for open-ended questions and involved identifying and categorizing data into themes.

3. Results

Data gathered from the interviews were summarized and analysed to address the research objective. This section consists of a summary of the firm characteristics, a description of the location decision factors, and a discussion of the role of business supports in the location decision.

3.1 Firm Characteristics

The characteristics of the sample of 18 high-tech firms are summarized in Table 1. The majority of the firms (83%) started their business in Kamloops with two starting in Vancouver and one in Calgary. For 11 of the firms, Kamloops is their only location. Of the seven firms with additional offices located outside of Kamloops, five originated in Kamloops, and two relocated from larger cities. Of the five firms originating in Kamloops and expanding to other locations, the locations range from other small cities in British Columbia to large Canadian cities such as Calgary, Vancouver, and Toronto, to international locations such as Thailand, India, Europe and the U.S.

The earliest start date for a sample firm is 1997 with one-third of the sample having been in operation for five years or less. As shown in Table 1, close to three-quarters of the sample (72%) are relatively young firms, in business no longer than ten years and 28% have been in business for more than ten years. These summary statistics indicate that the high-tech industry in Kamloops is relatively young with recent growth over the past decade.

The sample is comprised of small firms with over half (56%) employing no more than ten employees, one-third employing between 10 and 30 workers, and 11% with more than 30 employees. Table 1 illustrates that most of the firms have customers in Kamloops with nearly half (47%) having 50% or more of their customers in Kamloops. For firms with customers outside of Kamloops, 95% have customers in other locations in British Columbia, and 61% have customers in other provinces or territories in Canada. Over one-quarter (28%) of the firms have customers in the U.S. and 11% in other parts of the world.

Table 1: *Frequencies of Firm Characteristics*

Firm Origins	**In Kamloops** **Outside Kamloops** **Total**	**83%** **17%** **100%**
Years in Operation	≤ 5 years	33%
	6 – 10 years	39%
	>10 years	28%
	Total	100%
Number of Employees	≤10	56%
	11- 30	33%
	>30	11%
	Total	100%
Customers in Kamloops (%)	0 – 19%	35%
	20 – 49%	18%
	50 – 100%	47%
	Total	100%
Customer Base outside of Kamloops	British Columbia	95%
	Canada	61%
	U.S.	28%
	International	11%

3.2 Location Decision Factors

Each firm identified their top five location decision factors, which are summarized in Table 2. In order of frequency, lifestyle/quality of life was stated by 72% of the firms, followed by hometown by 61%, then the cost of doing business and proximity to customers, both by 44% of the firms. Family-friendly was identified by 33%, the cost of start-up and real estate prices and options both by 27%, and the lack of competition and the existence of the Kamloops Innovation Centre[5] by 22% of the firms. Other decision factors identified with lower frequencies (<17%) included the availability of skilled workers, discovered an opportunity, connection to the community, transportation and logistics, amenities, infrastructure, inexpensive labour, local culture, the university, and supportive city.

[5] The Kamloops Innovation Centre (KIC) is a non-profit organization with a mandate to serve businesses in the local region. They offer programs to mentor early-stage ventures such as providing shared office spaces. They initiate and host a variety of events to grow the tech community in Kamloops and the surrounding region. They are supported by Innovate BC, National Research Council (NRC-IRAP) and the Southern Interior Development Initiative Trust (SIDIT). https://kamloopsinnovation.ca/about-us/

Table 2: *Frequnecy of Top Five Location Factors*

Decision factor	**Frequency (%)**
Lifestyle	72
Hometown	61
Cost of doing business	44
Proximity to customers	44
Family friendly	33
Cost of start-up	27
Real estate prices & options	27
Lack of competition	22
Kamloops Innovation Centre	22

Interestingly, 62% of those who located their business in Kamloops for lifestyle/quality of life reasons, also identified Kamloops as their hometown. There appears to be a strong correlation between family-friendly and lifestyle in that 83% of those who chose family-friendly also chose lifestyle as one of their top five decision factors.

In qualitative responses about lifestyle, a recurring theme was the ability to achieve a good work life balance due to low traffic congestion, the close proximity to hiking trails and other outdoor sports including biking and water sports, and a relatively short low-stress drive to a major ski hill. For instance, one respondent stated:

> We went to Sun Peaks (the nearby skill hill) on family day, and there was no backup in traffic. It was so nice that everything is easy to get there and to enjoy it without fighting the traffic and the people. In the big city, you are fighting for everything, and it is more expensive.

Another respondent stated, "I think if you are the type of company that cares about lifestyle and balance, then it is a good place to locate to." The small city friendliness was described as an asset by one business owner who stated:

> Kamloops …. is a genuine city. It is of a size where the people are genuine, they say hi more; they are friendly more, and that is a side thing, but it is important for the community we are trying to build here. Just the people in general.

In regard to proximity to customers, identified by over 40% of the firms, it is important to note that customers include regional and local customers. Respondents spoke about the convenience of being able to reach customers within a two to four-hour drive or a short flight. It was also mentioned that courier services in all directions were efficient. Although only 11% of the firms chose transportation and logistics in their top five, it may be related to proximity to customers which was

chosen by 44%, which ties into the importance of short flights and drives mentioned by many.

Citing the price of real estate and the infrastructure as important reasons, one respondent commented that:

> The cost of things like real estate are less than in other parts of the province. Also, technology is advanced; it is a lot easier to be away from a hub like Vancouver and still get a lot of your work done.

Other reasons for choosing Kamloops included its role in the natural resource sector and the opportunities it provides. One respondent stated, "Another advantage is the traditional industries, traditionally Kamloops was built on the natural resource sector, forestry, mining agriculture, all the dirt ministries. We have the potential to build and apply technology to those sectors."

Over half (58%) of the respondents stated that they did not consider any other city when deciding to locate in Kamloops, suggesting strong ties between the location decision-maker and the Kamloops community. Of those who considered at least one alternative location, the most common locations were other smaller cities with only one-third considering the larger cities of Vancouver or Calgary.

The majority of firms (78%) confirmed that their original location decision-making factors continue to be relevant and important today. Of those who did not confirm their original reasons for locating in Kamloops, two business owners discussed their challenges with attracting talent with the appropriate skill sets needed for their businesses. Table 3 illustrates the location decision factors relevant and important today with frequency statistics. Note that although very few of the sample firms mentioned an existing high-tech industry and appropriate technological infrastructure as original location decision making factors[6], 41% stated it to be a relevant and important factor today. Comments included: "There is an active culture around tech to expand and grow it" and, "The growth is happening and the tech sector is growing" and, "Today is about information and moving information. It is not about where you live to do business but how you do business. You need to stay connected and you need to be able to do business anywhere."

Table 3: *Frequency of Current Location Factors*

Decision Factor	**Frequency (%)**
Tech community and tech infrastructure	41
Lifestyle	30
Lack of competition	30
Cost of doing business	18
Growing tech community	12
Proximity to customers	12

[6] As shown in Table 2, 22% of respondents chose the Kamloops Innovation Centre as one of their top five location decision factors.

The importance of lifestyle was discussed here again with 30% of respondents stating the benefits of small city living. Close to one-third of respondents discussed how the lack of competition has allowed their business to quickly grow with phrases such as: "big fish in a small pond", "anchored a strong foothold," and "front runner in our area of expertise".

When asked specifically the reasons why Kamloops is a good community for a high-tech firm, the most frequently stated response (41%) was the Kamloops Innovation Centre (KIC). Respondents commented that KIC works diligently to bring together the key resources needed to build a high-tech community. The second most cited reason is cost-effectiveness (30%), where the comparatively low price of real estate was mentioned by more than one respondent as well as the overall costs involved in starting up a business. The third most cited reason is infrastructure (24%) with comments ranging from good connections to fiber optics to the number of flights from the local airport.

3.3 The Role of Business Supports

The interview results indicate a significant role for business supports, with 78% of the respondents experiencing a feeling of welcome from the local business community. As discussed in the previous section, the local tech community plays a role in keeping high-tech firms in Kamloops and KIC has been identified as a key factor in making the city a good community for a high-tech firm to locate.

KIC is a business support developed specifically for the high-tech sector. For 28% of the respondents, KIC provided their firms with valuable assistance that played a role in the success of their businesses. The impact of KIC on the Kamloops' economy is evidenced by the following quote:

> Since 2013, companies assisted by Kamloops Innovation have earned more than $10M in revenue and now contribute toward a combined yearly payroll of $13.4M, up from $8M just 2 years ago. These companies have also brought $6M investment to the region and $1M in government funding (Thompson Rivers University, 2018).

In discussing their experiences with KIC, one respondent commented on his/her involvement with a KIC mentor, stating "(He) is a great facilitator, he works to keep businesses on track. When you are a venture accelerator company, he helps to keep these businesses forging ahead, with the ideas, responsibility and execution" Other comments include, "Kamloops innovation has done an amazing job of building a tech ecosystem community in Kamloops" and "They took me under their wing. They gave a lot of advice and free office space over the summer … also some grant funding opportunities."

The vast majority (99%) of firm owners were involved in at least one business organization or club with 65% being members of the Kamloops Chamber of Commerce[7], either presently or in the past. In regard to business supports in Kamloops,

[7] The Kamloops Chamber of Commerce is a member-based organization with a mandate to promote the profile of the local business community through advocacy, development and networks. https://www.kamloopschamber.ca/

one respondent stated, "We were involved in the Chamber and Rotary and we found that the city was and is very supportive." Another respondent shared their experience with the Chamber stating, "In fact, our first customer came from a chamber meeting we went to. We met them at a social and they decided to become a customer."

Thompson Rivers University (TRU), the local university, was also identified as a business support. Over half (65%) of the respondents had hired a university co-op student or graduate with comments such as, "Seems there is more talent coming out of TRU." As well as a source of employees, some of the respondents have built relationships with the university. For instance, one business owner stated, "I go in and talk to students about resume writing and interviewing skills, we hire co-op students, we have 4 current employees who are TRU grads." Another business owner commented on their experiences with TRU:

> We have done lots of class projects and we have tested products with them. I have co-op students as well. It is nice that it is a small university in some ways because you can make a difference and have your voice heard to see change through.

When asked specifically about business supports, one-third stated the importance of KIC to the tech community, 16% mentioned the chamber of commerce and 12% Venture Kamloops[8], the city's economic development organization. However, some respondents found that the business support organizations had a tendency to cater to the broader market of businesses and did not have much to offer high-tech firms. A few experienced the business community to be very conservative and closed off to new innovative ideas, which is not an unusual opinion for high-tech firms given their reliance on on-line communities/networks for information most relevant to their industry.

Although business supports were not stated by many to be a significant factor in choosing to locate in Kamloops, it appears that they turned out to play a role in keeping the firms in Kamloops and contributing to their success.

4. Discussion and Conclusion

Overall, the research results indicate that the high-tech sector in Kamloops is young and composed of predominantly small firms with less than 30 employees. The sector has grown from within with most of the business owners having strong ties to Kamloops. A combination of soft and hard factors was influential in the decision to locate in Kamloops with the soft factors of lifestyle and hometown dominating, followed by the hard factors of cost of doing business and proximity to customers. For the most part, the firms would recommend other high-tech firms to locate in Kamloops, depending on their type of business.

Although business supports were not mentioned by many as an initial reason for locating in Kamloops, they appear to have become important to many of the firms and it has been suggested that such supports have played an important role in the success of some firms. Specifically, KIC, the tech incubator, has become relevant

[8] Venture Kamloops is a non-profit society and economic development organization for the City of Kamloops. They offer a range of services and information to support new and existing businesses in Kamloops. Their mandate is to support the attraction, retention and expansion of the business community in Kamloops. http://www.venturekamloops.com/about-us/

and useful to many firms. The regional university has also been identified as a significant support for the tech community providing skilled labour and the potential to supply more specialized labour with new upcoming education programs teaching skills required by the tech industry.

The results provide support for the '40 acres and a modem' view. In spite of all the benefits associated with agglomeration as evidenced by the success of high-tech clusters, the Kamloops experience shows that high-tech firms can be successful in small centres where both the employer and employees can enjoy more balanced and healthier lifestyles. At the same time, it can be said that there exists a high-tech community, in this small city, with valued business supports, which have played a significant role in the success of many of the high-tech firms. It is likely that many of these firms might not have been successful in a more remote location such as on a farm or a mountain top, as specified under a strict interpretation of the '40 acres and a modem' view. The case of Kamloops' homegrown high-tech industry illustrates the significant contribution to business supports in a small city within a vast rural surround.

Although there is not much evidence of firms with no ties to Kamloops being attracted to the city, the economic development organizations can focus on highlighting the quality of life factors, the success of existing high-tech firms, and the availability of supports such as KIC, the Chamber of Commerce, as well as the relationship with TRU.

The following three comments made during the interviews nicely summarize the views of high-tech firms in the small city of Kamloops:

> I am excited about the potential this city has. If someone can keep the momentum going, we will see some really exciting things happen ten years down the road. It is just making sure that everyone buys into it and moves forward. Tech is one of the best bets for the future, and there will be some amazing benefits for the city if everyone buys into it.
>
> The sweet spot is companies that are starting, small teams or going from idea to company, I think those are the type of companies that we can attract, and we can grow our own from those to 25–65 person companies.
>
> I can't think of a better place to have my business. I think there is immense potential for the tech sector in Kamloops.

Naturally, many entrepreneurs prefer the amenities and ambience of big city life and do not find small cities desirable. At the same time, the hard costs such as real estate and the soft costs such as time spent in traffic congestion tend to be growing in many large urban centers possibly leading many entrepreneurs to rethink their business location decisions.

It is noteworthy to acknowledge the limitations of this research. First, there is no information on local high-tech firms that failed and closed their business in Kamloops. Second, there is no information on high-tech firms that moved away from Kamloops. These are areas for future research.

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