

# Anchor firm disrupted: Creating a digital opportunity?<sup>1</sup>

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## Introduction

One of the most pressing issues related to Canada's digital opportunity is attracting *and retaining* highly skilled and talented workers. It is critical to the long-term competitive of Canada and its regions to retain talent and reap the benefits from such investments in human capital, rather than to see the returns enjoyed by jurisdictions beyond Canada's borders. When Canadian technology companies falter, downsize or are acquired by foreign interests, there is a risk that the talent embedded in those firms relocates to other jurisdictions. If the company involved is quite large, possibly acting as an anchor or flagship firm, a number of longer-term effects are possible, including the decline of the cluster location and the broader regional economy. Such questions related to cluster and regional dynamics have long puzzled academics and policymakers alike. Thus, our study asks the question: **What happens when a cluster's anchor firm is disrupted?**

A number of outcomes are possible when an anchor firm sheds labour. Highly talented workers can remain in the cluster or region, or they can leave. In the case that highly skilled and (potentially) entrepreneurial talent remains in the region, there is an opportunity to create a stronger regional economy because new and growing firms benefit from access to a high calibre workforce, as well as from the support of local organizations. This in turn ensures continued investment and dynamism in the regional economy. In the case that talent cannot identify appropriate opportunities, they may move elsewhere to find new career opportunities or create new ventures. This can contribute to a decline in the economy, with fewer resources available for new ventures and reducing the ability of local support organizations to contribute to the ecosystem. These talented workers might also be entrepreneurial – starting new firms, that one day might scale to become part of the next generation of leading companies. One caveat, of course, is that such entrepreneurship might only lead to the creation of small, low-value firms rather than the dynamic, high growth firms desired by public policy and needed for the continued dynamism of clusters and the regional economy.

Such dynamics are underexplored in the literature and there is little systematic and empirical evidence on these issues. In part, this is due to challenges in accessing appropriate data. It is exceedingly difficult to access fine-grained and detailed public data on the career paths, entrepreneurial activities, and mobility of individual workers. Thus, a secondary question addressed in our research is: **Is there an opportunity to exploit digital career platform data?**

To explore these questions, we focus on the case of BlackBerry (formerly Research In Motion, RIM), once viewed as the darling of Canada's technology sector and an anchor firm in one of Canada's leading technology regions, Waterloo. Specifically, we seek to understand what happened to the technical talent at this flagship firm in the aftermath of significant firm restructuring and downsizing. We argue that this case can be instructive to Canadian public policymakers, as well as to Canada's technology firms and leaders interested in supporting innovation and entrepreneurial activities and retaining the requisite talent to realize Canada's digital opportunities. Moreover, we advocate for the creation of and access to detailed, individual and/or firm level datasets that permit evidence-based policy and decision making in Canada appropriate for a digital age of disruption.

## Blackberry and the Waterloo region

Waterloo has a strong, dynamic and entrepreneurial ecosystem, with specialties in digital technology, wireless communications, and quantum computing.<sup>1</sup> The region ranks as one of the world's top entrepreneurial ecosystems and is frequently cited as an example of an ecosystem characterized by technological innovation and entrepreneurship.<sup>2</sup> While there are multiple explanations for Waterloo's success, much attention is focused on its collaborative culture, enhanced and reproduced by the presence of highly effective local associative actors (e.g. industry associations, incubators, accelerators, etc.). One agency in particular,

Communitech, plays an important role in coordinating region activity by offering training, financing, programming and spaces for entrepreneurs, senior managers, and other highly skilled workers, allowing them to meet, network and learn.

Within the Waterloo ICT cluster, Blackberry has played an important anchoring role as a major source of employment, drawing in global talent and providing substantial co-op opportunities for students at the University of Waterloo. Founded in 1984 as page manufacturer, Blackberry went public in 1998 after pioneering the e-mail enabled cellphone.<sup>3</sup> While not a direct university spinout, it benefited from the technical expertise of researchers at the University of Waterloo and the skills of its graduates as it grew into a leader in the global cellphone market. However, Blackberry's fortunes shifted in 2008 as the company was unable to adapt to changes in the smartphone market. Managerial failures and the inability to adapt to changing market conditions or keep pace with technological and design innovations, such as those associated with the Apple iPhone led to a loss of market share, with the company eventually abandoning designing its own smartphones in favour of developing security and communication software for other platforms.<sup>4</sup> The company suffered a sharp decline in its share price followed by a reduction in their global workforce, from over 17,500 people in 2011 to 6,200 by 2015, with the headquarter region of Waterloo losing thousands of workers. Local leaders expressed fears of losing top talent from Blackberry to Toronto and tech centres like Silicon Valley or Seattle: Losing this talent would weaken the region's economic strength and could ultimately prompt an exodus as firms attracted to the region's strong technology labour pool followed emigrating workers. As Blackberry's decline continued, the local narrative turned from one of a region experiencing an immediate and harsh economic shock to one of a region that was resilient, full of entrepreneurial firms headed by former Blackberry talent and/or benefitting from a sudden influx of Blackberry talent into the local labour market. Yet, the evidence on what actually happened to Blackberry talent remains anecdotal.

## Data and methods

To examine the mobility of Blackberry's technical talent, we accessed online career platform data to acquire employment data for 5,292 former Blackberry employees who listed their job functions as either engineering or information technology, thus restricting our analysis to technical talent, rather than managerial talent. We then further narrowed the scope of our analysis to the 759 workers who reported that at least one of their former jobs was located at Blackberry's headquarters in Waterloo and who left their jobs after Blackberry's decline began in 2008 to focus on the impact of anchor firm collapse.

While on the one hand, the data from these types of platforms is highly structured (meaning fields such as job title and employer are delineated), user-entered fields such as job title, job duration, and location are very inconsistent. Machine learning and manual processes were used to resolve confusing or unclear entries. For example, Blackberry was referred to as Blackberry, RIM, Research in Motion, or by the name of a subsidiary. In some cases, users did not include provide complete data. We used algorithms and machine learning routines to clean and code our data to create variables capturing individual characteristics (e.g. length of time at Blackberry, education), as well as information about their current and previous employers (e.g. firm size, sector). This included whether or not the firm was a member of Waterloo's entrepreneurial ecosystem, determined using three criteria: 1) if the firm was founded in the Waterloo region; 2) if the firm was less than ten years old; and 3) if the firm had a profile on Crunchbase. Crunchbase is a user-maintained database of firms that are actively seeking venture financing or that have otherwise scaled significantly; it is accepted amongst researchers due to the scope and the relative quality of its data. We captured whether or not an individual was currently employed in a firm in Waterloo's entrepreneurial ecosystem (see above), and whether or not the individual had experience as an entrepreneur, defined as having listed a job title such as CEO, president, founder, co-founder, or owner. This allowed us to characterize individuals' post-Blackberry employment and entrepreneurial activities (and their locations).

## Major Findings

Of the 759 individuals in our sample, most remained working for firms in the technology sector (78.3%) rather than health (2.1%), finance (5.4%), or other sectors of the economy. Over half (55.4%) continued to work for large firms rather than in SMEs. Workers were split between working for foreign-owned firms (47.6%) and Canadian companies (52.4%), with 31.6% working for Canadian-owned firms headquartered in Waterloo region. Much of the technical talent had a degree from a university in the region (39.1%). We focus the remainder of our discussion on two dimensions of our analysis: 1) Did Blackberry's technical talent remain in the region?; and 2) How did Blackberry's technical talent engage in the entrepreneurial ecosystem?

### Did they stay or did they go? The mobility of highly skilled technical talent

Given the concern that technical talent would leave the region – and possibly the country – we examined the current locations of former Blackberry workers. Overall, just over half of these workers remained in the region (55.2%), with another 8.2% of talent working in the Toronto region. The remainder worked elsewhere in Canada (14.6%) or went abroad (16.4%). This suggests that, contrary to the expectations of local officials, there was not a substantial out-migration of talent from the region due to Blackberry's decline. Moreover, there was relatively limited migration to other North American tech centres like Silicon Valley (8.2%) or Seattle (1.2%), home to major technology firms like Microsoft and Amazon.

While the number of technical workers leaving Blackberry increased between 2009 and 2014 (Figures 1a and 1b), it is clear that beginning in 2011, the proportion of Blackberry workers that remained in Waterloo (or within the broader Toronto-Waterloo corridor) began to increase.

### Did they start new firms? The entrepreneurial pathways of highly skilled technical talent

There is little evidence of entrepreneurial activity by former Blackberry workers. Only 7.1% (53) of the sample had job titles that indicated that they were founders. Moreover, only 12 of these new ventures (22%) were high growth firms in Waterloo's entrepreneurial ecosystem. The majority of new ventures created by this cohort were small technology consultancies, service firms or retail shops. This contradicts early predictions and claims by local policymakers that the decline of Blackberry would be a boon to high-growth entrepreneurship. Rather, it reflects the reality that Blackberry's organizational culture discouraged entrepreneurship amongst its employees<sup>5</sup>, and - therefore - the company does not appear to have attracted technology workers with entrepreneurial ambitions.

Notably, the majority of former Blackberry workers who did start their own firms left early in the firm's decline, with 20 (37%) of the total entrepreneurs leaving the firm in 2011 (Figure 2). As shown in Figure 2, the number of entrepreneurial ventures formed by ex-Blackberry employees declined year-on-year since 2011. And, the majority of these new ventures are located in Waterloo or the neighboring Toronto region, confirming earlier work that suggests that entrepreneurs prefer to start their ventures in the regions where they already live (Stam, 2007). Much like the pattern observed above, entrepreneurial technical talent increasingly remained in the region.

However, while Blackberry technical talent did not engage in start-up activity themselves, a growing proportion of these workers did end up working for start-up companies in the region. Of the 405 workers remaining in Waterloo after leaving Blackberry post-2008, 153 (37%) work for firms in the local start-up ecosystem. Moreover, as Figure 3 shows, the proportion of former Blackberry tech talent working in these small start-ups grew over time.

## Discussion of Major Findings

Overall, our findings suggest an increased capacity of the start-up ecosystem, and the broader regional economy, to absorb technical talent. There are several interconnected reasons that explain these trends over time. First, since 2008, there has been an increase in the flow of venture capital into the Waterloo ecosystem, peaking at \$368 million (USD) in 2016, including a \$168 million investment in Thalmic Labs (now North), a wearable technology company.<sup>6</sup> Other local firms, such as Desire2Learn, Kik, Vidyard, and MioVision, all received substantial venture capital investment. The steady increase in the flow of venture capital allowed local firms to expand coincident with when increasing number of former Blackberry workers were available.

Second, entrepreneurial organizations throughout the region scaled up their efforts to link former Blackberry workers with local firms. Key cluster organizations such as Communitech, established in 1997 by the founders of Blackberry and other local business leaders, developed a series of programs to link start-ups looking for skilled technical workers with former Blackberry workers. Many of these programs included other partners, including the provincial government and the Canadian Digital Media Network (CDMN).

Finally, Communitech began to invest heavily in expanding the spaces and programming to support the creation of a new generation of tech-based start-ups firms and convince tech companies in places like Silicon Valley to open small offices in Waterloo to take advantage of local talent. These new firms offered a new source of demand for skilled workers, especially seasoned workers with a depth of experience and knowledge. For example, Communitech opened the Communitech Hub to house the start-up programs run by the local universities, as well as their own programming to assist start-ups and link large corporate clients with the local start-up ecosystem.<sup>7</sup> In other words, Waterloo's local institutional structure helped coordinate connections between new firms who needed skilled labour and the skilled workers leaving Blackberry.

## Canada's Digital Opportunity and Policy Implications

What does this mean for Canada's digital opportunity? First, our evidence points to the critical role that local institutions and associative actors, such as Communitech, play. Through their formal and informal activities, these organizations can assist in retaining digital talent, support new venture creation, and match talent to start-up or scale-up firms. These local organizations anchor dynamic clusters and start-up ecosystems and can have a great ability to understand the wider landscape of the entrepreneurial ecosystem. Such organizations can identify and address gaps and challenges for the collective benefit of local firms by coordinating collective action and facilitating place-based investments.

Second, in undertaking this research, we encountered substantial data challenges. It is exceedingly difficult to identify workers in specific geographic areas, working in specific occupations, or working for specific industrial segments or particular firms. Existing public sources do not provide sufficiently detailed, longitudinal data on individual workers and their employment experiences. Certainly, the data provided by privately-owned digital online career platforms, while incomplete, provides a window into understanding these dynamics. Yet, private data sources are often inaccessible, unavailable and/or unaffordable to university researchers. Here, there is an opportunity to develop partnerships between public and private sector actors to support informed decisionmaking.

Overall, the implications for policy are clear. It is critical to build and support local institutions that enhance the capacity of the entrepreneurial ecosystem to absorb and retain talent. This, of course, is a collective endeavour requiring support from business leaders, entrepreneurs, government and community. Moreover, there is a critical need for high quality, systematic, detailed data at the city and regional level. Such data would enable sound, evidence-based public policy and decision making necessary to shepherd Canada into the digital age and clearly identify and understand Canada's present and future digital opportunities.

Figure 1a: Location of former Blackberry technical talent by year of exit, 2009-2016

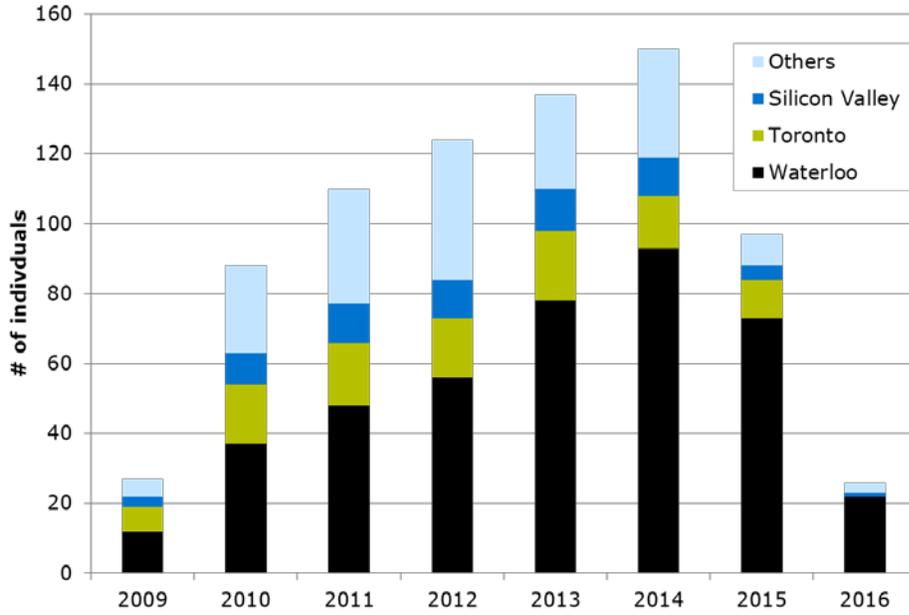
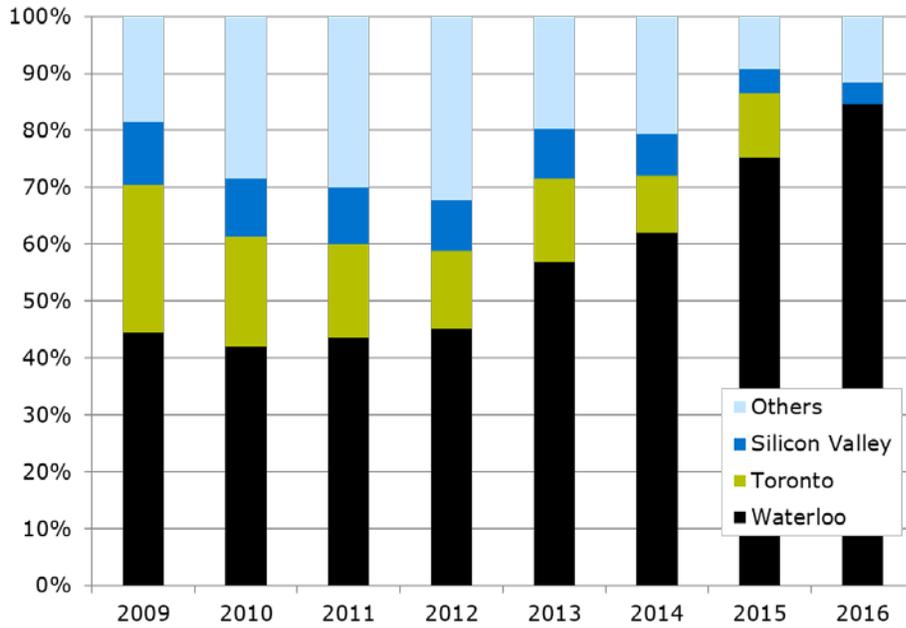
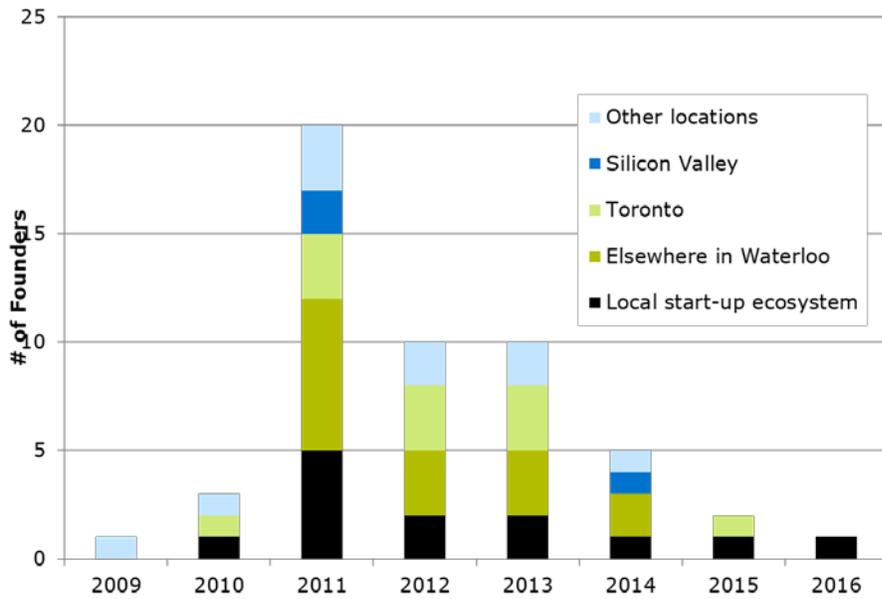


Figure 1b: Location of former Blackberry technical talent by year of exit, 2009-2016



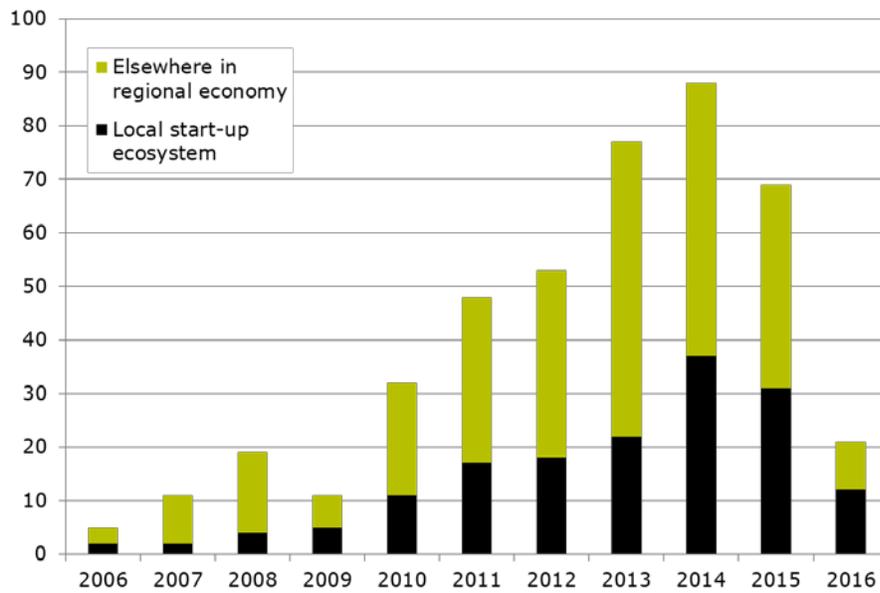
Source: Authors' calculations

Figure 2: Location of former Blackberry talent that became firm founders by year of exit, 2009-2016



Source: Authors' calculations

Figure 3: Participation of former Blackberry talent in Waterloo's regional economy by year of exit, 2009-2016



Source: Authors' calculations

## Endnotes

<sup>1</sup> Bramwell, A., J. Nelles, and D.A. Wolfe. 2008. Knowledge, Innovation and Institutions: Global and Local Dimensions of the ICT Cluster in Waterloo, Canada. *Regional Studies* 42: 101–116.

<sup>2</sup> Bramwell, A., and D.A. Wolfe. 2008. Universities and Regional Economic Development: the Entrepreneurial University of Waterloo. *Research Policy* 37: 1175–1187; Startup Genome. 2018. *Global Startup Ecosystem Report 2018: Succeeding in the New Era of Technology*. San Francisco; Vinodrai, T. 2016. A city of two tales: Innovation, talent attraction and governance in Canada's Technology Triangle. In *Growing Urban Economies: Innovation, Creativity, and Governance in 21st Century Canadian City-Regions*, ed. D.A. Wolfe and M.S. Gertler. Toronto: University of Toronto Press

<sup>3</sup> McQueen, R. 2010. *Blackberry: the Inside Story of Research in Motion*. Toronto: Key Porter Books.

<sup>44</sup> McNish, J. and S. Silcoff. 2015. *Losing the Signal: the Untold Story Behind the Extraordinary Rise and Spectacular Fall of Blackberry*. New York: Flatiron Books.

<sup>5</sup> Ibid.

<sup>6</sup> Canadian Venture Capital and Private Equity Association. 2016.

<sup>77</sup> Vinodrai, T. 2016.