THE WATERLOO TECHNOLOGY CLUSTER: EXAMINING THE VALIDITY AND STRENGTH OF ITS PLACE BRAND

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Abstract

This paper approaches the research of place branding and clusters by providing a case study of the Waterloo region technology cluster. The study employs a mixed methods approach to evaluating the terms that are most often used to describe the place brand across various stakeholder groups, and offers a new methodology for assessing place brand strength based on the consistency of the use of terms. The results offer some insights into the similarities and differences amongst the organizations that promote and influence the Waterloo place brand, and provides a potential validation of the Waterloo place brand as a technology cluster.

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Introduction

The paper will focus on the emerging technology cluster around Waterloo region and will attempt to validate the strength of the cluster's place brand identity using both qualitative and quantitative data. The aim is to determine the strength of the Waterloo technology cluster's place brand by both examining the similarities and differences in the terms used to promote it by its regional organizations, as compared to how it is perceived by both internal and external audiences. In addition to attempting to determine the strength of the brand, it is also possible to use the terms that are most consistently referenced by the audiences to provide insights as to which of the organizations are describing the region in a way that is most consistently recognized. Additionally, the research will provide insights as to which organizations are most closely associated with the brand regardless of their efforts to promote the region. Finally, the research will validate, through the descriptions of its place brand, whether the Waterloo region has the elements to be considered a "cluster".

Research Problem

The primary purpose of this research is to offer a Canadian case study in the literature of place branding. The secondary challenge is that there is no existing tool to measure the strength of the different elements of a specific non-tourism place brand. Finally, what insights can be obtained by attempting to validate the success of an organization or coalition by measuring how effectively it has promoted a consistent brand?

This builds on work by Kasabov and Sundaram (2013) who explore the development of the brand around a biotechnology cluster in the United Kingdom. One of their conclusions is that "research in clusters and place brands have much in common and can learn from each other's achievements and mistakes" (p. 538). Their research was based on interviews with both individuals in the public and private sector who either resided in the cluster region, or were interested in the cluster industry. Their findings suggest that the strength of a place brand was in the consistency of how it was perceived both internally and externally among its stakeholders: "[p]rivate sector stakeholders noted the absence of an overall and clear, unambiguous cluster identity, suggesting that no such identity was being actively used to formulate and communicate clearly messages, about the cluster to internal and external audiences alike" (Kasabov & Sundaram, 2013, p. 533). Their research also notes that "[s]takeholder groups play multiple, simultaneous and even disputed roles in their contribution towards the construction, dissemination and sustenance of the place's brand identity" (p.539). This is also known as a contested brand, and it is argued by the authors that this is a sign of brand weakness.

Kasabov (2009) had earlier argued "that cognitive agreement may be a prerequisite for the formation and preservation of an entity such as a cluster" (p. 1463). This is similar to the work of Kochhar (2013) who says there is a "lack of research on how to measure and evaluate coalition building efforts by an organization" (p.2). She also identifies the challenge of creating an appropriate methodology to determine the success of a coalition, but writes about the importance of coordinated messages, relationships, and priorities when speaking to a coalition's target audiences: "[f]or a coalition to operate effectively, messages must be accurately communicated within and outside of the coalition and coordinated well" (p.19). Rajagopal (2008) explores the concept of applying metrics to brand strategies for firms, but ultimately only proposes a scorecard approach with value only to those within the organization. Ekinci and Hosany (2006) investigate the concept of destination personality and undertaking a study using a survey containing various adjectives, asking respondents to indicate whether those words were associated in their minds with a specific destination. This research will attempt to provide a Canadian case study that can move forward the discussion of measuring the strength of the place brand based on the consistency of the use of terms between audiences. Unlike the study on destination personality, this research will be specific to the context of branding with the purpose of economic development and talent attraction around a cluster.

Building again from the work of Kasabov and Sundaram (2013), there is also significance in the research that has been done on the concept of clusters and cluster development. As Desrochers and Sautet (2004) state, "cluster development has become an important article in policy makers' and government advisors' toolboxes" (p. 242). The relevance of this statement appears to be as valid in 2018 as it was in 2004. At the same time as place-branding around clusters is an evolving area of research, the Government of Canada has undertaken a national supercluster program to distribute $950 million over five years through a competitive process to a limited number of technology clusters across the country (Government of Canada, 2016). This competition forced regional clusters to promote themselves more broadly to attract both industry interest, talent, and public attention. The evaluation of a regional technology cluster's place-brand strength is both timely and, potentially, an important addition within a Canadian context to the existing body of research, bridging the gap between existing theory and practice of cluster development and place branding.

Kasabov (2010) also studies the concept of cluster development by identifying the characteristics of a community that would suggest the existence of an actual cluster:

> The development of clusters has more recently become a major tool of the public sector to facilitate regional economic development… However, it can fail to develop the cluster

> into a community sharing a sense of place, commonly held aspirations and belief structures, which are a characteristic of traditional organically evolved clusters (p. 1447).

This paper will provide an opportunity to test whether the identity of the Waterloo cluster has some of the elements that are highlighted in the literature.

This case study focuses on the Waterloo place brand starting with the premise that it is a technology cluster. This paper will explore some of the elements of the Waterloo technology cluster to determine its similarities to both the concept of clusters and existing clusters. Findings from a Waterloo cluster example could either support or challenge the idea that a cluster is a "non-established entity, an unfinished and evolving 'place brand' whose identity has been chiseled out of multiple public and private sector agentic understandings, changes and their periodical transformations" (Kasabov &Sundaram, 2013, p.538). The findings in this study could provide some Canadian evidence for the identity of a cluster while also examining whether it is promoting a contested or uncontested place brand.

Research Questions

RQ1- How is Waterloo region described by the organizations responsible for developing the cluster through its economic development and talent attraction?

RQ2- Is the messaging used by the regional organizations consistent with the way either their internal membership describe the region or with the way the region is perceived by external stakeholders?

RQ3- What do consistencies or inconsistencies in the brand indicate about the strength of the identity of a Waterloo technology cluster?

Literature Review

As this research is part of the broader study of public relations, it is important to remember that, as Grunig (2013) clearly states, "public relations could not have a role in strategic management unless its practitioners had a way to measure its effectiveness" (p.7). Therefore, this study required a framework and purpose based on the literature in order to create an impact in expanding the study of public relations in bringing together areas as diverse as the effectiveness of place branding and relationships within cluster development.

In order to understand the concept of place branding, it is helpful to start with a definition of a brand. According to Wheeler (2013), "a strong brand stands out in a densely crowded marketplace" and "how a brand is perceived affects its success, regardless of whether it's a start-up, a nonprofit, or a product" (p.2). She further explores the concept of a brand identity stating it "fuels recognition, amplifies differentiation, and makes big ideas and meaning accessible" (p.4). Wheeler also suggests that the best brand identities are the ones that are consistently understood by the broadest set of stakeholders. She argues "the best brands speak with one distinctive voice" (p.26). Wheeler notes that an organization starts from a position of brand strength if the identity is authentic and consistent, allowing for the brand to be sustainable and genuine. Wheeler also claims that one way to measure the success of a brand is through perception metrics including awareness, familiarity and consideration. In other words, is the brand recognized and do customers have positive feelings about most or all of the various aspects of the brand an organization is promoting? It is then important to look specifically at how these concepts of branding can be associated to a place.

Turok (2004) explores place branding as a competition between communities for the purpose of economic development. "The concept of competitiveness can help one understand these dynamics by prompting questions about the local conditions and resources that help firms sell their products in wider markets” (p. 1075). He cautions that “privileged cities and regions may become increasingly prosperous by attracting away investment, entrepreneurial skills and talent” (p.1074). Acknowledging the reality that in a competition for investment and talent, some locations would be selected over others, there appears to be greater benefit in determining how success might be achieved rather than looking at the impacts on the unsuccessful competitors. Younes (2012) asserts that “the process of globalization has made policy makers increasingly interested in cities’ attractiveness as a factor in economic development strategies” (p. 339). Within the Canadian context, Turvey (2006) finds that “economic development has been adopted for centuries because people chase jobs and income opportunities while communities seek prosperity” (p.210). Communities will work to organize themselves in the context of local economic development setting up various groups, committees, and economic development offices built around the local government or community.

As discussed earlier, Kasabov & Sundaram (2013) provide insights into both why and how communities have traditionally promoted themselves. They determine it is increasingly important to examine the purposes of place branding to include economic development beyond tourism, and study how place products contribute to creating an identity for a place. Their analysis was that existing research focuses primarily on marketing place products for tourism purposes, most often focusing on how a place looks or the select activities one might do while a visitor there. Instead, they challenge future research to explore “issues of multiple stakeholder interests, and more specifically discord, disagreement, conflict and consensus, power and process more seriously” (p. 532). This paper will not be able to provide insights into all of these matters, but does look to build on the three unreported topics that surfaced during their research. These include “absence of agreement among key internal stakeholder groups; problematic internal and external cluster reputation and image; and inadequate, inconsistent branding initiatives by the public sector due to a lack of awareness amongst private sector and university stakeholders” (p.535). How do these findings apply to the specific example of the Waterloo region place brand?

To identify the elements of a cluster, it is important to begin with a discussion of what a cluster is and what it is not. According to Michael Porter (1998), the originator of the cluster concept, “a cluster is a geographically proximate group of interconnected companies and related institutions in a specific market, linked by interdependences in providing a related set of products and/or services” (p. 197). Desrochers and Sautet (2004) expand on this by suggesting, “clusters are constructs with essentially no self-defining boundaries, whether in terms of inter-sectoral, inter-firm linkages, information networks and geographical reach” (p. 236). Younes (2012) recognizes that very few clusters would develop outside of “a geographical area already home to a wide range of powerful actors” (p. 349) and that this would require careful consideration when promoting the growth of the cluster. Clancy et al (2001) argue that Porter’s description of a cluster was insufficient and that the useful research was not about the end state, but in fact the act or process of clustering. Returning to the work of Kochhar (2013), it is helpful to consider the concept of clusters as coalitions of multi-sector partners creating associations between public, private and not-for-profit organizations for the purposes of achieving shared goals. Furthermore, a cluster might be even more than this. Assuming that it was developed on purpose and not by coincidence, a cluster might be a “strategic coalition encompassing all stakeholders, those affected by the work of the coalition and by the issue it addresses as well as community opinion leaders, policy makers, and community members at large” (Kochhar, 2013, p.5). These coalitions form to enlist or promote activists who would engage other stakeholders and make them aware of the benefits of the cluster.

In an earlier study of a South West England technology cluster, Kasabov (2010) finds that the weakness of the cluster was in the two different perceptions of the community itself: the one promoted by the public actors and their aspirations for the community, region, and country, and the one promoted by private sector actors. Kukalis (2010) takes a slightly differently view of this potential weakness by identifying that many of the arguments in the strategic management literature focuses on the broader impact of clusters on the competitiveness of firms and locations. The literature does not focus on the community or its associations and organizations: “[b]ecause the industry cluster concept is an emerging, if not rediscovered concept, it is not surprising that scholars with varying perspectives have expressed alternative viewpoints in the literature regarding the cause and effect of cluster benefits” (p.459). Within a Canadian context, Turvey (2007) focuses on the importance of economic development activities and strategies by communities as “attempts to adjust to changes in the new economy, promote local development and sustain the local economy” (p. 208). He argues that research into the structural factors for local economic development strategies based on community characteristics and efforts would be important in determining how communities would continue to develop.

Having established the need for additional research in this area, it is helpful to define more clearly what is meant by place branding and the importance of internal consistency in the brand. Kemp, Childers and Williams (2012) suggest place branding as “the practice of applying branding strategies and other marketing techniques to the economic, political and cultural development of cities, regions and countries” (p.508). They go on to say that place branding creates an imagery of the place that will be expected when someone arrives, but “without buy-in from stakeholders, place branding strategies are likely to fail" (p.508). They think that residents' attitudes regarding how their city is branded affects the perceived quality of the brand and the effectiveness of the branding efforts. Kemp et al. (2012) state that:

> Properly developed and positioned, city brands are more likely to result in resident attachment and ultimately brand advocacy…If the residents are convinced that the branding efforts reflect a core competency of their city or region, this may motivate them to begin to align themselves with a brand that is valuable and symbolizes quality" (p.509).

The importance of connecting the brand to the community is clearly stated, but it must also be considered whether this applies equally to a cluster.

Kasabov (2010) investigates this concept of community and place brand, within the idea of a cluster. He argues, "not every cluster may be a community as well. Importantly, some clusters may experience problems in generating a collective social entity and so do not constitute proper communities" (p. 1446). In order to talk about a community, Kasabov asserts there must be evidence that the beliefs of individuals are linked to the set of collectively held beliefs. In other words, what is the level of consensus between what an individual thinks of their community with how the cluster describes itself?

Research into community, clusters, and local place branding is even more important due to the increasingly global nature of economic development. Turok (2004) suggests that "place matters to international competitiveness because firms benefit from their surrounding environment through competitive and collaborative relations with other firms and associated institutions" (p. 1078). In order to fully understand how clusters are branded, it is important to understand who is doing the branding. Kasabov and Sundaram (2013) claim that these efforts to market places are primarily taken on by governments and key industry players: “[t]he ownership of places as brandable entities remains deeply and fiercely contested, involving power and control issues, thus inviting the politicization of policy-making in place marketing and regional development” (p.533). They go on to describe clusters as “specific place brands requiring careful management of conflict, disagreement and discord among key actors,” and that “cluster success requires strong cluster identity, its negotiation and communication,” (p.538). While the internal politics of branding is a fascinating topic in itself, for the purposes of this paper, the primary focus is on *how* the cluster is branded by the coalition around it. The secondary focus is to test the strength of that brand by determining whether or not various stakeholders use a consistent set of terms to describe that very cluster.

Further to the idea of cluster development as coalition building, it is useful to explore how coalitions communicate and brand themselves. Kochhar (2013) suggests, “communication has been identified as one of the most important characteristics for the success of any organization, including community coalitions” (p. 19). Cox and Mair (1988) in a paper that predated the emergence of Porter’s clusters theory, investigate the concept of the impacts of local brand loyalties within communities. These loyalties are forged through stable relations with customers and suppliers, as well as with government officials. This facilitates effective economic development marketing to external stakeholders: “[l]ocal business coalitions try to encourage local economic growth and they develop accumulation strategies for doing so… and more elite business organizations in many localities are created to promote local economic growth, perhaps by ensuring infrastructural improvements” (Cox & Mair, 1988, pp. 309-310). They argue that in the right place and at the right time, these coalitions can promote the economic activity of a region in a way that identifies the geography with the industry that exists there. “Over and above any advantage or disadvantage to individual locals, the reason is said to lie in the local community as a worthy community, as the realization of an idea, as an exemplar of widely held values; held that is, beyond the confines of the locality” (p.317). This is another example of the importance of consistency amongst stakeholders in evaluating the strength of a cluster place brand.

Interestingly, Cox and Mair (1988) predicted that as the world continued to change, connections through business and industries could take the place of other faltering community identities based on family, ethnicity, and religion, offering a pseudo-community for the location with which residents might start to identify. Mudambi and Swift (2012) found that “geographical proximity is an important factor in the creation of a common language and code that facilitate communication within technical communities and define their boundaries” (p. 8). This is an interesting aspect of a discussion of something like a technology cluster and the development of a place brand built around an industrial identity.

Exploring the concept of locations known for their local economy is not new, but the concept of a tech cluster is much more recent. Multiple researchers have undertaken an exploration of cluster development and cluster characteristics in various locations around the world. Can we determine the strength of a cluster by how it is described as compared to other notable clusters? Mudambi and Swift (2012) write about the role of Multi-National Enterprises (MNEs) and the geographic clustering of innovation industries including the most obvious example of a tech cluster, Silicon Valley. One of the elements they suggested, that will be explored in greater detail later, is that a tech cluster is best known for having a connection between technology and research-intensive institutions. Other researchers such as McCann and

Folta (2008) explore the concept of agglomeration and clustering of similar firms by examining cluster examples including Silicon Valley, the Bangalore software cluster in India, and the biotechnology cluster around Cambridge in the United Kingdom. They attempted to identify why competitors chose to collocate, which might seem counterintuitive, as one would think they might "seek shelter from the storms of competition rather than fully expose themselves" (p.536). Assuming that competitors would not co-locate unless there was a benefit, what elements might draw them to be part of a cluster?

McDonald, Huang, Tsagdis and Tuselmann (2007) analyze the clusters that had developed across England and Wales. They claim that "most case study evidence focuses on unique economic, social, historical, geographical, institutional, and technological factors that can be identified with the establishment and evolution of clusters" (p.42). They review the literature about the development of cluster networks that lead to competitive advantages for the companies located there. Clancy, O'Malley, O'Connell and Van Egeraat (2001) explore the factors for business attraction of industry clusters in Ireland and the mix between the development of local assets like education and the attraction of international investors to build out the clusters. They examine the rapid development of the Irish tech cluster based around the domestic software industry at the time. The research highlighted the role of Ireland's high standing in graduating the necessary labour to support this sector, including university graduates from math and computer science programs. They interviewed technology sector employers to determine why they had located their businesses in those areas of Ireland. This study revealed that this particular cluster had developed absent any significant direct investments in incentives to the foreign software companies, but relied instead on supporting services and organizations, including financial aid to support education and research institutions, significant infrastructure, related industries being co-located, and a willing set of customers also located in Ireland.

In another study, Bagwell (2008) observes the strength of a creative cluster called The City Fringe, which included a network of jewellery manufacturers in the outskirts of London, England. Her observations were that a cluster did in fact exist around many of the competitive advantages and strategic elements that had been described by earlier cluster researchers like Porter (1998), but that this particular cluster was predominantly focused inwardly and was missing the opportunities that come from being accessed by external partners. Ultimately, she found that one of the weaknesses of that cluster was not being known as a cluster by outside influencers and audiences. In another study, Younes (2012) investigate the development of the Plateau de Saclay, located south of Paris, France. The study delved into the role of successive French governments in bringing together multination enterprises (MNEs) with public research organizations and small and medium size enterprises (SMEs) in an attempt to create a European Silicon Valley. The challenge or weakness of that cluster was found to be the consistency in how the cluster was defined, as it was difficult for a government to choose the specific industry that would be identified with that particular cluster. The focus of Younes' research was on a French program, a precursor to the supercluster program the Government of Canada would eventually develop to promote economic development.

A more applicable definition for the type of tech cluster that is examined in this paper is set out by Turok (2004) as one that supports "the development and application of new technologies, better workforce and management skills, or singled out key industries for special assistance to help them move up the value chain" (p. 1071). The Waterloo place brand could be what Turok describes as an initiative that "seeks to exploit novel urban assets such as specialized labour pools, university research, institutional networks and even the lifestyle, cultural amenities and tolerant social milieu of cities" (p. 1071). Mudambi and Swift (2012) go on to explain that tech clusters are "where R&D work that involves highly tacit knowledge can be performed by co-located scientists. Clusters often represent worldwide centers of excellence in particular industries or technologies" (p. 3). The basic premise for a technology cluster is that "the more similar the activities of the firms in a cluster, the more likely that relevant and valuable knowledge will spill over from one firm to another" (p.4). Put another way, innovation occurs in successful clusters with "strong organizational and strong geographical proximities" (Kasabov, 2010, p. 1451). But how does a tech cluster actually work?

Again, assuming that clusters are a coalition organized for a specific economic purpose, Kochhar (2013) argues that the reason for a coalition is because "a range of political, social, human and environmental issues are affecting the organizations to operate successfully in an economic sphere and those issues need support and partnerships of multiple stakeholders to be addressed and resolved" (p.4). However, it seems that a cluster is more than just a coalition of industries. Returning to an earlier point, why would industries work together within a cluster?

Desrochers and Sautet (2004) suggest that competition and cooperation coexist in clusters because "they occur on different dimensions or because cooperation at some levels is part of winning the competition at other levels" (p.235). Cox and Mair (1988) submit that local dependence revolved around various elements including where businesses can locate, the mobility of labour, and the fact that social networks form outside of the workplace that tie a community together. Kukalis (2010) agrees, "the characteristic that sets clusters apart from other agglomerations is the high degree of member embeddedness, which facilitates networking and nurtures social interactions within a unique location" (p.454). Turok (2004) explains that firms involved in clusters can more easily access labour, including specialized labour, and workers are attracted to the cluster because of the benefit from having a larger choice of potential employers. This labour mobility also allows for increased transfers of knowledge between firms, spreading best practice and facilitating the development of new products.

On the point of being recognized as a cluster, Kochhar (2013) does offer that there is strength in numbers which provides credibility, media attention, and better access to influential policy makers. Often a coalition will require a lead agency that convenes the other players. This requires a variety of leadership traits such as vision, organizational capacity, and some type of persuasion or control of the group. If this is the case, which organizations in a cluster are most influential, and what role does government play?

Desrochers and Sautet (2004) put forth that the role of government in promoting cluster development and growth should be in "removing barriers to innovation, investing in basic human and capital infrastructure, and supporting the geographical concentration of related firms" (p. 235). They also argue that cluster strategy requires government to pick winners not because of the "scientific merit, but because they appeal to certain political constituencies…. And once some states and localities develop targeting strategies, others feel compelled to follow suit" (p.237). One challenge for government as both a targeted audience for a cluster place brand, and as a potential cluster influencer, is that they are often too removed from the technology development to understand where real economic opportunities exist. They also presume that innovation and technological development occurs in a linear fashion starting with research, then development and finally introduction to the market (Desrosher & Sautet, 2004). Consequently, it is important to understand how a cluster is viewed by the various government actors.

Cox and Mair (1988) note that local success is paramount when it comes to economic development and the competition between communities for results. Turvey (2006), in his study of federal economic development policy in Canada, identifies the conventional approach as being one of regional development. The traditional approach's "prime purpose was to promote economic health and well-being in certain regions to reduce economic disparities, especially in lagging or less developed regions" (p.209). Turvey's stance that economic development was about leveling the playing field stands in contrast to the concept of cluster development that has since been adopted by the government through its superclusters program and the concentration of certain industries in certain Canadian locations. How did this change occur?

According to Kasabov (2010), "public sector officers typically equate success with budget size, employment, the creation of high value adding jobs and investments in knowledge sectors of the economy" (p.1452). Turok (2004) suggests that there was a flip in the 1990s from a centralized decision-making model of economic development to a more decentralized, regional approach, one that allowed communities to be more responsive to economic conditions and opportunities. This bottom-up approach has led to more competition between regions and also increased differentiation or diversity in regional approaches to sector and economic development. Turok goes on to say that "[g]overnments have a role to play in creating an environment that encourages desirable practices" (p.1075) like talent development, efficient use of existing infrastructure, and institutional innovation. He also argues that there is a commonly held view that regional economic successes help with national economic success. So what allows certain regions to build a cluster while others do not?

Turok (2004) finds that local growth and productivity are often tied to the levels of investment made in increasing local productivity and innovation. This occurs through local infrastructure that generates both the human capital and research that would generate growth opportunities in the local economy. According to Mudambi and Swift (2012), technology clustering happens when “the most productive R&D-intensive firms are co-located near research intensive universities” and where they receive a “research productivity boost” with “significantly higher levels of patents and patent citations” (p. 3). Their research also indicates that firms were able to access and utilize commercially valuable research by being located within the research networks that exist around these universities. Kasabov (2010) supports this position and suggests that the work of industry liaison offices within universities are important contributors to the networking that takes place within a technology cluster between businesses and the institutions.

It is worthy to note that parts of the literature do not support this direct connection between universities and the success of clusters. Desrochers and Sautet (2004) challenge the role of scientific research in creating an innovation centre. Instead, they argue that almost all examples of innovation are stimulated by a costly problem that has to be solved or when an opportunity to solve it presents itself. Younes (2012) suggests, “SMEs generally focus on solving specific problems and then pause their research activity to market their results” (p.347). He argues that the advantage for smaller firms in locating in a cluster scenario is that they can more easily restart their R&D activities when ready through both the co-location of research institutions and with other companies who are engaged in the R&D cycle. So with multiple research-intensive universities located throughout the world, why are there not more clusters?

Clancy et al. (2001) assert that Porter’s original cluster concept ignored the role of MNEs beyond being a seed to a cluster. They submit that the location of MNEs within a cluster, if they were bringing foreign investment, was positive and supported the success of the cluster. The SMEs they interviewed could describe some benefits to the development of their companies in being located near the branch of an MNE within the tech cluster. They also found that "MNEs have relatively demanding standards and that their influence as purchasers of software tended to push their suppliers to achieve high standards and hence to develop competitive advantage" (p.14). Similarly, there were strong links between local tech companies and the branch locations of global MNEs as talent often moved between both types of companies, and increasingly connected business relationships. Another benefit to having engaged MNEs in a cluster is that it allows clusters to be linked to each other through the companies, and through informal links as talent begins to migrate between MNE branch locations (Mudambi & Swift, 2012).

According to Younes (2012), the French MNEs that located within the French cluster were attracted by government, but "local actors with interdependencies had already partnered and set up a common goals" (p.342). She states that before government stepped in to support the networking within the cluster, the MNEs had taken on self-organizing along supply chains and, to a lesser extent, within sectors. SMEs were deemed to be end-users or customers, not partners, and there was little interaction between companies beyond traditional relationships, despite their proximity. The new program brought companies together in a different way that supported something more in line with the traditional definition of a cluster. There is also the potential that MNEs who are slow to join a cluster may be shut out and have less to gain from developing a location in a cluster than those who were earlier entrants to the local technology cluster (Mudambi & Swift, 2012). This is an important resource for MNEs but how do they access the talent and innovation?

What attracts companies to clusters is the ability to access local networks of resources. As described by McDonald et al. (2007) within their U.K. example, a company's "main focus is on the importance of networks that facilitate learning and innovation by agents within clusters, thereby promoting flexibility and the harnessing of knowledge to add value to operations…. leads to competitive advantages to firms based in clusters" (p.42). Moreover, "[s]uch regions are relatively abundant in the resources that support R&D that is relevant to the firm's activities, such as an available supply of specialized knowledge workers" (Mudambi & Swift, 2012, p.2). They would also argue that "local knowledge flows mainly to firms that develop large stocks of social capital" (p.6) so there is more to belonging to a cluster than just locating a business there.

In summary, in order for a cluster to form, there are a variety of actors who have come together for their collective benefit. The consistency in the way they describe themselves is a key indicator of the strength of the coalition. The understanding and consistency of how the cluster is described by both its internal and external stakeholders, including government and businesses, is the primary indicator of the strength of that community's place brand. This paper will build on existing research by providing a case study from the Canadian context. This is pursued using a new quantitative approach to finding similarities in how the brand is described, while augmenting, with qualitative evidence, the strength of the Waterloo brand. It will also provide opportunities to explore some of the other elements covered in previous research about which elements of the Waterloo cluster are consistent with the development of other global tech clusters.

Methodology

This case study measures a variety of factors in the effort to answer the three research questions. As described in Stacks (2011), these measurements will include both categorical and continuous measurement. The goal is to test the strength of the Waterloo region place brand. A review of the literature did not reveal any existing measurement for determining place brand strength. As a result, this study has developed its own approach to determine brand strength.

The measurement is based on terms used by multiple stakeholders to describe the Waterloo cluster. Common terms used consistently by various groups and organizations equate to a strong brand. The lack of common terms used consistently by key stakeholders suggests the opposite.

Examination of terminology used by local organizations

The research was conducted in three ways. First, this study attempts to find the similar and dissimilar language used in the descriptions of the region and its strengths through a content analysis of the websites of organizations with mandates to promote economic development, talent attraction or selling the region as a destination for business. Rather than assuming one organization is the primary promoter of the region, a variety of local organizations' sites were reviewed to find descriptions of the Waterloo region for economic development and talent recruitment purposes. The content analysis identifies manifest content to allow for the creation of a list of the most commonly used words or terms to describe the Waterloo region place brand. This information was available publicly through the organization websites and provided a basis for common descriptive words of the cluster's place brand. The most commonly used terms were given a weighting based on the frequency of their use. Only those sites with a description of the region were used for this purpose. The maximum weight that a descriptive word or concept could garner as part of this content analysis was 1.00 if it is used in every description. This content analysis generated the terms and adjectives in Table 1 that are tested for both consistency and inconsistency using an online survey (Appendix A).

Internal online survey

Second, adopting the format that Ekinci and Hosany (2006) employed for their tourism study about destination personality, internal stakeholders of the technology and business communities within the cluster were surveyed using an online tool between May 1 and June 3, 2018. The survey was distributed by email to the membership lists of two of the larger business associations within the region, Communitech and the Greater Kitchener Waterloo Chamber of Commerce. A reminder email was sent to the members after one week. Both five-point Likert scale type questions as well as some open-ended questions (Appendix B) were used to evaluate how these internal stakeholders describe the region, and to attain some additional information about the organizations the respondents most closely associate with the cluster brand. The use of an online survey distributed through membership emails allowed for a broader audience of internal stakeholders to be accessed. The anonymous survey results for the nine-question survey can be found in the results section in Table 2. Each result was again assigned a numerical weighting based on the mean scores of responses of how strongly the respondents felt a term accurately reflected the region's place brand. These scores represent the median based out of five according to the Likert weighting. These scores were then adapted to represent a score with a maximum value of 1.00.

External Interviews

Third, six semi-structured telephone interviews with selected government officials and business organization officials at the provincial and federal level were conducted between May 11 and June 9 2018. The discussion was guided by nine open-ended questions (Appendix C) with the purpose of determining respondents' perceptions and understanding of the Waterloo region place brand. The intention was to test the validity of the place brand description with external stakeholders without prompting any particular term. External interviews with targeted government and external business audiences allowed for a deeper understanding of how the cluster place brand is understood by one or more of the region's target audiences. Invitations to participate were sent to twelve offices, selected because of their interest in economic development, investment and talent recruitment at either the provincial or the national level. Two political and two public service offices were approached at each level of government. Also targeted were four business organizations with provincial or national memberships and based outside of Waterloo region. An email was sent to the top employee within the organization chart and interviews were conducted with either that person or their designate. Based on the responses across the six interviews, a weighting is assigned according to the consistent use of any terms. Two provincial officials, two federal officials, and two business organization officials took part in the interviews. Again, if a term or concept was used to describe the region in all six interviews, it was assigned a maximum score of 1.00. The frequency of the use of the term in any one interview was not assigned any additional weighting.

Finally, this paper offers a potential new measurement combining the results of the mixed-methodology into a single score by evaluating the consistency of the responses across all three methods. Through the assignment of scores for the content analysis of the websites, the survey of internal stakeholders, and the review of language in the responses from the interviews engaging external stakeholders, this methodology provides an opportunity to validate the basic elements of the place brand and assign a strength rating based on consistency of the message.

For the purposes of discussion, the new metric is called the Evaluation of Sites, Surveys, and Engagement Language Measuring an Estimation through Numerical Triangulation score. By multiplying the scores from the three different methods of the research, results of the content analysis, results of the internal survey, and results of external interviews each term is assigned three scores between 0.00 and 1.00 used to determine a final consistency score. By using a multiplication factor, if any particular term is not used in one of the three areas, the result will become a zero; for the purposes of this study, this means the term is not a consistent and applicable part of the place brand. This methodology and equation are offered as a new place brand consistency score, where the higher a score the stronger or more relevant the term; a score closer to 0.00 suggests a weaker attribution consistency to a place brand. The multiplication factor means there are many opportunities to have a term scored a zero. The rigorous approach offered by this method should result in top scores for only the *most* consistent terms associated with the brand across the different stakeholder groups.

This methodological approach, supplemented by the responses to questions of organization association with the place brand, can also determine which of the organizations most accurately reflects the strongest of the Waterloo region's place brand elements. On the reverse side, the research also allows for the identification of inconsistencies as they pertain to descriptive terms, but at this time, the paper does not delve into why these inconsistencies are occurring.

Results/Analysis

Examination of terminology used by local organizations

A list of the eighteen sites that were reviewed, along with the full paragraphs from each of the eight websites with descriptions of the region, are attached in Appendix A. The entire content analysis of the websites is also attached in Appendix A. Using eight organization websites, only the terms used on 50% or more sites are included in Table 1. There were 86 terms generated from the analysis. According to Stacks (2011), the reliability rating using Holsti's intracoder reliability coefficient was 0.964. Some of the terms that were generated were generic enough that they could apply to a number of the categories that were created. Although this was not ideal, an example such as “cost”, “location”, and “innovation” could apply to the advantages to doing business or living in the region, or to the brand identity. These were therefore included in multiple sections of the internal survey, but assigned the same scores in the content analysis research.

Table 1

Category and Term	Frequency	Score
Characteristics and assets for business		
Access to top talent	5	.625
Location and proximity to markets	6	.75
Research and development	4	.5
Characteristics and assets for community		
“Big City” feel	4	.5
Location/Proximity to other cities	5	.625
Quality of life	7	.875
“Small City” feel	4	.5
Characteristics of economic identity		
Entrepreneurship	4	.5
Innovation	4	.5
Lifestyle	4	.5
Location	4	.5
Startup	4	.5
Technology	5	.625
Attributes around community, culture and economic advantages		
Collaboration	4	.5
Diverse Population	4	.5
Diverse Economy	4	.5
Dynamic Urban	5	.625
Entrepreneurship	4	.5
Global	4	.5
Growth	5	.625
Innovation	4	.5
Renowned	4	.5
Organizations affiliated with the region		
Communitech	5	.625
University of Waterloo	6	.75
Wilfrid Laurier University	4	.5
Place Name		
Canada	5	.625
Waterloo Region	5	.625

There are a number of observations to be highlighted from this analysis alone. There are 27 terms used to describe the region in half or more of the websites. The three most commonly used terms were: quality of life; location and proximity to markets; and University of Waterloo. These were followed by: access to top talent; location in proximity to other cities; technology; dynamic urban; growth; and Communitech. The region is referenced most often as "Waterloo region" or as being in Canada, with no other terms being used in even half of the sites. There is a list of 16 terms used by half of the sites. That leaves a list of 59 additional terms used by fewer than half of the sites to promote the region for economic development or talent recruitment purposes.

Perhaps not surprisingly, the two organizations with the most information on their sites were the two organizations with a specific regional economic development focus: Waterloo Economic Development Corporation (1016 words), and the Region of Waterloo (847 words). The Prosperity Council (2017), whose site states that it was formed to "position Waterloo Region as the region of choice for new investment and talent" (para.3), provides no descriptions of the region for either goal beyond stating the purpose of the Prosperity Council. TheCorridor.ca has dedicated half of its content to attracting business and talent to the Waterloo region and the other half to Toronto. The City of Waterloo was the site that was most likely to describe the region differently using seventeen terms found on two or fewer of the sites. Using the results of the content analysis, all 86 terms were used as part of the online survey.

Results from the internal online survey

The full survey questions, responses and results can be found in Appendix B.

The first survey question was posed in order to determine at what level (strong, average, weak, none, or developing) internal stakeholders thought that the Waterloo region had a brand identity as a technology cluster. On the internal respondents, 75% indicated that Waterloo has a strong brand identity as a technology cluster, 21.4% believed it was an average brand identity, and the remaining 3.6% thought the region is still in the process of developing its brand. None of the respondents in the survey suggested there was *no* brand connection to being a technology cluster, indicating that internal stakeholders closely associate the tech cluster concept with the Waterloo place brand.

In order to determine the strength of the various terms and their attribution to the Waterloo place brand, a series of four questions were asked using a five-point Likert-type scale with 1 rated least important or applicable, and 5 most important or applicable. Listed in the tables below are only those terms with a mean rating of 4.0 or higher, however a consistency score was assigned to all 86 terms in the survey based on the methodology that was described earlier.

Table 2
Characteristics rated on their importance as an advantage to doing business in, or attracting business to, Waterloo region.

	Mean	Deviation	Score
Access to top talent	4.5	1.07	.9
Community resources and supports	4.3	.82	.86
Research and development	4.11	.96	.822

These results indicate that the top three perceived advantages to doing business in or attracting business to, Waterloo region for internal stakeholders are: access to top talent; community resources and support; and research and development. These were followed closely by industry support organizations, cost advantages, and corporate culture. From the earlier analysis of the websites, talent and research and development were two of the most strongly promoted advantages for the region, so there appears to be some consistency with respect to these terms. The most promoted advantage on the websites was the location and proximity to markets, which was the lowest ranked of all of the terms in the internal stakeholder survey. This is the first significant difference between how the organizations are promoting the place brand and the perception of the brand by internal stakeholders.

Table 3.
Characteristics rated on their importance as attractions for businesses and talent to living in the Waterloo region.

	Mean	Deviation	Score
Quality of life	4.46	1	.892
Safety	4.26	.76	.852
Recreation	4.07	.87	.814
Location/Proximity to other cities	4.04	.98	.808
Cost of living	4	.83	.8

The top characteristics for living in Waterloo region identified by the internal stakeholders were: quality of life; safety; recreation; location/proximity to other cities; and cost of living. The next highest rated characteristic was cultural and entertainment offerings and then there was a significant drop in scores for other characteristics. When comparing these results to those most heavily promoted by the organizations, there again appears to be internal alignment with respect to “quality of life” being the most heavily promoted aspect and “location/proximity to other cities” being the second most heavily promoted term. The characteristics of safety, recreation, and cost of living are potentially under-promoted compared to the value that internal respondents placed on the association of those characteristics to the region. The advantages described as “big city” or “small city”, although used on half of the websites, were two of the lowest ranked terms. The term heritage, which was the third most promoted, is clearly inconsistent with the importance given to the term by the internal business community who rated it at the bottom of the terms in the survey.

Table 4
Characteristics rated on their importance as being a part of the Waterloo region’s economic identity

	Mean	Deviation	Score
Innovation	4.68	.67	.936
Technology	4.67	.83	.934
Intelligence	4.54	.74	.908
Entrepreneurship	4.46	1.1	.892
Knowledge Economy	4.33	.96	.866
Startup	4.33	1.04	.866
Community	4.11	.88	.822

The most important characteristics of Waterloo region’s economic identity according to the responses of the internal survey are: innovation; technology; intelligence; entrepreneurship; knowledge economy; startup; and community. Consistent with the responses to the earlier question, cost, culture, lifestyle, and location were grouped in the next tier with only the term heritage again landing much lower at the bottom of the list. Once again, there appears to be significant consistency with the organizations on certain terms such as technology, the most highly promoted term on the organizations’ sites. Similarly, the terms innovation, entrepreneurship, and startup are regularly used. Although cost, lifestyle, and location are in the top tier of terms used by the organizations, they are in the second tier of terms rated by the internal stakeholders. Alternatively, the terms intelligence and knowledge economy are favoured by the internal stakeholders and not by the majority of organizations. This is another example of a potential disconnect in some of the language used to describe the region, as the term heritage is more prominently promoted than either intelligence or knowledge economy, but with much less importance assigned to it by internal stakeholders.

Table 5
Words and terms rated for their applicability to Waterloo's current community, culture or economic advantages

	Mean	Deviation	Score
Education	4.61	.83	.922
Innovation	4.43	.84	.886
Entrepreneurship	4.41	.97	.882
Technology Cluster	4.3	.99	.86
Intelligent Community	4.19	.88	.838
Knowledge Economy	4.11	1.01	.822
Startup Density	4.04	1.09	.808
Collaboration	4	1.07	.8

The above list of words were deemed most applicable to Waterloo's current community, culture or economic advantages. Education was rated most applicable while innovation and entrepreneurship were again strongly supported as applicable terms for the Waterloo place brand. These terms are also used by the organizations promoting the region, although education appears on less than half of the websites. The term collaboration also appears to be a consistent element between the organizations and the internal stakeholders. Of the rest of the words deemed most applicable by the survey respondents, technology cluster, intelligent community, knowledge economy, and startup density are more highly associated with the brand by the internal stakeholders than by the majority of the organizations. Two of the terms used by the most websites, growth, and dynamic urban, did not make the list of top terms according to the survey. Dynamic urban, although tied as the most promoted by the organizations, received the lowest score according to the internal stakeholders and is a significant difference in the place brand description. The terms global and renowned also receive lower scores according to the internal survey than the organizations' promotion of those terms would suggest. The term supercluster was one of the lowest ranked and does not appear to be a relevant term in connection to Waterloo at this time.

Table 6
With which of the following organizations do you most closely associate with the building of the Waterloo economic brand identity? (Percentage converted to a score out of 1.00)

	% of Respondents	Score
Communitech	96.43	.964
University of Waterloo	92.86	.929
Perimeter Institute	71.43	.714
Accelerator Centre	57.14	.571
City of Kitchener	35.71	.357
Centre for International Governance and Innovation	25	.25
Region of Waterloo	21.43	.214
Waterloo Economic Development Corporation	17.86	.179
City of Waterloo	17.86	.179
David Johnston Research & Technology Park	17.86	.179
Balsillie School of International Affairs	14.29	.143
Quantum Valley Investments	14.29	.143
Conestoga College Institute of Technology &Advanced Learning	10.71	.107
Wilfrid Laurier University	10.71	.107
City of Cambridge	3.57	.036
Greater Kitchener Waterloo Chamber of Commerce	0	0

Overwhelmingly, the two organizations most closely associated with building the Waterloo economic brand identity are Communitech and the University of Waterloo; both identified by over 92% of the respondents. As noted earlier, these two organizations were also the only two found on more than 50% of the websites promoting the region, reflecting a consistency with the internal view of the regional place brand. According to survey respondents, the Perimeter Institute was third at 71.43%, and the Accelerator Centre was fourth at 57.14%. The City of Kitchener, the Centre for International Governance and Innovation, and the Region of Waterloo, all registered with between a fifth and a third of respondents. Surprisingly, no respondents identified the Greater Kitchener Waterloo Chamber of Commerce even though the survey was sent to 5000 of that organization's members. Considering the strength of the ratings of the terms access to talent and education, it is perhaps surprising that both Wilfrid Laurier

University and Conestoga College are not highly associated with the region's place brand by the internal stakeholder group.

Table 7
Names used to describe the location of your business?

	% of Respondents	Score
Kitchener-Waterloo	57.14	.571
Waterloo	57.14	.571
Canada	35.71	.357
Waterloo Region	28.57	.286
Region of Waterloo	21.43	.214
Ontario	14.29	.143
Toronto	14.29	.143
Toronto- Waterloo Corridor	14.29	.143
Toronto- Waterloo Innovation Corridor	14.29	.143
Canada's Technology Triangle	10.71	.107
Kitchener	10.71	.107
Canada's Innovation Corridor	7.14	.071
Innovation Corridor	7.14	.071
Southern Ontario	7.14	.071
Southwestern Ontario	3.57	.036
Quantum Valley	0	0
The Corridor	0	0

More than half of the respondents refer to the location of their business as either Waterloo, or Kitchener-Waterloo. Canada was the third most common term at 35% with Waterloo Region or the Region of Waterloo in fourth and fifth. With the exception of Kitchener-Waterloo, which is not used on any of the descriptions on the websites, the other terms are similar in their use by both the internal stakeholders and the organizations promoting the region. References to Toronto or Ontario did not rate highly suggesting the Toronto-Waterloo concept, or a regional sub- provincial geographic reference, are not frequently used by local business people. Internal stakeholders do not currently use the terms Quantum Valley or The Corridor to describe the region.

Results from the external interviews

The complete content analysis of the interviews is found in Appendix C. Table 8 provides the responses from the external interviews in comparison to the top terms identified in the internal survey. Interviewees were assigned a code based on the external stakeholder audience they represented including the Ontario government, the federal government, or business.

Table 8
Content analysis of interviews (survey ranking)

	Frequency%	Respondents*	Score
Established Brand			
Yes	100	All	1.00
Business Advantages			
Community resources and supports (2)	17	O2	0.17
Research and Development (3)	17	F2	0.17
Talent (1)	67	O2,F1,F2,B2	0.67
Living Advantages			
Cost of living (5)	17	B1	0.17
Location/Proximity to other cities (4)	33	O2,F2	0.33
Quality of life (1)	33	O1,B1	0.33
Recreation (3)	0		0
Safety (2)	0		0
Economic Identity			
Community (7)	67	O1,O2,F1,B1	0.67
Entrepreneurship (4)	33	O1,B1	0.33
Innovation (1)	50	O1,O1,F2	0.5
Intelligence (3)	0		0
Knowledge Economy (T5)	0		0
Startup (T5)	50	O1,F1,B1	0.5
Technology (2)	100	All	1.0
Community Identity			
Collaboration (8)	33	O2,F2	0.33
Education (1)	100	All	1.0
Entrepreneurship (3)	33	O1,B1	0.33
Innovation (2)	50	O1,O2,F2	0.5
Intelligent Community (5)	0		0
Knowledge Economy(6)	0		0
Startup Density (7)	0		0
Technology Cluster (4)	50	O1,O2,B2	0.5

Organizations			
Accelerator Centre (4)	0		0
CIGI (6)	0		0
City of Kitchener (5)	0		0
Communitech (1)	83	O1,O2,F1,F2,B1	0.83
Greater KW Chamber of Commerce (16)	17	O1	0.17
Perimeter Institute (3)	17	F2	0.17
Region of Waterloo (7)			
University of Waterloo (2)	100	All	1.0
Wilfrid Laurier University (T12)	67	O1,F1,B1,B2	0.67
Blackberry (not listed in survey)	67	F1,F2,B1,B2	NA
OpenText (not listed in survey)	17	B1	NA
D2L (not listed in survey)	17	B1	NA
Name used for the region			
Canada (3)	0		0
Kitchener- Waterloo/ KW (T1)	83	O1,O2,F2,B1,B2	0.83
Region of Waterloo (5)	0		0
Waterloo (T1)	33	F1,B2	0.33
Waterloo Region (4)	17	O2	0.17

* O- Ontario government official, F- Federal government official, B- Business organization official

In most cases, the interviews confirmed what the survey responses had prioritized. As the interviews did not include a list of attributes to which they could respond, the descriptions provide a narrower list of terms that the external stakeholders would use to describe the region. All of the external interviewees were familiar with the Waterloo region and believed that it had an established brand. Access to talent was the top advantage identified for doing business in the region with community resources, and research and development tied for a distant second. These were consistent in the top three terms from the internal survey with talent being the top term identified there as well.

Quality of life and proximity to other cities were identified by a third of the external stakeholders while cost of living was also mentioned, but less frequently. All of these terms were also included in the top list of attributes in the survey, although the terms safety and recreation in that list were not identified in the results of the interviews.

The external interviews identified the terms technology, community, innovation, startup, and entrepreneurship, as relevant attributes to the economic identity of the region. Again, these terms are all within the list of top terms from the survey, but again there are terms that the external officials did not use that are relevant to the internal respondents. These terms include intelligence and knowledge economy, which suggests these terms only resonate strongly with the internal group and not with the organizations or the external stakeholders.

The top terms used to describe the community, culture and economic advantages in the interviews were education, innovation, technology cluster, collaboration, and startup. These terms map directly on the top terms used by the internal stakeholders, suggesting a strong consistency.

When asked to describe which organizations they most closely associate with the Waterloo place brand, external officials overwhelmingly identified the University of Waterloo and Communitech, with Wilfrid Laurier University mentioned in two-thirds of the interviews, and the Perimeter Institute and Greater Kitchener Waterloo Chamber of Commerce identified in less than one in five interviews. No other organizations were identified. This suggests a lack of external recognition of the efforts of any of the municipal governments by those outside the region. The other community group that has a very high internal recognition and affiliation to the brand, but was not mentioned by external officials, is the Accelerator Centre.

Disadvantages to the region

Noting that none of the regional organizations are likely to promote the disadvantages of doing business or locating in the region, open ended questions were asked of both the internal and external stakeholders to test the consistency of the weaknesses or challenges for the region, as a counter to the promoted strengths. Perhaps this could be considered the other side of the established place brand.

Table 9
Disadvantages to doing business or attracting talent to Waterloo region

Top issues identified by stakeholders	% survey responses	% interview responses
Poor or lack of transportation/Linkages	79	67
Too small town (2)	39	67
Lack of amenities (3)	36	33
Lack of talent (4)	32	0
Relationship to/with Toronto (5)	18	50
Second-tier reputation (6)	18	50

These results suggest significant consistency between the external and internal stakeholders with the exception of the concern about the lack of talent from the internal respondents. Internal written comments suggested the lack of talent appear to reflect both a shortage of non-tech talent and a global competition for certain skills that are present in the region. This may explain why the external interviewees did not identify a lack of talent as a disadvantage when they perceive education, talent and the University of Waterloo to be strengths of the region and its place brand.

The number one issue identified by both groups reflected the challenges in getting to and from the Waterloo region. However, one of the top advantages that was promoted through the websites was the region's location and its proximity to both markets and to other cities. Although this may suggest some challenges to the positioning that some of the organizations are promoting, it may also reflect an actual need for improved transportation infrastructure for the region. As described earlier in the work of Desrochers and Sautet (2004) and Turok (2004), coalitions often form to promote regional economic or cluster growth by advocating to government for investments in necessary infrastructure. Although no review of transportation advocacy was undertaken of the organization's websites, it is possible that the Waterloo region technology cluster is promoting new infrastructure to the region as part of its place brand promotion. Regardless of the reason or actions, location to markets was not strongly identified with either the internal or the external respondents as a key attribute of the Waterloo region's place brand.

Finally, a number of the disadvantages for the Waterloo region appear to reflect a lack of scale and a mostly negative comparison to other places, including the amenities and connections of a large city like Toronto. This perhaps explains why the proximity to Toronto is so strongly promoted by the regional organization sites.

Consistency Scores

When the consistency scores are generated (attached as Appendix D), certain terms become obvious attributes of the Waterloo region place brand while others drop away. Beside the score is a suggested role or connection to the place brand based on the consistency score.

The top attributes of the Waterloo region in order of consistency score are:

Table 10
Scores of terms and their connection to the Waterloo region place brand

Term	Score	Role
University of Waterloo	.697	Synonymous
Technology	.584	Synonymous
Communitech	.500	Synonymous
Education	.461	Primary
Access to Top Talent	.377	Primary

Quality of Life	.258	Secondary
Innovation	.223	Secondary
Startup	.217	Secondary
Location/Proximity to other Cities	.167	Supporting
Entrepreneurship	.147	Supporting
Community	.138	Supporting
Collaboration	.132	Supporting
Technology Cluster	.054	Distant
Perimeter Institute	.046	Distant
Community Resources and Supports	.037	Distant
Wilfrid Laurier University	.036	Distant
Cost of living	.034	Distant
Place Names		
Waterloo	.071	Distant
Waterloo region	.029	Distant

Observations

None of the place names were strongly used by all of the three audiences, resulting in scores of zero for all but Waterloo and Waterloo region with what appear to be distant affiliations to the place brand. In the survey and interviews, the strongest place name response was for Kitchener-Waterloo or KW, although that place name is not used on any of the organization websites to describe the region. However the term Waterloo region is strongly used by the organizations which might suggest an intentional use of that term and not the Kitchener-Waterloo or KW term that seems most consistently known by the internal and external audiences.

From the results of the research, municipal governments appear to be significantly undervalued for their roles in economic development or talent attraction. The Waterloo Economic Development Corporation also gets little to no recognition by either the internal or external stakeholder groups, despite the fact that their mandate, and their website, contains the most information about the benefits of the Waterloo region.

Looking back on the original descriptions of the region and comparing the use of the terms with the final list of brand attribution language, the Region of Waterloo, the WaterlooEDC, and the City of Waterloo appear to be using six or seven of the eight terms most applicable to the place brand when promoting the Waterloo region. Conversely, the two organizations with the strongest affiliation to the place brand, the University of Waterloo and Communitech, appear to have only one and three of the top eight terms in their descriptions of the Waterloo region. The University of Waterloo only uses its own name out of the top eight, which also happens to the top ranked term across all audiences. It can be assumed that the place brand association with the university is not connected to how it is promoting the region through its website.

Additionally, there were numerous terms that were only deemed to be strong by one of the groups, or alternatively, a term may have dropped because one of the groups did not use or rate the term in this particular study. One example of this is the term "research and development". The term was ranked highly by both the organizations and the internal stakeholders, but was not identified strongly by the external interviews. Two organizations, the Perimeter Institute and the Accelerator Centre, both with strong internal recognition, received little and no external identification. The best example, again, is the high familiarity and use of the name Kitchener-Waterloo or KW by both the internal and external respondents, yet none of the websites used the term to describe the region.

Limitations

While this study makes a worthy contribution to the literature on place branding, it does face some significant limitations. By restricting the original content analysis to the current websites of each of the organizations, and in only using descriptions of the region and not all language listed on the sites, it is possible that the research excluded additional terms or missed the use of terms that were part of the study and were not attributed to a particular organization. It should also not be inferred that all of the Waterloo region place branding activities are done through these organizations or their websites but that this was an attempt to find a proxy for the summation of how the organizations describe the region.

This is a first attempt to assign a place brand strength score based on consistency in the use of a term, in an area where no such calculation or score exists. There could be many different ways to attempt to compile the score based on the various methods that were undertaken as part of this case study, and the limited number of interviews and responses to the survey call into question the validity of the attached scores.

Another limitation, which could have produced a bias, was the decision to distribute the survey through only two business organizations. It is also possible that respondents to the survey or the interview questions may have misread or misunderstood a question, creating potential errors in the measurements. Furthermore, as the sample size of the interviews and the response rate of the survey were very low, the reliability and generalizability of the data is suspect.

The response rate of the survey was extremely low. The survey is estimated to have been sent to almost 15,000 members of the two organizations, and was only completed by 28 people. The reasons for the low response rate are not known. The timing of the research period may not have been ideal. The survey was opened by an additional 36 people, with the vast majority of those not completing the survey, leaving on the opening page or once they arrived at the letter of information/consent page. This significantly limits any ability to be conclusive about the internal perceptions of the Waterloo technology cluster place brand although, as described in the results section, the internal perception was fairly consistent across most questions. It is also possible that the order of the questions and terms, or the definitions in each of the questions could have influenced the responses to any of the questions.

In most instances, the interviews that were conducted were not with the highest-ranking individual within the organizational structure. The intention was to get C-level executives to respond, however this was not possible in most circumstances. There was also a reluctance to participate by those in government political offices. It is not certain why this was the case, but it does mean a gap in the results. The proximity to the 2018 Ontario election also made the timing of the research less-than-ideal for recruiting participants in the provincial government. Another limitation of the interviews is that all interviewees were located within Ontario and Canada. It is possible that the Waterloo region is relatively well known within its own province, but not outside of this geography.

Additionally, four of the six people interviewed described some personal connection to the region. They had either grown up in the region, had relatives in the region, or attended a Waterloo postsecondary institution. All had also visited the Waterloo region at some point in the last few years. This may be seen as a limitation or, perhaps more positively, as a reflection of the success of the organizations attempting to brand the region to draw interest from external audiences to visit. At the request of each of the officials, the interviews were all conducted by phone, which may have limited the amount of information that the researcher could have assessed from non-verbal cues.

The generation of the terms used in the survey, and in particular the omission of any company names, could be another matter affecting the results. Although covered in the literature review as an important component of cluster development, there were no questions or references to MNEs or SMEs in the internal survey. This became more obvious when external interview responses included references to companies within the region like Blackberry, D2L, and OpenText.

Finally, the researcher is clearly identified as being someone from the region, and it is not known whether this would have had an effect on the responses to the questions in favour of the University of Waterloo, where the researcher works. Similarly, the title of the research project included the terms “technology cluster” and “Waterloo region”. As these terms ended up being strongly identified, it is possible that the questions and title of the project created a response bias toward these terms in their various forms.

Conclusions and Future Research

Conclusions

Through the content analysis of the websites, and subsequently through the internal stakeholder survey and the external interviews, this study was able to explore not only how the Waterloo region place brand is described, but also to compile the strongest terms linked to those descriptions through the consistency of their use across the different stakeholder groups.

According to this study, and based on the top eight terms according to the consistency scoring, the most appropriate description of the Waterloo technology cluster place brand would be: Waterloo, home to the University of Waterloo and Communitech, and the place to access technology, education and top talent. With a high quality of life, Waterloo region is best known for its innovation, entrepreneurship, and startups. Waterloo is a community of collaboration, located close to the amenities of other cities, including Toronto.

This description appears to be consistent with the way that organizations like the WaterlooEDC think about how to promote Waterloo. According to a SWOT analysis prepared by the Waterloo EDC and presented on March 29, 2018 to a community roundtable, the top strengths of the Waterloo region were deemed to be: innovative culture; collaborative culture; diverse economy; tech-focused; world-class institutions; talent; and entrepreneurial support (WaterlooEDC, 2018, March). The study was successful in both identifying the language used and measuring the consistency of its use across multiple stakeholder groups.

The third research question was to determine what consistencies or inconsistencies in the brand indicate about the strength of the identity of a Waterloo technology cluster. When looking at the use of the terms across the regional websites, with a few exceptions, all organizations are highlighting similar strengths of the region that appear to resonate with both internal and external stakeholders. Thinking back to the work of Kochhar (2013) about strategic coalitions encompassing all stakeholders, or Cox and Mair's (1988) examples of when a community has rallied around a set of ideas and values that are known beyond their local region, it appears that the Waterloo place brand is strong. This includes internal consistency, which was a challenge in other case studies. In those instances, residents did not feel an attachment to the brand, or feel likely to be brand advocates because the brand was not authentic (Kemp et al., 2012). According to almost all of the indicators from the literature, Waterloo is consistently promoting and is recognized for attributes found in clusters around the world. The Waterloo region brand appears to be uncontested with respect to its core elements.

Younes (2012) recognized that very few clusters would develop without an existing range of powerful actors. Cox and Mair (1988) spoke to the role of business coalitions in encouraging local economic growth, but the need for elite business organizations to promote additional growth that would create the infrastructure we now see around a cluster. Kochhar (2013) emphasized the need for a successful coalition to have at least one lead agency that would convene the other players. The study results here suggest a couple of organizations that play that role within the Waterloo region. Communitech is clearly recognized both internally and externally for its role in promoting the tech cluster place brand. The research suggests that, according to its website, the Waterloo EDC is the most effective promoter of the strong and consistent place brand.

The other organization within the Waterloo region that had strong recognition from all stakeholders is the University of Waterloo. The role of a research intensive university with the particular attributes of the University of Waterloo were highlighted in the literature as necessary to grow a global technology cluster. A central research intensive university that provides a specialized local talent or labour pool, engages with industries on research, provides a research network, and promotes research productivity and patents, is crucial to the establishment and success of a globally recognized technology cluster (Turok, 2004; Clancy et al., 2001; Mudambi and Swift, 2012; Younes, 2012).

One of the key concepts that has not been verified in this study is that of creating a strong community as well as a cluster in connection to the place brand. Kasabov (2010) and Kukalis (2010) both noted the strength of a cluster when it has been able to generate its own sense of community, with its own ideas and characteristics. This study did not explore the interconnections within the cluster, but did find that there was significant strength in key terms used to describe the cluster, based on the consistency of use across multiple stakeholders.

Future Research

An avenue for future research could be in expanding the external audiences, perhaps exploring how the Waterloo region's brand is perceived in media stories. Again, a score out of 1.00 could be applied to the results of that research and multiplied by the results of the components in this case study to result in a new and improved place brand strength score.

Kasabov and Sundaram (2013) suggested three tests to determine the strength of a cluster place brand. Waterloo region appears to meet the first two conditions with agreement from internal stakeholders on the majority of the descriptions of the region, and a consistent and positive brand image promoted by the public and understood by external stakeholders. The third test was whether there were consistent branding initiatives by the public sector and whether there is mutual awareness of the place brand amongst private sector and university stakeholders.

On this point, there may be more to be learned from the Waterloo region example. All stakeholders identify both Communitech, an industry group, and the University of Waterloo as key contributors to the region's brand. One comment from an interview with an Ontario government official suggests there may be more to this dual organization brand association.

> *The KW innovation community remains cohesive, although there is a disconnect between the university and the innovation groups. It might be a healthy tension. If the region can get everyone to row together in the same canoe in the same direction, then things will really start happening. The regional leaders are helping out with this. If it works, Waterloo will be a shining example of how a community can benefit economically from working together* (Ontario Official 2, May, 2018)

Although there was nothing in the comment to suggest how the disconnect might affect the way the region is branding itself, it certainly suggests that more research can be done into how the Waterloo cluster is organized with respect to its branding and promotion.

As identified in the limitations, the concept of how MNEs and SMEs interact within a cluster and how it affects their perception or promotion of the cluster is another potential area for exploration. Mudambi & Swift (2012) found there were strong links between local tech companies and the branch locations of global MNEs. As this study clearly identified access to talent as a key attribute of the Waterloo region cluster, it would be worth exploring whether the companies involved in the cluster feel the sense of community that has been referenced in the literature by Kasabov (2010) and Kukalis (2010).

APPENDIX A

Websites Reviewed

Accelerator Centre

City of Kitchener

City of Waterloo*

Communitech*

Conestoga College

Downtown Kitchener Business Improvement Association

Explore Waterloo Region*

Greater Kitchener Waterloo Chamber of Commerce

Kitchener Waterloo Real Estate Association

Perimeter Institute

Prosperity Council of Waterloo Region*

Quantum Valley Investments

Region of Waterloo*

TheCorridor*

University of Waterloo*

Uptown Waterloo Business Improvement Association

Waterloo Economic Development Corporation*

Waterloo Region Manufacturing Innovation Network

* Contained descriptive language about the economic benefits of doing business or attracting talent to the Waterloo region.

Website Content Analysis

Category and Term		Frequency	Score
Adjective and assets for business			
· Access to top talent		5	.625
· Community resources and supports		2	.25
· Corporate culture		2	.25
· Cost advantage*		2	.25
· Incentives		1	.125
· Industry support organizations		1	.125
· Location and proximity to markets*		6	.75
· Research and development		4	.5
Adjectives and assets for community			
· "Big City" feel		4	.5
· Cost of living*		2	.25
· Cultural and entertainment offerings		2	.25
· Heritage		3	.375
· Location/Proximity to other cities*		5	.625
· Quality of life		7	.875
· Recreation		2	.25
· Safety		1	.125
· Shopping		1	.125
· "Small City" feel		4	.5
Attributes for economic identity			
· Community		2	.25
· Cost*		4	.5
· Culture		3	.375
· Entrepreneurship		4	.5
· Heritage		3	.375
· Innovation*		4	.5
· Intelligence		1	.125
· Knowledge Economy		1	.125
· Lifestyle		4	.5
· Location*		4	.5
· Startup		4	.5
Technology		5	.625
Adjectives around community, culture and economic advantages			
· Adaptable		1	.125
· Balanced and Rich Lifestyle		1	.125
· Best and Brightest		3	.375

· Collaboration		4	.5
· Creative Solutions		2	.25
· Diverse Population		4	.5
· Diverse Economy		4	.5
· Dynamic Urban		5	.625
· Education		4	.5
· Entrepreneurship		4	.5
· Global		4	.5
· Growth		5	.625
· Innovation*		4	.5
· Intelligent Community		1	.125
· Internationally-Acclaimed		1	.125
· Knowledge Economy		1	.125
· Reinvent		1	.125
· Renowned		4	.5
· Smartest City		1	.125
· Startup Density		2	.25
· Strong Cultural Base		1	.125
· Strong Economic Base		1	.125
· Technology Cluster		1	.125
· Supercluster		1	.125
Organizations			
· Accelerator Centre		3	.375
· Balsillie School of International Affairs		1	.125
· Centre for International Governance and Innovation		2	.25
· City of Cambridge		3	.375
· City of Kitchener		3	.375
· City of Waterloo		3	.375
· Communitech		5	.625
· Conestoga College Institute of Technology &Advanced Learning		3	.375
· David Johnston Research & Technology Park		1	.125
· Greater Kitchener Waterloo Chamber of Commerce		1	.125
· Perimeter Institute		3	.375
· Quantum Valley Investments		0	0
· Region of Waterloo		3	.375
· University of Waterloo		6	.75
· Waterloo Economic Development Corporation		3	.375
· Wilfrid Laurier University		4	.5

Place Name			
· Canada		5	.625
· Canada’s Technology Triangle		1	.125
· Canada’s Innovation Corridor		0	0
· Innovation Corridor		0	0
· Kitchener		3	.375
· Kitchener-Waterloo		0	0
· Ontario		1	.125
· Quantum Valley		0	0
· Region of Waterloo		1	.125
· Southern Ontario		1	.125
· Southwestern Ontario		2	.25
· The Corridor		1	.125
· Toronto		2	.25
· Toronto- Waterloo Corridor		2	.25
· Toronto- Waterloo Innovation Corridor		1	.125
· Waterloo		3	.375
· Waterloo Region		5	.625

Appendix B

Survey Questions and Responses

1) Which of the following statements most closely reflects your feeling about the Waterloo region as a technology cluster?

Statement	% of respondents
- Waterloo has a strong brand identity as a technology cluster	75
- Waterloo has an average brand identity as a technology cluster	21.4
- Waterloo has a weak brand identity as a technology cluster	0
- Waterloo has no brand identity as a technology cluster	0
- Waterloo is developing its brand as a technology cluster	3.6

2) Please rate the following characteristics based on their importance as an advantage to doing business in or attracting business to Waterloo region. (1 being not important to 5 being very important)

Characteristic	Mean	Deviation
• Access to top talent	4.5	1.07
• Community resources and supports	4.3	.82
• Corporate culture	3.86	.85
• Cost advantage	3.96	.98
• Incentives	3.63	.93
• Industry support organizations	3.96	1.02
• Location and proximity to markets	3.61	1.29
• Research and development	4.11	.96

3) Please rate the following characteristics on their importance as attractions for businesses and talent to living in the Waterloo region. (1 being not very important to 5 being very important)

Characteristic	Mean	Deviation
• "Big City" feel	3.19	.96
• Cost of living	4	.83
• Cultural and entertainment offerings	3.78	.97
• Heritage	2.62	1.13
• Location/Proximity to other cities	4.04	.98
• Quality of life	4.46	1
• Recreation	4.07	.87
• Safety	4.26	.76
• Shopping	3.33	.88
• "Small City" feel	3.25	1.08

4) Please rate the following characteristics on their importance as being a part of the Waterloo region's economic identity. (1 **Not Very Important** to 5 **Very Important**)

Characteristic	Mean	Deviation
• Community	4.11	.88
• Cost	3.74	.94

• Culture	3.81	1
• Entrepreneurship	4.46	1.1
• Heritage	3.15	.95
• Innovation	4.68	.67
• Intelligence	4.54	.74
• Knowledge Economy	4.33	.96
• Lifestyle	3.75	.89
• Location	3.74	.98
• Startup	4.33	1.04
• Technology	4.67	.83

5) Please rate the following words and terms and their applicability to your sense of Waterloo's current community, culture or economic advantages. (1 being not applicable to 5 very applicable)

	Mean	Deviation
• Adaptable	3.89	.89
• Balanced and Rich Lifestyle	3.37	.79
• Best and Brightest	3.75	.93
• Collaboration	4	1.07
• Creative Solutions	3.86	.97
• Diverse Population	3.59	.93
• Diverse Economy	3.48	1.05
• Dynamic Urban	2.78	1.05
• Education	4.61	.83
• Entrepreneurship	4.41	.97
• Global	3.37	.93
• Growth	3.85	.77
• Innovation	4.43	.84
• Intelligent Community	4.19	.88
• Internationally-Acclaimed	3.59	1.05
• Knowledge Economy	4.11	1.01
• Reinvent	3.85	.91
• Renowned	3.35	1.2
• Smartest City	3.26	.94
• Startup Density	4.04	1.09
• Strong Cultural Base	3.04	1.15
• Strong Economic Base	3.81	.83
• Technology Cluster	4.3	.99
• Supercluster	3.29	1.3

6) With which of the following organizations do you most closely associate with the building of the Waterloo economic brand identity? (Check all that apply)

	% of Respondents
Accelerator Centre	57.14
Balsillie School of International Affairs	14.29
Centre for International Governance and Innovation	25
City of Cambridge	3.57
City of Kitchener	35.71
City of Waterloo	17.86
Communitech	96.43
Conestoga College Institute of Technology &Advanced Learning	10.71
David Johnston Research & Technology Park	17.86
Greater Kitchener Waterloo Chamber of Commerce	0
Perimeter Institute	71.43
Quantum Valley Investments	14.29
Region of Waterloo	21.43
University of Waterloo	92.86
Waterloo Economic Development Corporation	17.86
Wilfrid Laurier University	10.71

7) Of the following names, which are you most likely to use to describe the location of your business? (Check all that apply)

	% of respondents
Canada	35.71
Canada's Technology Triangle	10.71
Canada's Innovation Corridor	7.14
Innovation Corridor	7.14
Kitchener	10.71
Kitchener-Waterloo	57.14
Ontario	14.29
Quantum Valley	0
Region of Waterloo	21.43
Southern Ontario	7.14
Southwestern Ontario	3.57
The Corridor	0
Toronto	14.29
Toronto- Waterloo Corridor	14.29
Toronto- Waterloo Innovation Corridor	14.29
Waterloo	57.14
Waterloo Region	28.57

8) Please list up to three disadvantages to doing business or attracting talent to Waterloo region.

i)	**Transportation/Linkages to Toronto and other cities**	**22**
ii)	**Too Small Town**	**11**
iii)	**Lacking a vibrant culture/entertainment scene/recreation/scenery**	**10**
iv)	**Lack of talent/wages are too low to attract**	**9**
v)	**TIE Waterloo is not Toronto**	**5**
	Challenging attitude and/or reputation	**5**
vii)	**Decreasing affordability**	**3**

Full List of Comments

- Lack of train service to GTA
- Reputation
- Difficulty in getting here from Toronto
- Lack of transport to Toronto and London
- Transportation to Toronto
- Lingering Blackberry failure
- Low pay compared to Silicon Valley and other US markets
- Geography (land-locked, no waterfront)
- early stages
- Lack of good transit options to Toronto (401 impossible, GO not convenient)
- Housing is getting very expensive
- Not enough senior global talent in industrial design, marketing or non-tech fields
- No quick access to a busy "entertainment district" to attract talent
- No healthy, robust, vibrant and fun downtown
- Cost of Living is increasing
- Small city
- Commute between here and Toronto is usually a deal-breaker
- Toronto
- location
- Crazy high taxes
- Competition for talent
- Too small
- It's not Toronto.
- 401 traffic
- Hard to get to and from Waterloo
- Poor transportation links
- Wages and Cost of Living, you are competing against the United States.
- Lack of air service to Ottawa and silicon valley
- The number of scaling companies / job opportunities
- Perceived lack of “hipness.”
- Not authentic collaboration
- Lack of ethnic and gender diversity (this is improving)
- poor road network

- A bunch of try-hard hipster restaurants is not a lively entertainment culture
- light rail has been a huge disruption and is as yet unproven
- not enough recreational activities...no mountains, or wide open lakes. Rivers hard to access
- Complete misery when trying to get to Toronto, Montreal or other cities
- Traffic congestion is picking up
- Condo developments changing the landscape
- Low density of marketing and creative professionals
- Perception that it's a sleepy, back-country place to live
- smaller city - rural
- location
- No major airport
- Inexperience and indifference of Communitech's Startup Advisors
- Lack of major urban attractions
- It's not Toronto.
- Need better train and airport connections
- Low salaries
- Manufacturing Industry and the Recession has taken a toll on Waterloo Region, it is not as prosperous as it once was.
- Strong community
- Small town attitudes
- Lack of VC funding
- A bit small-townish (quiet downtowns, big malls)
- low boost of the Region
- Traces of smalltown mentality - e.g. racism, conservative Xtian factors
- Transit system in general could be way better
- Needs more art, better architecture, more artists.
- Not yet a "world class city" to attract sr. executive talent
- Toronto draws good talent away from Waterloo
- Commuting
- Only a few home-grown, major business success stories so far
- lack public transportation
- location
- Difficulty in accessing the right people
- Lack of talent beyond STEM
- It's not Toronto.
- Region still isn't as well known as it thinks it is so still tough to attract top-talent
- Small town vibe

Appendix C

Interview Questions

1) Are you familiar with the Waterloo region? (If yes go to question 2)
2) With what place name do you most often refer to the Waterloo region?
3) Do you believe that the Waterloo region has an established brand or brands? (If yes go to question 4, if NO go to question 5, 6 and 7)
4) Would you please describe in a few words or sentences your concept of the Waterloo region brand?
5) How would you describe the economy of the Waterloo region?
6) How would you describe the community or communities of the Waterloo region?
7) Please describe any advantages and disadvantages you associate with the Waterloo region (or its brand).
8) With which organizations, if any, do you most closely associate to the Waterloo region brand or brand building?
9) Is there anything else you would like to share about your thoughts or impressions of the Waterloo region?

Highlights from transcripts of the interviews

Question 1	Response
Ontario Official 1	Yes (son went to school there)
Ontario Official 2	Yes (has visited many times and both children went to university there)
Canada Official 1	Yes (has visited on a few occasions through work)
Canada Official 2	Yes (has visited but speaks to people from the region regularly)
Business Organization Official 1	Yes (Knows it well from 20 years ago when they grew up here)
Business Organization Official 2	Yes (Went to university here)

Question 2	Response
Ontario Official 1	KW
Ontario Official 2	Waterloo region although increasingly KW
Canada Official 1	Waterloo
Canada Official 2	KW
Business Organization Official 1	KW or Kitchener-Waterloo
Business Organization Official 2	Waterloo or KW

Question 3	Response
Ontario Official 1	Yes
Ontario Official 2	Yes

Canada Official 1	Yes
Canada Official 2	Yes
Business Organization Official 1	Yes
Business Organization Official 2	Yes

Question 4	Response
Ontario Official 1	Based around the University of Waterloo, Communitech and the ecosystem. The brand is about innovation, technology, it is modern and it is about being entrepreneurial
Ontario Official 2	There are a couple of brands, although connected and strong, there is the University of Waterloo brand that seems to have some recognition. David Johnston helped to really push this brand when he was President at UW, trying to attract the best people in the world. This was perpetuated by the UW co-op program which seems to be recognized on the US west coast. Not sure how strong the brand is beyond that globally though. And then there is the innovation and technology brand that has emerged around Communitech and its partners. This brand seems to be strongly recognized in places like Silicon Valley, Colorado, and a little bit in the NorthWest U.S. Communitech is the leader of this brand effort. The innovation brand is not as strong outside of the Canadian context and probably most strongly in Ontario. It is a powerful brand in Toronto, however Waterloo needs Toronto more than Toronto needs Waterloo in order to bolster its reputation.
Canada Official 1	The region is best known for its tech sector and the talent that is coming out of the university. There is a lot of recent focus on startups as well.

Canada Official 2	Probably tech and innovation. A lot of interesting companies are growing there and there are global companies that are being attracted to either set-up there, or to find tech talent
Business Organization Official 1	Recognized as a tech magnet with strong academic institutions including the two universities and the college, accelerators, incubators and startups. The brand is about growth and being dynamic
Business Organization Official 2	It is known as a tech hub, full stop. It is a major source of engineering and technology field talent from its universities and Waterloo in particular.

Question 5	Response
Ontario Official 1	Not good. The region is laid out in a disjointed way and there are negative aspects on the social side, like homelessness and mental health that seem to be ignored in the shadows of the tech sector. "I wouldn't want to live there."
Ontario Official 2	Strong. The expansion in the local economy is driven by the tech sector. There are many great new small companies who are propelling the economy. There is also a strong manufacturing economy including auto parts assembly. Combining these two will be a powerful combination through initiatives in advanced manufacturing.
Canada Official 1	The economy used to appear to be connected to the rise and fall of Blackberry, but not there are new companies replacing it. I can't name any right now, but I know Google and Shopify have moved to town. I also know there are a lot of insurance companies there and there are still some major manufacturers in the region.
Canada Official 2	Growing, even after what happened to RIM. There are lots of discussions about a talent shortage there which seems to suggest the economy is growing pretty rapidly.
Business Organization Official 1	High-tech sector with a large number of startup, and the industry around Communitech. Also known by many for the insurance industry and also as a manufacturing hub in the past.
Business Organization Official 2	Robust

Question 6	Response
Ontario Official 1	It is a depressing downtown (Kitchener) although they are doing amazing things. It is a beautiful region.
Ontario Official 2	The community is small enough to be nimble and responsive to economic needs and changes. The KW innovation community remains cohesive. Although there is a disconnect between the university and the innovation groups. It might be a healthy tension. If the region can get everyone to row together in the same canoe in the same direction, then things will really start happening.

	The regional leaders are helping out with this. If it works, Waterloo will be a shining example of how a community can benefit economically from working together.
Canada Official 1	I don't know that much about the community. I heard a story from David Johnston about Mennonites in the region. I don't know how prevalent that is. I imagine it is a younger tech-savvy community now.
Canada Official 2	High-tech and optimistic but still a typical smaller Canadian city.
Business Organization Official 1	Segmented community with divisions within the region. There is a strong and connected tech community where companies and their employees seem connected. This isn't necessarily reflective of the long-time residents or the retirees who live there.The region's economy had become known most for Blackberry for a long time and now that isn't necessarily seen as a positive legacy. It is an engaged community and it appears that people like living there.
Business Organization Official 2	Waterloo is a university town. It explodes with life throughout the school year. It is focused on the university element as an economic tool for the region. The business side of the region probably continues to draw the short-straw compared to the recognition for the university.

Question 7	Response
Ontario Official 1	Adv. The ecosystem supports itself through the academic institutions and the innovation groups and within the startup community. The changes have been phenomenal. It is on a path to be a region that could be known as a place people want to live. It could brand itself based on the civility of the community. Disadv. Geography and the way the region is laid out are a mess and make it hard to get around or identify one part from another. The Ion LRT is a mess but seems to be getting cleaned up. There are so many different buildings and it is difficult to know which sections of the city are successful, and which are not doing well so the assumption is that they are all in trouble. Waterloo feels like a university town but Kitchener is perceived as a mess of a downtown. Would people want to eat or go out in that downtown?
Ontario Official 2	Adv. Fast/speed allows things to get done. It has not yet fully integrated into the Toronto-Waterloo corridor yet. Disadv. Although it can be fast, being small is its greatest advantage and disadvantage. It has to have outsized performance on tech in order to get noticed.
Canada Official 1	Adv Talent and an established tech sector that has grown in the region. It seems to have more staying power than other tech communities of the past like Ottawa. The university is very helpful in keeping the region on the map too.

	Disadv Probably not as well known outside of government and the tech sector as it thinks it is. It is in Ontario and isn't Toronto, so that is a challenge, especially when it is so hard to get to and from the region.
Canada Official 2	Adv Communitech and the tech sector, working with the universities and other research institutions. Interesting leading-edge things like quantum computing and advanced manufacturing. It is a place to get access to both tech and talent. Disadv Considering how close it is to Toronto, it feels like it is a long way away. Needs better transportation links or flights into its airport. Waterloo is an add-on to Toronto in the global context.
Business Organization Official 1	Disadv It is disconnected from everything through transit. There are no ways to get to the airport (Pearson) or the GTA other than by car. Adv Cost of living and the connection to the tech community give the place an up and coming feel. It is a good place to raise a family (and to grow up). If the community can overcome its infrastructure challenges, that will certainly help.
Business Organization Official 2	Disadv In Ottawa, it is probably perceived to be MIT-light. It has all of the potential, but not the scale or global recognition. It is the place where Silicon Valley goes to poach. Adv The ecosystem is very good in its own right and this has the potential to turn things around to be even more positive.

Question 8	Response
Ontario Official 1	UWaterloo, Communitech and the Greater Kitchener Waterloo Chamber of Commerce to a lesser extent. Laurier is also good but maybe not as tied to the brand although it is in that same high-academic institution with a great reputation.
Ontario Official 2	Communitech, UWaterloo (particularly through its co-op program and its alumni in places like Silicon Valley, many of whom are running tech companies all over the world)
Canada Official 1	UWaterloo, Laurier, Communitech, Blackberry
Canada Official 2	Communittech, UWaterloo, Blackberry, Perimeter Institute
Business Organization Official 1	UWaterloo, Communitech, Laurier, OpenText, RIM/Blackberry, D2L
Business Organization Official 2	UWaterloo, Laurier and Blackberry

Question 9	Response

Ontario Official 1	The government of Ontario uses the Waterloo region in its external promotional materials for economic development. It should be sold as a great place to go to school, live, work, play and raise a family. It appears to be booming and the cultural scene is slowly growing. You can feel there is a strong sense of community.
Ontario Official 2	Waterloo is unique in North America. They have built a cohesive leadership group in the technology space that seems to all be working together and saying the same things. Hope that continues even as the region grows closer to Toronto. The True North conference will keep the region on the map and allow it to get noticed in the same tier as places like Austin, Texas. The region has the opportunity to lead in technology and be on the global calendar of conferences and events that will draw in people from around the world. As the Toronto Waterloo corridor continues to integrate the communities, the future is bright. But success will require constant effort. Examples like the True North conference and bringing private investment to the region will allow champions within government to continue to put government dollars in Waterloo to enable even greater outcomes.
Canada Official 1	It isn't clear how things will continue to grow in Waterloo if they can't access more talent. Perhaps UWaterloo will continue to grow and help with that. There is a real opportunity for Canada to lead in certain technologies like AI and quantum computing and I would assume that Waterloo will be key to that.
Canada Official 2	Waterloo is a good example of what is possible. It will be interesting to see how global tech companies will either move to Canada and Waterloo, or increasingly acquire and draw companies and talent away from the region, either to Toronto or Montreal, or to the States.
Business Organization Official 1	The region has great potential and that isn't to say that it isn't successful. Cultural things are starting to catch up to the success of the tech sector with some brew pubs and new food options. But there is even greater potential to come.
Business Organization Official 2	They often hear about Waterloo as the model of how a tech cluster should work. The next step is to figure out how to connect the industry with the academic institutions to make it even better.

Appendix D

Calculations of Consistency Score

Term	Website	Survey	Interview	Consistency
Adjective and assets for business				
· Access to top talent	0.625	0.9	0.67	0.377
· Community resources and supports	0.25	0.86	0.17	0.037
· Corporate culture	0.25	0.772	0	0
· Cost advantage*	0.25	0.792	0	0
· Incentives	0.125	0.726	0	0
· Industry support organizations	0.125	0.792	0	0
· Location and proximity to markets*	0.75	0.722	0	0
· Research and development	0.5	0.822	0.17	0.07
Adjectives and assets for community				
· "Big City" feel	0.5	0.638	0	0
· Cost of living*	0.25	0.8	0.17	0.034
· Cultural and entertainment offerings	0.25	0.756	0	0
· Heritage	0.375	0.524	0	0
· Location/Proximity to other cities*	0.625	0.808	0.33	0.167
· Quality of life	0.875	0.892	0.33	0.258
· Recreation	0.25	0.814	0	0
· Safety	0.125	0.852	0	0
· Shopping	0.125	0.666	0	0
· "Small City" feel	0.5	0.65	0	0
Attibutes for economic identity				
· Community	0.25	0.822	0.67	0.138
· Cost*	0.5	0.748	0	0
· Culture	0.375	0.762	0	0
· Entrepreneurship	0.5	0.892	0.33	0.147
· Heritage	0.375	0.63	0	0
· Innovation*	0.5	0.936	0.5	0.223
· Intelligence	0.125	0.908	0	0
· Knowledge Economy	0.125	0.866	0	0
· Lifestyle	0.5	0.75	0	0
· Location*	0.5	0.748	0	0
· Startup	0.5	0.866	0.5	0.217
Technology	0.625	0.934	1	0.584

Adjectives around community, culture and economic advantages

· Adaptable	0.125	0.778	0	0
· Balanced and Rich Lifestyle	0.125	0.674	0	0
· Best and Brightest	0.375	0.75	0	0
· Collaboration	0.5	0.8	0.33	0.132
· Creative Solutions	0.25	0.772	0	0
· Diverse Population	0.5	0.718	0	0
· Diverse Economy	0.5	0.696	0	0
· Dynamic Urban	0.625	0.556	0	0
· Education	0.5	0.922	1	0.461
· Entrepreneurship	0.5	0.882	0.33	0.146
· Global	0.5	0.674	0	0
· Growth	0.625	0.77	0	0
· Innovation*	0.5	0.886	0.5	0.222
· Intelligent Community	0.125	0.838	0	0
· Internationally-Acclaimed	0.125	0.718	0	0
· Knowledge Economy	0.125	0.822	0	0
· Reinvent	0.125	0.77	0	0
· Renowned	0.5	0.67	0	0
· Smartest City	0.125	0.652	0	0
· Startup Density	0.25	0.808	0	0
· Strong Cultural Base	0.125	0.608	0	0
· Strong Economic Base	0.125	0.762	0	0
· Technology Cluster	0.125	0.86	0.5	0.054
· Supercluster	0.125	0.658	0	0
Organizations				
· Accelerator Centre	0.375	0.871	0	0
· Balsillie School of International Affairs	0.125	0.143	0	0
· Centre for International Governance and Innovation	0.25	0.25	0	0
· City of Cambridge	0.375	0.036	0	0
· City of Kitchener	0.375	0.357	0	0
· City of Waterloo	0.375	0.179	0	0
· Communitech	0.625	0.964	0.83	0.5
· Conestoga College Institute of Technology & Advanced Learning	0.375	0.107	0	0
· David Johnston Research & Technology Park	0.125	0.179	0	0
· Greater Kitchener Waterloo Chamber of Commerce	0.125	0	0.17	0
· Perimeter Institute	0.375	0.714	0.17	0.046
· Quantum Valley Investments	0	0.143	0	0
· Region of Waterloo	0.375	0.214	0	0

· University of Waterloo	0.75	0.929	1	0.697
· Waterloo Economic Development Corporation	0.375	0.179	0	0
· Wilfrid Laurier University	0.5	0.107	0.67	0.036
Place Name				
· Canada	0.625	0.357	0	0
· Canada's Technology Triangle	0.125	0.107	0	0
· Canada's Innovation Corridor	0	0.071	0	0
· Innovation Corridor	0	0.071	0	0
· Kitchener	0.375	0.107	0	0
· Kitchener-Waterloo	0	0.571	0.83	0
· Ontario	0.125	0.143	0	0
· Quantum Valley	0	0	0	0
· Region of Waterloo	0.125	0.214	0	0
· Southern Ontario	0.125	0.071	0	0
· Southwestern Ontario	0.25	0.036	0	0
· The Corridor	0.125	0	0	0
· Toronto	0.25	0.143	0	0
· Toronto- Waterloo Corridor	0.25	0.143	0	0
· Toronto- Waterloo Innovation Corridor	0.125	0.143	0	0
· Waterloo	0.375	0.571	0.33	0.071
· Waterloo Region	0.625	0.286	0.16	0.029

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