

# Internationalisation activities and geographical location: an empirical study of service firms

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**Abstract** This empirical study analyses the extent to which the domestic geographic location of a firm influences its internationalisation strategy, as it pertains to the scale and scope of its international activities, and the timing of its internationalisation. It explores the way the internationalisation of knowledge-intensive business services (KIBS) in Canada differs across different regional contexts. Based on a sample of 156 KIBS establishments in Canada. The paper explores whether some localities are more conducive to certain types of internationalisation activities, or conversely whether they predominantly foster domestic activities.

**Keywords** Internationalisation activities, regions, KIBS, Canada, Quebec

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## **1. Introduction**

Studies pertaining to the internationalisation of SMEs have focused mainly on understanding the international activities of firms as they extend their activities to foreign markets. In other words, scholars have been interested in ‘how firms internationalise.’ Attention has generally been attributed to factors internal to the firm or to those particular to host markets. As a result, our understanding of the effect of the firm’s local external environment on its internationalisation is limited (Freeman & Styles, 2014; Fernhaber & Li, 2013; Freeman, Styles, & Lawley, 2012; Zahra & George, 2002). It has been suggested, however, that new venture internationalisation is linked to the resource endowment of the local environment (Cainelli, Di Maria, & Ganau, 2014; Herstad & Ebersberger, 2013; Becchetti & Rossi, 2000). Surprisingly, few empirical studies have focused on the internationalisation of firms embedded in different geographical contexts. Still fewer studies have examined variations in internationalisation activities across firms, and analysed how different geographical contexts influence their ability to internationalise.

This is a gap in the literature on the link between internationalisation and location since studies have largely neglected to differentiate firms by regional context (Herstad and Ebersberger, 2013; Fernhaber and Li, 2013). This paper explores the ways in which the international activities of knowledge intensive business services (KIBS) firms vary across different regional contexts. An important issue we address is related to the limited empirical evidence on the association between internationalisation and KIBS. Studies have neglected to examine whether proximity to or location in a given region—metropolitan areas in the case of KIBS firms—will influence the propensity to internationalise (or not). Although the KIBS sector is not as globally connected as manufacturing or high technology sectors, it is populated by rapidly growing small and medium-sized enterprises. KIBS are sources, facilitators and carriers of innovation (Doloreux & Shearmur, 2012; Di Maria,

Grandinetti, & Di Bernado, 2012; Sundbo & Toivonen, 2012). They are recognized as an important knowledge resource in support of innovation within the innovation system infrastructure (Aslesen & Isaksen, 2007; Cooke & Leydesdorff, 2006), and in developing competitive advantage through their participation in regional innovation systems (Doloreux & Shearmur, 2012; Muller & Doloreux, 2009). Their interactions with client firms also affect the production and diffusion of knowledge in national innovation systems (Muller & Zenker, 2001). Importantly, with the rise of the knowledge-based economy, KIBS are an increasingly active sector in international trade (Mattoo, Stern, & Zanini, 2008; Miles, 2005).

However, two important questions have yet to be addressed. First, how and to what extent are the internationalisation activities of KIBS firms linked to the configuration of regional institutional and industrial features? Second, to what extent do these activities vary across different regional contexts?

This issue should be of interest to scholars of entrepreneurship and strategic management as well as policymakers who question the relationship between geographical location and internationalisation. This research may provide insight for firms trying to decide whether a given location is more conducive and advantageous to internationalisation activities. Policymakers attempting to increase regional advantages through firm internationalisation will also find value in this work as it may help them define and develop policies and strategies that support the activities of these firms.

## **2. Literature review**

### ***2.1 Knowledge-intensive business service firms and their internationalisation***

KIBS combine various types of highly specialised knowledge to develop and co-create solutions that respond to their clients' particular problems (Muller & Doloreux, 2009). Knowledge is both the firm's primary production factor and at the core of the service it offers (Miles, 2008). KIBS often require local proximity to their clients, as tasks are performed with intense interaction and co-operation between service supplier and client. Empirical findings suggest that proximity is critical to sharing tacit knowledge (Meliciani & Savona, 2014; Antonietti & Cainelli, 2011). In particular, ties to local knowledge stocks create relationships that have the form of networks (Koschatzky & Stahlecker, 2006). This translates into a greater propensity for KIBS firms to collaborate with local partners in areas where their client sectors are likely found (Herstad & Ebersberger, 2013). However, the increasing prevalence of intermittent face-to-face contact supplemented by electronic communications (Shearmur & Doloreux, 2014) may be altering this need for co-location with clients.

Firm internationalisation is generally defined as "expanding (activities) across country borders into geographical locations that are new to the firm" (Hitt, Hoskisson, & Ireland, 1994, p. 298). More specifically, it is suggested that internationalisation "may be captured as patterns of behavior, formed by an accumulation of evidence manifested as events at specific reference points in time" (Jones & Coviello, 2005, p. 292). Patterns are created as firms have recurrent responses to similar situations. Together, these patterns form a distinct internationalisation path (Kuivalainen, Saarenketo, & Puumalainen, 2012).

A firm's internationalisation can be conceptualised in terms of its extent and breadth (Casillas & Acedo, 2013; Zahra & George, 2002; Tallman & Li, 1996). 'Extent' refers to a firm's level of commitment to its internationalisation process and can be captured two ways (Casillas & Acedo, 2013). First, commitment to foreign sales as measured by the percentage of foreign sales on total sales (Sullivan, 1994). Second, resource commitment as measured by resource allocation associated with foreign market entry modes (Kuivalainen, Sundqvist, & Servais, 2007). Often, resource commitment is conceptualised by the degree of control associated with the chosen entry mode (Blomstermo, Deo Sharma, & Sallis, 2006). 'Breadth' refers to the range of countries in which the firm develops its business (Zahra & George, 2002), and is often measured by the number of countries to which the firm exports or in which it has established presence. Together, these measures provide an indicator of the degree of internationalisation of the firm, which in turn captures the firm's level of international involvement at a particular point in time (Kuivalainen et al., 2007). Internationalisation may also be characterised by 'time to internationalisation,' that is, the time lag between the firm's creation and its first international activity (Kuivalainen et al., 2012; Jones & Coviello, 2005; Autio, Sapienza, & Almeida, 2000).

Internationalisation is of interest as it is often viewed as a strategic choice (Sapienza, Autio, George, & Zahra, 2006; Autio et al., 2000; Zahra, Ireland, & Hitt, 2000). Activities in foreign markets allow firms to expose themselves to greater knowledge diversity (Fletcher, Harris, & Richey, 2013; Fletcher & Harris, 2012; Zahra et al., 2000). It also provides them with impetus for rapid growth, as they are required to 'learn how to grow' and to generate routines to support entry into foreign markets (Sapienza et al., 2006). Empirical findings further suggest that knowledge intensity and diversity in knowledge types have positive effects on firm internationalisation (Hilmersson, 2014; Casillas & Moreno-Menéndez, 2013; De Clercq, Sapienza, Yavuz, & Zhou,

2012). Yet, not all firms internationalise. Pursuing internationalisation requires resource and capability endowments linked to both the founder and the firm that are heterogeneously distributed among firms (Freeman & Styles, 2014; Sui & Baum, 2014; Prange & Verdier, 2011; Ekeledo & Sivakumar, 2004; Westhead, Wright, & Ucbasaran, 2001). Firms of all sizes are rational and efficient in choosing a path to internationalisation that best fits their resource endowment (Sui & Baum, 2014; Mudambi & Zahra, 2007).

KIBS are produced and delivered either on the basis of projects such as in engineering and architecture or on an ongoing basis such as in law and accounting firms. As such, the nature of the service has an impact on its internationalisation process (Malhotra & Hinings, 2009; Ball, Lindsay, & Rose, 2008). KIBS internationalisation must therefore consider the level of involvement with clients and the need for physical proximity necessary for service production and delivery. The importance of human capital cannot be overlooked because it is most often the vehicle by which services are produced and delivered. Indeed, empirical evidence shows that internationalisation in knowledge-based services depends on the availability of human and relational resources within the firm, (Hitt, Bierman, Uhlenbruck, & Shimizu, 2006). However, these resources are intangible and highly mobile, and most often sourced from the firm's proximate local environment. To the extent that the firm's geographical location impacts its access to networks, infrastructure and services associated with internationalisation, then location is an antecedent to firm resources and capabilities (Freeman & Styles, 2014; Freeman et al., 2012). This could impact KIBS internationalisation in two important ways. First, KIBS require a certain proximity to skilled and specialised talent pools in their domestic market to provide their clients knowledge-based services. Second, as discussed below, a firm's internationalisation is thought to depend primarily on the development of its network(s) and position within these structures.

It is suggested that network theory best explains service firm internationalisation (Coviello, 2006). Networks play an important role in the internationalisation of new ventures by opening doors and providing market access, financing, distribution channels, referrals and a pool of contacts (Coviello, 2006; Oviatt & McDougall, 1994). Relationships formed at the firm's creation stage may provide increased social capital, which includes access to resources and international opportunities (Coviello & Munro, 1995; Coviello, 2006; Coviello & Munro, 1997). They also act as a means to overcome liabilities of newness and foreignness (Coviello, 2006). Importantly, network ties are a source of knowledge to support internationalisation (Fletcher & Harris, 2012). However, in recent empirical studies that have examined internationalisation from a network perspective (e.g., Hohenthal, Johanson, & Johanson, 2014; Ellis, 2011; Musteen, Francis, & Datta, 2010), the geographical location of firms within their domestic market is neither explicitly acknowledged nor expected to influence the network structure of the firm. These studies generally assume that business and social networks do not differ by regional context, and that a firm's access to networks in a metropolitan region is similar to a firm's access in a remote peripheral region. It should also be noted that few observations are drawn from remote regions, making the study of these different contexts problematic.

Notwithstanding these assumptions, there are some indications in the literature that networks may differ by region. As firms must either build new networks or buy into them by hiring staff (Loane & Bell, 2006), firms located in urban economies like metropolitan regions may have an advantage. The highly skilled professionals required by KIBS are often located in urban centres, and concentrations of KIBS firms are characterised by inter-firm labour mobility (Aslesen, Isaksen, & Stambol, 2008). Conversely, firms located in peripheral regions encounter more limited

knowledge supply bases in the form of available human capital (O'Farrell, Zheng, & Wood, 1996). As such, location near a metropolitan area allows for geographical proximity to network ties that may play a determining role in defining a KIBS firm's network at the time of its creation. Moreover, geographical proximity to knowledge partners such as universities and research centers is important to KIBS when establishing a collaborative relationship (Johnston & Huggins, 2015). As such, firms located in peripheral regions may find themselves restricted by the lower number of potential network partners (Tödtling & Trippel, 2005). However, this assumption is beginning to garner some attention, as scholars are finding firms in peripheral regions can acquire knowledge and counter resource deficiencies associated to their location (Mudambi & Santangelo, 2015; Virkkala, 2007). We argue below that extant literature in economic geography and international business – exceptions such as Shearmur & Doloreux (2014) and MacPherson, (2008) notwithstanding – suggests a KIBS firm's location in a metropolitan region will increase its likelihood of establishing network connections that improve its probability for internationalisation. Further, we suggest that the regional context in which a firm originates influences its internationalisation.

## ***2.2 Regional context, internationalisation, and KIBS***

Prior to its internationalisation, a firm's local domestic market has an impact on its access to resources (Becchetti, De Panizza, & Oropallo, 2007; Hervás-Oliver & Albors-Garrigós, 2007). Scholars show that certain locations are more conducive to knowledge spillovers than others (Cainelli et al., 2014), to the extent that entrepreneurs should be mindful of where they establish their firms (Fernhaber, Mcdougall-Covin, & Shepherd, 2009). Metropolitan regions are considered high-points of interaction and provide access to global markets (McCann, 2007; Shearmur, 2010). This in part explains the high concentration of KIBS firms in metropolitan regions (Polèse &

Shearmur, 2006). Metropolitan regions act as nodes of national and international knowledge transfer and sharing. In a metropolitan region, KIBS have various opportunities to use information and knowledge generated within the region and elsewhere. As such, they integrate more easily into national and international information and knowledge exchange channels through global networks (Bathelt, Malmberg, & Maskell, 2004). Metropolitan regions also provide better access to markets and suppliers, to a qualified and diverse labour force, to specialised business services, and to a developed technological and transport infrastructure (Tödtling & Trippl, 2005).

In the field of international business, studies pertaining to geography most often examine decisions about the choice of host location rather than the effect of home location on internationalisation. For instance, Freeman et al. (2012) suggest that, as location is an antecedent for firm resources and capabilities, it provides explanation for a firm's export performance. Similarly, Cainelli et al. (2014) find that the location of domestic operations influences exports. Firms located in specialised areas, as well as those located in areas characterised by the presence of firms in different but related industries, are better positioned to acquire information about foreign markets. Lejpras (2015), too, finds that proximity to various types of support from regional institutions promotes exporting in manufacturing SMEs.

In the case of KIBS, Herstad and Ebersberger (2013) observe that firms in peripheral regions have a broader market presence. They propose that the reach for extra-regional markets from peripheral KIBS is as strong as the enabling effect of resources that are specific to urban areas. However, KIBS located in an urban region have additional advantages derived from location. Not only are those firms associated with stronger involvement locally and abroad, they also draw on a broader range of local collaborations. While KIBS in other regions also make use of collaborations, they

have a significantly lesser effect on foreign market presence. Firms located in metropolitan regions benefit from simply ‘being there.’ As such, Herstad and Ebersberger (2013) conclude that the resources that comprise each region affect growth potentials of KIBS establishments, such that KIBS are inherently dependant on their surrounding local conditions.

Building on network theory of internationalisation, other empirical findings suggest that positive effects on firm internationalisation come from firms exchanging relevant information and knowledge with members also located in dense geographic regions with whom they have established close social relationships (Belso-Martínez, 2006). As KIBS are predominantly located in areas proximate to their clients, they may pursue internationalisation activities similar to those of their clients, or in response to those of their clients (Winch, 2014; Lommelen & Matthyssens, 2005). Newly created firms are more reliant on their local external environment than older established firms (Stuart & Sorenson, 2003). Fernhaber and Li (2013) find that international exposure from geographically proximate firms enhances internationalisation in new firms. Their results provide some evidence of the importance attributed to the surrounding local environment in determining the degree of internationalisation in new, young firms. Keeble et al. (1998) suggest a simultaneous and potentially complementary importance of both global and local networks with respect to firm internationalisation and growth. In particular they argue that the embeddedness and networking linkages of knowledge-intensive—in their study, technology-based—SMEs within a particular local milieu are linked to favorable internationalisation outcomes. Their findings and those previously cited suggest that internationalisation is grounded in local conditions, which include, among others, successful local networking, and research collaboration.

However, the relationship between the firm's domestic location and its internationalisation remains unclear. First, increased competition in urban regions (Porter, 2003) may hamper internationalisation by constraining a firm's ability to gather or access resources (Fernhaber, Gilbert, & McDougall, 2008). Indeed, the benefits of being located in a cluster continue to be discussed—and disputed—in the economic geography literature (Shearmur & Doloreux, 2009). Rather, insights from studies pertaining to KIBS suggest differences in knowledge bases associated with different KIBS sectors explain why some may benefit more from location in metropolitan areas than others (Tether, Li, & Mina, 2012). Second, globalisation may be eroding the influence exerted by industrial districts on internationalisation activities (Pla-Barber & Puig, 2009). Although district firms demonstrate a more accelerated pattern of internationalisation than non-district firms, the effect of intensity and speed of export becomes less important as globalisation increases. Also, globalisation is shifting the concentration of KIBS firms from metropolitan areas towards 'second-tier globalization arenas,' as they gravitate towards other regions based on a combination of proximity to a metropolis, economic base, and local conditions (Romero, Solís, & De Ureña, 2014). Third, as high-speed internet connection has become omnipresent over the last fifteen years or so, KIBS are decreasingly tied to their local clientele (MacPherson, 2008), and, conversely, they are able to innovate (an activity which, like exports, relies on networks and connections) from non-metropolitan locations (Doloreux & Shearmur, 2012). Indeed, Howells (2012) notes that information and knowledge have become 'ubiquitous' and 'geographically accessible.' However, he also acknowledges that knowledge workers, a central resource in KIBS, are becoming more sub-divided and fragmented spatially. As such, it is uncertain whether KIBS firms may overcome constraints imposed by their regions.

On the basis of the considerations set out in the previous sections, this paper examines the extent to which KIBS' internationalisation activities differ across different regional contexts. In order to do so, the study focuses on the following research question: to what extent does the international orientation of KIBS, as captured by the extent and breath of their international activities and their time lag to internationalisation, differ across different regional contexts?

### **3. Research design and analysis**

Data in this paper were collected between February and September 2014 as part of a wider original survey on strategies adopted by KIBS firms in the province of Quebec, Canada. The population from which the sample is selected is the *Centre de Recherche Industrielle du Québec* Business Directory, which contains 2511 KIBS firms classified as 'Professional, Scientific and Technical services.' The sample used for this study consists of 502 randomly selected firms and stratified according to three types of geographic context, for a response rate of 20.1%. From this sample, we extract a sub sample of 156 KIBS: those that indicated international sales. By doing so, we exclude all KIBS that limit their activities to their domestic market. This sub-sample is used to conduct analyses of the extent and breadth of internationalisation, but our exploration of whether or not firms internationalise uses the full sample.

The survey was completed via computer-assisted telephone interviews. Internationalisation activities were captured through questions on the extent and breadth of internationalisation, as well as the year the firm began serving markets outside its provincial and national markets. Respondents were also asked to specify internal and external knowledge sources used by the firm. Additional information was gathered on firm characteristics, such as size, sector, and age.

The *extent* of the firm's internationalisation is captured using two measures (Casillas & Acedo, 2013). First, respondents provided the percentage of sales across provincial, national, and international markets. This provides us with sales accrued in foreign markets (Sullivan, 1994)(Sullivan, 1994)(Sullivan, 1994)(Sullivan, 1994), a classic measure for scale of internationalisation (Kuivalainen et al., 2012). Second, data were gathered on foreign market entry modes. This measure allows us to determine the resource commitment made by the firm in its foreign markets (Kuivalainen et al., 2007). The *breadth* of the firm's internationalisation is captured using the number of countries in which the firm has at least one client (Zahra & George, 2002). The time lag between the firm's creation and its internationalisation is measured by subtracting the year the firm began its international activities from the year the firm was created, as identified by respondents (Kuivalainen et al., 2012).

The regional classification used in this research is based on Shearmur and Polèse (2006). As table 1 shows, we have the main metropolitan areas of the province of Quebec: the agglomerations of Montreal (4 million people) and Quebec City (800 000 people). By agglomeration we mean labour-market area, defined by Statistics Canada. Central cities are those within an hour's to an hour and half's drive from the agglomerations' centres (the limit is approximate given the spatial units). These cities interact strongly with the agglomerations and have specific economic profiles: they are composed of many light-manufacturing industries (textile, plastic, machinery, furniture), of businesses in the tourism industry, and also firms in the primary sector, mostly agriculture or mining (for construction materials) (Shearmur & Hutton, 2011). Finally, we identify peripheral cities, those that qualify neither as agglomerations nor as central. These are in regions known in the province of Quebec as 'resource regions', dominated by resource extraction and first transformation industries.

Table 1. Typology of regions

<b>Types of region</b>	<b>Size criteria</b>	<b>Distance criteria</b>	<b>Cities/regions</b>
Metropolitan areas	Population over 500,000		Montreal Quebec city
Central towns	Population 50 000 to 200 000	Located within an hour's drive of a metropolitan area/ Located beyond an hour's drive of a metropolitan area	Drummondville Granby Saint-Hyacinthe Saint-Jean-sur-Richelieu Victoriaville Sherbrooke Shawinigan Trois-Rivières
Peripheral towns	Population 15 000 to 150 000	Located beyond an hour's drive of a metropolitan area	Amos Rimouski Rouyn-Noranda Saguenay Val d'Or

The analysis is conducted using non-parametric statistical tests. Pearson's chi-squared is used as a test of independence to assess whether a firm's geographic location is associated with internationalisation. The variables examined are all categorical in nature. The first encompasses the firm's domestic geographical location: firms are categorised by their location either in a metropolitan region (Montreal or Quebec City), a central city, or a peripheral city. Second, three variables encompass the firm's internationalisation. To capture the extent of their internationalisation, firms are categorised by percentage of sales completed abroad: i) firms with no international sales (0%); ii) firms with ad hoc international sales (1-24%); and, iii) firms with established international sales (25%-100). This categorisation is aligned with the literature (Knight & Cavusgil, 2004), and recent empirical studies (Rodríguez & Nieto, 2012; Ripolles Meliá, Blesa Pérez, & Roig Dobón, 2010). To capture the breadth of their internationalisation, firms were categorised by the number of countries in which they have foreign sales (McNaughton, 2003; Zahra et al., 2000). The first class captures firms with limited international breadth (1 country), the second with moderate international breadth (2-4 countries), and the third with high

international breadth (5 and more countries). To capture the time lag to internationalisation, firms were categorised by the number of years between their creation and their first international sale: 0-3 years, or more than 3 years. These categories have been previously adopted in the literature, often used to differentiate born global firms to traditional international firms (Knight & Cavusgil, 2004).

The KIBS establishments that reported some international activities comprise the subsample described in the upper portion of Table 2. As a whole, the dataset is representative of the underlying population in terms of KIBS sectors. The sample is also representative of the geography of Quebec's KIBS establishments based on the regional classification used that distinguishes between metropolitan regions, central and peripheral ones.

Table 2. The sample of knowledge-intensive business services in the questionnaire

	Location of the KIBS firms				Total (n=156)
	Montreal (n=79)	Quebec (n=36)	Central regions (n=21)	Peripheral regions (n=20)	
<b>Number of internationalised KIBS (n=156)</b>					
Architectural, engineering and related services	16	10	5	9	40
Management, scientific and technical consultants	17	8	3	5	33
Computer systems design and related services	29	8	9	4	50
Others professional KIBS	10	4	1	1	16
Others creative KIBS	7	6	3	1	17
<b>As % of sampled KIBS (n=504)</b>					
Architectural, engineering and related services	34.0	37.0	19.2	39.1	32.5
Management, scientific and technical consultants	31.4	26.6	21.4	35.7	29.4
Computer systems design and related services	40.8	25.8	42.8	50.0	38.1
Others professional KIBS	31.2	23.5	8.3	12.5	23.1
Others creative KIBS	20.0	28.5	37.5	33.3	25.3

## 4. Descriptive results

### 4.1 Characteristics of international KIBS

Although the literature suggests that differences exist between regions with respect to the characteristics of internationalised KIBS, table 3 shows that internationalised KIBS firms share many characteristics, irrespective of location. There is no statistically significant difference with respect to size, year of creation, legal status, and KIBS sector. Overall, irrespective of the location, most KIBS are small, established after 1990, very few are subsidiaries, and the proportion of independent and headquarter firms per region varies very little. While all sectors are well represented across, we find a larger proportion of computer systems design and related services in central regions, and architectural, engineering, and related services in peripheral regions.

Table 3. Descriptive statistics of internationalised KIBS by region (%)

	Location of the KIBS firms					Total
	<i>N=156</i>	Montreal	Quebec	Central regions	Peripheral regions	
	<i>Numbers of KIBS</i>	79	36	21	20	156
<b>Size (employment)</b>						
1 to 9		32.9	38.9	47.6	50.0	38.5
10 to 24		35.4	30.6	23.8	20.0	30.8
25 to 49		15.2	16.7	4.8	25.0	15.4
More than 50		16.5	13.9	23.8	5.0	15.4
<b>Year of creation</b>						
Before 1990		22.6	29.0	10.0	15.8	21.2
1990-1999		46.8	45.2	60.0	63.2	50.8
2000 and later		30.6	25.8	30.0	21.1	28.0
<b>Legal Status</b>						
Independent		57.0	52.8	47.6	60.0	55.1
Headquarter		41.8	41.7	52.4	35.0	42.3
Subsidiary		1.3	5.6	0.0	5.0	2.6
<b>KIBS sector</b>						
Architectural, engineering and related services		20.3	27.8	23.8	45.0	25.6
Management, scientific and technical consultants		21.5	22.2	14.3	25.0	21.2
Computer systems design and related services		36.7	22.2	42.9	20.0	32.1
Others professional KIBS		12.7	11.1	4.8	5.0	10.3
Others creative KIBS		8.9	16.7	14.3	5.0	10.9

\* Sig.  $\leq 0.1$ .; \*\* Sig.  $\leq 0.05$ .; \*\*\* Sig.  $\leq 0.01$ .

## **4.2 *Extent of internationalisation***

### **4.2.1 *Foreign sales***

The surveyed firms were asked to estimate the percentage of sales over the last three years completed in foreign markets (Table 4). First, a large percentage of firms have no international sales and are truly domestic. Although fairly consistent across regions, this percentage is slightly higher in central regions (68.8%). Of the firms that reported international sales, most have modest (or ad-hoc) international sales ranging from 0-24% of their total. Ad hoc activity is quite evenly distributed across regions. With respect to firms with greater international sales (more than 25% of total sales), we also observe little differences across regions although one is worthwhile noting. Montreal and peripheral regions have a larger share of internationalised KIBS firms than Quebec City and central regions. This result does support the idea that location in a metropolitan area, and thus proximity to dense networks, results in a greater likelihood of internationalisation. However, the lower percentage of internationalised firms in Quebec City may reflect the nature its economic structure, dominated by government. The higher percentage of internationalised firms in peripheral regions may reflect their inherent need or inclination to look for sales beyond their domestic market. It may also be the case that these firms, predominantly architectural and engineering consultants, have developed expertise related to resource extraction and transformation which can readily find international clients.

Table 4. International sales by region (%)

	Location of the KIBS firms				
	Montreal	Quebec	Central regions	Peripheral regions	Total
Numbers of KIBS	205	110	64	50	429
0% - Domestic	60.5	65.5	68.8	60.0	63.0
1-24% - Ad hoc international	22.9	23.6	20.3	24.0	22.8
≥ 25% - Internationalised	16.6	10.9	10.9	16.0	14.2

\* Sig. ≤ 0.1.; \*\* Sig. ≤ 0.05.; \*\*\* Sig. ≤ 0.01.

#### 4.2.2 Entry mode to international markets

Exporting firms were asked to identify the entry modes used during the course of their internationalisation (Table 5). Across all regions, we see a preponderance of low commitment, low control entry modes such as export, licensing, and contracts. This supports the idea that KIBS firms encounter fewer barriers to internationalisation than more capital intensive services, and make do with low control entry modes (Ball et al., 2008). There are no regional differences.

The absence of regional differences could be indicative of a greater importance attributed to firm-level antecedents that are not strongly related to the firm's local environment. We do see a slight tendency for firms in peripheral and central regions to favor high control entry modes, and for firms in metropolitan areas to favor low control entry modes. We question whether the firm's ease of access to its foreign partners influences whether it believes contractual modes of entry such as export, contracts and licensing are sufficient, or whether it should incur greater cost, control and commitment and invest to establish a physical presence in the foreign markets in which the firm has activities. However, these differences are not statistically significant.

Table 5. Entry modes for foreign market penetration by region (%)

		Location of the KIBS firms				
		Montreal	Quebec	Central regions	Peripheral regions	Total
<i>Numbers of KIBS</i>		77	35	19	20	151
Low resource commitment, low control mode	Intra-firm sales	14.3	20.0	21.1	15.0	16.6
	Exportation	66.2	51.4	68.4	55.0	61.6
	Licencing	26.6	25.7	15.8	20.0	23.8
	Contracts	19.5	25.7	10.5	20.0	19.9
	Franchises	2.6	0.0	0.0	5.0	2.0
High resource commitment, high control mode	Joint-venture	10.4	8.6	10.5	5.0	9.3
	Partial acquisition	0.0	5.7	5.3	0.0	2.0
	Total acquisition	3.9	5.7	15.8	5.0	6.0
	Subsidiary	15.6	8.6	15.8	20.0	14.6

\* Sig.  $\leq 0.1$ .; \*\* Sig.  $\leq 0.05$ .; \*\*\* Sig.  $\leq 0.01$ .

### 4.3 *Breadth of internationalisation*

Firms were asked to identify the number of countries in which they have sales activities with at least one client (Table 6). There are no significant differences across the regions, although a weak pattern emerges. A greater proportion of firms in metropolitan regions have a small breadth of internationalisation. As we move away from these regions the share of firms with greater breadth of internationalisation increases. This observation is counter-intuitive; we would have expected location in a metropolitan region to increase the breadth of internationalisation. It is thought that firms located in areas with densely connected networks, such as in Montreal and Quebec City, reap greater positive effects from their internationalisation by exchanging information and knowledge with proximate members with whom they have established close social relationships (Belso-Martínez, 2006). This further emphasises our need for greater insight into *how* firms, irrespective of their location, come to connect with their network partners, access relevant knowledge and information, and come to enact opportunities abroad. It also highlights the need to consider why some KIBS operate out of remote regions in the first place: their location decision may be a rational strategy linked to clients in the resource and extractive sectors, and their knowledge may be derived not from local networking but from engagement in highly specialised activities.

Table 6. Number of countries with foreign sales by region (%)

	Location of the KIBS firms				
	Montreal	Quebec	Central regions	Peripheral regions	Total
<i>Numbers of KIBS</i>	<i>79</i>	<i>36</i>	<i>21</i>	<i>20</i>	<i>156</i>
1 country	26.6	19.4	14.3	10.0	21.2
2 to 4 countries	48.1	61.1	57.1	60.0	53.8
5 or more countries	25.3	19.4	28.6	30.0	25.0

\* Sig.  $\leq 0.1$ .; \*\* Sig.  $\leq 0.05$ .; \*\*\* Sig.  $\leq 0.01$ .

#### 4.4 Time lag to internationalisation

The surveyed firms were asked to identify the year in which they began to sell to clients in foreign markets (Table 7). The results reveal, again, there are no systematic regional differences. Firms from all regions generally internationalised within three years of their creation. Although not statistically significant, it is noteworthy that firms located in central and peripheral regions internationalise slightly earlier than firms in metropolitan regions. This finding supports the idea that metropolitan regions provide an industrial context that can either be sufficiently prosperous for firms to maintain a domestic orientation, or conversely, foster increased levels of competition which render internationalisation more difficult (Fernhaber et al., 2008). This, again, suggests a firm's location is not necessarily indicative of the resources to which it has access, and provides further evidence that it is not where a firm is domestically located that characterises its internationalisation.

Table 7. Time lag to internationalisation by region (%)

	Location of the KIBS firms				
	Montreal	Quebec	Central	Peripheral	Total

<i>Numbers of KIBS</i>	<i>47</i>	<i>28</i>	<i>regions</i>		<i>108</i>
			<i>16</i>	<i>17</i>	
Early international (0-3 years)	71.7	65.6	81.3	76.5	72.0
Traditional international (more than 3 years)	28.3	34.4	18.8	23.5	28.0

\* Sig.  $\leq 0.1$ .; \*\* Sig.  $\leq 0.05$ .; \*\*\* Sig.  $\leq 0.01$ .

#### **4.5 Sources of knowledge used by KIBS**

Important similarities in knowledge sources are observed across all regions (Table 8): KIBS firms make use of several knowledge sources, and of greater importance are internal staff, clients, and the Internet. Since our previous findings do not show any systematic differences across regions with respect to internationalisation activities, we can argue that at the firm-level, KIBS establishments overcome limits or barriers related to their local knowledge providers. This is done by fostering network relationships that provide access to knowledge, information, and resources outside their local environment. Firms in Quebec City and in peripheral regions make greater use of conferences and tradeshows as knowledge sources. These events gather individuals with similar or complementary business objectives and provide them with the benefit of close interaction, albeit temporarily, with potential network partners. They may provide the opportunities necessary to overcome the limitations of sparse local contexts, and allow otherwise isolated firms to network. We also observe the importance of investors as knowledge sources in firms located in central and peripheral regions. Investors would arguably have access to wide, far reaching networks which could help firms outside metropolitan regions overcome regional barriers. The examination of knowledge sources thus allows for greater insight into how firms may overcome resource endowment limitations in their respective region by choosing knowledge sources that supply them with access to knowledge and resources critical to their internationalisation. These knowledge sources are not necessarily in the same geographical location as the firms, and as such may act in themselves as nodes connecting firms irrespective of

their regional domestic market. Conversely, some of these sources may be local, but the knowledge may be of a type only found and developed in particular types of region (such as expertise linked to resources and their transformation).

Table 8. Sources of knowledge used by region (%)

	Location of the KIBS firms				Total
	Montreal	Quebec	Central regions	Peripheral regions	
<i>Numbers of KIBS</i>	<i>79</i>	<i>36</i>	<i>21</i>	<i>20</i>	<i>156</i>
Internal staff	97.5	100.0	100.0	100.0	98.7
Client	93.7	100.0	100.0	95.0	96.2
Supplier	70.9	66.7	66.7	55.0	67.3
Consultant	60.8	55.6	61.9	40.0	57.1
Commercial laboratory	5.1	8.3	14.3	10.0	7.7
University	27.8	38.9	47.6	30.0	33.3
Technical institute	6.3	19.4	19.0	25.0	13.5
Government laboratory	10.1	11.1	23.8	20.0	13.5
Private research institute	6.3	5.6	9.5	5.0	6.4
Conference or tradeshow	50.6	69.4	52.4	70.0	57.7
Internet	92.4	86.1	95.2	100.0	92.3
Investor	15.2	19.4	28.6	30.0	19.9
Other firm within group	21.5	19.4	23.8	30.0	22.4

\* Sig.  $\leq 0.1$ .; \*\* Sig.  $\leq 0.05$ .; \*\*\* Sig.  $\leq 0.01$ .

## 5. Conclusions and discussion

The objective of this paper was to shed light on the internationalisation activities of KIBS and the extent to which these activities vary across different regional contexts.

Two important findings are derived from our analyses. The first is that there are no statistically significant differences in the international activities of firms across different types of regions. Our findings are contrary to those of Herstad and Ebersberger (2013) who suggest that KIBS are inherently dependent on surrounding local conditions and that the networking potential of firms

located in peripheral regions is limited. Similarly, they also conflict with those of Fernhaber et al. (2008) who propose that location near a metropolitan area may be advantageous for a new venture's internationalisation intensity and scope. Moreover, our findings provide a caveat to those of Fernhaber and Li (2013) who find that informal (geographically proximate firms) and formal (alliance partners) network relationships influence firm internationalisation, and that these two types of relationships may substitute one another. Further examination of the complex relationship between regional domestic location and internationalisation is warranted and could provide an explanation for where and why firms develop network ties to support them in their internationalisation. Moreover, with respect to the conflicting findings from this present study to those identified above, we believe a reasonable explanation may come from the interaction between firm-level and regional-level factors. Specifically, an important source of heterogeneity within KIBS is the degree of service standardisation and client interaction (Tether, Hipp, & Miles, 2001). These characteristics influence how firms support their activities within and beyond their regional markets, as in many cases, they must develop relational capabilities which allow them to create temporary proximity with their clients (Bettiol, Di Maria, & Grandinetti, 2011; Bettiol, De Marchi, Di Maria, & Grandinetti, 2013). Rather than differing on the basis of location, firms may differ on the basis of these capabilities which support their ability to leverage network relationships, use technologies to facilitate network interactions, and develop cooperative relationships (Bettiol et al., 2013). On this basis, differences may exist in how these capabilities are developed and used by firms between regions.

The second result is that, since there are no systematic regional differences when examining international activities, other factors may explain how the local environment affects a firm's internationalisation. We could argue that there is equifinality in how firms access resources and

transform their capabilities to enact international opportunities. This would in part explain the absence of differences between regions. In alignment with the works of Bettiol et al. (2011, 2013), we put forward the idea that firms embedded in a specific type of local environment develop firm-level capabilities that allow them to overcome regional barriers and resource deficiencies associated with their environment, and to capitalize on the unique resources endowments proper to their regional profile. We suggest that the resources related to the regional endowment may influence the capabilities developed at the firm level. Specifically, we propose that region-specific resources, particularly with respect to knowledge, may influence the international orientation of firms embedded in them. Evidence of this may be observed in our study by the slight concentration of certain types of services in specific regions; the most interesting case being the preponderance of architectural, engineering and related services in peripheral regions. Other determining factors of interest are those related to the innovation system within which the firm operates. In alignment with international network theory, by identifying whether firms are influenced by a regional, national, or supra-national innovation system, scholars could better assess the influence of components from its industrial and institutional subsystems, often with which firms create network linkages that allow them to access new information and knowledge. Consequently, these lines of questioning may further our understanding of how KIBS firms located in a wide variety of regional contexts come to exhibit similar patterns of internationalisation activities across regions.

The absence of difference in the international activities of firms across regions has important implications with respect to managerial practice and public policy. There is cause for concern when it is suggested entrepreneurs should locate their firms in proximity to knowledge spillovers in view of internationalisation (Fernhaber et al., 2009). Our results nuance the relationship

between the domestic location of a firm and its internationalisation activities. Entrepreneurs should not assume firms located in metropolitan areas benefit from advantages related to knowledge spillovers and access to network partners. Rather, additional attention should be attributed to developing network relationships with a diverse set of actors that allow the firm to overcome knowledge deficiencies associated with both the firm's internal resources, and its local environment. In a related sense, public policies pertaining to the international trade of services should recognize the importance of network ties, and foster instances where entrepreneurs widen and reinforce their network partnerships outside their domestic market.

As in all research, this empirical work has its limitations. First, we acknowledge that while our sample is representative of the province of Quebec with respect to sector and geography, it does not represent all KIBS industries equally. Future studies could focus on certain KIBS sectors or other services as different industries could differ in their engagement with international activities. Second, the findings of this study are limited to a single industry sample and a single industrial context. Of course, the external validity of this study needs to be examined in other industries and in other contexts, especially given the high heterogeneity in international strategies (Sui & Baum, 2014; Kuivalainen et al., 2012). Third, our data is cross-sectional and therefore, cannot give any indication of causality. Though we believe our results provide a good starting point for studying the complex relationship between domestic geographic location and internationalisation, future studies could benefit from adopting a longitudinal research design.

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