

The Internationalization of Small Professional Service Firms: An Organizational Learning Approach

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DEDICATION

This thesis is dedicated to the two women in my life whom I admire greatly. First, I dedicate this thesis to my mother. She has always supported me in my pursuit of further studies, and her continuous encouragements were a source of great strength and motivation during this Master's degree. Secondly, I dedicate this thesis to my mentor and thesis supervisor, Dr. Martine Spence. Throughout the research process, she has always remained patient and supportive, and provided me with thoughtful critique and guidance. I thank them both for fostering my creativity while making sure I kept my eyes on the end goal.

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À tous, mille mercis.

ABSTRACT

The purpose of this study is to examine how the internationalization process in small firms impacts their resource base renewal. The relationships between organizational learning, dynamic capabilities, operational capabilities and resources are empirically examined to determine the impact of internationalization on changes to the firm's resource base. The empirical analysis follows a multiple case study research methodology and is based on in-depth case studies of four internationalized professional service firms in Ontario. Cases include born-global and born-again global firms, exemplifying both location-based and knowledge-based services. The study finds evidence supporting the relationships between internationalization, organizational learning and planned change via dynamic capabilities, as well as internationalization, organizational learning and ad hoc problem solving. Findings also suggest that the firms' repetitive use of ad hoc problem solving when faced with similar situations leads to the creation of dynamic capabilities. This research adds to the existing body of literature on services, international entrepreneurship and strategy by responding to a call for empirical examination of organizational learning within the RBV and DC constructs. Furthermore, it also applies a novel theoretical framework with which to examine the impact of small firm internationalization and their strategic renewal. By doing so, this thesis extends the RBV and DC perspectives to small service firms. Findings demonstrate a need to further continue this research path to gain greater understanding of the change processes that occur during the evolution of the firm's resource base, as pertains to small knowledge-intensive service firms.

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1. INTRODUCTION

Over the last three decades, the globalization of markets, the significant decrease of international trade barriers, and the increased mobility of firms have dramatically changed the scale and scope of many businesses (Javalgi & Martin, 2007). Although early research examining the internationalization of firms focused attention on manufacturing firms, such is not the case in contemporary literature. The steady and significant rise in the service industry worldwide warrants a better understanding of these complex and heterogeneous firms. Several authors have underlined that services behave in ways that are different from manufacturing firms, thus rendering results based on samples of manufacturing firms invalid for some service sectors, given their complex nature (Erramilli & D'Souza, 1993; Erramilli, 1990). The ways in which firms penetrate foreign markets is one of multiple topics that provide evidence of fundamental differences between manufacturing and service firms and, more importantly, between types of service firms (Ball, Lindsay & Rose, 2008; Erramilli & D'Souza, 1993). In light of these differences, questions regarding how service firms internationalize remain unanswered. Although some services, such as public administration and health and social services, are not transferable or easily traded outside local markets, international trade plays an increasingly important role in other service sectors. More specifically, since the late 1990s, the Canadian art, entertainment and recreation, accommodation and food services, wholesale, transport and warehousing, and professional, scientific and technical service sectors have exported at least 15 percent of production to foreign markets. In fact, among the five major service industries mentioned above, a commercial surplus was gained in the latter three (Acharya, 2006).

The services landscape is vast and heterogeneous, characterized broadly by the intangibility, perishability, inseparability, and difficulty of standardization of business offerings (Lovelock, 1991; Zeithaml, Parasuraman & Berry, 1985). Since the early 1980s, scholars have recognized the need to further understand service firms. A recurring theme in their remarks has been the complexity of the services landscape, given that service sectors perform a wide variety of economic functions (Miles, 2008). For example, professional

service firms (PSFs) are defined as “those whose primary assets are a highly educated (professional) workforce and whose outputs are intangible services encoded with complex knowledge” (Greenwood, Li, Prakash & Deephouse, 2005, p. 661). They are characterized by high knowledge integration and their dependence on human capital, which impact their internationalization strategies. As these valuable intangible resources and capabilities are the firm’s source of rents, identifying how they are transferred, replicated and modified in foreign markets may provide an understanding of *how* the internationalization of a PSF impacts its resources and capabilities. To date, little has been written on how internationalization impacts a firm at a resource and capabilities level, a gap we must begin to address to further our understanding of internationalization in services.

Given that PSFs rely heavily on mobile and intangible resources often embedded in their human resources, the resources-based view (RBV), dynamic capabilities (DC) and organizational learning (OL) constructs are the theoretical perspectives adopted to conceptually frame this study. The theoretical underpinnings of this study are the RBV’s seminal works (Barney, 1991; Peteraf, 1993; Peteraf & Barney, 2003), and the theoretical advancements in dynamic capabilities (Eisenhardt & Martin, 2000; Teece, Pisano & Shuen, 1997) and higher-order capabilities (Collis, 1994; Winter, 2003). Organizational learning (Cohen & Levinthal, 1990; Crossan, Lane & White, 1999) is reviewed within the scope of higher-order capabilities, given the importance of knowledge-based resources and capabilities in PSFs. The RBV and DC perspectives provide the necessary theoretical foundation to identify and examine how firms develop and acquire resources, and then bundle them together to form firm-specific capabilities in an effort to create and sustain competitive advantages. Advancements in OL further explain how capabilities are created and modified, and how the firm’s resource base evolves.

1.1 Purpose of Research

The thesis explores a nascent area within the international entrepreneurship (IE), OL and strategy research fields. This study extends three important and popular theoretical perspectives in strategy and entrepreneurship—RBV, DC and OL—by exploring in exemplary case studies the evolution of firm resources and capabilities necessary to the

survival and success of small PSFs in foreign markets. Of particular interest are how resources are changed, acquired, developed or lost as a result of the firm's internationalization. The phenomenon examined is process driven and dynamic, not static nor fixed in time.

In knowledge-intensive service firms, knowledge assets are of primary importance as the service outputs are delivered by highly skilled employees who often embody these assets. Although the firm's knowledge base is a valuable resource, it alone cannot be the source of a sustainable competitive advantage. Only when valuable knowledge is bundled with OL processes can service firms achieve superior rents. Furthermore, resources—individually or bundled—may impact the firm differently depending on the context in which they are placed. Most of the work in this field has focused on large firms. Only recently has a small group of researchers begun examining organizational learning in small entrepreneurial firms (Jones & Macpherson, 2006; Macpherson & Holt, 2007; Macpherson, Kofinas, Jones & Thorpe, 2010; Jones, Macpherson & Thorpe, 2010; Higgins & Aspinall, 2011; Higgins & Mirza, 2011). Thus, very little is currently known about the internal processes associated with organizational learning and strategic renewal in small firms (Sadler-Smith, Spicer & Chaston, 2001).

By extending their geographic reach to foreign markets, firms gain access to rich information they can accumulate, absorb and codify to integrate into their existing knowledge base. The actions taken by the firm when it internationalizes call upon its ability to learn at the organizational level. First, it becomes important to identify how critical resources and capabilities are transferred to foreign markets to replicate competitive advantage. Second, it is equally as important to observe how the knowledge gained during the process of internationalization impacts these critical resources and capabilities on which competitive advantage is built. International involvement provides firms with the opportunity to exploit their existing knowledge base and to explore for new knowledge. This furthers the need to understand how firm resources and capabilities are affected by the firm's internationalization. Thus, the aim of this thesis is to examine, through case studies, the relationships that exist between internationalization, organizational learning, dynamic and

operational capabilities, and resources. By doing so, the study seeks to reduce the gap between abstraction of the RBV and DC constructs and empirical verification, which is scarce in internationalization literature.

1.2 Background and Motivation

Small businesses of fewer than 100 employees account for 98% of all employer businesses in Canada. Of those small enterprises, 79% operate in the service industry (Industry Canada, 2011). Services have increasingly become intricate parts of all global economies. In 2008, the World Trade Organization (WTO) reported that services represented more than two thirds of World Gross Domestic Product and an even higher percentage (73%) in developed economies (World Bank, 2008).

The Organization for Economic Co-operation and Development (OECD) has for some time recognized the importance of knowledge and information. As the OECD stated in 1995, “[k]nowledge is now recognized as the driver of productivity and economic growth, leading to a new focus on the role of information, technology and learning in economic performance. The term ‘knowledge-based economy’ stems from this fuller recognition of the place of knowledge and technology in modern OECD economies” (OECD, 1996, p. 3). With increased interest in the new ‘knowledge-based economy’, service firms are a subject of primary importance and preoccupation. The economic, social and political variations arising from information and communication technologies (ICTs) have further changed the landscape in which service firms operate. Rightly, service firms have gained attention since their contributions to the Canadian GDP and total employment have increased. Many believe that because these firms are heavy users of new ICTs and make up a major portion of knowledge-based industries, they are essential to the country’s prosperity (Acharya, 2006). However, according to the OECD, in comparison to all other G7 countries, Canada is the only country in which service sectors did not incur a steady increase in ‘total added value’ GDP between 1970 and 2000 (Acharya, 2006).

Similarly, Canada’s export balance in services is experiencing a continuously increasing deficit. Specifically, the country’s export balance in services has not been positive in more

than 20 years, a deficit that has been steadily increasing since 2002. To further illustrate the situation, the country's chronic deficit in services amounted to \$23.3 billion in 2010. By comparison, the Canadian export balance in manufacturing goods experienced positive growth from the 1960s to the 1990s (OECD, 2009). These data underscore a need to further our understanding of how international Canadian services learn and evolve.

That being said, not all Canadian service sectors show significant trade deficits¹. In 2010, Canada reported its first surplus in international services trade amounting to \$477 million. A sub-sector of commercial services is the professional service sector, which includes architectural, engineering and other technical services. This sector saw an increase of 13.1% in exports between 2009 and 2010, accounting for a trade surplus of \$769 million in 2010 (Foreign Affairs and International Trade Canada, 2011). Small and medium-sized businesses are predominant in the professional service sector; their sheer number in the Canadian economy warrants a closer examination. In 2008, approximately 120 000 small and medium-sized professional services firms were registered businesses, of which approximately 14 400 exported; comparatively, 15 680 SMEs in the manufacturing sectors reported exports (Industry Canada, 2011).

1.3 Thesis Outline

This thesis is divided into six chapters. This first chapter describes the importance of the professional services sector in the Canadian economy to initiate discussion of the study's research question. The literature review found in Chapter 2 considers the study's theoretical foundations: the resource-based view (RBV) and dynamic capabilities (DC). This is followed by a closer look at service firms and more specifically at PSFs. A review of internationalization pathways follows, where trade in service firms is discussed. A conceptual model and study propositions based on the RBV and DC perspectives is then

¹ Foreign Affairs and International Trade Canada groups together the following service sectors to form what it refers to as 'commercial services': communication services; construction services; insurance services; other financial services; computer and information services; royalties and licence fees; management services; research and development; architectural, engineering and other technical services; other miscellaneous services to business; and audio-visual services (Foreign Affairs and International Trade Canada, 2011).

presented. The study's research question, research design and methodology are presented in Chapter 3. Chapter 4 first presents the within-case analyses for all four cases; the cross-case analysis follows. Chapter 5 describes the study's findings and the implication of the theoretical model and study propositions. Chapter 6 concludes with theoretical and managerial implications, study limitations and future research directions.

2. LITERATURE REVIEW

2.1 Overview

The service industry has gained considerable importance over the last three decades; the majority of all developed economies now rely on services to generate more than half of their GDP (World Bank, 2008). A reason for the increase is explained by the liberalization of services trade worldwide. Although services have gained importance in the development of economies worldwide, they continue to be understudied in comparison to other industries such as high technology and manufacturing. This thesis seeks to further understand how small and medium-sized professional service firms (PSFs) evolve and remain competitive in foreign markets. PSFs are an important sub-sector within knowledge-intensive service firms, and although they have begun receiving attention from scholars, they remain understudied. The objective of this literature review is to identify concepts that explain organizational learning and resource base renewal during and after the internationalization of PSFs.

To this end, three streams of literature are examined. The first stream of literature considers the theoretical implications of this thesis's research question and covers the resource-based view (RBV) and dynamic capabilities (DC). The second looks specifically at services firms. A particular advancement in this field is the additional interest in knowledge as a critical intangible resource for the firm. As a result of the importance attributed to knowledge, organizational learning is also reviewed. Given that services are heavily traded across international borders, the third stream of literature focuses on the applicability of internationalization to services firms. This section also addresses the impact of organizational learning on the firm's international involvement. Building on the previous sections, the final section proposes a conceptual model to help explain the impact of internationalization on service firm resources and capabilities. The section concludes by summarizing the two propositions brought forward from the literature review.

2.2 The Resource-Based View and Knowledge as a Critical Resource

Service firms are characterized as a heterogeneous group comprised of enterprises that vary in terms of degree of intangibility, inseparability, customization and capital intensity. Some believe that heterogeneity accounts for the complexity of their study and the slower evolution of the services research field. This research grounds its theoretical framework in the resource-based view (RBV) and dynamic capabilities (DC) perspectives, as this conceptualization of the firm provides the foundation necessary to differentiate services based on the composition of their resource base.

Although the RBV and DC constructs yield new perspectives in strategy and entrepreneurship literature, critiques must be acknowledged. Some assert that the framework is tautological, provides little normative guidance and does not predict *ex ante* the effectiveness of resource and capabilities (Priem & Butler, 2001; Sirmon, Hitt & Ireland, 2007). Furthermore, present in the literature are misuses of key definitions and propositions. For example, scholars have yet to adopt uniform terms and definitions for a firm's resource base and its various components. This study overcomes these challenges in two ways. First, the definitional parameters are anchored within the contemporary RBV and DC literature. Second, the tautology of the RBV is avoided by observing changes in the firm's resource base, implying that the firm is doing something different, yet not necessarily better (Helfat, Finkelstein, Mitchell, Peteraf, Sign, Teece & Winter, 2007). Thus, the assumption of 'superior performance' is not implied in this study.

The following sections discuss the foundations of the RBV by providing an overview of the RBV and DC perspectives and reviewing the components of a professional service firm's resource base. The components of the resource base and their dynamic interactions are then further defined and practical examples within the context of PSFs are given. The hierarchy of the firm's capabilities (e.g., operational, dynamic and higher-order) is also discussed. Finally, this section concludes by discussing a firm's competitive advantage, as explained by the exploitation of its resource base.

2.2.1 The Resource-Based View within the Context of PSFs

Scholars have demonstrated that a firm's principle source of competitive advantage and strategy formulation often comes from its resources and capabilities endowment (Barney, 1991; Peteraf, 1993). The RBV posits that economic rents are secured with valuable, rare, inimitable and non-substitutable resources (assets) bundled together within the organization by using its capabilities to implement value-creating strategies (Barney, 1991). These resources are necessary for the firm to implement its strategy to the extent where it can create and gain a competitive advantage that cannot be easily duplicated by competing firms in the market (Barney, 1991; Peteraf, 1993). Thus, resources and capabilities become the core of the firm's strategy formulation (Grant, 1991). Two important assumptions are derived: first, a firm's resources and capabilities provide the direction for its strategy; and second, these resources and capabilities are also responsible for driving its profits (Grant, 1991). However, not all firms have similar resource base endowments. On this premise, Barney (1991) makes two assumptions. First, "(...) firms within an industry or group may be heterogeneous with respect to the strategic resources they control"; and second, "(...) these resources may not be perfectly mobile across firms, and thus heterogeneity can be long lasting" (Barney, 1991, p. 100).

Resources and capabilities are what compose the firm's resource base. Multiple terms and explanations have been used to refer to the firm's resource base components. For example, Collis and Montgomery (1995) refer to resources as "configurations," while Prahalad and Hamel (1990) call them "core competencies." The term 'resource' is employed in its most general sense to mean "something that the organization can draw upon to accomplish its aims" (Helfat et al., 2007, p. 4). Thus, the firm's resource base "includes tangible, intangible, and human assets (or resources) as well as capabilities which the organization owns, controls, or has access to on a preferential basis" (Helfat et al., 2007, p. 4).

There are levels of capabilities, whereby hierarchal levels differentiate 'operational capabilities', 'dynamic capabilities,' and 'higher-order capabilities.' Vera and colleagues differentiate these three terms, stating that "operational capabilities represent how things are currently done (...), dynamic capabilities change operational capabilities, and learning is the

ultimate capability that guides the development, evolution, and use of dynamic and operational capabilities” (Vera, Crossan & Apaydin, 2011, p. 164). This is an important differentiation that proposes an evolutionary cycle: investments in learning lead to the creation, development and modification of dynamic capabilities, which in turn change, modify, transform and create operational capabilities and resources. This assertion builds on earlier theoretical work that suggested that “learning capabilities act as the source of dynamic capabilities, while operational capabilities are the visible outcomes of dynamic capabilities” (Easterby-Smith & Prieto, 2008, p. 237).

To achieve a competitive advantage, firms exploit differences in resources and capabilities not readily available to competitors. Firm resources alone are not the source of competitive advantage (Amit & Schoemaker, 1993). Dynamic capabilities—otherwise captured by the routines and processes that alter the firm’s resources and operational capabilities to generate new resource combinations—are the drivers of competitive advantage (Eisenhardt & Martin, 2000; Grant, 1996; Teece et al., 1997). However, to create and modify dynamic capabilities, the firm must make deliberate investments in learning capabilities, identified as ‘higher-order capabilities’ (Winter, 2003). Scholars posit that organizational learning, as embodied in higher-order capabilities (Vera et al., 2011), is the only sustainable competitive advantage a firm can develop because it enables continuous renewal of the firm’s resource base (De Geus, 1988). The following section discusses the components of the firm’s resource base.

Table 1: Composition of the Firm's Resource Base

Resource base component	Description	Examples
<i>Resources (assets)</i>	The specific physical, human, and organizational assets that are used in firms to create value-adding strategies (Barney, 1991)	Experts, support staff, knowledge, know-how, office and physical infrastructure, technical infrastructure.
<i>Operational capability</i>	The “how we earn our living” capabilities (Winter, 2003). Stationary processes that enable the firm to collect revenues from customers and purchase more inputs, and so on and so forth (Winter, 2003). Capabilities that reflect the ability to perform the basic functional activities of the firm (Collis, 1994)	Learned, patterned, and repeatable routines and processes (Winter, 2003) Manufacturing production processes Selling processes Distribution logistics Marketing campaigns
<i>Dynamic capability</i>	Routines and processes that enable change (Winter 2003). They govern the rate of change (Collis, 1994) and systematically modify, transform and create operational capabilities. Dynamic capabilities reside in routines rather than in resources themselves (Zollo & Winter, 2002). They typically involve long-term commitment of specialized resources (Winter, 2003) and arise from organizational learning (Zollo & Winter, 2002; Easterby-Smith & Prieto, 2008; Vera et al, 2011).	New product and service development (Winter, 2003; Eisenhardt & Martin, 2000) Market and product diversification (Winter, 2003) Knowledge management (Easterby-Smith & Prieto, 2008; Zollo & Winter, 2002; Vera et al., 2011), as it refers to changing and modifying knowledge Alliancing (Eisenhardt & Martin, 2000) Routines for replication and brokering (Eisenhardt & Martin, 2000)
<i>Higher-order capability</i>	‘Learning to Learn’ capabilities; deliberate investments in organizational learning that facilitate the creation and modification of dynamic capabilities (Winter, 2003). Higher-order capabilities shape operating capabilities either directly by way of <i>ad hoc problem solving</i> or intermediately by way of modifying or creating dynamic capabilities (Zollo & Winter, 2002)	4I Framework learning processes: Intuiting, Interpreting, Integrating and Institutionalizing (Crossan et al., 1999) Absorptive capacity (Cohen & Levinthal, 1990; Easterby-Smith, Graca, Antonacopoulou & Ferdinand, 2008)

2.2.2 Resources

Firm resources are the building blocks of the RBV. They encompass specific physical, human, and organizational assets that are used to create value-added strategies forming the basis of the firm's competitive advantage (Barney, 1991; Peteraf, 1993). These assets have, in the past, been categorized as human, physical or organizational (Barney, 1991), renewable or non-renewable, and tangible or intangible (Grant, 1991, Teece et al., 1997), among other distinctions.

Consensus has yet to be achieved and no overarching typology exists for resources. On this critique of the RBV, Barney (2001) explains: “Resource-based theorists do not pretend to be able to generate a list of critical resources every firm must possess in order to gain sustained strategic advantages (...) However, theorists describe the attributes resources have if they are going to be sources of sustained strategic advantage for firms” (Barney, 2001, p. 51). Alas, even based on these attributes (i.e., valuable, rare, inimitable, non-substitutable), there does not exist a comprehensive typology. Thus, it is noted *a priori* that the purpose of the exercise is not to classify resources into distinct and exclusive groups, nor is it to provide a comprehensive list of resources found in PSFs. Rather, this discussion proposes an overview of the resources highlighted in the professional services literature as being of greatest importance, while acknowledging that there are different types of resources critical to the firm. Furthermore, the typology offered by Løwendahl (2005) does not provide mutually exclusive groups of resources. The discussion of resource classification is one that is ongoing and has yet to provide a distinctive typology. For this reason, Løwendahl’s typology is used as a springboard in this section to review previously established critical resources within PSFs.

Regardless of classification, contemporary works have shown greater interest in knowledge and other intangible assets as a means of building and maintaining competitive advantage (Teece, 2007). Examples of intangible resources include organizational and knowledge assets (such as customer and supplier relationships), formal and informal network contacts, organizational structure, technical know-how, and professional know-how. Furthermore, Løwendahl (2005) proposes four different resource categories that provide some basis for differentiation: a) financial assets; b) tangible resources; c) human resources; and d) intangible or information-based resources. Table 2 further describes each resource category and provides sample resources.

Table 2: Resources in PSFs

Category	Definition	Examples
<i>Financial</i>	Financial capital of the firm necessary to firm survival and growth	Initial financial commitment and partner investments; external sources of financing; cash flow
<i>Tangible</i>	Physical resources generally acquired in product markets that are often specialized for a particular production process and are of depreciative value over time.	Physical technology infrastructure (Barney, 1991); office, equipment, plant (Barney, 1991); Internet (Mostafa, Wheeler & Jones, 2005)
<i>Human</i>	Labour input of varying specialization and flexibility. The degree of specialization, as explained by skill specificity and general competency requirement often dictates the supply of required human labour.	Entrepreneur (Alvarez & Busenitz, 2001); entrepreneurial managers (Teece & Al-Aali, 2011) ; experts (Teece & Al-Aali, 2011; Teece, 2003); support staff (Maister, 1993)
<i>Intangible</i>	Includes relational assets and competencies at individual, group and organizational levels. Relational assets refer to elements of traditional goodwill, such as reputation and trust (Løwendahl, 2005). Competencies overarch knowledge, skills and aptitudes (Nordhaug, 1993; Løwendahl, 2005).	<i>Knowledge-based resources</i> Technical know-how (Teece & Al-Aali, 2011); organizational know-how (Teece & Al-Aali, 2011); problem solving skills (Løwendahl, 2005; Teece & Al-Aali, 2011); managerial competence (Chandler & Hanks, 1994; Løwendahl, 2005) and managerial acumen (Penrose, 1959); organizational procedures and culture (Hall, 1992); trade secrets (Hall, 1992); contracts (Hall, 1992); organizational databases (Hall, 1992); client and competitor information (Løwendahl, 2005) <i>Goodwill resources</i> Reputation (Hall, 1992; Teece, 2003; Maister, 1993; Løwendahl, 2005); formal and informal business contacts in network (Coviello & Munro, 1997; Coviello & Martin, 1999; Hall, 1992; O'Farrell et al., 1998), such as customer and supplier relationships (Teece & Al-Aali, 2011); organizational structure (Verona & Ravasi, 2003; Maister, 1993) and formal reporting structure (Maister, 1993; Løwendahl, 2005)

2.2.2.1 Financial resources

Professional services rely heavily on intangible versus tangible resources. Their initial capital investments are often significantly lower than in manufacturing firms, for example. For this reason, service firms, and especially service SMEs, encounter greater difficulty in obtaining debt financing (Cressy & Olofsson, 1997). Studies on professional service firms have further identified that funds are most often raised without the help of outside investors (von Nordenflycht, 2010).

2.2.2.2 Tangible resources

PSFs often have few physical resources that are critical to their service delivery (Maister, 1993; Løwendahl, 2005). However, it is important to acknowledge that in some cases, firms may depend on their physical infrastructure to house their internal activities. This is especially true of location-based services (Ball, Lindsay and Rose, 2008). As such, noted as critical resources are the physical technological infrastructure and office space and, in some cases, laboratories and test facilities (Teece, 2003).

2.2.2.3 Human resources

In small firms, the entrepreneur's cognitive ability is recognized as a critical resource to the firm (Alvarez & Busenitz, 2001). The entrepreneur is seen as a valuable, rare, difficult to imitate and non-substitutable resource that plays an important role in recognizing opportunities and their potential value in the firm's external environment. In searching for and recognizing these opportunities, the entrepreneur's previous knowledge and experience play an important role. Prior knowledge is idiosyncratic and enables recognition of certain opportunities (Shane, 2000; Venkataraman, 1997). Prior knowledge is sourced from work and personal experiences, education (Venkataraman, 1997), and by playing different roles (e.g., in an organization, in a value chain) (Shane, 2000). Prior knowledge influences the entrepreneur's ability to perceive, comprehend, extrapolate, interpret and apply new information in ways that may not be replicated by those lacking similar knowledge (Roberts, 1991). Entrepreneurs are also seen as a critical resource to their firm because of their crucial task of securing and allocating resources that enable firms to seize the recognized opportunities (Garnsey, 1998). By way of their relationships, entrepreneurs are able to access, mobilize and deploy resources that may otherwise be unavailable to their firm. Via their networks' close and weak ties, entrepreneurs are then able to access critical asset providers (e.g., investors, strategic partners, key customers) who may in turn offer to provide access to resources necessary to seize a recognized opportunity (Elfring & Hulsink, 2003).

Experts—or more broadly the professionalized workforce—are also a critical resource to the firm as they provide the necessary input to deliver a firm's services: knowledge. PSFs rely heavily on their “intellectually skilled workforce” as frontline workers (von Nordenflycht,

2010). Scholars (Maister, 1993; Løwendahl, 2005) have differentiated this degree of dependency based on the level of customization of the service when delivered to the client. The more the service requires innovative problem solving (as opposed to replicating or modifying existing solutions), the more the firm will be dependent on its professional workforce (Maister, 1993; Løwendahl, 2005). To make effective use of human capital, firms often apply division of labour. Partners and senior associates whose time is more expensive are tasked with locating new clients, nurturing existing client relations, overseeing project preparation, and coaching and coordinating the activities of junior employees. In most firms, there are multiple levels of seniority, where managing partners or project managers are tasked with coordinating administration and associates complete the expert work of low to moderate complexity (Maister, 1993). The ratio between the number of senior partners and associates to junior employees is what Maister (1993) coined as the firm's "leverage." This leverage ratio paints a good picture of the firm's bundle of professional human capital (Scherer & Lee, 2002).

2.2.2.4 Intangible resources

Few precise definitions of intangible resources are given in the RBV literature. By exception, Løwendahl (2005) proposes some differentiation in intangible resources: the knowledge embedded, shared and held by individuals and groups within the organization, and the traditional elements of goodwill, such as the firm's reputation and the size and quality of its customer list (Løwendahl, 2005).

Arguably, the most important resource in a firm, especially in knowledge-intensive firms, is knowledge (Grant, 1996). Employee productivity is dependent on knowledge, whether embodied in technical equipment or explicit artefacts, or embedded tacitly in employees and organizational routines (Grant, 1996). Within the scope of this research, knowledge is defined as "the individual ability to draw distinctions within a collective domain of action, based on an appreciation of context or theory, or both" (Tsoukas & Vladimirou, 2001, p. 979). This definition highlights the dynamic nature of knowledge, be it as a framework for analysis or as a process.

An important distinction must be made between ‘information’ and ‘knowledge.’ Although the terms are often used interchangeably, information is a “flow of messages,” whereas knowledge is “created and organized by the very flow of information, anchored on the commitment and beliefs of its holder” (Nonaka, 1994, p. 15). Thus, knowledge signifies a certain judgment on the significance of events or items that are contextually or theoretically framed. Tsoukas and Vladimirou continue by stating that “knowledge becomes organizational when (...) individuals draw and act upon a corpus of generalizations in the form of generic rules produced by the organization” (Tsoukas & Vladimirou, 2001, p. 979). The processes by which organizations learn will be further discussed in section 2.2.5.

Table 3: Knowledge Sources Following Huber's (1991) Typology

	Internal source of knowledge	External source of knowledge
Experiential knowledge	Direct experience	Indirect experience: vicarious learning and grafting
Objective knowledge	Internal information	External search

Source: Fletcher & Harris (2012, p. 634).

Knowledge can be either tacit or codified (Polanyi, 1983). Tacit knowledge is often referred to as implicit or embodied knowledge, or “know-how” (Grant, 1996). Tacit knowledge can be observed at the individual, group and organizational levels, and shared by means of training or gained via personal experiences. Comparatively, codified knowledge is written down or communicated verbally, thus rendering it easier to transfer than tacit knowledge, which is slower and significantly costlier to transfer (Gallouj, 2002). Following Huber’s (1991) work, there are five knowledge sources: direct experience, grafting, vicarious learning, internal objective knowledge and external objective knowledge.

- Direct experience is sourced from experiential knowledge inside the firm.
- Indirect experience comes from experiential knowledge from outside the firm. Gained by grafting (hiring individuals or business units who have developed this knowledge) or by vicarious learning (learning from the experience of others).
- Internal objective knowledge is sourced from internal staff or systems in the firm, and knowledge can be developed by piecing together information to create new knowledge.

- External objective knowledge is acquired from scanning and searching external published sources of information.

Four types of knowledge are of particular interest when discussing small firm internationalization. ‘Institutional knowledge’ is the knowledge of the government and institutional framework that applies in the market where the firm operates (Eriksson, Majkgard & Sharma, 2000). ‘Business knowledge’ is the knowledge about customers, competitors and market conditions in particular markets (Eriksson, Majkgard & Sharma, 2000). ‘International knowledge’ is the knowledge of how the firm manages market information and transforms it into specific actions to bridge the interface between the firm and its international markets (Eriksson, Majkgard & Sharma, 2000). ‘Technological knowledge’ is the knowledge of how the firm should adapt its product and services to international markets. It influences its ability to capitalize on market dynamism through rapid product/service developments and helps identify technological changes that can affect firm performance (Zahra, Ireland & Hitt, 2000).

Knowledge is characterized based on its transferability, its appropriability, the ability for individuals to aggregate it, and its specialization. These four characteristics are further discussed below. The transferability of tacit and explicit knowledge varies (Grant, 1996) as know-how is embodied in an individual or shared within a group. The codification of tacit knowledge thus eases and renders the transfer more efficient, as tacit knowledge may otherwise be transferred only through its application or acquired through practice. The appropriability of knowledge also differs between tacit and explicit knowledge. Moreover, the capacity for knowledge to be efficiently transferred further depends on the firm’s ability to aggregate knowledge (Grant, 1996). “Knowledge transfer involves both transmission and receipt. Knowledge receipt has been analyzed in terms of the “absorptive capacity” of the recipient” (Cohen & Levinthal, 1990). “At both individual and organizational levels, knowledge absorption depends upon the recipient’s ability to add new knowledge to existing knowledge. This requires additivity between different elements of knowledge” (Grant, 1996, p. 111). The absorptive capacity of the firm ultimately modifies its knowledge base, as it integrates new external information and knowledge to existing knowledge. As such, the firm’s absorptive capacity is a higher-order capability, and so will be further discussed in

section 2.2.5. Finally, given the breadth of knowledge used in a firm, and the limited capability of individuals to acquire, store and process knowledge, the specialization of individuals in knowledge areas is therefore necessary (Grant, 1996). Following Walsh and Ungson's (1991) work on organizational memory, knowledge in both tacit and explicit forms may be stored and retained in five repositories: the individual members, the roles and organizational structures, the organization's standard operating procedures and practices, the organizational culture, and the physical structure of the workplace.

In contrast to knowledge, skills refer to an individual's ability to perform a task. Skills are often more personal and contextual, use tacit knowledge, and are developed with practice (Løwendahl, 2005; Nordhaug, 1993)². Interestingly, Maister (1993) provides the following important insight: "The true added value of professionals lies less in what they *know* than in what they can *do*: interview clients effectively, win their trust and confidence, diagnose their needs, and make the myriad judgmental decisions as to how each matter should be handled" (Maister, 1993, p. 155). He continues by saying that "while professional knowledge can be codified and easily shared, professional skills can only be developed through practice" (Maister, 1993, p. 155). Aptitudes, on the other hand, capture the natural talents, intelligence, artistic abilities, creativity, and intuition that can be applied to work (Løwendahl, 2005; Nordhaug, 1993). Where tacit knowledge and skills can be gained by practice and explicit knowledge by absorbing codified knowledge, aptitudes can be developed but are to some degree naturally held (Løwendahl, 2005).

At the individual level, examples of intangible knowledge-based resources include problem solving, project management, client relationship building and networking, communication and teamwork skills (Løwendahl, 2005), technical and professional know-how (Teece & Al-Aali, 2011), managerial experience, competence and acumen (Løwendahl, 2005; Nordhaug, 1993), and knowledge of client firms and their industries (Løwendahl, 2005). At the

²Many important contributions to the professional services literature originate from Scandinavian scholars, who often use the term 'competence' as a broader term referring to knowledge, skills, and aptitudes (Nordhaug, 1993). Although this connotation is not adopted in this research, it must be acknowledged that the three components are important intangible resources and require greater explanation.

organizational level, examples of knowledge-based resources include organizational know-how (Teece and Al-Aali, 2011), organizational procedures and culture (Løwendahl, 2005), shared language, social norms, values and rules (Winter, 2003), formal reporting structure (Løwendahl, 2005; Maister, 1993) and collective sources of information such as databases (Løwendahl, 2005).

2.2.3 Operational Capabilities

The logical foundation to an evolutionary cycle in which firm capabilities are renewed in an effort to sustain competitive advantage was outlined in section 2.2.1. Following this logic, operational capabilities are the lowest level of capabilities, defined as those that encompass “behavior that is learned, highly patterned, repetitious or quasi-repetitious, founded in part in tacit knowledge—and the specificity of objectives” (Winter, 2003, p. 991). They are the routines or collection of routines that often provide an answer to the question of “how we earn a living now” (Winter, 2003). To exemplify this level of capabilities and differentiate it from other levels, Winter (2003, p. 992) proposes the following:

“Consider a hypothetical firm ‘in equilibrium’, an organization that keeps earning its living by producing and selling the same product, on the same scale and to the same customer population over time. The capabilities exercised in that stationary process are the zero level capabilities (...) Without them, the firm could not collect the revenue from its customers that allows it to buy more inputs and do the whole thing over again.”

While not an exhaustive list of operational capabilities, below are important examples for consideration. Explanations of their relevance within the context of small PSFs follow.

Table 4: Operational Capabilities in PSFs

Category	Operational Capabilities
<i>Definition</i>	“An organizational capability is a high-level routine (or collection of routines) that, together with its implementing input flows, confers upon an organization’s management a set of decision options for producing significant outputs of a particular type” (Winter, 2003, page 991).
<i>Alternative terminology</i>	Ordinary capability (Winter, 2003); Zero-order capabilities (Winter, 2003); Operational routine (Zollo & Winter, 2002); Organizational routines (Zollo & Winter, 2002); Organizational competences (Teece et al., 1994; Teece & Al-Aali, 2011).
<i>Examples</i>	Decision making (Teece & Al-Aali, 2011) Project management (Maister, 1993) and resource allocation (Maister, 1993; Løwendahl, 2005) Client communication and input processes (Maister, 1993), and assessment of customer needs (Teece & Al-Aali, 2011) Compensation processes (Maister, 1993; von Nordenflycht, 2010) Employee recruitment, development and training programs ((Løwendahl, 2005; Maister, 1993)

Decision making regarding new clients and projects: From a strategic standpoint, management or managing partners must carefully consider whether the learning potential, resource and capabilities fit when choosing new projects and clients as this significantly impacts the firm’s potential to improve its resource base (Løwendahl, 2005).

Resource allocation and project management: In striving to solve a client’s problems, the firm must have the necessary information, knowledge, skills and aptitudes to successfully define the appropriate problem and deliver a service of perceived quality. This necessitates mobilizing the proper resources to apply them to the project at hand and properly matching resources to projects for maximum value creation. As such, team creation and management must be carefully weighted to consider opportunity costs of other projects that could be missed by tying up valuable resources (Løwendahl, 2005).

Employee recruitment, development and training: Employees embedded with expert knowledge and skills are the firm’s most valuable resource; therefore, the success of the firm rests on its ability to recruit, develop and retain its staff. By recruiting new employees, the firm may enhance its intangible resources. By keeping employees with valuable knowledge, skills, aptitudes and experience, the firm can increase its ability to mobilize these resources. The firm may also increase the value of these intangible resources through employee training and development programs. Intangible knowledge-based assets may also be increased by

prioritizing activities and projects that enable and enhance accumulated learning at both the individual and group levels (Løwendahl, 2005).

Employee retention and compensation: By providing professionals with access to other professionals and other complementary or supporting resources, whether internally or externally to the firm (be it as colleagues or staff), the firm can significantly increase its employees' professional esteem to enable superior performance (Teece, 2003). As such, retaining highly valuable experts becomes difficult if these individuals do not find themselves well equipped. Compensation schemes vary significantly from one firm to another, and there is significant discretion with respect to means of compensation (e.g., bonuses and other reward-based incentives) (Teece, 2003). Although human resources management tactics are not the focus of this study, it is nonetheless worthwhile to underline the importance of properly compensating highly valuable employees to counter the risks incurred by the mobility of the firm's human capital and expert knowledge.

2.2.4 *Dynamic Capabilities*

Dynamic capabilities are what drive a firm's competitive advantage. Teece, Pisano and Shuen proposed early on that "... it is not only the bundle of resources that matter, but the mechanisms by which firms learn and accumulate new skills and capabilities, and the forces that limit the rate and direction of this process" (Teece, Pisano & Shuen, 1992, p. 11).

Dynamic capabilities are a logical extension of the RBV (Rolland, Patterson & Ward, 2009). Teece and colleagues introduced the concept of dynamic capabilities in an effort to "identify the dimensions of firm-specific capabilities that can be sources of advantage, and to explain how combinations of competences and resources can be developed, deployed, and protected" (Teece et al., 1997, p. 510). Eisenhardt and Martin further defined dynamic capabilities by proposing that they are "the firm's processes that use resources—specifically the processes to integrate, reconfigure, gain and release resources—to match and even create market change. Dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die" (Eisenhardt & Martin, 2000, p. 1107).

Table 5: Dynamic Capabilities in PSFs

Category	Dynamic Capabilities
<i>Definition</i>	“A dynamic capability is a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness” (Zollo & Winter, 2002, page 340)
<i>Alternative terminology</i>	Search routines (Nelson and Winter, 1982); First-order capabilities (Easterby-Smith & Prieto, 2008)
<i>Examples</i>	Change routines (product development) (Teece & Al-Aali, 2011) Strategic decision-making (Eisenhardt & Martin, 2000) Analysis routines (investments) (Teece & Al-Aali, 2011) New market development (Teece & Al-Aali, 2011) New product/service development (Teece & Al-Aali, 2011)

It is important to make the distinction between ‘operational’ capabilities and ‘dynamic’ capabilities, as this differentiation has considerable theoretical implications (Collis, 1994; Winter, 2003). Where operational capabilities are geared towards output in the form of operational routines, dynamic capabilities are instead aimed at effecting organizational change by creating and modifying operational capabilities (Zollo & Winter, 2002). As clarified by Zahra and colleagues (2006), “the qualifier ‘dynamic’ distinguishes one type of ability (e.g., the substantive ability to develop new products) from another type of ability (e.g., the ability to *reform* the way the firm develops new products). A new routine for product development is a new substantive capability but the ability to *change* such capability is a dynamic capability” (Zahra, Sapienza & Davidsson, 2006, p. 921). The authors further suggest that although dynamic capabilities may be most valuable in rapidly changing and volatile external environments, this is neither a condition to validate nor a necessary component of dynamic capabilities (Zahra et al., 2006).

Dynamic capabilities, as embedded in organizational and strategic routines, may then serve multiple purposes, such as reconfiguring the firm’s resource base by discarding resources (Sirmon & Hitt, 2003) and recombining resources in novel ways to develop new operational capabilities (Kogut & Zander, 1992). They are idiosyncratic and unique processes that originate from the path-dependent histories of firms. Important indicators when identifying dynamic capabilities are the stability of the change process and their objective for process improvement (Zollo & Winter, 2002). Zollo and Winter (2002) suggest as an example an organization that develops a systematic and relatively predictable process to manage its

acquisitions or joint ventures based on its initial experiences. They are “specific strategic and organizational processes” (Eisenhardt & Martin, 2000) that are repetitive and rational, not reactive nor passive (Winter, 2003). As Eisenhardt and Martin (2000) suggest, dynamic capabilities (e.g., alliancing, strategic decision making) do demonstrate effective ‘best practices.’ Thus, contrary to traditional RBV thinking, dynamic capabilities demonstrate signs of equifinality, homogeneity and substitutability across firms (Eisenhardt & Martin, 2000). These capabilities may be developed from multiple starting points and may follow different evolutionary paths, while exhibiting significant similarities in terms of superior outcomes and performance.

However, dynamic capabilities are not the only change mechanism available to firms. Firms can accomplish change via ad hoc problem solving, which allows for action that is not routine, demonstrates behaviour that is non-repetitive and is ‘intendedly rational,’ and is often initiated as a “response to novel challenges from the environment or other relatively unpredictable events” (Winter, 2003, p. 993).

Within the context of PSFs, Maister (1993) and Lowendahl (2005) suggest that for a firm to maintain its competitive position in its marketplace, it must concern itself with skill building, improving productivity, raising client satisfaction, and getting better business (Maister, 1993). These objectives necessitate the modification and change of operational routines and processes, some of which were exemplified in the previous subsection. If these change processes were learned and followed stable patterns, they would adhere to the criteria that define dynamic capabilities.

Another important dynamic capability in PSFs is knowledge management. Easterby-Smith and Prieto (2008) suggest that knowledge management processes are indeed dynamic capabilities that modify existing resources and operational capabilities over time. Vera and colleagues further this logic by stating that “[b]ecause learning capabilities act as the source of dynamic capabilities (Zollo & Winter, 2002) and learning can be defined in terms of the processes of knowledge creation, transfer, and retention, the distinction between knowledge management and dynamic capabilities are more of terminology than of essence” (Vera et al., 2011, p. 165). Knowledge management is indeed a dynamic capability, as it “contributes to

the reconfiguration of resources and operational routines, both because knowledge is a resource in its own right and because operational routines will be derived from the knowledge that resides within functional disciplines such as marketing, human resources and information systems” (Easterby-Smith & Prieto, 2008, p. 243).

Table 6: Dynamic Capabilities Indicative of Change in Operational Capabilities

Strategic objective	Questions proposed by Maister (1993)	Modified capability
Skill building	Can we develop an innovative approach to <i>hiring</i> so that we can be more valuable to clients by achieving a higher calibre of staff than the competition?	Recruitment process
Skill building	Can we <i>train</i> our people better than the competition in a variety of technical or “counselling” skills so that they will be more valuable on the marketplace than their counterparts at other firms?	Training and development process
Skill building Gain better business	Can we become better than our competition at <i>accumulating, disseminating, and building on our firm-wide expertise and experience</i> , so that each professional becomes more valuable in the marketplace by being empowered with a greater breadth and depth of experience?	Knowledge management process
Skill building Improve productivity	Can we <i>organize and specialize</i> our people in innovative ways, so that they become particularly skilled and valuable to the market because of their focus on a particular market segment’s needs?	Resource allocation processes
Improve productivity	Can we develop innovative <i>methodologies</i> for handling our matters (or engagements, transactions or projects) so that our delivery of services becomes more thorough or efficient?	Project management processes
Raise client satisfaction	Can we develop systematic ways of helping, encouraging and, above all, ensuring that our people are skilled at <i>client counselling</i> in addition to being top technicians?	Project management processes
Raise client satisfaction Get better business	Can we become more valuable to our clients by being more systematic and diligent about <i>listening to the market</i> , collecting, analyzing, and absorbing the details of <i>their</i> business, than our competition?	Client communication processes Client input processes Client assessment processes
Raise client satisfaction Get better business	Can we become more valuable to our clients by investing in <i>research and development</i> on issues of particular interest to them?	Service delivery process

Source: Adapted from Maister (1993, p. 225).

Zollo and Winter (2002) identify an important gap in the dynamic capabilities literature by advancing that current definitions do not indicate *where* dynamic capabilities come from. As such, a recent stream of the literature has explored the emergence, evolution and use of

dynamic capabilities (Zollo & Winter, 2002). By questioning their creation, Zollo and Winter (2002) and Winter (2003) suggest from a theoretical standpoint that the firm's investments in organizational learning (as identified by higher-order capabilities) result in the creation and modification of dynamic capabilities. Prieto and Easterby-Smith suggest that "the role of knowledge and knowledge based processes has been central: dynamic capabilities are seen to evolve through pathways that can be described in terms of the evolution of knowledge within organizations (Zollo & Winter, 2002), and this knowledge is then considered as a key resource to drive competitive advantage in organizations (Grant, 1996)" (Prieto & Easterby-Smith, 2006, p. 500). Thus, dynamic capabilities would then enable the firm to renew itself by exploiting its existing knowledge-based resources and competencies, and exploring for new ones (Prieto & Easterby-Smith, 2006; Zollo & Winter, 2002). As a result, Zollo and Winter (2002) put forward the proposition that "[d]ynamic capabilities emerge from the coevolution of tacit experience accumulation processes with explicit knowledge articulation and codification activities" (Zollo & Winter, 2002, p. 344).

The next section will further discuss how individual and organizational knowledge and organizational learning play a pivotal role in the development and modification of dynamic and operational capabilities (Easterby-Smith & Prieto, 2008; Zollo & Winter, 2002).

2.2.5 Higher-Order Capabilities (Organizational Learning)

The notions of organizational learning and organizational knowledge have received significant attention since the early 1960s and they are the subject of a continuously increasing amount of reflection. This is in part due to the assumption that the sustainability of a firm's competitive advantage is dependent on its ability to learn (De Geus, 1988) and, more importantly, its ability to manage its knowledge resources (Grant, 1996). For example, Argote and Ingram (2000) argue that the creation and transfer of knowledge in firms provide the foundation for building a competitive advantage.

Table 7: Higher-Order Capabilities in PSFs

Category	Higher-Order Capabilities
<i>Definition</i>	“(…) learning is the ultimate capability that guides the development, evolution, and use of dynamic and operational capabilities” (Vera, Crossan & Apaydin, 2011) “Learning is a second-order capability that contributes to the evolution of both dynamic capabilities and knowledge management” (Easterby-Smith & Prieto, 2008; as per Vera et al., 2011, page 165)
<i>Alternative terminology</i>	Second-order dynamic capabilities (Zollo & Winter, 2002; Easterby-Smith & Prieto, 2008); Learning capabilities (Zollo & Winter, 2002)
<i>Examples</i>	4I Framework: Intuiting, Interpreting, Integrating and Institutionalizing (Crossan et al., 1999) Absorptive capacity (Cohen & Levinthal, 1990)

Many scholars acknowledge that the evolution of the firm’s resource base is heavily shaped by learning processes or systems of learning. A growing group of theorists also suggest that organizational learning gives way to cognitive and behavioral changes. Individuals and groups learn in two ways: by understanding and then acting or by acting and then interpreting (Vera et al., 2011). Vera and colleagues (2011, p. 154) define organizational learning as “the process of change in individual and shared thought and action, which is affected by and embedded in the institutions of the organization”. The authors further this definition by stating that organizational learning occurs when individuals and group learning becomes institutionalized and when knowledge becomes embedded into knowledge repositories such as routines, systems, structures, cultures, and strategy (Vera et al., 2011). Learning and knowledge are intertwined: while learning creates new knowledge, knowledge affects future learning. This is cited in Crossan, White and Lane’s (1999) framework as feed-forward and feedback flows of learning³. Their framework has been widely used in the organizational learning literature and has more recently received empirical examination (e.g., Crossan & Berdrow, 2003). For this reason, the following four ‘social and psychological

³ The four social and psychological processes that encompass organizational learning are related in feed-forward and feedback processes across all levels of the organization (Crossan et al., 1999, p. 523). Feed-forward learning represents the assimilation of new learning and knowledge, while feedback learning represents using what has already been learned. Feed-forward processes take individual learning to the group and organizational level. It “require[s] a shift from individual learning to learning among individuals or groups. It entails taking personally constructed cognitive maps and integrating them in a way that develops a shared understanding among the group members” (Crossan et al., 1999, page 532). Alternatively, feedback learning consists of using in groups and individuals what has been learned and institutionalized at an organizational level (Crossan et al., 1999).

processes,’ which link learning at all three level of the organization, are used as indicators of organizational learning. As Mintzberg et al. (1998, p. 212) summarize:

Intuiting is a subconscious process that occurs at the level of the individual. It is the start of leaning and must happen in a single mind. Interpreting then picks up on the conscious elements of this individual learning and shares it at the group level. Integrating follows to change collective understanding at the group level and bridges to the level of the whole organization. Finally, institutionalizing incorporates that learning across the organization by imbedding it in its systems, structures, routines, and practices.

Table 8: Elements of 4I Framework of Organizational Learning

Level	Feed forward	Feed back	Process	Inputs and Outcomes
Individual	Exploration ↓	Exploitation ↑	Intuiting	Experience Images Metaphors
Group			Interpreting	Language Cognitive map Conversation/dialogue
Organizational			Integrating	Share understanding Mutual adjustment Interactive systems
			Institutionalizing	Routines Diagnostic systems Rules and procedures

Source: Adapted from Crossan et al. (1999).

New knowledge can be developed internally or absorbed from the firm’s external environment. In regard to the latter, we refer to the firm’s ‘absorptive capacity’ (Cohen & Levinthal, 1990). The absorptive capacity of a firm refers to its ability to recognize the value of new external knowledge, assimilate it, and apply it to commercial ends (Cohen & Levinthal, 1990). External knowledge is especially important in the explorative learning and for innovation (Cohen & Levinthal, 1990; Huber, 1991). Cohen and Levinthal (1990) explain that “the premise of the notion of absorptive capacity is that the organization needs prior related knowledge to assimilate and use new knowledge” (Cohen & Levinthal, 1990). In recent research, the concept has been positioned between the fields of dynamic capability, organizational learning and knowledge management (Easterby-Smith et al., 2008). As

Easterby and colleagues (2008, p. 484) explain: “[o]n the one hand, it draws attention to the need to appreciate and acquire knowledge from the external environment, especially from acquisitions and other inter-organizational relations; on the other hand, it focuses on internal processes of learning from past experience and current actions.”

The absorptive capacity construct is multi-level and encompasses all levels of the organization. However, the link between absorptive capacity and learning is most evident at the individual level (Van Den Bosch, Van Wijk & Volberda, 2003). Cohen and Levinthal (1990) propose that the absorptive capacity of a firm is dependent on the absorptive capacity of its members; however, its total is not equal to the sum of absorptive capacities at the individual level. The organizational context of the firm must be taken into account, as the construct of absorptive capacity is dynamic and encompasses all levels of the organization. Learning at the individual level involves memory development, whereby the accumulated prior knowledge enables the ability to recognize the value of new knowledge, store it, recall it, and use it. The absorptive capacity of an organization is not the sum of its individuals’ absorptive capacity, as it depends on both its “direct interface with the external environment” and “transfers of knowledge across and within sub-units that may be quite removed from the original point on entry” (Cohen & Levinthal, 1990). Thus, knowledge specialization and communication structures are two important antecedents to the firm’s absorptive capacity.

Organizational learning is learning at the individual level within a given social context. Organizations are “seen as consisting of groups of individuals that collectively and incessantly try to make sense of a complex reality in their daily work activities (...) This process is not one of simply transferring experiences between individuals, of accepting or rejecting arguments and interpretations on how to experience the same situation. Rather, it is one of jointly organizing reality so that it can be acted upon” (Holmqvist, 2003, p. 98). Furthermore, learning at the organizational level is directed by the firm’s existing standard operating procedures, practices and other organizational rules. This ensures that individuals acquire a shared subjective viewpoint and can communicate using a common language (Grant, 1996a). Thus, Holmqvist (2003) strongly concludes that the individuals are the ones who learn from their experiences and together validate the organization’s rules and routines.

It is their shared actions that contribute to the maintenance or change of the organization (Holmqvist, 2003).

As organizational learning is a socially complex process, learning in small firms differs from learning in large firms because of differences in the organizational structure. For example, the process by which entrepreneurs recognize or create an opportunity (intuition), share it with others (interpretation), evaluate its feasibility and act upon it (integration) represents an important feed-forward learning process in small firms (Dutta & Crossan, 2006). In small firms, owner/managers influence the organization's ability to learn as a result of the power and authority they embody (Vera & Crossan, 2004) because this process rests on their ability and willingness to encourage knowledge sharing (Jones & Macpherson, 2006). Furthermore, limited resources in small firms are more dependent on learning from external sources of knowledge such as customers, suppliers and other network ties (Coviello & Munro, 1995; 1997). Thus, the internal and external sources of knowledge and the processes by which knowledge is absorbed and disseminated are of particular importance to understanding organizational learning in small firms (Fletcher and Harris, 2012).

Knowledge, when recognized as the firm's critical resource, can lead to competitive advantage because it is difficult to copy or imitate; it is also causally ambiguous, often making it out of reach to competitors (Barney, 1991). However, multiple processes at all three levels of the organization (e.g., individual, group and organization) are necessary to embed knowledge and render it a critical resource in the organization. These processes are in themselves capabilities. For example, the process by which an individual interprets information to make a judgment, transforms the information into knowledge, and then absorbs the knowledge in its tacit form, is one of four learning processes that encompass the higher-order capability of organizational learning (Crossan et al., 1999). Consequently, the interest of organizational learning within the context of dynamic capabilities is one concerned with the strategic renewal of the firm (Easterby-Smith & Prieto, 2008). Simply put, "[b]ecause dynamic capabilities involve change, they involve learning—change in cognition and change in behavior, and because dynamic capabilities work on routines and resources, they involve knowledge—the most valuable, rare, and hard-to-imitate firm

resources” (Vera et al., 2011, p. 164). Whether developed internally or absorbed from the external environment, the development of new dynamic and operational capabilities and the evolution of existing ones has significant implications for the firm’s competitive advantage as will be discussed in the following section.

2.2.6 *Competitive Advantage*

Although this study does not seek to further understand the impact of internationalization on the firm’s competitive advantage, such understanding is still necessary to recognize the implications of the firm’s resource base for its competitive advantage. It has been stipulated in above-mentioned definitions and supporting explanations that a firm’s valuable resources alone are insufficient to achieve a competitive advantage. Instead, they must be leveraged and bundled effectively to do so. What is a ‘competitive advantage’? Peteraf and Barney (2003) argue that a firm has a competitive advantage “if it is able to create more economic value than the marginal (breakeven) competitor in its product market” (Peteraf & Barney, 2003).

As discussed in the previous sections, research suggests that having dynamic capabilities *per se* does not lead to superior firm performance (Eisenhardt & Martin, 2000). Eisenhardt and Martin (2000) interestingly note that dynamic capabilities are rarely the source of competitive advantages because there are multiple ways of achieving similar outcomes through a particular dynamic capability. In agreement with Eisenhardt and Martin (2000), Easterby-Smith and Prieto (2008) further suggest that while dynamic capabilities do not themselves lead to competitive advantage, competitive advantage depends on the new configurations of resources and operational capabilities that result from them.

However, dynamic capabilities are costly to the firm because they require resource allocation and they may be used to achieve misguided goals (Zahra et al., 2006). Zahra et al. (2006) instead propose that “the relationship between dynamic capabilities and performance is mediated by the (resulting) quality of [operational] capabilities”, and that “the effect of [operational] capabilities (and, indirectly, dynamic capabilities) on performance is moderated

by organizational knowledge such that low organizational knowledge increases losses and high organizational knowledge increases gains” (Zahra et al., 2006, p. 943).

As a result, the value of dynamic capabilities for the creation and sustenance of competitive advantage resides in the firm’s ability to alter its resource base (Eisenhardt & Martin, 2000). This is done in response to opportunities or threats detected in the firm’s external environment (Barney, 1995) when the exploitation of valuable, rare and costly-to-imitate resources would bring to the firm an increase in economic rent. However, because of hypercompetition (D’Aveni, 1994), sustaining a competitive advantage over time is rather a function of creating a series of short-term competitive advantages (Eisenhardt & Brown, 1998; Wiggins & Ruefli, 2005). The sustainability of a competitive advantage lies in the way the resource base is continuously configured and reconfigured using dynamic capabilities. It is a matter of beating the competition to the punch to create resource configurations that hold competitive advantage sooner than other market players, in a more sensible and intelligent manner or simply by chance (Eisenhardt & Martin, 2000).

The sustainability of a competitive advantage has been discussed at length in the literature. As such, scholars now suggest that the firm’s ability to learn at the organizational level may be the only truly sustainable competitive advantage (De Geus, 1988), given that to sustain competitive advantage, resources must be constantly renewed (Teece, 2009). The importance of higher-order capabilities therefore becomes implicit. Increasingly, scholars agree that “(...) firms must build assets and capabilities that enable positive differentiation. Knowledge assets such as technical and organizational know-how can provide this differentiation. Accordingly, they can undergird a firm’s competitive position” (Teece & Al-Aali, 2011). As a result of creating, maintaining and protecting these non-tradable intangible assets and capabilities, firms may build competitive advantage to secure long-term profitability (Teece & Al-Aali, 2011).

Thus, going forward, our interest lies in how small knowledge-intensive firms, such as PSFs, renew their resource base while competing in international markets. The importance of this interest is fundamental to firms’ abilities to remain competitive and succeed in foreign markets. The study questions the impact of internationalization on higher-order and dynamic

capabilities, and asks how internationalization affects the evolution of the firm's resource base components. Prior to doing so, section 2.3 reviews the literature on professional service firms. Section 2.4 follows by discussing internationalization patterns, as they apply to small service firms.

2.3 An Overview of Professional Service Firms

2.3.1 *An Overview of the Canadian Services Industry*

Service firms have become an integral part of global economies. According to the World Trade Organization (WTO), services are the fastest growing sector. They account for two thirds of all global output, one third of global employment, and almost 20% of global trade (World Trade Organization, 2011a).

Services heterogeneity greatly increases the difficulty of statistically measuring services and international trade of services. Indeed, services can be a stand-alone business offering or business activities that facilitate other transactions for added value, as seen in manufacturing firms (Roy, 1998). Canada's economic profile is transitioning from its traditional base of commodities and manufacturing towards a strong service-oriented economy.

The services industry was not liberalized until 1995, when the General Agreement on Trade in Services (GATS) was put into effect after the WTO's Uruguay Round. Recently, six benefits that have resulted in the opening of international markets in services trade have been reported: a) economic performance, b) development, c) consumer savings, d) faster innovation, e) greater transparency and predictability, and f) technology transfer (World Trade Organization, 2011b). The purpose of the GATS was to liberalize markets, not to deregulate trade in services and open domestic markets to foreign competition. However, since the mid-1990s, domestic firms have increasingly seen the presence of foreign competitors. The consistent increase in service imports speaks to the opening of Canada's market, which brings in foreign services and increased competition for Canadian firms.

Table 9: Share of Trade in Services in Total Trade (% of GDP)

Country Name	Indicator Name	2000	2005	2010	Change between 2000 – 2010
<i>Canada</i>	Trade (% of GDP)	85.40	71.89	60.74	23%
	Trade in services (% of GDP)	11.64	10.72	10.17	
	<i>Share of trade in services in total trade</i>	14%	15%	17%	
<i>France</i>	Trade (% of GDP)	56.63	53.35	53.27	3%
	Trade in services (% of GDP)	11.17	10.73	10.83	
	<i>Share of trade in services in total trade</i>	20%	20%	20%	
<i>United States</i>	Trade (% of GDP)	25.95	26.49	28.77	15%
	Trade in services (% of GDP)	5.09	5.36	6.49	
	<i>Share of trade in services in total trade</i>	20%	20%	23%	
<i>United Kingdom</i>	Trade (% of GDP)	57.10	56.17	62.29	12%
	Trade in services (% of GDP)	14.90	16.25	18.14	
	<i>Share of trade in services in total trade</i>	26%	29%	29%	
<i>World</i>	Trade (% of GDP)	49.61	53.56	55.86	12%
	Trade in services (% of GDP)	9.30	10.93	11.68	
	<i>Share of trade in services in total trade</i>	19%	20%	21%	

Source: World Bank Data, query generated on January 6, 2012 (<http://data.worldbank.org/>)

For many small and medium-sized service firms, internationalization has now become a growth strategy worth considering. Although Canada is among the largest service exporters in the world⁴, the country has experienced a chronic and continuously increasing deficit in its service export balance. Specifically, the country's export balance in services has not been positive in more than 20 years and this deficit has been steadily increasing since 2002. However, recent performance of trade in commercial services warrants a closer examination of small PSFs.

2.3.2 Acknowledging Unique Characteristics of Knowledge-Intensive PSFs

Services can be differentiated from other types of offerings by four distinct characteristics: their intangibility, perishability, heterogeneity, and inseparability (Lovelock, 1991; Zeithaml,

⁴ Canada was ranked the 15th largest exporter by Industry Canada in 2005.

Parasuraman & Berry, 1985). These characteristics impede storability and even display for any length of time; render inventory impossible, where the service perishes if not consumed at a specific time; cause greater control difficulties because of fluctuating quality and sometimes impossible standardization; and often require the production and consumption of the service to be simultaneous, making the end-consumer an active part of the service delivery process.

The exchange of services between two parties—the close interaction between supplier and customer—is one that is fundamentally different from the exchange of manufactured or agriculture goods, for example. A service exchange necessitates a certain level of negotiation because of the provided service’s degree of intangibility. The interaction between customer and supplier is plagued with information asymmetry that significantly increases the complexity in coordination between the two parties to ensure proper service delivery and consumption. Chesbrough and Spohrer (2006, p. 37) state that in the context of business-to-business:

“Each party in the exchange needs the other’s knowledge in negotiating the exchange. The provider lacks the contextual knowledge of the customer’s business, and how the customer is going to leverage the offering to compete more effectively in the market. The customer lacks the knowledge of the full capabilities of the provider’s technologies, and the experience of the provider from other transactions in assessing what will work best.”

These characteristics influence a firm’s chosen growth strategies (Zeithaml et al., 1985), as the complexity imputed by the service offering may make certain strategies more difficult to implement in the firm than in its manufacturing counterparts, for example. Javalgi and White (2002) further note that industry-specific challenges and attributes unique to services generally make their marketing more complex, particularly in international markets, thus making it more difficult for service firms to internationalize.

Knowledge-intensive services have gained greater attention and interest, as they largely provide the critical infrastructure to most economies, e.g., transportation, information and communication technologies, business services, etc. (Roy, 1998). Given the wide array of economic functions services fulfil, this group of organizations is often characterized as

heterogeneous. In fact, not all services require the same level of specialized knowledge and skill to deliver outputs (Miles, 2008). Knowledge-intensive firms (KIFs) are defined as those where knowledge is the most important input in the firm's production processes. Good examples of KIFs are PSFs, which rely on professional bodies of explicit knowledge, such as law and accounting firms, and shared bodies of tacit knowledge, such as management consulting firms and advertising agencies.

Table 10: Classification of Knowledge-Intensive Sectors Concerning Services

Category	Example
Knowledge-intensive high-tech services	Post and telecommunications; Computer and related activities; Research and development
Knowledge-intensive market services (excl. financial intermediation and high-tech services)	Water transport; Air transport; Real estate activities; Renting of machinery and equipment without operator, and of personal and household goods; Other business activities ⁵
Knowledge-intensive financial services	Financial intermediation, except insurance and pension funding; Insurance and pension funding, except compulsory social security; activities auxiliary to financial intermediation
Other knowledge-intensive services	Education; Health and social work; Recreational, cultural and sporting activities
Less-knowledge-intensive market services	Sale, maintenance and repair of motorcycles / retail sale of automotive fuel; Wholesale trade and commission trade, except of motor vehicles and motorcycles; Retail trade, except of motor vehicles and motorcycles / repairs of personal and household goods; Hotels and restaurants; Land transport / transport via pipelines; Supporting and auxiliary transport activities / activities of travel agencies
Other less-knowledge-intensive services	Public administration and defence / compulsory social security; Sewage and refuse disposal, sanitation and similar activities; Activities of membership organisations n.e.c.; Other service activities; Private households with employed persons; Extra-territorial organizations and bodies

Source: Miles (2008, p. 13).

As identified in Table 10, there are a multitude of service firms characterized by varying degrees of knowledge intensity. This research takes a focused interest in PSFs, which are reviewed in greater detail in the following section.

⁵ Under NACE 74, *Other business activities*, are grouped the following: Legal activities; Accounting and tax consultancy; Management consulting; Market research; Advertising; Architectural activities; Engineering activities; Technical testing and analysis; Labour recruitment and provision of personnel; Security activities; Industrial cleaning; Secretarial and translation activities; and Packing activities (Miles, 2008).

2.3.3 Typology of Professional Service Firms

PSFs are one of the fastest growing sectors worldwide, with exports reaching \$270 billion in 2002 (UNCTAD, 2004). Even with their increasing international presence, defining professional services firms proves to be a difficult exercise as it is often diverted by providing examples of professional services as opposed to a concise definition (von Nordenflycht, 2010). However, agreement on a definition exists in the literature. As suggested by Greenwood and colleagues, “professional service firms [are] those whose primary assets are a highly educated (professional) workforce and whose outputs are intangible services encoded with complex knowledge” (Greenwood, Li, Prakash & Deephouse, 2005, p. 661). Examples of professional services include all business activities categorized under NAICS 54: legal activities, management consulting, engineering activities, and security activities, to name a few. These firms are a unique branch of services, given that the core component of their service offering relies heavily on the firm’s knowledge base (Grosse, 2000; Maister, 1993).

In his recent article, von Nordenflycht (2010) identified (1) knowledge intensity, (2) low capital intensity and (3) a professionalized workforce as the three distinctive characteristics of PSFs that delineate a holistic typology. As a result, PSFs are mapped and labelled as follow: classic PSFs, professional campuses, neo-PSFs and technology developers. This section will further expand on the three distinctive characteristics of PSFs and their implications, and briefly review the four classes of PSFs as proposed by von Nordenflycht (2010). This typology will be further supplemented with Erramilli’s (1990) differentiation of hard and soft services, and Ball and colleagues’ (2008) distinction between location-intensive and information-intensive soft services.

Knowledge Intensity. A service is said to be knowledge intensive when the “production of a firm’s output relies on a substantial body of complex knowledge” (von Nordenflycht, 2010, p. 159). The author explicitly emphasizes the firm’s heavy reliance on the knowledge base embodied in an ‘intellectually skilled workforce.’ This is in contrast to other firms that instead rely on the knowledge embedded in organizational routines, equipment and products. As a result of this knowledge intensity, PSFs must overcome unique managerial challenges

in regard to employee (and knowledge) retention, worker autonomy, and authority. This is due to the increased bargaining power held by individuals with complex knowledge who can simply walk away from the organization with its most valuable resource. Furthermore, additional challenges are encountered when employees interact with customers. The level of embedded knowledge and expertise held by the employee renders the customer's evaluation of the service or product very difficult or impossible. This knowledge asymmetry encapsulates the challenge of 'opaque quality'⁶ (von Nordenflycht, 2010).

Low Capital Intensity. The presence of low capital intensity indicates that "a firm's production does not involve significant amounts of nonhuman assets, such as inventory, factories and equipment, and even intangible nonhuman assets like patents and copyrights" (von Nordenflycht, 2010, p. 162). The implications of low capital intensity are significant, as they heighten the importance and negotiating power of human capital resources. The absence of specialized nonhuman capital decreases barriers to entry and enables individuals with the necessary knowledge base to enter the market. Again, the mobility of the firm's knowledge poses a continuous risk. However, low capital intensity positively impacts PSFs by allowing them to adopt organizational structures that are unhindered by external investment obligations (von Nordenflycht, 2010).

Professionalized Workforce. The literature on professions is vast and spans multiple literature fields, notably sociology and organizational studies. Three institutional features aligned with professions are of particular interest to the study of PSFs. As stated by von Nordenflycht (2010), "[t]he first is a particular *knowledge base*. The second is *regulation and control* of that knowledge base and its application. This encompasses several features: that a profession has a monopoly on the use of that knowledge; that it regulates that monopoly autonomously, rather than being regulated by the state; and that such regulation not only excludes non-professionals but also mitigates competition *among* professionals. The third feature is an *ideology*" (von Nordenflycht, 2010, p. 163). As suggests the table below, the

⁶'Opaque quality' is an important implication derived from the production and delivery of knowledge intensive services. It refers to "situations where the quality of an expert's output is hard for nonexperts (i.e., customers) to evaluate, even after the output is produced and delivered" (von Nordenflycht, 2010, p. 161).

degree of professionalization differs between sectors of PSFs (for example, advertising agencies are more or less professionalized whereas accounting firms are highly professionalized). Firms that are highly professionalized may overcome opaque quality simply by adhering to the codes of ethics and norms developed by the self-regulated body of professionals to which they belong. Organizations that are not professionalized, such as management consulting firms, instead rely on other means like reputation and brand to gain customer trust and overcome opaque quality.

Table 11: Typology of Professional Services Firms

Typology	Examples	von Nordenflycht (2010)			Erramilli (1990)	Ball, Lindsay and Rose (2008)
		<i>Knowledge intensity</i>	<i>Low capital intensity</i>	<i>Professional workforce</i>	<i>Hard versus soft service</i>	<i>Location-intensive versus information-intensive</i>
<i>Classic PSFs</i>	Law Firms Accounting Firms Architecture Firm	X	X	X	Mostly hard	Mostly information-intensive
<i>Neo-PSFs</i>	Consulting Firms Advertising Agencies	X	X		Mostly hard	Mostly information-intensive
<i>Professional Campuses</i>	Hospitals Emergency Services	X		X	Soft	Location-intensive
<i>Technology Developers</i>	Biotechnology R&D Laboratories	X			Mostly hard	Mostly location-intensive

Source: Adapted from von Nordenflycht (2010, p. 166).

Given the heterogeneity of PSFs, this typology should be viewed as a spectrum rather than mutually exclusive groups. The first of four groups is those presenting evidence of all three characteristics. These firms are labelled ‘classic PSFs’ and include law and accounting firms; they are those with the highest degree of professional service intensity. ‘Neo-PSF’ organizations are characterized by high knowledge intensity and low capital intensity, and their workforce is non-, or minimally, professionalized. Given the importance of the

knowledge base embedded in their human capital resources, neo-PSFs face the same type of employee retention challenges as classic PSFs. Their low capital intensity has also resulted in unique organizational structures, such as models based on accession to partnership. Examples include consulting firms and advertising agencies. 'Professional campuses' are also characterized by a professional workforce, yet differ from classic PSFs because of their capital intensity. These firms are often derived from a specialized physical infrastructure, and examples include hospitals and other specialized care facilities. Lastly, 'technology developers' present only one of three distinctive characteristics: knowledge intensity. These firms are subject to the 'lowest degree of professional service intensity' and are most often dependent on significant capital resources such as considerable investment in physical resources or financial resources to fund the development of new products.

Although this typology offers means to categorize PSFs, these characteristics do not take into account some of the above-mentioned basic characteristics observed in service firms that impact their internationalization, notably, their intangibility, perishability, heterogeneity and inseparability (Lovelock, 1991; Zeithaml et al., 1985). Since the early 1980s, researchers have observed diverse patterns of internationalization in the service industry (Boddewyn, Soehl & Picard, 1986). Inseparability has been identified in the literature as being one of the key factors impeding and increasing the difficulty of implementing some internationalization strategies within certain types of service firms (Erramilli, 1990). There exists another notable difference among service firms, which can be implicitly depicted within von Nordenflycht's (2010) typology. The way a service is delivered to the end customer, whether at arm's length or in direct physical contact with the service organization, influences the firm's organizational structure (Lovelock, 1991).

Erramilli (1990) looked more closely at this phenomenon by studying different types of service firms seeking to internationalize. He suggested that there are two types of services, hard and soft, which are based on the firm's ability to separate its production and consumption processes. He found that certain service firms looking toward foreign markets face unique challenges, as studies demonstrated that some entry-modes were impossible for services that could not separate their production and consumption processes (Erramilli,

1990). ‘Hard services’ are those that can separate their production processes from the service’s delivery, whereas the production and the consumption of soft services cannot be divided. From a broader perspective, Ball and colleagues refer to ‘soft services’ as those that rely heavily on client interaction and customization. They go further still by distinguishing two types of soft services based on operations and products. Where location-intensive soft services involve “intangible actions on intangible products” (e.g., retail, fast food, vehicle rental), information-intensive soft services instead involve “intangible actions directly for customers” done by transforming and exchanging complex information into a final output of individualized solutions (e.g., management consulting, market assessment, design and engineering) (Ball et al., 2008, p. 415). Of significant importance in regard to the international trade of soft services are advances in information communication technologies (ICTs), which have facilitated soft services’ operation in foreign markets, as the ability to diffuse and trade complex information via telecommunications has increased the tradability of these services (Roberts, 1999).

2.3.4 Engineering Service Providers

As the subject of interest of this study is small engineering service providers, general facets of their business models are further discussed to provide an overview of the resources and capabilities necessary to the firm’s ability to output its services.

First and foremost, engineering service providers operate in a multitude of fields, which results in a highly heterogeneous industry⁷. This heterogeneity in consulting engineering service providers is heightened as a result of the large array of services that are rendered to

⁷ The Association of Consulting Engineering Companies Canada (ACEC Canada) identifies their member firms as operating principally in the following fields: building construction, transportation, environment, power, planning and development, communications and information technology, industrial and manufacturing, oil and gas, mining and metallurgy, forestry and pulp and paper, agriculture, building structures, solid waste, mechanical and electrical, geotechnical, aeronautical, and bio-medical (ACEC Canada, 2012).

both public and private clients. Typical services include, but are not limited to the following⁸:

- Consultation and advice;
- Feasibility studies;
- Field investigations and engineering data collection;
- Environmental assessments and impacts statements;
- Engineering reports;
- Estimates of probable construction costs;
- Preliminary and final designs, drawings, specifications, and construction bidding documents;
- Assistance in securing construction bids and awarding contracts;
- Construction administration and observation;
- Arrangements for or performance of materials and equipment testing;
- Assistance in start-up, assessment of capacity, and operation of facilities;
- Preparation of operation and maintenance manuals;
- Appraisals and rate studies;
- Expert testimony; and,
- Provision of supplemental temporary staff.

An engineering firm's ability to provide a service offering that matches a client's specific need for that service is grounds for its success (Maister, 1993). In fact, Løwendahl (2005) identifies the sale of a "credible promise" as the first of three value-creating processes within PSFs. To provide this service, the firm must have the necessary resource base (e.g., resources and capabilities) to ensure proper delivery. According to the American Society of Civil Engineers (ASCE, 2003, p. 10):

"Many consulting engineering firms provide comprehensive services, while other firms specialize in specific areas of engineering – such as geotechnical, environmental, traffic, or structural – and provide their services to a prime engineer, architect or owner. Few consulting firms are qualified to provide complete service for all projects; thus, it is common to use associate consulting professionals to provide specialized services"

⁸ Examples listed as typical services were drawn from the American Society of Civil Engineers' (ASCE) Manual and Report on Engineering Practice No. 45, *How to Work Effectively With Consulting Engineers*.

As a result, the size of the firm may impact the resources it has at its disposal and therefore its ability to offer complete services. It is important to note that engineering firms often contract out specialized work depending on the needs of the projects on which they are bidding or for which they have successfully received contracts. The firm's formal and informal relationships in its network (Owusu, Sandhu & Kock, 2007) and its access to specialized human capital (Hitt, Bierman, Shimizu & Kochhar, 2001; Hitt, Leonard, Klaus & Katsuhiko, 2006) are therefore also valuable resources.

Table 12: Three Generic Strategies in PSFs

	Adapting Solutions	Client Relations	Creative Problem Solving
<i>Management focus</i>	Internal R&D	External sales	Internal and external competence development
<i>Performance evaluation</i>	Sales revenues and new solutions	Client satisfaction and percent of repeat purchase	Innovation and capture rate for challenging projects
<i>Service complexity</i>	Low	Medium	High
<i>Key assets</i>	Organizationally controlled	Individually controlled	Organizationally and individually controlled
<i>Vulnerability</i>	Obsolescence of solutions	Exits	Obsolescence of competence or rigidity (loss of innovativeness)
<i>Strategic focus</i>	Target markets	Target clients	Target projects/problems (challenges)

Source: Adapted from Løwendahl (2005, p. 142).

The second value-creating process involves the activities that are required for the firm to deliver the promised service. The level of complexity of a service may differ from one client to the next, and this level of complexity impacts the resources and capabilities the firm needs to provide said service (Maister, 1993; Løwendahl, 2005). Recent research on strategy in

PSFs proposes three generic strategies⁹: a) solution- or output-based strategies, b) client relation-based strategies, and c) problem-solving or creativity-based strategies (Løwendahl, 2005). From his research, Løwendahl (2005) found that engineering design firms often provide clear examples of PSFs following a problem-solving or creativity-based strategy. As Table 12: Three Generic Strategies in PSFs (above) demonstrates, although these strategies are not mutually exclusive, it is very difficult for a firm to adopt multiple strategies simultaneously because they significantly differ from one another and require different resources and capabilities to sustain (Løwendahl, 2005).

In general, clients look to their consulting engineer (or consulting engineering firm) for the engineer or firm's ability to meet specific objectives. Effective use of financial resources and soundness of design are two relevant examples (American Society of Civil Engineers, 2003). Engineering firms often provide services via a project business form whereby teams are created and the project is organized based on client requirements. The scope of projects may vary from the use of individual employees to individually operated teams that are supported by additional organizational resources. These services may be provided directly to the client on-site or via the engineering service's facilities, depending on the nature of the delivered service. In each service delivery scenario, expectations are outlined in project documents where budget, timeline and scope are agreed upon (Hansen & Kent, 2011). The frequency of repeated sales from a single client varies significantly from one industry to the next, as it depends on the nature of the client's needs (e.g., government clients will have distinctly different needs from those of private companies). Engineering service providers must then be

⁹ As the purpose of this research is not to further examine generic strategies in PSFs, I limit myself to providing a brief description of these three options to demonstrate that the critical resources and capabilities necessary for service delivery following each strategy differ significantly. Solution- or output-based strategies are those that focus on "superior collective capabilities or solutions" (Løwendahl, 2005, page 138). The firm has developed a core portfolio of services, methods or solutions and achieves growth through the penetration of new markets and/or client groups that demonstrate similar needs. Client relation-based strategies instead provide services on the basis of their unique ability to "understand and help particular client groups" (Løwendahl, 2005, page 136). The knowledge and expertise of professionals and their reputations are resources of utmost importance, and growth is often achieved by winning the trust and confidence of new clients. Problem-solving or creativity-based strategies differ from the previous two because of the complexity of the service offering. Expertise may be limited to a number of areas, but solutions may not be replicable from one client to another. Thus, innovation, expertise and problem solving skills are all of primary importance, and there exists a high dependence on the firm's specialized experts (Løwendahl, 2005).

equipped with project management skills, expertise and processes to ensure that service delivery is properly completed. Furthermore, client interaction and communication capabilities are required to meet client expectations and ensure a continuous understanding of the project requirements and advancements. In addition, the firm must also strategically position itself in a market where frequency of repeat sales best uses its resources (Løwendahl, 2005).

The typical organizational structure often adopted in engineering service firms differentiates levels of employment based on experience: the principals find the work, the associates oversee the work, and the junior professionals complete the work (Maister, 1993). Thus, organizations may be concerned with making investments in procedures, processes and modular solutions to enable a more efficient service delivery when solving similar client problems (Løwendahl, 2005). Furthermore, the use of senior staff's time and expertise will differ with the complexity of the service being delivered. As such, the organization's ratio of senior to junior staff should reflect its human resources needs and be aligned with its service offering (Maister, 1993; Løwendahl, 2005).

In practice, teams are often headed by engineers who hold a P.Eng. accreditation. Professional engineers are those who have been licensed by an accredited engineering program, completed an internship program and successfully passed a professional practice examination. By holding the P.Eng accreditation, professional engineers "are legally and ethically responsible for [their] work, and hold public safety paramount; maintain the highest levels of competence, as judged by [their] peers; continually upgrade [their] knowledge; and adhere to a strict code of ethics" (Canadian Council for Professional Engineering, 2010). Critical to the success of the firm is the expertise it holds embedded in its human capital (Hitt et al., 2006), as are the firm's reputation and its perceived professional ethical practices (von Nordenflycht, 2010).

The third and final value-creating process is that of continuous learning from the two previous processes to improve the efficiency and effectiveness of future projects (Løwendahl, 2005). As discussed in section 2.2.5, learning at the organizational level is embodied in behavioral and cognitive changes that result from experience accumulation,

knowledge articulation and knowledge codification (Zollo & Winter, 2002). One way consulting engineering services may gain rich knowledge and expertise is by completing projects internationally. Often, their choice of foreign markets is a by-product of winning a project contract (O'Farrell, Wood& Zheng, 1998) and their exit may follow the project completion (Krull, Smith& Ge, 2012). These characteristics demonstrate that their internationalization differs from that of manufacturing and other service firms. International trade in engineering services is a phenomenon that cannot be overlooked as trade barriers for services further decrease and the mobility of professional practitioners between countries continues to increase (Evetts, 2011). In response to the liberalization of services, international mobility agreements have been implemented to simplify the evaluation of a professional candidate's qualifications from one country to another. Canadian agreements include the Engineers Canada-ABET Agreement (USA), the Canada-CTI Agreement (France), the NAFTA Mutual Recognition Agreement (USA and Mexico in accordance with the NAFTA agreement), and the Washington Accord (Australia, Canada, Hong Kong, Ireland, New Zealand, South Africa, UK, and USA). As stated by the Government of Canada, the main export markets are the United States, which account for approximately half of the industry's exports, Africa, Asia, Europe and South America. In 2005, these exports accounted for almost half of the export revenues of the professional services sector and contributed to nearly 0.6% of Canada's GDP (Foreign Affairs and International Trade Canada, 2011).

Table 13: Value-Creating Processes in Consulting Engineering Firms

Value-creating process	Description	Component of the resource base
Sale of service	Ability to provide a service offering that matches a client's specific need for that service	Operational capability
Delivery of service	Involves the activities required for the firm to deliver the promised service	Operational capability
Continuous learning	Learning from operational processes to improve the efficiency and effectiveness of future projects	Higher-order capability

Source: Adapted from Løwendahl (2005).

Given the existence of such accords and the growing importance of service exports, further research on the internationalization of engineering services is necessary and justified. Thus, internationalization, specifically with regard to the international trade of services, will be further discussed in section 2.4.

2.4 Internationalization in Small Professional Service Firms

The globalization of markets has forever changed the way businesses worldwide operate, with the opening of once protectionist trade barriers and the ever-changing advancements in technology facilitating communication methods and increasing the mobility of business offerings. Moreover, the development of multinational enterprises has led to interrelated economies and financial markets (Hitt et al., 2006). For example, in response to this evolution, some small professional service firms that were once local support service providers evolved by expanding their geographic reach in order to meet the growing needs of their clients, who themselves expanded abroad (Greenwood & Empson, 2003).

Geographic expansion has been identified as one of the most important move for firm growth (Lu & Beamish, 2001), particularly for firms whose domestic market is geographically confined (Barringer & Greening, 1998). This statement is also supported by D'Souza and McDougall (1989) who state that the ability to engage in export is a necessary step to ensure the survival and growth of new and small firms. The reduction or elimination of trade barriers, the emergence of more efficient and less costly transportation modes, and the creation of new communication technologies all facilitate simultaneous interaction. Thus, competition increases significantly for firms operating solely in their domestic market because they may face international competitors. Technological, political and societal changes have internationalized competition in many industries, putting increasing pressure on firms to follow suit (Porter, 1990.). Consequently, owner/managers seeking opportunities may not necessarily find them in their domestic markets (McDougall & Oviatt, 2000) and international expansion may be identified as a viable growth strategy.

Considerable work has been done in the international entrepreneurship (IE) literature to explain why some small firms internationalize and how they engage in this process.

Internationalization literature first found its beginnings in export theories and has evolved to what scholars now call international entrepreneurship (Dana, Etemad & Wright, 1999). Many in the field accept Oviatt and McDougall's (2005) revised definition, whereby international entrepreneurship is defined as "the discovery, enactment, evaluation, and exploitation of opportunities—across national borders—to create future goods and services" (Oviatt & McDougall, 2005, p. 540). However, as will be discussed in this section, many of these theories provide insight on only a portion of this complex phenomenon. In response to this limitation, some researchers have suggested the need for a holistic approach to clarify the issue (Ruzzier, Hisrich & Antoncic, 2006).

The internationalization of the firm is both the outcome and the source of knowledge (Casillas, Moreno, Acedo, Gallego & Ramos, 2009). The impact of knowledge and, to a greater extent, organizational learning in the field's evolution has been an underlying implicit recurring theme in most internationalization theories (Johanson & Vahlne, 1990; Oviatt & McDougall, 1994). This discussion began by asking how a firm's international activities impact the renewal of its resources and capabilities. This is a question that continues to gain importance and attention in IE research as studies have begun examining the effect of organizational learning during internationalization (Saarenketo, Puumalainen, Kuivalainen & Kyläheiko, 2004; Michailova & Wilson, 2008; Brouthers, Nakos, Hadjimarcou & Brouthers, 2009; Fletcher & Harris, 2012; Kauppinen & Juho, 2012).

In attempting to answer this question, the next section provides an overview of the evolution of internationalization literature to provide insight into the application of internationalization research to small service firms. The following sections discuss the unique challenges faced by small service firms when internationalizing and further acknowledge the complexities in trading services in international markets.

2.4.1 Trading Services in Foreign Markets

The presence of services within international business literature has increased over the years, as several authors have outlined and detailed the need for specific studies of firms in this industry. Some have suggested that the study of international services has been stalled by the

peculiar nature of services, lack of data and international agreements, and an overall neglect of the topic by scholars (Clark, Rajaratnam & Smith, 1996). Over the last two decades, several compelling reasons have surfaced and reinforced the need to study service firms. Noted are the vital roles that services play in economies worldwide (Javalgi & Martin, 2007; WTO, 2008), the necessity of export and other forms of international sale as a means for firm growth and survival (D'Souza & McDougall, 1989; Davidsson & Wiklund, 2000; Lu & Beamish, 2006), and the sheer increase in number of service firms engaging in international activities (Erramilli, 1990; Chiru, 2007).

This section furthers the initial introduction of international trade in services from section 2.3.1. As previously indicated, the General Agreement on Trade in Services (GATS) provides greater clarification of trade in services, as often the intangibility of services may lead to inconsistencies in reporting service transactions across borders. There are four ways to trade services and these are defined by considering the location of both the supplier and consumer of the traded service. The first mode, cross-border supply, is applied when a service supplier in one country supplies a service to a consumer in another country without either party moving into the territory of the other. In this case, the service can be encapsulated in a tangible object that acts as a vehicle for delivery, for example, the information embedded in blueprints, reports or assessments. The second mode, consumption abroad, is observed when a consumer resident of one country moves to another country to obtain (and consume) a service. This example is frequent in the hospitality industry, whereby a traveller of one country exports him or herself to consume a service in a foreign market. The third mode of trade describes the commercial presence a firm may have abroad. In this case, a company supplies services internationally via the activities of foreign affiliates. The last mode, the presence of natural persons, identifies the process in which an individual travels across borders to the consumer's country to provide a service on behalf of an employer or on his or her own behalf (OECD, 2002).

Studies have found that the type of service, the degree of service customization and the degree of service integration affect the mode of entry adopted by a firm (Erramilli, 1990). The degree of tangibility of the service offer and the degree of direct contact with clients

during the service creation and delivery processes are among the most useful aspects to consider in service firm internationalization. These aspects significantly impact the modes of foreign market entry that are made available to the firm, thus varying the perceived degree of risk and necessary investment associated with internationalization (Erramilli & Rao, 1993; Erramilli, 1990; Patterson & Cicic, 1995).

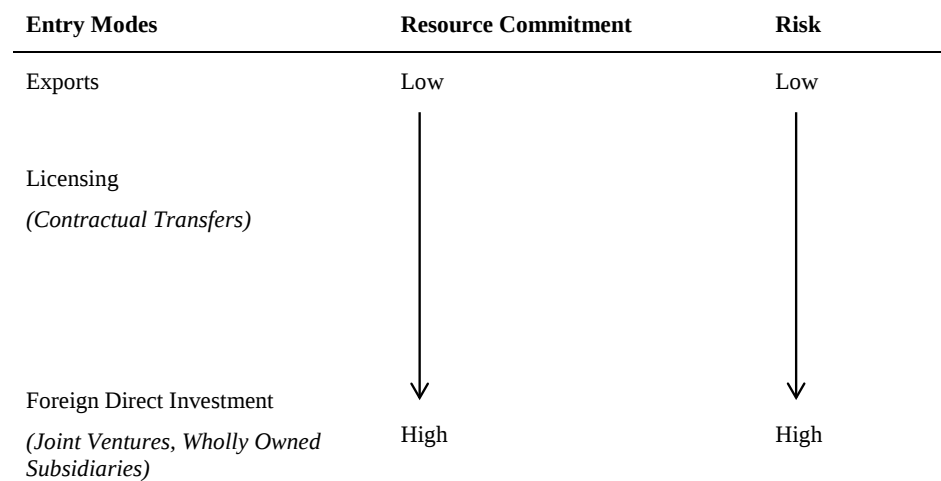


Figure 1: Characteristics of Entry Modes

Source: Erramilli and D'Souza (1993, p. 31). Originally adapted from Kotler (1997).

As Figure 1 shows, there are various entry modes and each differs from the other in terms of resource commitment and risk (Erramilli, 1990; Kotler, 1997). The more the entry mode requires resource commitment, the greater the perceived risk incurred by the firm. This causal relation imposes greater weight on small service firms, as their limited resources are an important factor that distinguishes their strategic behavior from that of larger firms (Van Hoorn, 1979) and imposes on them a much smaller margin of error (Eisenhardt & Schoonhoven, 1996).

In his initial characterization of hard and soft services, Erramilli (1990) categorized engineering and design firm as 'hard' services because their production and consumption processes could be separated. Later studies have suggested that these firms operate using location-bound projects (Patterson & Cicic, 1995) and are contact-based services, given the high degree of customization resulting from the client's input in the creation and delivery

processes (Clark et al., 1996). This would instead classify consulting engineering firms as 'soft' services. These firms often adopt unique behavior in regard to their international activities. Studies show that engineering firms, for example, often exit a country after project completion (Coviello & Martin, 1999; Malhotra & Morris, 2009). This example shows that the line between hard and soft services is blurred, and that many factors must be considered by the firm when it chooses an entry mode into foreign markets.

According to a national survey completed by Statistics Canada (Chiru, 2007), very small and small knowledge-intensive business services are more likely to be export-oriented than medium-sized firms. The internationalization of very small and small knowledge-intensive companies can be explained by the importance of niche products and services and the use of intellectual property protection. Having a high proportion of highly skilled staff, an indicator of knowledge-intensity in the firm, was found to have a positive and significant effect on the probability of exporting. New-technology knowledge-intensive services such as scientific and technical consulting, computer consulting, and engineering and environmental consulting were recognized as more export-intensive than others, such as management consulting services and R&D in the social sciences and humanities. Furthermore, the study asserts that the barriers these small firms face to their entry into export markets are not as deterring as in the manufacturing sector (Chiru, 2007; Winsted & Patterson, 1998).

As previously indicated, scholars have identified firm- and industry-specific factors that characterize firm behavior, which often determines whether a firm will remain in its domestic market or look toward international ones (D'Souza & McDougall, 1989). These findings call into question the appropriateness of internationalization theories, as their advancements have relied heavily on studies from large manufacturing firms (Erramilli & D'Souza, 1993; Patterson, Cicic & Shoham, 1997). As discussed in section 2.3.2 and again in the paragraphs above, the intrinsic aspects of the service industry increase the difficulty for service firms to expand abroad compared with manufacturing firms (Ball et al., 2008; Lapert, Lovelock & Wirtz, 2004; Winsted & Patterson, 1998). Additionally, resource constraints put a greater strain on entrepreneurs and their small firms, as they often have only a small margin of error when implementing their internationalization strategies. Resource constraints may

also influence their ability to capitalize on the opportunities identified in their environment (Eisenhardt & Schoonhoven, 1996).

Given that the majority of research on internationalization has focused heavily on manufacturing firms or service firms from specific sectors (e.g., software, high technology), conflicting viewpoints exist in the literature concerning whether existing theories are applicable to all service firms (Javalgi & Martin, 2007). The following section reviews internationalization pathways and their application to small service firms.

2.4.2 Internationalization Pathways

2.4.2.1 Incremental internationalization (stage theory)

Past studies illustrate how Nordic and American scholars first strived to determine the establishment chain in which a firm engaged in sequential linear stages requiring increasing investment and risk to further their commitment in foreign markets. Firms modeled by the Uppsala theory started as ad hoc exporters and, with time, grew to become multinational enterprises as they gained experience in international markets and increased their commitment to each market (Johanson & Vahlne, 1977). Simplistic in their nature, these models and their revisions (Johanson & Vahlne, 1977; Johanson & Vahlne, 1990) were criticized for several reasons: first, for their lack of explanatory power as to how and why the internationalization process occurs and the drivers leading firms from one stage to another (Andersen, 1993); second, for how they overlook small firm internationalization (Fillis, 2004); and third, for not considering the firm's ability to disengage from international activity (Benito & Welch, 1997). These models proved to be tentative in their explanation of firm internationalization and were criticized for being too deterministic and overlooking many of the firm's internal resources and capabilities. Furthermore, due to their linearity, none exemplified the possible de-internationalization in which a firm could engage (Calof & Beamish, 1995). Furthermore, Reid's (1983) research contended that internationalization patterns are situation specific and influenced by prevailing circumstances and available resources.

The literature on internationalization has evolved considerably and new themes (e.g., network theory, RBV, international entrepreneurship) have changed how firm internationalization is studied in academia. Furthermore, past studies have demonstrated the difficulty in pinpointing a template for firm internationalization (e.g., Johanson & Vahlne, 1977), and the knowledge built over the years in this stream of literature has confirmed how wildly circumstantial and path-dependent the internationalization process can be for each firm. Granted, these early models were also behaviorally oriented and mainly reflected the early stages of internationalization. Nonetheless, these studies highlighted the undeniable importance of experiential knowledge in the internationalization process (Andersen, 1993).

That said, the linear sequential approach to internationalization has little direct application to some services. Highly capital-intensive services such as restaurants, retail food services, and hotels are limited in their foreign market entry to contractual agreements, licensing or franchising, or foreign direct investment (Erramilli, 1990). Furthermore, certain entry modes, such as the use of distribution agents, are not feasible modes of internationalization for firms whose service offer is compelled by a high degree of customization and necessitate significant client interaction (Erramilli, 1990). Examples of these firms include PSFs like design and management consulting firms where individuals from the company would physically export themselves to deliver the firm's business offering (Coviello & Martin, 1999). As noted by Zimmerman (1999) and Grönroos (1999), some service firms may have to enter foreign markets 'all at once,' going against the descriptive process identified by the Uppsala school of thought. Thus, some service firms are daunted by the task of embarking on their internationalization by using highly resource-committing entry modes that would permit them to overcome this problem (Grönroos, 1999). Research in entry mode choice shows that mode of entry significantly affects the resources and capabilities necessary for the firm to internationalize (Ball et al., 2008). Ultimately, the engagement of resources and capabilities in foreign markets will evolve differently depending on the firm's level of involvement in its internationalization activities. This further strengthens the argument that the internationalization of service firms is highly idiosyncratic and path-dependent.

2.4.2.2 Radical internationalization (born globals)

While stage theories can be viewed as one internationalization path, born globals (BG) can be seen as another (Kuivalainen, Sundqvist, Saarenketo & McNaughton, 2012). Empirical evidence highlighting high-growth firms that internationalized early in their inception and ‘leapfrogged’ over the internationalization stages defined by the Uppsala model brought new light to internationalization literature. The formation of a population of small entrepreneurial firms that internationalized at inception could not be explained by existing theories. An international new venture (INV) is, as per Oviatt and McDougall (1994), “a business organization that, from inception, seeks to derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries” (Oviatt & McDougall, 1994). When it was published, this concept countered existing stage theories as it posited that internationalization is an incremental process. The authors suggested that past research wrongly assumed that internationalization occurred long after inception and that this process did not stem from a micro perspective. Whereas the traditional internationalization theory posited that firm experience supersedes individual experience, born globals instead suggested that individual experience and entrepreneurial vision drove the firm’s international commitment decisions (Autio, 2005). Thus, as per their findings, Oviatt and McDougall (1994) suggested that earlier works ignored fundamental determinants to internationalization, such as the owner/manager’s past experience, social networks, and business relationships.

The BG phenomenon continues to gather evidence and importance in IE literature as two trends are significantly reducing the cost of internationalization. First, globalization is homogenizing buyer preferences across borders, thus simplifying product development and positioning; second, technological advances in ICTs, transportation, production methods, and international logistics are significantly reducing transactions costs of doing business in foreign markets (Knight & Cavusgil, 2004).

The terms ‘INV’ and ‘BG’ have been used interchangeably in the literature. However, following a qualitative analysis of the literature, Crick (2009) found that some differences do exist, notably in respect to market commitment and the respective management teams’ initial experience and subsequent learning. BGs are more likely to adopt higher commitment entry

modes than INVs, which instead focus on less committal modes except in their core markets. INVs were found to be composed of less experienced teams than BGs; however, both recognized the need to exploit their competitive advantage (often technology) in foreign markets. The study also demonstrated significant commonalities between both concepts, particularly with respect to internationalization timelines and the objective of international diversification (Crick, 2009). As such, going forward the term 'born global' is used to define young entrepreneurial firms that have internationalized at or shortly after their inception.

BGs seek superior international business performance by exploiting knowledge-based resources in the sale of outputs in foreign markets (Knight & Cavusgil, 2004). Case studies have identified that their creation often stems from the owner/manager's influence, previous international experience and aggressive goal to internationalize; their ability to identify and acquire resources from multiple countries; and the sale of products or services that are consumed in international markets (Oviatt & McDougall, 1994). BGs are often knowledge-intensive firms that view the world as one marketplace. Empirical evidence has shown that they may concurrently penetrate domestic and foreign markets, irrespective of psychic distance (Bell, McNaughton, Young & Crick, 2003). Thus, these firms provide contrasting evidence to a pattern of non-incremental, radical and committed internationalization (Moen & Servais, 2002).

These owner/managers were found to be both innovative and proactive in their use of hybrid business structures to facilitate their costly international expansion in the early stages of their growth (McDougall et al., 1994). Due to their poor resource endowment, these firms had to overcome difficulties in internationalization, such as liabilities of foreignness and newness to the development of organizational capabilities, to develop the ability to replicate their competitive advantage in foreign markets (Oviatt & McDougall, 1994).

Coviello and Munro's (1995) study identified in small high-tech firms the use of networks to overcome the difficulties of selecting foreign markets and appropriate entry modes. Although these decisions initially appeared to form a random internationalization pattern, a closer look shows that the decisions were made strategically through informal and formal network contacts (Coviello & Munro, 1995). Network theory is of interest when examining early

internationalization in small entrepreneurial firms, as some firms have demonstrated that their stock of relevant knowledge is often accessed from network linkages that reduce the risks of international involvement. Networks are defined as “systems of social and industrial relationships among, for example, customers, suppliers, competitors, family, and friends” (Coviello & Munro, 1995).

Bell and colleagues (2003) explain that within the network theory perspective, “internationalisation is seen as an entrepreneurial process that is embedded in an institutional and social web which supports the firm in terms of access to information, human capital, finance, and so on” (Bell et al., 2003). By using its international network, the firm may access resources (e.g., information, relationships) that it may not have had access to on its own. This perspective on internationalization posits that a firm’s strategy emerges from behaviors influenced by a multitude of network relationships, which also results in opportunities and threats that must be recognized by the firm (Coviello & Munro, 1995; 1997). By using its network, a firm can lower the risk of entering a new market, thus facilitating the internationalization process.

2.4.2.3 Late internationalization

Another internationalization pattern has been studied over that last decade and has provided evidence of a pathway different from those of incremental and early radical internationalization. Firms that had been established in their domestic market for some time would later make deliberate investments in penetrating international markets, often following a critical event (Bell, McNaughton & Young, 2001). In the sparse studies on these firms, critical events included a change in ownership, acquisition, client followership, and near bankruptcy (Bell et al., 2001, 2003). Because of the maturity and establishment of these firms in their home markets and in some cases the acquisition of new resources, they did not encounter the same resource constraints as BGs. Thus, these ‘born-again globals’ subscribed to similar internationalization patterns in terms of pace, but differed significantly from BGs as they were able to facilitate a committed internationalization process (Bell et al., 2001).

Table 14: Comparison of Internationalization Patterns

Pattern	Traditional	Born globals	Born-again globals
<i>Main theme</i>	Gradual internationalization process explained by the development of knowledge and experience in foreign markets leading to subsequent increased investments and commitment to foreign markets (Johanson & Vahlne, 1977; 1990)	Internationalization of new ventures at inception or early thereafter, ‘leapfrogging’ over stages thought to be necessary for incremental experiential knowledge accumulation (Oviatt & McDougall, 1994).	Internationalization as a response to a critical incident, often a change in ownership or a management buyout (Bell et al., 2001).
<i>Fundamental assumptions</i>	Reactive internationalization. Commitment decisions are made incrementally due to uncertainty. Firms counter risk adversity by gaining knowledge and experience in foreign markets, first in those posing less risk and then by increasing their investment in their internationalization (Johnason & Vahlne, 1990).	Proactive internationalization. <i>A priori</i> valuable and unique resources permit new ventures to enter foreign markets upon their inception (Oviatt & McDougall, 1994)	Reactive internationalization. Company’s maturity and establishment allows it to exploit networks and resources gained from critical incident (Bell et al., 2001; Bell et al., 2003).
<i>Pace</i>	Gradual	Rapid	Late and rapid
<i>Expansion pattern</i>	Incremental Domestic expansion precedes internationalization in markets with low psychic distance.	Concurrent Near simultaneous domestic and foreign expansion in lead markets.	Extended domestic market orientation followed by rapid internationalization. Differs from traditional pattern by mode of entry and market choice.
<i>Mode of entry</i>	Progression from low-risk modes of internationalization to those requiring greater risk and investment. Markets are initially chosen for their low psychic distance, and the firm incrementally progresses to markets of greater psychic difference (Johanson & Vahlne, 1977; 1990)	Often low-risk modes of entry, given the resources constraints of new and small ventures (Oviatt and McDougall, 1994). However, high-risk modes of entry are used in INVs that have the ability to generate the appropriate knowledge to justify this choice (Ripollés, Blesa & Monferrer, 2012).	Use of networks and existing channels. Evidence of domestic client followership, and integration into client’s existing channel. Late internationalization may mean that firm is in a better position to finance rapid international expansion, and may have the necessary resource and capabilities to sustain this endeavour (Bell et al., 2003).
<i>Implications for OL</i>	Experiential learning accumulated with the firm’s international involvement explains its subsequent internationalization decisions.	Individual foreign knowledge developed prior to the firm’s inception can substitute for deficiencies in organizational routines, experiences and capabilities and allow the firm to ‘leapfrog’ over initial knowledge accumulation stages.	Following critical incident(s), the firm recognizes and captures the opportunity in foreign markets. Exploitation of newly acquired resources and capabilities, or exploration for new resources.

2.4.3 *Internationalization, Knowledge and Learning*

Firm internationalization is influenced by a series of factors originating from a) the environment (e.g., industry, size of domestic market, competition), b) the firm (e.g., innovativeness, networks, learning capabilities and ownership), and c) its management (e.g., international experience and orientation, perceived barriers and opportunities, and commitment to internationalization) (Fischer & Reuber, 2008). Some of these determinants promote internationalization while others act as barriers to foreign market entry. Recent studies suggest that these determinants to internationalization should be considered from three perspectives in terms of a combination of scale, scope and temporal measures (Zahra & George, 2002; Kuivalainen et al., 2012). This allows researchers to take into account the determinants that differentiate late versus early internationalization, their contribution to scale and scope of foreign market entry, and how these antecedents change over time (Kuivalainen et al., 2012). By doing so, researchers establish the relationships between the antecedents to internationalization (e.g., knowledge, experience) and the characteristics of the firm's internationalization pattern. These characteristics may have an impact on what the firm learns during its international involvement, which would affect future internationalization decisions (Kuivalainen et al., 2012).

Experience, knowledge and learning are common themes in all three internationalization patterns discussed in the previous section. Although the timing of internationalization and the pace at which firms expand their activities to foreign markets may differ among the three pathways, the importance of knowledge as a critical firm resource is evident among all of them (Jones & Coviello, 2005). Earlier works in internationalization research suggested that incremental development of experiential knowledge had an impact on subsequent internationalization decisions (Johanson & Vahlne, 1977; 1990). The implications of this linear learning process were that the firm's existing knowledge base was a result of gathered experiential knowledge (Johanson & Vahlne, 1977; Johanson & Vahlne, 1990). However, McDougall et al. (1994) argued that internationalization need not be an incremental process; it may build upon previously developed and acquired resources, such as the entrepreneur's (or entrepreneurial team's) tacit and experiential knowledge (e.g., past professional and international experiences, previously developed competencies, networks and relationships).

By taking into account this experiential baggage encapsulated in the entrepreneur (or entrepreneurial team), the necessary firm resources could be combined right from the firm's inception to enable it to identify and seize international opportunities (McDougall et al., 1994) or later on in the firm's life cycle following a critical event (Bell et al., 2001) to allow the firm to internationalize rapidly.

The firm's ability to learn at the organizational level and to gain (or acquire) foreign market knowledge is a common capability necessary in traditional, born-global and born-again global firms (Andersen, 1993; M. K. Erramilli & D'Souza, 1993; Zahra, Ireland & Hitt, 2000). Oviatt and McDougall (2005) suggest that the speed at which a firm is able to learn about a new host country moderates the speed at which it internationalizes to exploit an identified opportunity (Oviatt & McDougall, 2005). Others have determined that knowledge of foreign markets and operations and the efficiency at which it is learned are determinants in the international sales growth of entrepreneurial small firms (Autio et al., 2000).

Knowledge intensity has been found to be a major source of international competitive advantage (Coviello & McAuley, 1999; Jones, 1999; Autio et al., 2000; Bell et al., 2003). Theory in organizational learning suggests that knowledge is easier to develop when little to no organizational routines exist, as there is then no need to unlearn the existing knowledge that conflicts with the newly developed knowledge. Thus, new and young firms are well-positioned to learn and have a "learning advantage of newness" as they lack the deeply rooted routines that render internationalization more costly and difficult for established firms, which must unlearn embedded routines as they develop new knowledge (Autio et al., 2000).

The literature consistently maintains that the internationalization process—whether incremental, quickly right from inception, or rapidly after a prolonged period in the domestic market—calls upon the firm's ability to exploit its existing knowledge base and continue learning as it makes subsequent internationalization decisions. As discussed earlier, the firm's ability to develop new knowledge from its external environment or exploit existing knowledge in new contexts depends on the firm's level of prior related knowledge (Cohen & Levinthal, 1990; March, 1991). This research looks specifically at small entrepreneurial

firms whose knowledge is centralized and individualized in the entrepreneur or the entrepreneurial team, unlike in large multinational firms (Reuber & Fischer, 1997; Shrader et al., 2000). Scholars have voiced their concern that there is a lack of theory applicable specifically to small firms, as most internationalization models are based on large multinational corporations (Etemad, 2004). Thus, understanding the composition of the firm's core team can provide valuable insight in terms of the firm's initial investment of resource and capabilities (Oviatt & McDougall, 1994) on which it may build its dynamic capabilities and competitive advantage (Eisenhardt & Martin, 2000).

Given that engineering firms provide services that are highly customized and are often co-created with the client, the service delivery process is generally completed in person on the site of the client's project (Løwendahl, 2005; Reihlen & Apel, 2007). This approach means that the firm is highly dependent on its human capital (Løwendahl, 2005) as they are the means for the firm to transfer its intangible resources to foreign markets. However, through the export of its services, and the consequent expatriation of its employees, the firm enables its human capital to gain rich knowledge that it can absorb into its knowledge base (Cohen & Levinthal, 1990). If firms are to renew themselves by the renewal of their resource base, they must make investments in their learning capabilities to obtain and assimilate new external knowledge (Zahra & George, 2002). Following Crossan et al.'s (1999) framework, tacit and experiential knowledge gained in international markets can subsequently be integrated into the organization's knowledge base through feed-forward learning processes (Crossan et al., 1999). Given that service firms greatly depend on the trust and relationships they build with their suppliers, partners and clients, it is important to understand what kind of knowledge accumulation completed in international markets enhances the firm's resource base and how this new knowledge is integrated into its existing knowledge base (Zollo & Winter, 2002).

Furthermore, scholars are now beginning to focus more on the duality between exploitation and exploration activities, as this tension is resource constraining and the outcome of its imbalance can be significant to the firm (March, 1991). In an international context, we posit that international expansion may seek both outcomes. A firm may seek to exploit an

identified opportunity in an international market to increase its rents on valuable, rare and costly-to-imitate resources and capabilities, and explore for new ones. As suggested above, export in services, as opposed to in manufacturing firms, is very interactive because the export of knowledge-intensive services is often completed by expatriating highly skilled employees in which the specialized knowledge is embedded. Thus, when exploiting the organization's knowledge base, knowledge and know-how are sourced from the organizational memory shared by the organization's members and applied to a given context (Crossan et al., 1999). Conversely, when exploring for new opportunities, rich information and knowledge may be intuited, interpreted, integrated, and institutionalized into the firm's knowledge base, resulting in organizational learning (Crossan et al., 1999; Crossan & Berdrow, 2003).

As engineering firms work on project-based assignments, they often exit the country once the project has been completed (Coviello & Martin, 1999; Malhotra & Morris, 2009). This may lead to the repatriation of the acquired foreign knowledge because it is embedded in the expatriated employees. Authors suggest that exporting can influence firm outcomes beyond providing a sales opportunity for existing products and services (Salomon & Shaver, 2005; Zahra et al., 2000). From a strategic perspective, firms operating in foreign markets may benefit from the repeated interactions and information exchanges encountered with various agents, such as distributors, intermediaries, competitors, clients and clients' networks (Lindstrand, Eriksson & Sharma, 2009). Through these interactions, internationalized firms are exposed to valuable knowledge to which they would not have been privy were they restricted to their domestic market (Root, 1987). Thus, firms gain experiential knowledge (Zahra et al., 2000) of a technological, commercial and relational nature that can then be integrated and incorporated into existing production processes (Salomon & Shaver, 2005).

2.4.4 Resources and Capabilities Involved in Internationalization

Empirical findings confirm that there is a positive relationship between the entrepreneur's attitude toward internationalization, experience, network, and orientation, and the firm's international development (Westhead, Wright & Ucbasaran, 2001). The firm's industrial context (e.g., degree of maturity of an industry) has an impact on its internationalization

pattern (Andersson, 2004). Other factors, such as type of business offering, have also been identified as having a significant impact on firm internationalization. For example, firms from soft services sectors adopt different foreign market entry mode behavior than hard services firms (Erramilli, 1990). These findings are very important because much of the earlier literature is heavily concentrated on studies observing large manufacturing firms. Not all service firms experience difficulty in reaching international markets, nor do they necessarily do so gradually in stage-like increments. However, though there have been some considerable advancement in the field since its beginnings, our understanding of the impact of international activities on small firm resources and capabilities is limited, particularly in the services industry.

Several aspects linked to the internationalization of a firm have major implications for resources and capabilities. As per Casillas and colleagues (2012, p.466), the firm's resource base is affected by:

“(1) the degree of commitment, as defined by the percentage of sales derived from international activities (Andersen, 1993; Bonaccorsi, 1992; Calof, 1994; Johanson & Vahlne, 1990); (2) the degree of resource commitment, which is generally linked to the mode of entry chosen for each foreign country (Buckley & Casson, 1981; Dunning, 1980); and (3) localisation, or the range of countries in which the firm develops its international activity (Benito & Gripsrud, 1992; Johanson & Wiedersheim-Paul, 1975)”.

As indicated in the previous sections, studies have demonstrated that small knowledge-intensive firms do internationalize and that the means by which consulting engineering firms go towards international markets differ from those taken by other service firms. Again, this study's interest lies in understanding how small knowledge-intensive firms, such as consulting engineering firms, renew their resource base (e.g., resources and capabilities) while competing in international markets. The following section proposes a conceptual model that respects the theoretical framework developed in section 2.2 and puts forward two propositions for qualitative examination.

2.5 Impact of Internationalization on the Renewal of the Firm's Resource Base

This section encompasses the meeting point of three contemporary topics in the entrepreneurship literature: knowledge-intensive services as exemplified by PSFs, their increasing presence in international markets and their unique behavior regarding internationalization, and the RBV and DC perspectives.

The first section outlined this study's theoretical framework by discussing the advancements in the RBV and DC perspectives. The firm's resource base was discussed in detail and focus was given to defining and exemplifying resources, operational capabilities, dynamic capabilities, and higher-order capabilities. These components were explained to have equally important yet distinct implications for the strategic renewal of the firm's resource base. From the literature, it was concluded that for a firm to achieve a competitive advantage, it must exploit the differences in its available resources and capabilities that are not readily available to its competitors. Dynamic capabilities were therefore determined to be the drivers of new sources of competitive advantage by way of modifying the firm's resources and operational capabilities (Eisenhardt & Martin, 2000; Grant, 1996; Teece et al., 1997). The discussion continued by acknowledging that to create and modify these dynamic capabilities, the firm must deliberately invest in learning capabilities, as identified by higher-order capabilities (Winter, 2003). Thus, the study's premise is that organizational learning, as embodied in higher-order capabilities (Vera et al., 2011), is the only sustainable competitive advantage a firm can develop because it leads to a continuous renewal of its resource base (De Geus, 1988). The proposed conceptual model encapsulates these dynamic relationships between resources and hierarchical levels of capabilities.

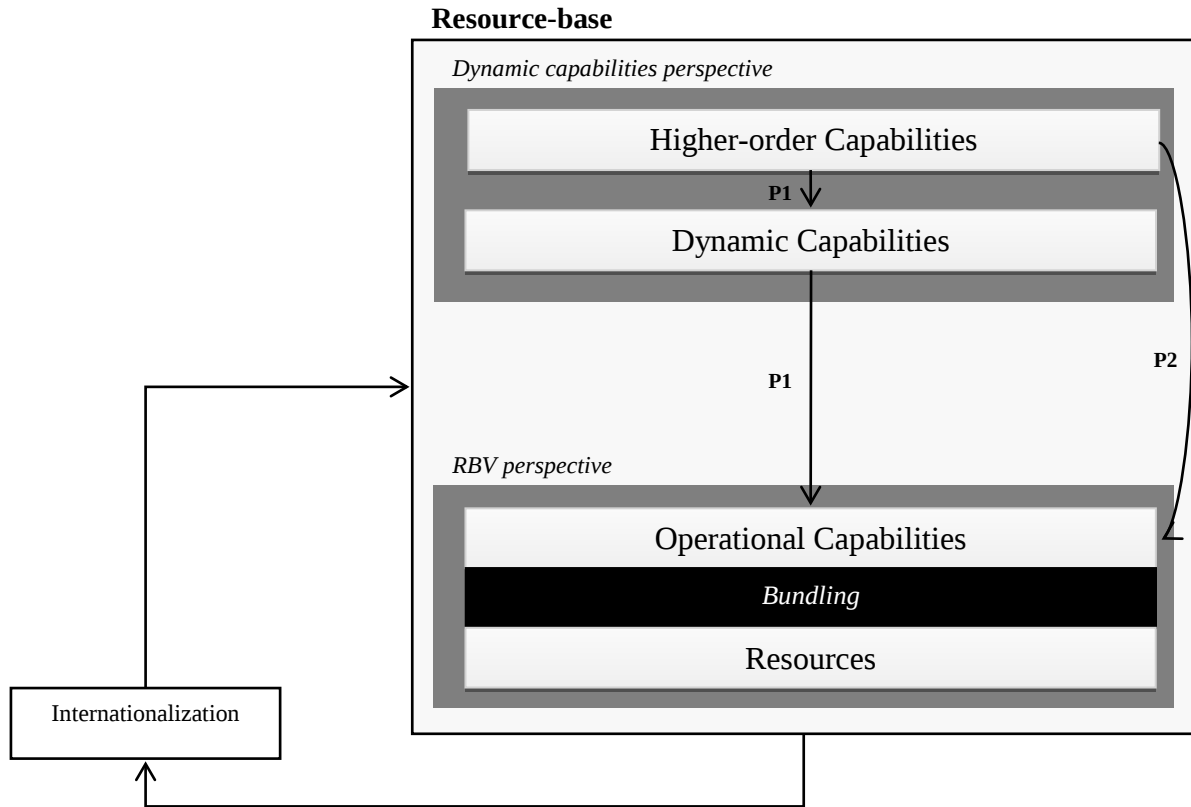


Figure 2: Initial Conceptual Model

The second section provided an overview of engineering consulting services within the greater scope of PSFs. Three important value-creating processes were highlighted, as they provided a general sense of most consulting engineering firms' business offering: 1) client need recognition and subsequent sale of service to respond to client need; 2) service delivery activities to result in project completion; and, 3) continuous learning in the previous two processes to improve efficiency and effectiveness of future projects (Løwendahl, 2005). Dependence on human capital was demonstrated to be the most important characteristic when studying knowledge-intensive service firms. In relation to the value-adding processes reiterated above, the firm's human capital is indeed the vehicle by which these processes are completed. Several critical intangible resources and capabilities were described, furthering the evidence of the knowledge-intensive firm's dependence on its human capital and the intangible knowledge assets they embody. These include the processes that are embedded in organizational routines such as the processes to accomplish projects (Løwendahl, 2005;

Maister, 1993; Winter, 2003), the knowledge and expertise embedded in experts (Teece, 2003; Teece & Al-Aali, 2011) and support staff (Maister, 1993), and, most importantly, the firm's ability to learn by applying feed-forward and feedback learning processes that integrate new knowledge and apply that which has been institutionalized (Crossan et al., 1999).

The third section built on a contemporary phenomenon that was brought forward in the second section. The topic of internationalization in PSFs continues to gain interest in international business literature because of a constant increase in the international trade of knowledge-intensive services (Evetts, 2011). The challenges of trading services across borders were discussed, highlighting their intangibility, perishability, inseparability from production, and difficulty to standardize. Because of these characteristics, internationalization was found to be more difficult in some service firms than in manufacturing firms (Erramilli, 1990), which further called into question the applicability of generalized internationalization theories such as traditional stage theories (Johanson & Vahlne, 1977; 1990). In alignment with the RBV and DC perspectives, the section concluded that mode of entry significantly affects the resources and capabilities the firm needs to internationalize (Ball et al., 2008; Casillas et al., 2012). Furthermore, the firm's ability to learn was a recurring theme in all three internationalization pathways reviewed. It was concluded that the resources and capabilities dedicated to or engaged in foreign market activities evolve differently depending on the firm's level of involvement in its internationalization activities.

The proposed conceptual model depicted in Figure 2 puts forward two propositions that are aligned with the theoretical framework discussed in Section 2.2.2. The following sections further discuss the model and advance the propositions.

2.5.1 Internationalization as a Catalyst to Renewal of the Firm's Resource Base

At any given time, the firm can be viewed as a conglomerate of heterogeneous resources and capabilities that are both internal and external to it (Barney, 1991; Peteraf, 1993). These resources and capabilities include, for example, the entrepreneur and the entrepreneurial

team (Alvarez & Busenitz, 2001), their network of business and client relationships (Elfring & Hulsink, 2003), their past experiences (Shane, 2000; Venkataraman, 1997) and their existing prior knowledge base (Shane, 2000; Venkataraman, 1997). Not all resources and capabilities are developed or acquired the same way. Some may have been developed internally (e.g., the organization's reputation, its project portfolio) while others are acquired (e.g., a client list through hiring a new expert on staff). From the earliest works on the RBV (Penrose, 1959), valuable, rare and costly-to-imitate resources and capabilities were identified as those on which a firm can build competitive advantage (Barney, 1991; Peteraf, 1993).

With the increase in ease of access to international markets and the advances in ICTs, expansion into foreign markets represents a feasible way for small knowledge-intensive service firms to exploit their resource base to generate greater rents from their valuable, rare and costly-to-imitate resources and capabilities. By diversifying its geographic markets, a firm is exposed to various environments from which it can gain rich information, but in which it also encounters uncertainty and risk. Although much of the literature on internationalization describes expansion into foreign markets as a learning process (Eriksson & Chetty, 2003; Eriksson, Majkgard & Sharma, 2000; Hsu & Pereira, 2008), there have been few studies that address how knowledge gained from internationalization is integrated into the firm's existing knowledge base and, more importantly, what the changes resulting from these learning experiences are.

For a firm to internationalize, scholars recognize that it must have in its resource base certain resources or capabilities that act as antecedents to the firm's international endeavours. Several antecedents to the internationalization of service firms have been identified in the international business literature; however, given the distinct characteristics of service firms, not all apply. That being said, in recent studies on professional services firms (Krull et al., 2012; Malhotra & Morris, 2009), the following antecedents to internationalization were reiterated: motivation of entrepreneur(s) or entrepreneurial team (Westhead et al., 2001), management's past international experience (Oviatt & McDougall, 1994; Reuber & Fischer,

1997), existing social networks and social capital (Coviello & Martin, 1999), and project availability requiring particular expertise.

The RBV perspective is useful in explaining firm internationalization in service firms, as value is created through the selection, development and use of human capital (Hitt et al., 2006) and knowledge of international markets is increased via interactions in the firm's networks (Yli-Renko, Autio & Tontti, 2002). Moreover, previous international experience is an intangible resource that enables managers to recognize and develop knowledge of opportunities abroad and gives them insight into how to manage relationships and operations in a foreign environment (Cohen & Levinthal, 1990; Sapienza, Autio, George & Zahra, 2006; Westhead et al., 2001). Firms whose service offerings require a certain degree of interaction with the customer must attain a level of sensitivity to the culture, beliefs, values and preferences of their host country (Hofstede, 1980.). This poses an additional difficulty for some service firms to engage in international activities, as barriers to entry are caused by a lack of understanding or knowledge of the targeted host market. Again, this poses a direct threat to service firms, as the exchange of assets is usually intangible, even if embodied in a physical object. Relational capital in the form of trust, for example, is therefore a pivotal intangible resource that some firms must develop prior to finding acceptance and success in foreign markets (Uzzi, 1997). Thus, technological, commercial and relational capabilities are necessary for the firm to gather and prepare the valuable resources it needs for internationalization (Sapienza et al., 2006).

The review of learning as an implicit theme in all internationalization pathways demonstrates that organizational learning is required for firms to internationalize successfully. The objective of this study was to further our understanding of *how* organizational learning then impacts the firm's dynamic and operational capabilities as a result of the knowledge gained from internationalization. This is discussed further in sections 2.5.2 and 2.5.3.

2.5.2 Evolving Capabilities from Learning Acquired in International Markets

Given the unique nature of services, their ability to successfully recreate their service offering depends on whether the bundled resources that generate their competitive

advantages can be transferred to the host country in an efficient and effective manner, and whether those resources are compatible with relevant host country factors (Sharma & Erramilli, 2004). Often, the ease of transferability of resources and capabilities across foreign borders is underestimated. The firm may encounter difficulty in replicating its competitive advantage in foreign markets because of problems recreating its dynamic capabilities, which are the organizational routines that modify operational capabilities and resources necessary to achieve new resource combinations (Luo, 2000).

Service firms find themselves confronted with a more complex relationship with their clients than manufacturing firms because client defection has been found to have a greater impact on profits than scale, market share, unit costs and other factors related to sustained competitive advantages (Reichheld & Sasser, 1990). Building relational capital, composed of trust, information transfer and joint problem solving (Uzzi, 1997) is necessary for these firms to protect themselves against the opportunistic use of the knowledge embedded in the provided service (Hitt et al., 2006). When looking specifically at the small and medium-sized design firms in the US, trust-based relationships with long-time customers and repeat business were found to be critical to these organizations (Vanchan & MacPherson, 2008). The quality of the relationship between a client and its service provider becomes a reflection of the client's continued demand and its willingness to pay for the service (Saparito, Chen & Sapienza, 2004). The firm's ability to understand and respond to customer needs is especially useful for services firms, particularly for those with a high degree of interaction with customers and customization of service because the firm's ability to respond to its clients may be developed as a source of competitive advantage.

Many scholars acknowledge that the evolution of the firm's resource base is heavily shaped by several learning mechanisms or systems of learning found within the firm. Referring back to the hierarchy of capabilities (Arena & Lazaric, 2003; Collis, 1994; Winter, 2003) as discussed previously, Zollo and Winter (2002) suggest that "[d]ynamic capabilities arise from learning; they constitute the firm's systematic methods for modifying operating routines" (Zollo & Winter, 2002, p. 340). Organizational learning is a path-dependent and socially complex process. For better or for worse, firms that expose themselves to

international markets to explore for new resources and capabilities or exploit existing resources and capabilities take the chance of changing their dynamic capabilities in ways that are unpredictable. Following Crossan et al.'s (1999) framework, individuals and groups assimilate information that is then integrated as new knowledge into the organization. The knowledge they have developed or acquired may have significantly changed their routines, tasks and procedures. However, possessing knowledge does not necessarily result in competitive advantage. Theoretically, organizational competitiveness instead would come from the dynamic capabilities (Eisenhardt & Martin, 2000) that enable the firm to create new knowledge and apply its existing knowledge base in novel ways (March, 1991).

The increased interest in organizational learning from entrepreneurship and strategic management viewpoints comes from the assertion that organizational learning concerns itself with the renewal of the firm to face continuously changing challenges from the external environment (Crossan et al., 1999). Authors theorize that the process of learning is a “central element” to the creation and renewal of dynamic capabilities (Zollo & Winter, 2002; Easterby-Smith & Prieto, 2008). Thus, the study posits that higher-order capabilities created or modified during internationalization further impact the firm by creating and modifying dynamic capabilities.

As the firm grows, changes occur in the firm's resource base in terms of combinations and types of resources and capabilities. New needs may surface and existing combinations of resources and capabilities may prove obsolete (Penrose, 2009). Path dependency is an important characteristic in the evolution of dynamic capabilities (Ambrosini & Bowman, 2009). A common assumption in dynamic capabilities is that the firm's evolution is non-random and dependent on its prior history. Thus, change in a firm is perpetually constrained and guided by its past actions and its resource base (Helfat et al., 2007). It has become generally accepted within the DC perspective that dynamic capabilities themselves do not lead to competitive advantage (Eisenhardt & Martin, 2000). Rather, the firm's competitive advantage depends on the new configurations of resources and operational routines that result from modifications brought on by dynamic capabilities (Eisenhardt & Martin, 2000; Vera et al., 2011; Winter, 2003).

Value is created in a consulting engineering firm via three important processes: client need recognition and the subsequent sale of a service to respond to the client need; service delivery activities to result in project completion; and continuous learning in the previous two processes to improve efficiency and effectiveness of future projects (Løwendahl, 2005). The first two processes represent operational capabilities. Given that these processes are highly contextual, the internationalization literature provides some insights as to how firms must modify them to enable their success in foreign markets. Thus, by way of dynamic capabilities, these two operational capabilities can be changed and modified, based on the firm's resource base, its past decisions, and its history.

Proposition 1: Knowledge (experiential, tacit and explicit) gained during internationalization leads to the emergence of new, and to the evolution of existing dynamic capabilities, which change and modify the firm's operational capabilities.

However, the literature also suggests that a firm may change its operational capabilities in an ad hoc problem solving manner, where change is not routine, highly patterned or repetitious (Winter, 2000; Winter, 2003). Winter (2000; 2003) explains that ad hoc problem solving can happen as a result of the firm facing external challenges or because of autonomous decisions taken at a high level in the firm, by the entrepreneur for example. In these cases, the firm may be unprepared for these challenges and ad hoc decisions may be made that cause unexpected changes to operational capabilities (Zollo & Winter, 2002; Winter, 2003). The internationalization of the firm, particularly within the context of this study, may result in ad hoc problem solving that leads to operational changes that are not routine, highly patterned or repetitious. Thus, the study posits that higher-order capabilities created or modified during internationalization further impact the firm by modifying and shaping operational capabilities directly through ad hoc problem solving.

Proposition 2: Knowledge (experiential, tacit and explicit) gained during internationalization leads to the emergence of new, and to the evolution of existing operational capabilities.

3. METHODOLOGY

3.1 Overview

The previous chapter reviewed existing literature on small firm internationalization specific to service firms and on the RBV. Although it was concluded that internationalization both enables and necessitates learning, we have a limited understanding of how knowledge gained from internationalization is integrated into the firm's existing resource base and what the resulting changes subsequent to these learning experiences are. Advances in the RBV and DC constructs propose theoretical relationships between organizational learning and the modification of the firm's resource base components. This study posits that these relationships may explain the impact that internationalization has on the firm's resource base renewal process, as it pertains to the firm learning from its international endeavours and making subsequent changes to its dynamic and operational capabilities.

However, these relationships remain unexplored within the context of small firm internationalization. Thus, going forward, we ask: *as internationalization provides small firms with the opportunity to learn, how are firm resources and capabilities impacted?* The next sections explain the research design followed to answer the study's research question.

The aim of this thesis is to provide evidence through case studies of the relationships that exist between 1) internationalization and learning; 2) learning and changes to dynamic capabilities; and 3) learning and changes to operational capabilities. The research tries to reduce the gap between abstraction of the RBV and DC constructs and empirical verification, which is scarce in the IE literature.

The study is confirmatory in nature as it is driven by the propositions that were defined, developed and justified in the literature review. Following a case study research design (Yin, 2003), the data analysis is hypothesis-driven and the study looks to confirm or disconfirm the outlined propositions. Prior to elaborating the adopted analytical procedure, this section first begins by explaining the research design and justifying the choice of a multiple case study approach.

3.2 Case Study Research Design

The case study as a research method is one that has gained considerable popularity in the field of IE. Over the course of time in which the field has evolved, a multitude of studies examining topics related to the internationalization of small entrepreneurial firms have adopted a case study methodology (e.g., Johanson & Weidersheim, 1975; McDougall & Oviatt, 1994; Boter & Holmquist, 1996; Coviello & Martin, 1999; Bell, et al., 2001; Spence, 2003; Chandra, Styles & Wilkinson, 2009; Schweizer, Vahlne & Johanson, 2010). As stated in the previous chapter, internationalization is a complex phenomenon, and even more so for service firms because of their inherently unique characteristics (Coviello & Martin, 1999). For this reason, case studies provide the depth and richness necessary to understanding a phenomenon within the context in which it is placed. This method allows researchers to “understand a complex social phenomena” while retaining the “holistic and meaningful characteristics of real-life events—such as individual life cycles, organizational and managerial processes” (Yin, 2003, p. 4).

Yin’s (2003) approach to case studies differs from other qualitative modes of inquiry such as grounded theory (Eisenhardt, 1989; Glaser & Strauss, 1967; Strauss & Corbin, 1998) because it requires the researcher to begin by developing a set of theoretical propositions from the literature prior to the data collection. The use of theory and propositions at the onset of data collection serve two important purposes. First, they offer a blueprint for the data collection process, which restricts the investigator to the research question. The investigator is therefore not tempted to examine everything, as case study research is often rich and heavy in data. In the case of this particular study, the use of theory and propositions ensured that the researcher focused on examining particular relationships theorized in the literature that provide explanations for organizational learning during internationalization and subsequent resource base renewal. As this is a broad and complex phenomenon, the use of theoretical propositions and the development of a theoretical model were valuable and helpful mechanisms that enabled focus in the data collection and analysis stages. Second, the theory and propositions act as a means to generalize the results of the case study, as the previously developed theory can then be used as a template with which to compare the empirical results of the study.

This particular study adopted an explanatory case study design because the research question and sub-questions deal with relationships that need to be traced over time. This type of case study aims to present data that explains *how* events occurred and reflects a “cause and effect relationship” (Yin, 2003).

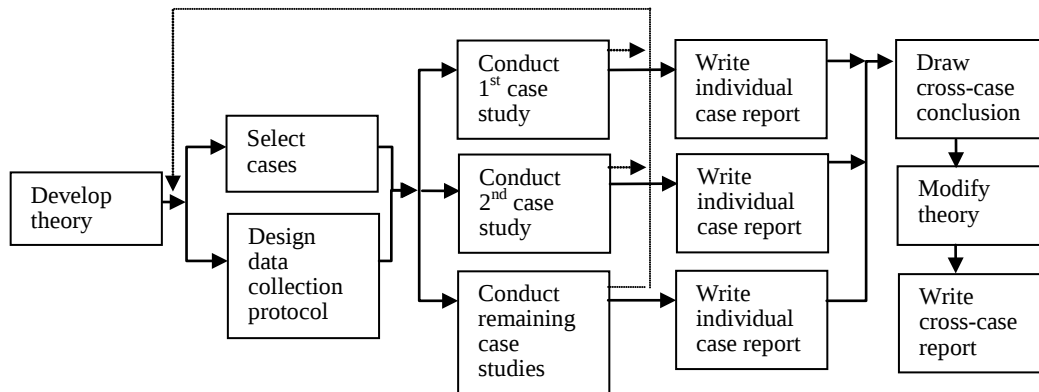


Figure 3: Case Study Method

Source: Yin (2003, p. 50)

Following Yin’s (2003, p. 8) suggestion, the choice of research design was based on three conditions: (a) the type of research question posed, (b) the extent of control the investigator had over actual behavioral events, and (c) the degree of focus on contemporary as opposed to historical events.

First, the case study approach was determined to be the most appropriate as the research questions asks *how* internationalization impacts the firm’s resource base renewal over time. The secondary research questions (as defined by the research objectives) seek evidence of relationships between resource base components and ask *why* change and evolution can be observed in these components. Second, the investigator did not require nor did she have control over the actual behavioral events. Third, the study focused on a phenomenon (resource base renewal) that is continuous and recurring in organizations; therefore, the events under study are relatively contemporary in nature.

3.3 Conducting the Research

This next section describes the research process and demonstrates how the researcher followed and applied the procedures outlined in Yin's (2003) case study research guide. The research process was divided into three phases that describe the researcher's actions: a) define the study parameters, the research question, and the research design; b) prepare for data collection, conduct the data collection and begin the qualitative data analysis; c) complete the data analysis (within-case and cross-case analysis), conclude based on results, and relate the study's findings to the contemporary literature.

Table 15: Descriptive Account of Steps Taken in Multiple Case Study Research Approach

Phase	Key Steps	Description of Actions Taken
Define research parameters and research design	Define the research question and the unit of analysis	“As internationalization provides small firms with the opportunity to learn, how are firm resources and capabilities affected?” Unit of analysis: the firm and its resource base components.
	Establish the theoretical context of the study based on the literature and advance propositions for testing	Three propositions were brought forward in line with the IE literature and advancements in the RBV and DC literature.
	Determine the research design, create a case study protocol, specify the population under study, choose sampling strategy	Multiple case study, PSFs in the engineering sector in Ontario (principally Ottawa), information-oriented and purposive sampling strategy for experiment-like replication logic.
Prepare and conduct data collection, and begin analysis	Select cases following sampling strategy	Four cases for literal replication and one case for theoretical replication.
	Conduct data collection	Interviews were completed with company Chairman, CEO or managing director; second participant if first suggested additional information was required. Company documents and other publicly available information gathered in the data collection stage.
	Map chronology of events for each case and transcribe the interview recordings	A timeline was created for each case to map the chronology of perceived critical events. All interviews were transcribed by the researcher. All data was sent to participants to verify for validity and integrity.
Complete analysis and report on findings and conclusions	Analyze case study data (within-case and cross-case analysis)	Linked case study data to study propositions to confirm or disconfirm theoretical relationships with gathered evidence.
	Draw cross-case conclusions and refine initial conceptual model and propositions	Drew cross-case conclusions and compared the emergent findings with conflicting and supporting literature. Refined the initial conceptual model and propositions based on findings.
	Write cross-case findings and draw conclusions	Wrote cross-case findings and drew conclusions.

Source: Adapted from Yin (2003).

3.3.1 Define the Research Parameters and the Research Design

3.3.1.1 Define the research question

The study's research question sought to explore and provide evidence of relationships between the firm's internationalization and its organizational learning, and between its organizational learning and the renewal of its resource base components (dynamic capabilities, operational capabilities, and resources). Thus, this study centres on the following research question: *As internationalization provides small firms with the opportunity to learn, how are firm resources and capabilities impacted?* To answer this question, three research objectives were identified.

Table 16: Research Question and Research Objectives

Overarching research question	As internationalization provides small firms with the opportunity to learn, how are firm resources and capabilities affected?
Sub-research questions	1. How do changes in higher-order capabilities impact dynamic capabilities? 2. How do changes in higher-order capabilities impact operational capabilities?
Research objectives	- Assess how internationalization allows for knowledge development and acquisition (organizational learning); - Assess changes in dynamic capabilities; and, - Assess changes in operational capabilities.

3.3.1.2 Define the unit of analysis

The process by which the firm renews its resource base is one that is both continuous and evolutionary (Nelson & Winter, 1982). The relationships that exist between the different components of the firm's resource base provide a theoretical explanation for the firm's evolution and change over time (Easterby-Smith, Lyles & Peteraf, 2009; Helfat et al., 2007).

Central to this theme is the firm, which was identified as the unit of analysis for this study. Following RBV and DC logic, the various components of the firm's resource base, including those required for internationalization, were also of particular interest and marked as units of analysis (Teece et al., 1997). These allowed for the firm to be conceptualized as a unique conglomeration of resources and capabilities. As such, the examination of their reported change over time could provide preliminary evidence of the relationships between internationalization and the various components of the firm's resource base.

The use of many or particular components of the firm's resource base as units of analysis is an emerging approach in IE research as more scholars adopt the RBV and DC perspectives. Within the context of this study, observing the components of the firm's resource base further countered the issue of heterogeneity among the studied service firms.

3.3.1.3 Establish the theoretical context of the study

The literature review begins with a detailed explanation of the study's theoretical framework. In line with those conclusions and the identified gap in the literature, three propositions were brought forward from the IE literature. These propositions answer a call to explore "how knowledge-based competences influence internationalisation patterns and outcomes" (Gray & McNaughton, 2010, p. 119) and are aligned with contemporary research published in the field of IE (Casillas et al., 2009; Scott-Kennel & von Batenburg, 2012; De Clerq, Sapienza, Yavuz & Zhou, 2012). Furthermore, these propositions empirically examine revisions to the RBV and DC perspectives to include higher-order capabilities (Vera et al., 2011; Easterby-Smith & Prieto, 2008), which have received little attention in the literature up to this point. The conceptual model built from the literature review and the propositions were used to guide and structure the data collection and analysis phases.

3.3.1.4 Specify study population

Small firms in the Professional, Scientific and Technical Services (NAICS 54) category account for 99.1% of all firms in this sector (Industry Canada, 2012). The decision to look specifically at professional services among the Architectural, Engineering and Other Technical Service category for this particular study is explained by the fact that they are one of the few service sectors that have recorded a positive trade balance in the last 10 years (Statistics Canada, 2004). Furthermore, architectural and engineering services alone accounted for almost 80% of the positive trade balance in 2010. This choice was further supported by the fact that the only service sector to record a greater positive trade balance than the one chosen was Computer and Information Services, which to date has received significant attention in the IE and services literature. Thus, the choice to study engineering firms in Canada was one based on the current reality of the Canadian economic landscape as it pertains to international trade. It is indeed an important sector in the Canadian economy

from which we can garner a greater understanding of the impact of internationalization on the renewal of the small firm's resource base.

Table 17: International Trade Balance for Commercial Services (2006 – 2010)

Commercial Service by Category	2006	2007	2008	2009	2010
Commercial services, total	-1258	-1423	-376	-1851	81
Communications services	586	342	631	731	694
Construction services	165	99	-86	-111	33
Insurance services	-2357	-2509	-2081	-2020	-1903
Other financial services	-1263	-909	-908	-1353	-360
Computer and information services	2565	2245	2480	1742	2051
Royalties and licence fees	-4316	-5022	-5415	-5368	-4999
Non-financial commissions	120	355	240	206	301
Equipment rentals	-544	-792	-717	-573	-563
Management services	-100	375	1103	347	38
Advertising and related services	194	333	328	448	314
Research and development	1994	2097	2290	2392	2744
<i>Architectural, engineering, and other technical services</i>	1656	1747	1859	1451	2161
Miscellaneous services to business	-211	89	-126	210	-8
Audio-visual services	217	22	49	25	-453

Source: Statistics Canada. Table 376-0033 - International transactions in services, commercial services by category, annual (dollars) (accessed: November 1, 2012)

Firms operating in the professional and/or consulting engineering spheres were considered for this study to keep the collected data homogenous to one population group and to allow conclusions to be transferable to other similar populations (Miles & Huberman, 1994). This decision is aligned with organizational ecology, which believes that populations are distinct and should be studied one at a time (Carroll & Hannan, 2000).

3.3.2 Prepare and Conduct Data Collection and Begin Analysis

3.3.2.1 Select cases following sampling strategy

This study adopted a purposive sampling strategy. Multiple cases were chosen based on their contribution to the theory development within the set of cases (Eisenhardt & Graebner, 2007). These were chosen to facilitate replication and extension of theory (literal replication)

or for contrary replication and to eliminate alternative explanation (theoretical replications) (Yin, 2003).

Table 18: Reasoning for Sampling Strategy

Literal replication	<i>Predict similar results for predictable reasons (Born globals)</i> - Three cases of small knowledge-intensive service firms from the engineering sector were selected. - Two of the cases that act as the study's baseline were already highly internationalized. - The third case had internationalized early after its inception because of the nature of the services it offers and to accommodate its clients that were often multinational enterprises.
Theoretical replication	<i>Produce contrary results for predictable reason (Born-again globals)</i> - The fourth case was beginning to embark on a new strategy that heavily focused on the penetration of emerging markets.

Source: Adapted from Yin (2003)

To ensure proper bounding of the case, firms of fewer than 50 employees were sampled as this is the size criterion for small service-producing firms in Canada (Industry Canada, 2012). Firms with varying levels of internationalization ranging from highly internationalized firms to a domestic case were chosen to allow for replication logic (Yin, 2003). Cases were first identified using Industry Canada's Strategis database and further information was collected from the company's website to confirm that the case met the appropriate selection criteria. If need be, information was confirmed with an employee via phone.

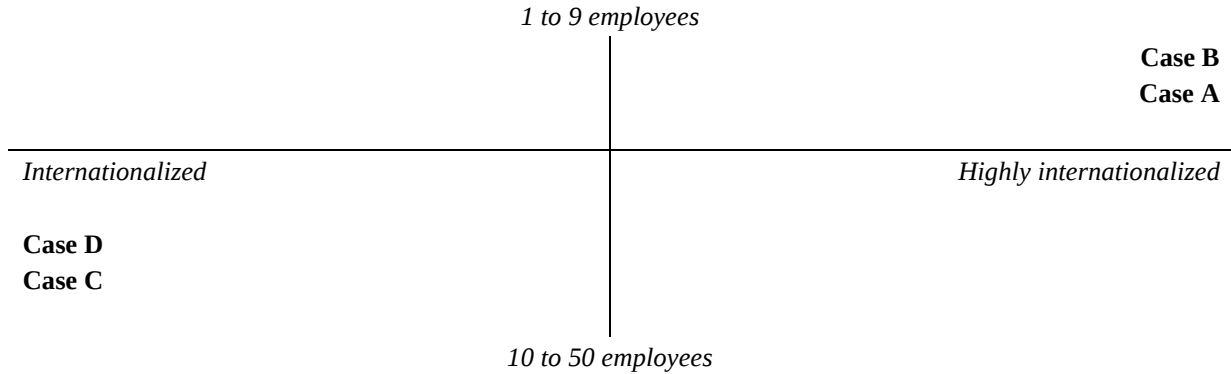


Figure 4: Case Selection

Firms of varying sizes from very small (1–9 employees) to small (10–49) were chosen to provide varying case contexts. As described in the literature review, firm size in the service industry impacts resource availability, especially in knowledge-intensive service firms where knowledge and human capital are valuable and critical resources.

Table 19: Summary of Cases in the Study

Company	Case A	Case B	Case C	Case D
<i>Industry/Business</i>	Distillery consulting engineering	Environmental consulting engineering	Environmental consulting	Sustainable sewage system solutions implementer
<i>No. of employees</i>	2	8	25	18
<i>No. of participants</i>	1	1	2	1
<i>Ownership status</i>	Private	Private	Private	Public
<i>PSF typology</i>	Classic PSF	Neo-PSF	Neo-PSF	Technology developer
<i>International involvement</i>	Highly internationalized; <i>Born global</i>	Highly internationalized <i>Born global</i>	Highly internationalized <i>Born global</i>	Internationalized; <i>Born-again global</i>
<i>Reasoning</i>	Literal replication	Literal replication	Literal replication	Theoretical replication

As a result, the sampling strategy is described as information-orientated and purposive. Cases were chosen based on three selection criteria: firms that a) identified their primary sector of activities as Engineering Services (NAICS 54130 - Engineering Services); b) employed less than 50 employees; and c) were incorporated in Canada and were not a subsidiary of a larger domestic or international firm. The cases were selected for theoretical

reasons that allowed for experiment-like theoretical replication logic (Yin, 2003). This chosen approach to case selection allowed for a close look at a relatively small number of firms that provided an initial illustration of firms in the targeted population and enabled preliminary analytical generalization.

3.3.2.2 Conduct data collection

In-depth semi-structured interviews

The main source of data in this study was semi-structured interviews. These were completed with at least one individual for each studied firm. In all cases, the president or managing director participated in the study. In all cases, this person was responsible for the firm's strategy and had a strong understanding of the firm's international involvement over the time of their tenure. If a participant identified another individual who should provide further insight, that person was then contacted for participation. In one of the four cases, an additional interview was completed with a project manager who had experience with the company's international projects and clients.

Participants were asked to look back and describe changes that occurred in their firm during and subsequent to international events. When analyzing change, key interests such as deadlines, projects, milestones and crisis situations are the triggers (Gersick, 1991). The use of a timeline gave sense to the relationships between events. The timeline was a complementary tool to the interview protocol, and the majority of participants noted that it was easier to recall the order of events with the use of this tool. The interview protocol was revised following the first interview to correct and revise questions based on the ease with which participants understood what was asked during the discussion. The final interview protocol¹⁰ was adopted for all subsequent interviews. The interviews covered topics such as prior history of the participants and the firm, and a historical account of the firm's involvement in particular foreign markets of perceived importance (first market penetrated, subsequent international project, entry into a strategic market). When discussing

¹⁰ See Appendix B for the study's interview protocol.

internationalization events, participants were asked to discuss changes that occurred subsequent to the firm's international involvement at that time, what they had learned from their experiences, and how that had had an impact on their future international endeavours. These interviews sought to capture crucial recollected information with regard to the firm's resources and capabilities, and how they had evolved throughout their firm's internationalization process.

Other data sources

Additional data were collected so that the context of the cases could be properly depicted and analyzed. Requested documents included internal memos, quarterly reports, yearly objectives and assessment appraisals. Another source of data used was secondary public information, including the firms' websites. These data sources were used to triangulate information captured during the interviews and corroborate information provided by participants (Miles & Huberman, 1994; Yin, 2003).

Memos

Memos were used as a primary sense-making tool during the data collection and data analysis processes (Miles and Huberman, 1994). The investigator wrote summaries of the important themes and ideas that emerged from the cases as she was completing the coding of interview transcripts and company documents. These were particularly helpful to keep track of thoughts and ideas that were later used during the writing of the within-case and cross-case analyses.

3.3.2.3 Map chronology of events for each case and transcribe the interview recordings

The interview recordings were played back and transcribed verbatim. Once transcribed, the researcher played back the recordings and reviewed her transcription work to ensure the accuracy of the data. Timelines were then reconstructed with the events that were written down during the interviews. These data points were supplemented with additional information gathered from the interviews as the investigator listened to the digital recordings

and reread the transcripts. The transcripts and timelines were sent to the participants for confirmation of the integrity of the information and clarification, if need be.

3.3.2.4 Organize data in research database

To counter difficulties in data management during the analysis process, the investigator created a research database. The use of NVIVO 10 allowed the researcher to organize all sources of data (e.g., internal documents, interview transcripts and recordings, press releases, web pages, memos) in a way that enabled sophisticated reporting and query functions supported by the software.

3.3.3 Complete Analysis and Report on Findings and Conclusions

3.3.3.1 Within-case analysis

Once the data was entered into a study database, the researcher began the data analysis process by first completing the within-case analyses. This analysis strategy initially relied on the theoretical propositions identified prior to the data collection such that it provided a theoretical orientation to process. This first analysis had two objectives. First, the investigator sought to confirm or disconfirm each proposition for each case by following the research sub-questions: *How does internationalization affect organizational learning* (higher-order capabilities) and *how does organizational learning from internationalization impact subsequent change* (dynamic capabilities and operational capabilities). Second, the investigator analyzed the transcripts to identify new themes, factors or processes that emerged in each individual case.

Thus, the coding process was first aimed at linking case data to the theoretical propositions. To do so, the theoretical framework components were used as initial pattern codes. As a result, categories in the coding scheme were created deductively based on the theoretical framework developed from the literature (Yin, 2003). The initial pattern codes were created from *a priori* codes identified in the literature review and from the concepts in the theoretical framework and propositions. Additional ‘grounded codes’ also emerged during the initial coding phase and these gave way to new themes that were different from those uncovered in the literature review. Themes and patterns were indexed by linking similar data to the same

phenomenon. Thematic ideas and concepts defined each code category and a definition provided examples with which to compare data to be included in that category. As a result, the code definitions in the coding scheme provided consistent guidelines during the coding process.

The analysis process began by coding the interview that the investigator considered the most complete. This was done to test the pattern codes generated from *a priori* codes and derived from the theory. New themes emerged as all transcripts and other data sources were coded in a first wave of analysis. In addition, as the research question and propositions examined the relationships between the multiple components of the firm's resource base, it was important to incorporate a means to identify and track causal evidence between categories throughout the coding process. Thus, the identification of causal (e.g., 'since', 'because', 'as') and logical (e.g., 'implies', 'means', 'therefore', 'consequently') connectors as a sign of relationship between coded elements was used as a support for confirmation or disconfirmation of the propositions. These preliminary codes were reviewed and recoded according to the relationship they presented between resource base components: internationalization and learning; learning and changes to dynamic capabilities; learning and changes to operational capabilities.

Upon finishing this first wave of coding, the data was recoded to ensure all data had been analyzed with the coding scheme that incorporated emergent themes. Thus, all data were systematically coded after sufficient consistency in code categories was achieved (Weber, 1990). Upon finishing a second wave of coding, the coded excerpts were revised to ensure that the coded data followed the category definitions and verify the reliability of the coding process. This step countered human fatigue during the coding process and ensured that the investigator's understanding of the categories and coding rules had not change subtly over time (Miles & Huberman, 1994; Weber, 1990).

A third wave of coding was then completed, whereby the researcher revised the excerpts from all the themes and identified more detailed and particular concepts. During this coding wave, themes were identified from both concepts found in the literature review and new emerging themes.

3.3.3.2 Cross-case analysis

The purpose of the cross-case analysis was to facilitate a comparison of the commonalities and differences between the four cases. Cases were treated as a series of experiments and each case was used to either confirm or disconfirm the proposition from the theoretical framework and emerging themes. In all cases, the following relationships were investigated:

1. Internationalization and organizational learning
2. Organizational learning and dynamic capabilities
3. Organizational learning and operational capabilities

Analytic manipulations in NVIVO were used to help make sense of case data during the cross-case analysis (Miles and Hubberman, 1994). Two analytical techniques were followed: pattern matching and explanation building. The investigator began by reviewing the descriptive data gathered and organized in the within-case analyses. To complete pattern matching, pieces of information from the same case pertaining to the same element of inquiry (relationship 1, 2 or 3) were examined to confirm or disconfirm each proposition. Findings from each case were compared to one another to examine whether the data provided support for literal and theoretical replication.

Explanation building was then used to refine the theoretical propositions. The initial propositions were tested in a first case; statements reflecting the findings pertaining to each propositions were created based on the case data. These statements were tested in the second, third, and fourth case in an iterative sequence to refine the propositions and theoretical model. The revised statements were then compared to findings from the literature. This comparison is discussed in the results chapter.

3.4 Validity and Reliability Issues

3.4.1.1 Construct validity

To ensure construct validity, it is necessary to establish the correct measures for the phenomenon under study (Yin, 2003). The definition and operationalization of all constructs (i.e., organizational learning processes, knowledge types, dynamic capabilities, and operational capabilities) were grounded in the literature review. Following Yin's

suggestions, the study gathered multiple sources of data to triangulate evidence between sources when possible. These included interviews, memos, company documents and other data sources such as information found on the firms' websites. In addition, participants were asked to review the draft case study report and generated timeline. This step was completed to ensure the integrity of the reported data.

3.4.1.2 Internal validity

Internal validity is of concern in exploratory studies as they pertain to exploring causal relationships (Yin, 2003). Thus, internal validity was of particular importance in this study, given the study's objective to examine relationships between internationalization and the various elements of the firm's resource base components. To address internal validity, the investigator relied on two analytical techniques, as suggested by Yin (2003). Pattern matching was first completed and involved comparing an empirically-based pattern (i.e., the case study evidence) with a predicted one (i.e., the theoretical relationships outlined in the literature review). This analytical technique was supplemented with the use of explanation building during the cross-case analysis. The three propositions were tested and refined in first case and then tested and refined in the second, third, and fourth cases in an iterative way.

3.4.1.3 External validity

External validity was addressed by adopting replication logic (Yin, 2003). The theoretical propositions were tested in each individual case. With the use of multiple cases, replication logic allowed for similar results to be predicted in literal replications and different results for predictable reasons in the theoretical replication. Replication logic was achieved with the study's sampling strategy by choosing to investigate firms of varying size (very small, small) with different pathways of internationalization.

3.4.1.4 Reliability

Reliability was addressed by assuring that the research can be repeated with similar results (Yin, 2003). This was achieved at the data collection stage by creating and using a well-organized case study protocol and a case study database.

Table 20: Tactics to Ensure Quality in Case Study Research Design

Tests	Description	Case Study Tactic	Research Phase
<i>Construct validity</i>	Establishing the correct measures for the phenomenon under study.	Use of multiple sources of evidence in building cases (i.e., semi-structure interviews, archival records, websites, publicly communicated information, physical artefacts).	Data collection
		Participants reviewed the timelines and interview transcripts to verify the accuracy of the data.	Data collection
		Refinement of case study protocol after first interviews to correct the wording and flow of questions.	Research design
<i>Internal validity</i>	Establishing whether causal inferences can be made whereby certain conditions are said to lead to other conditions.	Conducted pattern-matching to determine literal and theoretical replications across cases.	Data analysis
		Addressed alternative explanations by examining if ‘rival theory’ (i.e., other internationalization pathways) provided rival explanation.	Data analysis
<i>External validity</i>	Establishing whether the results can be generalized beyond the immediate cases.	Used replication logic in multiple-case studies and followed iterative process of explanation building.	Research design
<i>Reliability</i>	Demonstrating that the operations of the study can be repeated with the same results.	Used a case study protocol for consistency between case studies, continuously focused on the firm and the components of its resource base.	Data collection
		Use of a case study database to store and manage notes, transcripts, digital recordings, memos, and other primary and secondary documents.	Data collection

Source: Adapted from Yin (2003, p. 34).

4. ANALYSIS

The study's findings are based on a series of in-depth semi-structured interviews with the CEOs or chairmen of a limited number of companies. The objective of this study is not to determine the causality of the relationships between internationalization, learning and changes to the firm's various resource base components. Rather, the purpose of this study is to further explore these relationships, which continue to gain theoretical interest yet remain empirically ignored, and to present certain observations that reiterate the importance of the need to better understand the impact of internationalization on the firm's resource base renewal.

4.1 Single Case Analyses

The analysis chapter begins by providing descriptive accounts of the five small firms studied. The completion of the within-case analyses was guided by the study's research question and sub-questions. Furthermore, evidence from each case was compared to the three internationalization pathways described in Chapter 2, Section 2.4.2: Internationalization pathways. The objective of these within-case analyses is to provide a contextual understanding of the relationships between the resource base's components and internationalization within each individual case.

4.1.1 Case A

4.1.1.1 Description of company

The origins of Case A date to the mid-1850s and go back four generations. The company has significantly evolved since its beginnings and was transformed from a manufacturing company into an engineering consulting company in 1984. At the time of its participation in the study, the company provided four services: management consulting services, engineering consulting services, piping design, and PC control systems for which the company holds patented intellectual property. In many instances, the company uses at least two, if not all, of their service offerings to meet their clients' needs.

The company is uniquely structured. The president of the company is the entrepreneur's wife, a decision made to simplify the administrative process and keep overhead costs to a minimum. The company has a list of individuals, experts on whom it calls when it requires a specific expertise on a per-project basis. These individuals have their own careers and either work for themselves or for other companies, and accept the contracts offered by Case A when they are available to do so.

“So, I am known – the company is known in our industry. And it's known by the larger engineering firms because they retain us, when they need specialty expertise. We're a team of specialists, really.”

“About 24 different people I can call on who are all independent and are available given sufficient notice that they would be available to do the projects.”

“It's all contracted based; 100%. And when the contract is over if there is nothing further, well that's fine we'll talk to you when I've got something new and I'll give you a call type of attitude.”

Case A has always been a family-owned business. The entrepreneur joined his father and brother at the age of 25 after earning his engineering degree. His knowledge and expertise was learned from his father and grandfather, both implicitly through direct and indirect experiential knowledge, and with internal objective (codified) knowledge. He also supplements his technical knowledge with management knowledge by completing courses on financial management.

“I found out that after leaving Ford, to get into this business I graduated from mechanical engineering, but everything that we were doing like distillation that's all chemical engineering. So I had to brush up on all of the subjects, and get the proprietary notes and everything that were in there from my father, my grandfather.”

The entrepreneur holds a very specific expertise in the design of breweries and alcohol distilleries. In terms of promoting his services, he registered his company in federal databases available online and in all Canadian embassies, piggy-backing on Canada's reputation of having fine distilleries and breweries. He is also a member of national and provincial engineering associations as a means to tap into their network. He characterized the markets as a “real niche market.” His expertise in that field and the limited number of

individuals with that expert knowledge account for many of his international projects. The nature of this business line is international at its core and the networks play an important role in winning new clients and providing access to experts and their necessary technical knowledge.

“That networking is essential to the success of our business in the distilling field. I dealt with Seager’s, and of course they’re all over the world, so I have assignments in Jamaica, assignments in Nigeria, as a result of knowing them. Of course then you meet other people when you’re on those and you know, the networking just kind of spreads.”

4.1.1.2 Description of internationalization pathway and learning from internationalization

The company internationalized right from inception and followed the internationalization pattern of a born-global firm. The entrepreneur has extensive past experience working with his father and brother in the family manufacturing business that exported many of its products abroad. The entrepreneur developed a keen passion for travel to foreign countries and wanted to incorporate this passion into his work early in his career.

“I got an itch to travel so I loved the idea to have a plane ticket - well travel, and doing business everywhere. There are people I know that well they don’t want to travel at all so would not have gone after the international business even if they’re company would be better off if they had. It’s the inclination of the CEO was such that they didn’t want to do all this travelling. Me, I loved it. I got an itch when I was 15 years old – I travelled Asia for the first time for 2 months, and that just gave me an itch to get involved.”

International sales account for approximately 80% of the company’s revenues. The entrepreneur estimated that 50% of the company’s foreign projects came from those on which the firm had bid and the other 50% came to them unsolicited. Clients often contact the company without their having to reach out and market their services, most likely due to word of mouth, network contacts and the firm’s reputation. They use the appropriate experts and technical knowledge from their network to complete projects, which often requires them to physically travel to the project site. They also use licensing as a successful means to generate revenues. They licensed the designs for brewpubs and micro distilleries, which have been built using their IP all over the world. They also licensed their proprietary technology (software) used in the distillation and brewery processes: PC Base and PC Brew.

4.1.1.3 Evidence of planned change triggered by internationalization

The company planned a strategy and defined objectives prior to its internationalization. Upon reaching these objectives, the company revised its strategy to reflect the nature of the services it wanted to offer. By capitalizing on the reputation it had built, the firm chose to no longer provide detailed engineering work and instead concentrated its efforts on providing expertise in distillery and brewery engineering design. The firm's dynamic capability of strategic decision making realigned its services to reflect a planned change in the company's strategy and ultimately innovated the firm's service offering.

"The sort of design engineer we were doing was right down to the nuts and bolts and the bearings and the gaskets and the shims; we don't want to do that anymore, that's too detailed. What we're maximizing on now is we have developed a certain expertise, let's capitalize on it and make the most of that."

Recognizing a new trend in the industry, the entrepreneur decided to make a significant investment in ISO 9001, which required him to modify his documentation processes. After the certification won the firm a foreign project bid, the entrepreneur decided to maintain it.

"And to enhance that, there's a change in marketing that came about when suddenly in the 1990s everything – ISO 9000 was the big buzz word. So I decided we were going to get into that; we were going to get that. 80% of what we were doing in documentation – pardon me: what we're doing is documentation. 80% of it fitted in with the ISO requirements. We were doing it anyway. Let's just go full step and HR Canada provided all kinds of trainings and subsidies for people to take the courses and everything. We took advantage of that, so we became an ISO 9001 company. And as a result, when it came to negotiating in India, with the largest manufacturer of distillery equipment, they were negotiating with a Brazilian company, they were negotiating with us. They came to our place; the fact that we had ISO 9000 and the Brazilian's didn't was the deciding factor."

The entrepreneur also took to codifying tacit technical knowledge on which the firm's competitive advantage was based. This knowledge codification may partly explain how the firm was able to license its technology as a secondary means of entering foreign markets, considering its very small size and limited resources.

"Everything is an experience, and maybe the best example is when I started up my first distillation plant, I made notes of "OK, if we build this one again, this

is what we should do differently”. And it turns out my grandfather, my father, all had notes on every one of them so I read all of that and I could see how this proprietary design has evolved. Can’t find it in textbooks anywhere and there are very few people that can design a distillation system for making whiskeys or rums or anything like that.”

“We have licensed our technology to a couple of Canadian firms, who have made a lot of money and capitalized – now they have this know-how. First we designed brewpubs and microbreweries of three different sizes, which they’re marketing or did market for about 15 years when the craze was on about building these. And they build them all over the world, including two in Russia; Central Russia. One in Siberia – with our know-how. For which we got paid every time they used the know-how.”

The entrepreneur has also developed a particular dynamic capability, most likely from his past work experience, to ‘keep his ear to the ground,’ namely, tracking the activity in the market and monitoring his percentage of winning bids. In doing so, he has demonstrated that he has a greater understanding of the external environment and can adjust his pricing based on his winning statistics. This dynamic capacity for flexible change has had an impact on the firm’s operational capability to price and sell its services.

“I track statistically if our batting average in Case A is about 20%. 20% of the inquiries – and I have an inquiry book and I record it and all this kind of stuff so I can track this – to see what the economic trends are so we’re getting 1 of 5. When I start getting 1 in 2, I check our prices: we’ve got to be underpricing. So then we raise the price so we get it back to the right level. And if we’re losing, then either one of two things: the economy is down, or we’re overpriced. So I adjust the price down, go back at the phone; pick up some of the business.”

The entrepreneur has also implemented continuous performance evaluation processes. By recognizing lost sales, completing client assessments and rectifying the firm’s strategy, the entrepreneur has continued to monitor the firm’s performance and quickly make the necessary amendments.

“That’s how I measure what’s going on; how successful are we doing based upon how many orders are we getting and are we losing – and why are we losing. If we lose an order, I’m very on top of why we lose so I can correct the strategy.”

The entrepreneur explained that performance evaluation has had significant positive outcomes for the firm. Over the years, the company has made important process innovations and adopted new technologies to gain efficiency in its production processes and continue to be competitive in foreign markets. This has had a direct impact of the firm's service product and delivery processes.

“As far as the business side of things go, expenses are down. We don't print drawings anymore. Blueprint machines and whiteprint machines – it's all done electronically now so there's no cost. (...) [technology has] made the ability to do our work, be far more efficient. I can design a distillery – where it used to take me 40 hours by hand, I can now, having set up spread sheets and stuff, I can now do the whole thing in under 8 hours.”

4.1.1.4 Evidence of ad hoc problem solving triggered by internationalization

Although the company made several investments in costly dynamic capabilities, such as performance evaluation, it also demonstrated ad hoc problem solving as it reacted to unforeseen events in its external environment and as it learned that its operational processes were functional without requiring continuous change.

The company made specific investments in IP and patented its products, which were complementary technical assets to the distillery and brewery design service they offered. The entrepreneur identified advances in consumer technology that allowed the company to develop these new products, PC Base and PC Brew, in the mid-1990s when the PC computer became powerful enough to support such systems. The firm made ad hoc opportunistic investments in R&D and product development, which were then supplemented with appropriate sales and marketing processes to launch the newly developed products in international markets.

“When we got into, for instance, the PC Base was a new product we developed when Windows 95 came out, and the Pentium computer was now powerful enough you could actually use in Industry and not just as a toy. At that point, we developed a brochure; I've got a separate brochure for it. We went into trade shows in the US.”

The company made significant investments in sales and marketing in its early stages of growth. It promoted its services and technology by using government databases located

throughout the world in Canadian embassies. Furthermore, the entrepreneur quickly developed a website on which he made available technical documentation for the firm's services and products. Over time the company continued to receive unsolicited orders from international clients, which may explain why the entrepreneur has made no other investments in the firm's marketing.

"With the advent of the World Wide Web, yeah that's the only place we advertise and we quickly got onto it, put that brochure on which was made in 1995 so we had a website in 1996, and started getting hits. (...) I would say that 90% of what we're getting today is off the Internet or by referrals. (...) Now, the company doesn't promote itself abroad other than by keeping its directory listings."

As mentioned previously, not all of the company's foreign projects were unsolicited. The firm did make some decisions to target foreign markets; however, this decision making process showed signs of being opportunistic, largely based on the firm's network contacts and the success (or lack thereof) it found in these markets. On several occasions, the entrepreneur provided evidence of the company's use of its network ties as a means to win new projects.

"Well the international market, the major emphasis that I've gone after is India. In the early 1990s we had gone to Thailand, I had made arrangements there, and I had a Chinese partner we went after the Chinese market, and he was able to get the statistics "Here's every distillery in the country, or here's every brewery, or here's the names of the people, here's the addresses". So we did promotions in English and Chinese and so forth, and nothing came of it. I became discouraged by that; I had heard it takes five years to break in the Chinese market, but then this thing in India came up, and I decided that India is a lot better place to go. (...) I'm a small company; don't have to worry about that, forget that market. Don't need it."

"That networking is essential to the success of our business in the distilling field. I dealt with Seager's, and of course they're all over the world, so I have assignments in Jamaica, assignments in Nigeria, as a result of knowing them. Of course then you meet other people when you're on those and you know, the networking just kind of spreads."

"For instance, my chemical engineering associate, as I've said he's the former plant manager at Gilbey's, and he's tied himself in well with Wray and Nephew, so that resulted in half a million dollars' worth of business that Case A got in the last year. As a result of his connections, he's going consulting

there. Then, when it came to the Bulgarian job, he became an intrinsic part of our team. He was on the job for a couple of years doing that. Meanwhile, he's still doing his own little consulting down in Jamaica, which that ended up getting us a bunch of business."

Table 21: Summary of Learning from Internationalization and Change (Case A)

Change triggered by internationalization	Knowledge from foreign markets	Evidence from case	Demonstrated changes to operational capabilities and resources
<i>Modification of dynamic capabilities</i>	Business knowledge	Service innovation	Changes to the service offering: no longer provides detailed design work but rather produces the general blueprints requiring specialized expert knowledge
	Business knowledge	Adherence to ISO 9001 guidelines for certification	Changes to documentation procedures in service production and delivery processes
	International information	Development of a licensing model as a secondary mode of entry	Increase in financial resources Necessitates partner relationships to maintain the licensing model
	Business knowledge	Tracking and recording the company's record of project bid wins	Changes to the services pricing
	Business knowledge	Performance evaluation	Investments in new technological resources to gain efficiency
<i>Ad hoc problem solving</i>	Technological knowledge	Recognition of opportunity in the market as a result of technological advancements to opportunistically develop and market new products	Changes to the firm's service production as products become supplementary to distillery and brewery design services Changes to sales and marketing processes to launch in the US
	Institutional knowledge	Registration of company in federal government databases in all embassies	Impact on the service delivery depending on the country in which service is solicited
	Technical knowledge	Development and launch of the firm's website	Change to the marketing and sales process; impacts service delivery
	International knowledge	Choice of markets for solicited projects is opportunistic and largely based on network ties	Impact on service production and delivery and resource allocation processes

4.1.2 Case B

4.1.2.1 Description of the company

Case B was created in 1980 by an expert in the field of oil spill response management. By 1985, the company was composed of five experts who had different areas of expertise within the field of oil spill response. Each expert was highly educated: all but one had their Master's in engineering, while the other had a PhD in biology. During its years in business, the

company has experienced very little turnover in its staff and continues to operate without an articulated planned strategy.

“We’re a bit of an odd duck. We have flown by the seat of our pants. Been successful, so we haven’t had to change our ways. But I imagine a lot of consulting companies are like that!”

The principal and managing partner who participated in the study has been with the firm since 1985. He, like the other principals in the firm, has an internationally recognized reputation in the field of oil spill preparedness and response. The services offered by the firm include oil spill planning, developing new spill response techniques, testing techniques, testing oil, and other complementary services affiliated with oil spill response management such as contingency planning. The firm does not participate in hands-on cleaning services of oil spills.

The company was created in response to an opportunity in the market. Until the early 1980s, oil companies often had in-house experts doing work similar to the services provided by the company. However, that expertise stopped being internalized and consultants began to outsource the work. Over the years, the company has not significantly modified its core services, but it has added new services in response to technological needs made evident by its customers.

“Well, uh, our services haven’t changed a great deal. You know, we’re still doing pretty much the same things. Our competitive advantages then were our experience, and the fact that most oil companies started cutting back on the sort of in-house expertise. You know I worked at Dome doing much the same as I do now. And all oil companies had two or three people that looked at that, and they don’t do that anymore. So, you know, they had to hire out contractors like us to do that.”

The majority of the firm’s projects come from the US governmental agencies or from large oil multinationals often based in the US. The company reports that although it has a lengthy client list, it does a lot of work with a small number of repeat clients. Thus, repeat clients are one of its most important assets, as it has successfully built long-lasting relationships and its network acts as a means of generating new business through referrals.

“I mean, you could probably analyze it statistically you know like 80 percent of our business is for a very small number of people. We have a very long client list but we do a lot of work for a small number of companies and government agencies. And we do work for both sides.”

The company continues to be very hesitant about hiring additional experts to increase its capacity, though it had more opportunities than it could handle at the time of the investigation. Individuals who have been hired are highly respected in their field and perceived as experts, have built their personal reputations and provided the appropriate credentials, and boast impressive previous work experience.

“In fact, we hear complaints from some of our clients indirectly that Case B is too busy. We can’t give them this work. We’re not even going to request for proposal. That’s a very dangerous thing.”

4.1.2.2 Description of internationalization pathway and learning from internationalization

The company internationalized early after inception and demonstrated evidence of the born-global internationalization pathway. The principal provided evidence of instances over the years where the company acquired direct experiential knowledge in the form of international, business, institution and technological knowledge. It focused its internationalization efforts by winning new projects and maintained client relationships by using the firm’s network ties. The company developed a good understanding of the competitive landscape and determined some of the effects that events and crises in the external environment had on the survival of competing firms (e.g., lack of crises meant attrition of number of competitors).

“For example in Canada, we haven’t had a big oil spill so people don’t have the same attention that they do in other places. Whereas in the States they’ve had the Exxon Valdez in the late 80s, and this most recent blow out which has really caused people to look at what they need to do and spend money. And so, you know, I would just look at the classic marketing example of you know your market share is going up and up and up and the market is getting smaller and smaller and smaller. It’s a dangerous trap!”

It acquired important institutional knowledge in both the North American and European markets, which could explain its focus on North American sources of income and limited interest in Scandinavian and other European projects. The technological knowledge the

company developed and acquired over the years continues to allow it to develop a competitive advantage via its expertise and leverage its intangible assets (e.g., reputation, network).

Furthermore, the company demonstrated that it often explores for new knowledge by learning from its clients. Case B uses its clients and network ties as sources of external knowledge, which it absorbs and transforms into a dynamic capability: rapid knowledge integration and development of new technological knowledge and capabilities.

“I mentioned earlier about this research fund by the US regulator. It wasn’t so much an “ah ha” moment, but when we started realizing how successful we could be with that, we really developed our lab testing capability. And we can test equipment up there. And we also started - around the same time this government regulator took over management of - let see if there’s a photo there - of a big tank in New Jersey. And by big I mean four football fields long of water of a swimming pool so you can put equipment into it and test it. And we realized the potential for that, and we really developed the capability. Because we knew that they would be very inclined to fund work that also used this facility that they had brought out of mothball status.”

4.1.2.3 Evidence of planned change triggered by internationalization

The firm operates with limited expert resources and demonstrates sparse communication and planning of strategic objectives or other routinized investments in change processes. However, two dynamic capabilities were identified. As mentioned above, experts in the company often explore for new knowledge in the company’s readily available external sources, on which it has built the capability to rapidly develop new services through internal R&D as a response to the needs identified by its customers. This research has fuelled the firm’s strong thought leadership in the field and allowed it to maintain its reputation as a world-renowned expert. This dynamic capability was routinized to the extent that the firm systematically acted upon needs identified by its clients, developed the necessary technological capability, tested and researched, and then published and disseminated the knowledge in the market as a means of soliciting new clients and projects.

“We realized that it was important and that if you were going to deal with an oil spill and prepare properly you had to know your oil. Like there is one very obvious example and that’s the use of dispersants. They don’t work forever. If

you have an oil spill, depending on the type of oil, you may have as little as twelve hours in which to apply dispersants. Otherwise you may have several days. And it depends on how quickly they weather in the environment. So that's a key question that we realized early on."

"Well we developed the capability to do that analysis. And that meant – we have a lab, at a different location. We developed that capability and we started marketing it. Like telling people how important this was. We have a lot of papers on it. Turned it into a business."

A recent example of this dynamic capability came from the identification of a new client need with renewed interest in drilling oil in the Arctic.

"Well ok, we developed the capability in our lab to produce ice. And so we can do experiments in our lab with ice, and that's a new thing. This tank that I've talked about in New Jersey, we've done a number of projects for them to help them develop the capability so that we could take advantage of it. Like the ability to do dispersant tests in the tank, which they had never done before. The ability to do test with ice – all sorts of different things. It's need based. We have to do it. We developed a sort of mini lab facility at one of my partner's houses out in Woodlong in the west end."

Furthermore, the company uses its acquired technical knowledge to fuel its reputation, through which it acquires and maintains its clients. Professionals in the company publish research and present their findings at conferences. Knowledge dissemination is the foundation to the company's expertise and reputation.

4.1.2.4 Evidence of ad hoc problem solving triggered by internationalization

The company managed to win international projects without planning an internationalization strategy or defining the markets it wanted to penetrate. Internationalization was done opportunistically, as many of their customers were American oil multinationals or governmental-funded agencies. It therefore internationalized by developing its thought leadership and expertise on the subject matter and by continuously working with a select group of companies that required its expertise.

"Well just in terms of repeat business. I mean, you could probably analyze it statistically you know like 80 percent of our business is for a very small number of people. We have a very long client list but we do a lot of work for a

small number of companies and government agencies. And we do work for both sides.”

The evidence calls into question the need to develop routinized change processes, as the use of ad hoc problem solving over planned investments was sufficient for the firm to internationalize. That said, the principal suggested that the barriers to internationalization were small and the firm’s services required little to no modification to be delivered to international clients. The company explicitly acknowledged that there have been no adjustments to be made.

“Hum, in general I would say no because we are generally working for multinational companies so it’s not – it’s not as local is it might appear to be. I did a lot of work in Trinidad over the years. I went there every year for quite a few years, but it was for Amoco Trinidad which is huge multinational oil company. And it was nice to be part of the local culture and the people that I was working with were often local people but they had been part of the North American culture because of working for an oil company. Same thing in Brazil. So no, not generally no.”

International projects have often been awarded based on the firm’s expertise, which in turn is based on the developed and acquired rare technological knowledge embodied in the firm’s experts. The firm has required little promotion and marketing. Its reputation has been an important asset in winning international contracts.

“You know people come to us because of what we can do. We get the work because of that. I mean the oil business is very multinational as you know. I mean you cross borders. People do all the time. (...) I mean people cross the border, go around the world. That’s just the way the oil business is. So, we all speak the same language. Different accents maybe.”

“I think it came out of the blue. Honestly, no I mean someone knew our capability. You know maybe it was someone who used to work for Dome Petroleum and now worked for Vietcong or whatever they are oil company.”

“We’ve never really had to do that much [prospecting]”

The same is true of its network ties. By completing projects in foreign markets, the company has extended the scope of its network.

“Well yeah. We definitely we’re able to expand our network because all of a sudden we got to work with a bunch of people from Norway that had dealings in Russia. Because some of these companies are very active over there. So that was very useful. (...)Well, it put us in a very good position to bid on the work that we’re doing now, which is this conglomerate.”

The projects that they have completed have also been a source for referral to new clients. Again, by completing projects, developing technological knowledge and disseminating information, the company has fuelled its reputation and strengthened its position as a thought leader in the field.

“Well I therefore get a lot of credibility when I put out this catalogue but then when I put out the catalogue I get a lot of credibility for the other things I do. So I’ll get hired to evaluate some equipment ideas because they go ‘(...), he’s the catalogue guy. He knows all about this stuff’”

“I’ve had a couple of projects like that where I was asked to evaluate a group of different types of equipment and select the best one. Actually, maybe this R&D project, because I know who’s doing all of these different research things and they knew I could do it very efficiently. And they knew I had the contacts. I mean I can pick up the phone and talk to every major equipment supplier on a first name basis, so that’s helpful.”

“I was personally responsible for spilling about 15 cubic meters of oil which is a lot. Which was great. We cleaned up almost all of it, but it was just really great to be part of an international team doing what’s viewed in the oil spill community as like a milestone event. And “Oh you were part of that? That’s pretty good”. And I think reputation wise that really helped up. I imagine we’re continuing to trade off of that.”

The ways in which the company has attracted new clients and won new contracts could explain why it never planned its internationalization strategy. Instead, the company focused on leveraging its client relationships and finding recurring sources of funding.

“Oh countries? Well, yeah that’s not easy to answer because I would say over the next year we’re going to have about three primary funding sources that will probably account for 80 percent of our revenue.”

These relationships have been maintained in part with the firm’s technological knowledge. The company’s expertise is used to identify future research needs, which the company can

then bid on and meet. Thus, the company demonstrates opportunistic behavior in fostering its client relationships.

“Yeah, like we work with them and help them identify research needs and then once a year they have an announcement for requesting proposals and it crosses the border with the free trade. So we’re eligible to do all of that stuff. We’ve been successful at that. You know at times almost too successful where people are going ‘is that the Case B fund or is that the general fund?’”

The company proactively decided not to bid on European and Scandinavian projects because of direct and indirect international, business and institutional experiential knowledge acquired over time. The company limits its involvement in these markets, unless clients request its collaboration.

“Yes, but we’ve never felt like we’d have a fair opportunity to get them. The big funders in Europe are Scandinavian countries, and it’s of our opinion that they’re this closed shop, sort of thing. Like they don’t fund outside people in our opinion. (...) Well yeah we’ve tried and they have – I mean the business relationship there is different. They’re quasi government agencies over there, but they call themselves consultants. They tend not to use us in the collaborative way unless they really have to. Unless the client demands it, which has happened a couple of times. So we don’t bother.”

The company recognizes that investments in knowledge, physical infrastructure and testing capabilities are necessary to acquire new clients and maintain existing ones. However, the ways in which the company has gone about making these investments demonstrates evidence of ad hoc problem solving.

“We convinced a customer to pay for most of it which was nice. But we completely gutted it and we have now a new wind wave tank and it’s a meter wide, a meter deep and 10 meters long. We can do experiments in there. And then we have another one that’s like a racetrack bowl of water so that oil can circulate in that. A client came to look at our lab and was not very happy. We tend to do things as we need to and we try to keep things inexpensive which has always helped our business. So we did a major upgrade in the last year. It’s been very good for us I think. It’s been very good for us.”

Furthermore, the company has overlooked any formalized knowledge management processes. Instead, experts have defined their own areas of expertise symbiotically, based on what others in the company specialize in. The direct and indirect technological experiential

knowledge acquired may have had an impact on the professional development of the experts, thus impacting the company's knowledge base.

“Oh yeah. Not willingly but yeah [we do work together]. No we do because like I said we each have skills that the others don't. (...) Maybe [that was planned]. Or it may have just worked out that way. Plus you get here and you go ‘he's doing that and he's doing that, I could do that as well but I probably won't make a lot of money so I better develop my own capabilities’ which is the way it's worked.”

Case B demonstrates a lack of formal growth planning, which may be in part due to the fluctuation of demand from its clients, as their needs are often regulated by external critical events (or lack thereof).

“One, the lack of spills over the last ten years has driven the market down such that people have gotten out of the business. We have no choice: this is the only thing we know how to do. So when the Macondo spill happened, we were ready to take advantage of it, and we have. If we could, we could double our company size right now easily and continue going.”

Thus, little planning and forethought have been given to growing the company in terms of adding additional experts on staff. The firm has had to increase its capacity since external events in 2010 significantly increased demand for its services. To solve this problem, the company decided to hire another expert in the field. This increase in capacity was not planned *per se*, as it seemed to be in response to an internal need to ‘keep their heads above water.’

“Now that's changed a little bit in the last – well since Macondo, since the blowout which is now two and a half years. There have been some increased finding agencies that have been set up to look at oil spill response. So we have increased capacity in the last year or two to prepare for that and just to keep up, keep our heads above water [laughing]. You know in the last two years we've been working very hard.”

Lack of planning and preparation could also be seen in other areas of the firm. The company's actions in regards to new service development show a lack of preparation and understanding of competition.

“Well it was because of specific technical capabilities. You know a group of companies that a need to decide – or to develop a system for decision making on dispersants in the Gulf of Mexico and we realized that we needed this GIS component so we developed it. So yeah it was completely opportunistic. We didn’t think ahead and plan it. We tried it to maintain it some period after that but it didn’t pan out very well. We didn’t make any money.”

Although the company has demonstrated poor planning and strategic decision making abilities, it has been able to leverage and exploit its investments in technological knowledge in novel ways.

“We tried it [GIS] for a while and it didn’t work out. It’s too competitive. People working out of their basements charging nothing, so we gave that up. However, we developed a neat tool that we used in other parts of our work including the modeling aspect.”

“We got into GIS for an oil spill reason because you needed a mapping component to look at the environmental impact of the spill. For the Gulf of Mexico we developed a tool that would predict the impact of the spill depending on how severe it was and how you tried to deal with the spill. It actually got used during the Macondo blowout to help them make decisions on whether to use dispersants or not.”

Table 22: Summary of Learning from Internationalization and Change (Case B)

Change triggered by internationalization	Knowledge from foreign markets	Evidence from case	Demonstrated changes to operational capabilities and resources
<i>Modification of dynamic capabilities</i>	Technological and business knowledge	Ability to quickly act upon needs identified by its clients; new service development	Change to service production process Modification of physical resources
	Business and technological knowledge	Use of knowledge dissemination to attract and retain clients	Continuous modification of firm's knowledge base
<i>Ad hoc problem solving</i>	Business knowledge	Use of network ties to attract and retain clients	Requires maintaining client relationships and networking
	Business, institutional and technological knowledge	Opportunistic use of expertise and reputation to define clients' future research needs	Impacts the firm's network and requires maintaining strong client relationships
	International and institutional knowledge	Opportunistic choice of foreign market based on network	Impacts the firm's network and requires maintaining strong client relationships
	Business knowledge	Ad hoc investments in physical infrastructure	Impacts service production and delivery processes
	Business and technological knowledge	Symbiotic development of experts' individual core areas of knowledge; informal knowledge management	Impacts the firm's service offering and service production processes
	Business knowledge	Increase in capacity for service production and delivery	Impacts firm's ability to respond to client requests
	Business knowledge	Elimination of services	Impacts firm's ability to respond to client requests

4.1.3 Case C

4.1.3.1 Description of the company

Created in 2000, the firm then employed six individuals. At the time of investigation, it employed 25 individuals. Members of the core management team had all completed graduate studies, holding at least a Master's degree in their respective fields. Consultants working for the company had either an MBA or a specialized Master's degree in their field of expertise. The company had grown by hiring project managers and junior staff.

The company grew out of its predecessor firm's international development branch to form an independent environmental policy boutique firm. Upon its inception, the firm still had a few

legacy international projects with CIDA, notably one in Pakistan and another in Bangladesh. The firm evolved over the years and diversified its activities into emerging areas, particularly in corporate sustainability. Between 2001 and 2005, it refined its service offering and repositioned itself as an environmental management consultancy. The company went through its first formalized strategic planning exercise in 2005, at which point the participant had been promoted to company president. He was the first of two individuals interviewed at the firm and at the time of the investigation, he held the position of Chairman (as of mid-2012).

In 2005, the firm repositioned itself by making significant research investments in corporate sustainability within the Canadian context and disseminating the knowledge it had created, which provided other companies with far more contextualized and specific information on the topic than what has been available at the time.

“So we did all of that research and that put us on the radar screen and raised our profile domestically and internationally, because our research was much more detailed and at the time there were a number of leading companies particularly in the resource sector that were based in Canada. So Falconbridge, Noranda, Dofasco – any number of names that early on in the 2000s were considered leaders on the sustainability or CSR agenda. So that raised our profile and had us getting requests largely within Canada but from many multinationals that were operating in Canada to benefit from that. So that phase was sort of between – again through 2001 to 2005. It’s those kinds of engagements that were coming in.”

The company has a well-defined organizational structure where individuals are well aware of their roles and tasks. The organization was characterized on multiple occasions as “values-based” and pays considerable attention to and cares for its employees. Its organizational culture is one that promotes innovation and initiative, and employees share the objective of creating change and having an impact.

“It’s our people and so it’s people that are values-driven, that want to create change and have an impact, and then our goal is to create I’ll just the vulgar term – but a kickass consulting company that helps us all do that. I used earlier – I talked about fluff versus stuff. There are a lot of people that work in this space that talk about sustainability. We want to do it.” [Chairman]

“We’re very much about capacity building and helping our clients learn and do it for themselves which is a different orientation than I think other firms that

want to keep their intellectual property to themselves so that they can continue billing the client for stuff because they don't know how to do it. I think with sustainability we really do want to increase the knowledge and capacity and ability for these companies to deliver on sustainability because it's part of a larger mission, not just part of our bottom line."[Chairman]

4.1.3.2 Description of internationalization pathway and learning from internationalization

The chairman confirmed that the firm internationalized right at inception and opportunistically continued to internationalize subsequent to the completion of its initial legacy international projects. As the company has worked with multinational companies, international alliances and associations, and international governing bodies, the services it offers are intrinsically international in nature because of the scope of its clients' organizations. Thus, its services are often produced in a wide variety of contexts.

"I guess there are international projects and then there are firms that are international in nature and the project may be run from a Canadian office perspective but it engages a wide variety of people around the globe."[Project Manager]

Although the company's reputation crossed the domestic border, the management team had a good understanding of the investment in time and resources international activities required, and decided to take an opportunistic approach to international projects. The firm could be characterized as a *hesitant born-global* firm.

"We've always prided ourselves on the quality, the depth and the rigor of the work that we do and those values have driven where we've played. So one of those is that we strive to allow people to achieve work-life balance to the extent that you can in a professional services firm. In the consulting business which is a hard business to be in, you have to work very hard to generate new reasonable revenue – sort of margins and so on. If you're operating internationally, that adds a whole other dimension to that and I would say that would be a deliberate limiting factor for us. It's that all of us want to have a bit of international work a) for the fun and b) for us to integrate that into our expertise and what we're delivering, but we don't want to be doing it all the time. There are many of us who have young families and so on so we've made a deliberate choice in that we're not charging off and pursuing international work for better or for worst."[Chairman]

As the field of corporate sustainability evolved and matured, the management team also recognized that internationalization would not necessarily allow the firm to use its contextual knowledge base, given that its expertise was centered on the Canadian environment.

“The CSR sustainability discourse has been at a very high level and it’s been nice words and so on and now despite perceptions perhaps we would argue it’s starting to mainstream, it’s starting to happen. But that’s because we’re getting real. It’s that we’re taking these words and these concepts, and if you’re going to talk about human rights or biodiversity in the oil sands or in Panama or in the Congo, it’s a much different conversation. And so again for a boutique firm we know a lot about the Canadian context and can operate in most geographic regions and in particular resource development regions in the country.”[Chairman]

4.1.3.3 Evidence of planned change triggered by internationalization

The financial crisis in 2008 instigated a strategic revision, at which point the company identified areas where it recorded higher performance and in which it could focus its knowledge development efforts. This was not the firm’s first strategic revision; it undertook an initial strategic exercise in 2005 and had completed a third in 2011. The result of the strategic revisions in 2008 was the implementation of a sector strategy that was still in place at the time of the investigation.

“Our goal is (...) to create the situation where we’re not pushing our services, it’s the market that’s coming to us. And I think particularly now that we’ve made this renewal strategy, we’re not trying to grow and take over the world, that’s what it’s feeling like more again. That we’re not having to put as much effort into the broadcast business development stuff. We can make the investments in IP and thought leadership and keep on the cutting edge and the work will come to us.”[Chairman]

Not only has the company focused its efforts in particular markets, it has also invested in innovating and improving its services. The company has leveraged its direct and indirect experiential learning, and built on the knowledge it has acquired during each project to improve its services.

“That is work where we did all of that research, put the research out there then started providing strategic advice around their corporate sustainability reporting and then we just continued to kind of build on that. So each subsequent client that we’re working with in that field we’ve got the legacy of

all of the benchmarking that we've been doing. All of the materiality analyses so that we can have a more – each subsequent project is going to be more sophisticated from the last one.” [Chairman]

“Auditing and management systems were two services that started right at the beginning. The case of management systems, what we've done is expanded the scope of what we them applying them to, and how we provide integrated – so it used to be just environmental stuff then it included health and safety stuff, and now its including the other social issues. It's becoming a broader corporate sustainable corporate responsibility management system.”[Chairman]

“When we first started environmental management systems were the thing and then integrated environmental health and safety management systems were the thing. What's happening now are more broad integrated systems (...) So we're taking that core competency around management systems and now over time broadening the issues and were applying that to integrating for a client in terms of how they establish those things.”[Chairman]

Continuous improvements have also been made to the services' production and delivery processes. One of the project managers responsible for international projects provided accounts of times where she incorporated previously acquired direct experiential knowledge within the context of a new project to improve the service production and delivery processes.

“We fully underestimated the amount of time that the differentials in time for approvals and information gathering from the various companies. So obviously the Canadian-based companies are generally on the quicker end of approvals and being able to gather information and speak to people. The ones that are international and large are taking magnitudes longer. Like just months longer to do the things that the local companies can do in a day, so it's affected schedule. It's also affected I would say the robustness with which we plan for internal company engagement. (...) So we've had to become much more specific with the requirements put on these companies for sharing information about the project within their company, so that the company gets by and it can execute against what we're trying to achieve together. So that's been a real learning. (...) we're about to apply some of the lessons that we've learned with the COSIA project to a project with an international mining company.” [Project Manager]

It is also evident in her descriptive accounts that employees informally share direct and indirect experiential knowledge among the group. From her accounts, it is reasonable to conclude that shared experiential knowledge has been integrated into project management processes to reflect the acquired international knowledge of others.

“So my colleague who does a lot of work internationally talked about the need to convey the same information in various media. Making sure that you’ve got stuff in writing, and then follow up by saying the same thing verbally and also trying to provide illustrative examples of what you’re talking about because of the varying language and cultural barriers. The more ways that you can present information the better, the more it’s absorbed. I’m definitely applying that.” [Chairman]

Although the company demonstrates evidence of knowledge management processes, both the chairman and the project manager recognized that this is an area of concern in the organization. As the company continues to grow and satellite offices are created, it recognizes the need to codify and institutionalize parts of its knowledge base.

“We also do struggle with knowledge management and how we can institutionalize these learning and make them easier to access and – from employees that are starting to be – we’re starting to have more remote offices, so they’re not talking to us informally in the same way, so how do we capture to share with them? But also over time we’re finding when we were first formed, we had people who were here for 8, 9, 10 years and that – I mean we’re still retaining people for 3, 4, 5 years but there’s more turnover than we’ve had in the past. So how then do we maintain those learning when people are leaving and we don’t have the formal systems to capture them. It’s an area we’re thinking about a lot and could be doing more.” [Project Manager]

4.1.3.4 Evidence of ad hoc problem solving triggered by internationalization

Although the company has formalized certain operational processes, notably those surrounding the services’ production and delivery processes, it has yet to systematically seek out new clients and projects.

“We’re passionate about the issues and we want to do stuff. We’ve all had to make a special effort to learn and to execute around the business development side. We still have ways to go there. So that would be a long story to tell. For the first few years we didn’t have to worry about it much. The work just showed up, the phone would ring and we’d get contracts and so on. And then we made that big investment in sustainability reporting, which again is a pretty classic professional services moves right. You do research, you issue thought leadership, go out and talk about it at conferences and that generates business. So we figured that out pretty early on. But because we were small and growing, and there were only so many of us to go around, you very rarely are in that sweet spot of doing all of those things just at the right level of efforts. It’s the typical we do it well, we get really busy, we deliver, we run out of clients, we

say oh my god we have to do it all over again so we come up with a whole new way of doing it.” [Chairman]

Furthermore, international projects have often been taken on opportunistically as they have become available to the firm through its existing clients as repeat sales or via referral through its network ties. Also, the chairman provided evidence that projects completed domestically have often opened the door to international projects, given the international scope of the firm’s clients. However, the company has yet to define or formalize a process by which it can capitalize on future international projects.

“And there’s a lot of uncertainty and confusion on how to apply [guidelines of voluntary principles on human rights and corruption] so Ben along with my colleague Barb and others here worked with the International Council for Mining and Metals and IPCO which is the petroleum – the International Petroleum Industry Association to develop a training package. Well first guidance materials and then a training package. And that was so well received that we were then approached to deliver the training so my colleagues – that was tested first in Washington I think and then Barb was in Peru in July, South Africa last month, Indonesia in December and they’re just starting to plan next year’s schedule. That you know we’re now starting to get calls from Statoil, Canadian companies too like Barrick, but other international companies that are experiencing that training and saying you know what else can you guys do for us? So we don’t fully yet have a strategy around that but I suspect that we’re going to be giving some more international work related to that experience.” [Chairman]

“Our largest public sector client is the Northern Contaminated Sites Program which has been responsible for cleaning up abandoned sites in the North, most of which are abandoned mining or military sites. We’ve been working with them since 2000. We’ve done a lot. In about 2002 because of that relationship I was asked to contribute to a global environment facility project in Russia, where they were looking at cleaning up abandoned military sites in the Russian arctic. Basically, our federal government, Indian and Northern Affairs, was contributing to the Arctic Council and this conversation was there and they knew about this project and there was an opportunity to provide Canadian expertise. They said we’ve got ourselves sorted out in terms of what we’re going to do so we’d like to offer our bar expert to contribute to this project. So they sent me to Moscow for a couple of weeks” [Chairman]

Although the importance of their existing clients and network ties was recognized by the company’s chairman, the management team had yet to formalize an approach to maintaining client relationships. It also experienced negative repercussions from the acquisition of large

Canadian companies in the oil and energy industries, as once acquired the company often lost its contracts and opportunity for repeat sales.

“We aren’t very sophisticated or systematic in terms of our approach to maintaining long-term clients, but if you look at our two biggest clients have been clients since the beginning of Case C. And then we have others that are like that. If you look at the turnover of clients there’s a real good foundation of long-term relationships that we’ve been able to maintain and we’ve acknowledge that in our strategy. That we should formalize that a little bit more, and that we should be coaching and mentoring folks around that, because it’s something we do well but we haven’t formalized.” [Chairman]

“One very big development that’s affected that is the acquisition of the Canadian companies and brands by international companies. Noranda, Falconbridge, Inco were some of the biggest mining companies in the world and they’re gone. So now we have Xtrata and Vale Inco and others operating in Canada. TAC is the largest Canadian company now, and Barrick is up there as well. BHP, RioTinto have Alcan, they have IOC. That’s been a massive change. (...) That change over time has had a big impact on us. (...) It has taken us some time to re-establish with the foreign-owned companies or to wait for medium-sized Canadian companies to get to a point where they want to hire somebody like us. And that’s what started to happen as the industries changed.” [Chairman]

The company prides itself on the quality of the services it offers its clients and has recruited expert knowledge when the expertise has not been available in-house. This ad hoc problem solving example has proven successful, as the company lists several associates on its website with impressive résumés from whom it could seek out expert knowledge.

“So here’s a story that’s an important one. Petro Canada, because of our reporting work they hired us to give them reporting advice. This would have been 2002 or something like that. Because they liked us, which was the whole reason we did the reporting work they brought us in to provide them corporate response strategy work. They then bought oil and gas based in Europe and all of a sudden had assets in the North Sea: Syria, Libya, all sorts of lovely places that Suncor now wishes they didn’t have. All of a sudden it’s like ‘how do we do all of this?’ and we weren’t experts in any of that but we were experts in integration and strategy and so on. So we brought in an external expert, a woman named Donna Kennedy-Glans who had been a VP of External Development with Exxon when they were getting into Yemen and so on and we helped develop PetroCan’s whole corporate responsibility strategy and there were big issues around human rights, and bribery and corruption which were whole new areas of interest for us. So it was actually – so PetroCan became our biggest client.” [Chairman]

Furthermore, evidence shows that the company has made ad hoc investments in its physical infrastructure to improve the service production and delivery processes.

“I think that we also learned that having video capabilities associated with those types of interviews rather than just over the phone is valuable. We have upped our video conferencing capabilities over the last couple of years as a result of that project and other ones. That inherent just being able to see people’s body language when you’re never going to meet them face to face, being able to see people’s body language in connection to the work that you’re doing together has been very important.” [Project Manager]

Table 23: Summary of Learning from Internationalization and Change (Case C)

Change triggered by internationalization	Knowledge from foreign markets	Evidence from case	Evidence of impact of change
<i>Modification of dynamic capabilities</i>	Business knowledge	Implementation of a sector strategy	Modifies use of knowledge assets Impacts existing clients and contracts
	Business and technological knowledge	Improvement of services offered	Changes the service production process and knowledge assets
	Business and international knowledge	Knowledge management processes	Impacts the service production and delivery processes and knowledge assets
	Business knowledge	Performance evaluation and strategy reformulation	Modifies use of knowledge assets Impacts firm's strategy and service production process
<i>Ad hoc problem solving</i>	Business knowledge	Sporadic sales and client prospecting processes	Impacts resource planning and allocation processes; can impact service production and delivery processes
	Business knowledge	Informal approach to maintain client relationships; affected by acquisition of large Canadian brand	Impacts clients, contracts and financial resources
	Business knowledge	Recruitment of new associates with required expert knowledge upon recognition of need	Impacts the service production and delivery processes, maintains customer relationships and reputation, and impacts knowledge assets
	Business knowledge	Creation of new satellite offices in Calgary and Toronto	Impacts the service production and delivery processes Negative impact on knowledge management dynamic capability
	Technological and international knowledge	Improvement of physical infrastructure and investment in communication technology	Impacts the service production and delivery processes

4.1.4 Case D

4.1.4.1 Description of the company

The company was founded in the early 1980s and changed ownership in the 1990s. It has approximately 20 technical and support employees responsible for the sale, production, delivery and R&D of its innovative sewage and waste water management systems. Its core

management team is highly experienced; all have been exposed to the challenges of internationalization in previous business endeavours. Over the years, the company has invested several millions of dollars in the R&D and patenting of an innovative sewage and wastewater management system. The company has chosen to act as a service integrator by partnering with other leading water treatment providers and working with local constructors on its solutions. At the time of the interview, the company had experienced limited adoption in its domestic market and had therefore decided to focus on emerging foreign markets.

The current CEO has been at the helm of the company since 2005, when he succeeded the original founder of the firm. The CEO represents an important company asset; his attitude is one of going forward with reason and little hesitation. He is very experienced. He demonstrates drive and little seems to put him off. He is not one to put his firm's future in the hands of others.

“I think then that you’re assumption is that there are other people who might actually get something done for you. So if you operate from the assumption that I have a choice and someone else will succeed on my behalf if I don’t go succeed for myself, that’s true. But if you don’t assume that, then the real question is ‘How do I ever achieve success?’

The company has not always been a systems integrator. Through trial and error, it has changed its revenue model multiple times over the years. Prior to the company's internationalization, the entrepreneur decided to become a system integrator and sell a total solution instead of a technological product. The entrepreneur concluded that the only way to make the most out of each deal was to be the solutions integrator and sell the final outcome, which significantly increased the complexity of the firm's production and delivery processes.

“We’d love to be [a professional service], it’s not that we’re desiring to manage projects in Bijwasan outside of Delhi. It’s not that that’s a good thing that we have to do. It’s the only way to the money. And when we looked at it in India, if you take an area of say 50 000 people at the edge of Delhi and you design our system and then you design the historic alternative and the treatment plan, we had - before our profit was 43% cost advantage over the old way. 43% cost advantage. That’s not including something for me yet. And operationally the old way wouldn’t work because it has such small variable water. It would be an operational disaster and they know that. If we sold the

license for that, I don't know that we'd make much. So that's why we went – we've got to take this so that we can get all or as much of that as we can."

During his tenure as CEO, the firm made strategic decisions to ensure it received the necessary capital funding to continue operating, as it had not turned a profit since its inception. Because the firm was having difficulty finding investors, it purchased an auxiliary business in the cement industry that generated free cash flow. With improvements in its sales and marketing initiatives, the company increased its cement business's revenues and benefited from evergreen capital until it was purchased by an income trust almost three years later. Subsequent to the sale, the CEO had to fulfill a commitment as consultant with the cement company's new owners for 12 months.

His return in 2009 was conditional on the firm realigning its strategy to focus on sales in emerging foreign markets. Since his return, the company has made significant improvements in its sales figures and its solutions are beginning to gain traction in several emerging markets.

4.1.4.2 Description of internationalization pathway and learning from internationalization

The entrepreneurial team members all have previous work experience in companies with business dealings abroad. The entrepreneur gained extensive direct experiential knowledge from his time spent as head of other companies that also internationalized and by working with other highly successful serial entrepreneurs.

"I think part of the problem Canadians have is we can be basically good enough for Canada. Inherently, that's not very good. It should be that you're good enough for anywhere, because everything should be global. And in Terry's world everything is global. We did more business at Crosskeys from 1994 until 1998 with Chevron Nigeria than with all of Canada."

The firm long focused its sales efforts on its domestic market; however, the entrepreneur concluded that there was little hope for any significant adoption in Canada because of a historical preference for traditional sewage systems. Thus, he showed signs of experiential learning by taking the company's failure in the domestic market and finding opportunities in emerging markets.

“So the objective was to be from Canada, and not to do business in Canada. And there’s a huge number of reasons but I think most people who become exporters if they were truthful it’s not really an expansion of their base business but an adoption of an opportunity that’s better than their core business.”

Three years after the firm’s initial decision to focus on emerging foreign markets, the CEO affirms that their internationalization decision has been a founded choice. The company has found less resistance in adopting highly innovative infrastructure systems in foreign markets, which was its greatest difficulty in its domestic market and one it had never been able to overcome.

“I wouldn’t say we’ve found success. We’ve found less failure. We’ve found – the biggest thing that we learned in the market was because they don’t have a massive invested history in the infrastructure of London England, they’re not so biased to repeating it. So you can actually have a much more practical fact-based discussion with engineers where here it’s almost like a religion debate.”

The company also demonstrated signs of direct experiential learning as it tried to enter targeted foreign markets and encountered significant international barriers for which it was not prepared. The firm chose to cut its losses in some foreign markets as others presented different international contexts that proved easier to penetrate.

“Well we tried so hard in China. We won awards, we went back and forth, we have an investor that owns 7 percent of the company. China is not our market. And it’s because it’s entirely a government procurement process where there’s private sector procurement. There’s nothing to drive them to a better outcome. We didn’t know that. India on the other hand is much more – you can have either a public buyer or a private buyer. The rules of enforcement aren’t nearly as important as the technical function of the system. Whereas in China, if you can avoid the fine, who cares. So anyhow we were completely wrong on China. I was sure it would be our best. Absolutely our worst.”

4.1.4.3 Evidence of planned change triggered by internationalization

Subsequent to the sale of the company’s cement business, the CEO was employed as a consultant with the firm’s new buyer. Upon his return in 2009, he found the company in a difficult position. Understanding that the firm’s strategy was not achieving the expected results, he demonstrated a clear intention to internationalize.

"Right, but when I came back we had absolutely no money and my assessment was that we had absolutely no opportunity. The only reason I would come back to the organization was if it was agreed we would never pursue another account in Canada. Not make a presentation, do nothing, in Canada."

The process by which the firm researched and targeted its markets was one that demonstrated thought, caution and attention. The entrepreneur's justification for choosing the company's initial target markets allowed for a certain margin of error, whereby a negative experience in one country would have little probability of bleeding over into another target market.

"So when we looked around we saw that the GDP growth isn't here, it's going to be over there. And the 40% of the world population who need the infrastructure we have aren't here, they're over there. And the people with the water scarcity problem aren't here for sure they're over there. And so the only reason to be here is because it's where we originated, not because it should be sustained here. On that basis we said 'Let's pick 10 countries which are not aligned tightly, so that if we're wrong in Peru, we won't have any bleed over effect in India. And if we're wrong in India, it won't have any bleed over effect into China'."

The company also demonstrates an innovative use of network ties by having individuals act as pseudo distribution agents, which has perhaps helped counter the significant resource restrictions it encounters. These individuals use their network ties to identify sale opportunities and arrange meetings, thereby opening doors for the CEO.

"(...) in the Philippines we have a guy that used to be the Canadian executive director at the Asia Development Bank is our consultant. He's not what I would count in our number. We have the same thing for people in Columbia, Ecuador – we gave up the one in China – in Sri Lanka. So we find some very senior people who don't make necessarily any income from us until they get projects we close. (...) they are introductory sources. So they tend to be average age of greater than 65, very well recognized people in society. Most of them have made a lot of money selling tractors or running tractor businesses or being senior government officials, and then they recognize that their society is in a mess. And this almost appears to be an act of moral responsibility to try to find good solutions to bad problems, and so they're doing that in that way. But they'll make 2 or 3 percent if and when we sign a contract and they get paid as we get paid. So those people they are great at arranging meetings. They're not going to conclude a transaction but they can make great start to one."

The company also piggy-backed on Canada's positive reputation and used trade missions as a means to open doors in the emerging markets they had targeted. The company understood the implication of trying to penetrate foreign markets and made the necessary investments to pursue opportunities in the markets they had earmarked.

"(...) we tried every time to take the fact that we have almost no balance sheet, had no known credibility. All we had was a history. And as soon as you go in – because we're in the business of clean water and Canada has a perception of clean water, go with a Canadian. And so we used every trade mission, every political mission as a method to open a door in a high level room, and you know away you go. Depending on what you're selling, it is the most – we're perceived as credible implementers of infrastructure."

Furthermore, the company understood the costs and implications of being a system integrator, especially in emerging foreign markets. The firm made the change to its revenue model to become this agent in the value chain. This was demonstrated by the planned investments in support processes that allowed the firm to finance its ongoing projects and capture a larger return.

"So the race is two parts; it's not one part. You can get people come back to your country, you go cast about. You can get the people and identify the prospects and make sure that they're well qualified and get them there, where they say 'yeah, I'm for sure going to do that'. Now doing it – doing the next part of becoming incorporate in the country, finding appropriate sub-contractors, the project developing – that portion is hard to finance because investors can understand twelve or thirteen months, what they don't understand is twenty-four. And so your cost of capital goes way up here, your possibility of debt goes way up here, but that's sort of how our race breaks down. And one way that Canadian companies fix that problem which is awful in my opinion is if I'm willing to subordinate myself to a big company and just sell a little piece. You can get the cheque here. If you actually want to create something that your top line is your obligation, and all the bottom line is yours, and you then subordinate others, then you have to go that distance."

The sanitation arm of the company had always been resource intensive and its burn rate continued to cause financing issues. Furthermore, the company's sale cycle in foreign markets was very long, often exceeding 24 months. The last 14 month portion prior to foreign clients signing their contractual agreements was especially difficult for the company

to finance. To overcome this recurring problem, the company established a wholly owned subsidiary responsible for finding its projects.

“Case D has established a wholly owned subsidiary dedicated to funding for water projects using the Case D SBS™. That subsidiary, Case D Finance Corporation (CFC), has been funded by 20 year fixed term debt, as previously announced. CFC has made a term loan of \$2.7 million to support completion of Phase I of the development. The loan is fully secured over assets of the development, bears competitive interest and has an initial term of four years, which may be extended annually to a maximum of 20 years.” [Company press release, August 2012]

As a response to the nature of its service and the complexity of being a system’s integrator in a foreign country, the company also began following a routinized approach when entering a new foreign market by which it established a wholly owned subsidiary. Thus, the company began formalizing its process for entering new foreign markets.

“Yeah, I think that in every country you have to create a legal entity which is – unless I’m going to sell a piece through a channel who might take inventory, if you’re going to try to do a systematic thing, you have to have the ability to contract, which means you have to have tax identification numbers, everything. So you have to create a 100% controlled subsidiary.”

Furthermore, as a means to adapt the firm’s service production and delivery processes to its various foreign markets, the firm implemented systematic ways of tracking and managing information. The company has shown evidence of formalizing its knowledge management processes to allow it to learn from its international operations.

“That’s actually a good question because usually the thing you’ve got will either cause you to die, and probably the best thing that’s happened under the new tactical management is that they’ve really focused on systems. On what you need to have in the first information coming in. How the resources are allocated to work on things. Having an internal kind of CRM that’s been implemented and I think that’s a good thing to do. It’s not something I – I am terrible at doing that. I would say that they have a system that is stronger than the overall part of the company now. So if you’re in another country how you get intake and the output processes. It appears to be pretty good.”

“We have a process now of recording and gathering cost independently of the supplier of the item. So how much is the cost to dig a cubic meter, we now know for different parts of India, and different parts of Peru, and parts of the

Philippines. So then when we call Jerry's backhoe service or whatever we know whether or not this is reasonable and that seems to be more important than the name of the entity."

Instead of hiring individuals outright to learn about the solution and sell the system, the entrepreneur made a point of being the one to sell the first solution in each foreign market the company penetrated as a means of gaining institutional and international knowledge. This initial sales process abroad also helped determine which individuals would be best to hire and manage the process in that foreign market, thus attracting and selecting candidates with the particular knowledge and experience the company required.

"One of the things that we did intentionally on this one was rather than hire someone of the country and teach them what our system does and then say 'Can you go sell one?' I thought you know, 'I'm probably going to fire that guy in two or three years because he won't have succeeded and I will be frustrated trying to work through the person'. So we said – we meaning me and the other version of me – I said I'm going to have to go to each country and sell the first one and understand the regulatory framework, the concerns they have, the engineering practices that are standard – whatever it is. And once we sell one, we'll hire the people to repeat it. And so what we learned through that process is that that's actually a workable solution. And what happens is that the people who gather around as you are moving up the value chain become the people you want to bring into your organization to run it."

To capitalize on the advantages the company could gain from foreign wholly owned subsidiaries, the entrepreneur foresees the need to decentralize the organizational structure and give additional responsibilities to each foreign office. He provided insight into how this could significantly reduce operational costs and increase efficiency.

"And it makes an awful lot of sense that if you have a competent party running India, my opinion would be you'd hire the engineers in India. Because like we have some terrific engineers from China and from India that we pay 4 times the salaries they would have been paid in their own countries. And I think they're less productive in Canada because we have way more vacations and stuff. It doesn't make a lot of sense that we would be doing necessarily what we're doing. I think we'll – we should, we might shift to building the ability to do the responses here, and control them and review them in Canada. But do that in India, do that in Peru."

4.1.4.4 Evidence of ad hoc problem solving triggered by internationalization

The company understands that the costly investments made in each foreign market they have entered should be capitalized upon; however, they do not have the appropriate processes in place to seize subsequent opportunities in these markets because of their limited resources.

“And so the big risk for our business going forward isn’t have you got a reference site in India? We have an unbelievable guy in India. Have you gotten one approved? Absolutely. Will you have one in the Philippines soon? Sure. It’s not getting the first, but then it’s ‘Are you doing the things to create a rapid succession of the next five.’ (...)We’re not doing a great job at getting the next one in Peru for a variety of reasons. Even in our small company – and this is an academic thing so it’s under non-disclosure but – even in our small company you lose focus if you don’t maintain the right mix of people. (...)We’re changing this. And so functionally what happens in Peru is I don’t look after – I’m probably the most concerned person in the company about subsequent sales in the countries we’ve succeeded in because I think that the hard work is to get the first one, the orderly work is to build the funnel afterwards. And I don’t think that everybody in the company has shifted into ‘we have success here, let’s build on it’.”

Furthermore, the company realizes that it has encountered severe limitations, particularly in terms of its ability to respond to potential opportunities, because of its lack of resources, notably human capital adapted to the markets in which it has invested. At the time of inquiry, the company had yet to rectify this problem.

“It probably should be 8 or 10 more technical staff then we currently have. One of the problems that we’re having is that it’s taking a long time to – when you have a very interested party, to give them a proposal that’s detailed takes weeks because they’re quite backlogged.”

“Probably the biggest challenge is to always have enough people with the right languages that you can afford. Because as soon as you go to export, you know we had to hire Chinese speaking people and Hindi speaking people. So part of the reason why I had to fire the engineers I had is that I can’t teach them Chinese, Spanish, Hindi. So that was a big headcount change.”

Prior to internationalization, the company encountered difficulty in accessing external funding opportunities, given its history. In light of the nature of the service the company provides and the growing need for infrastructure in emerging markets, the CEO believes that by entering foreign markets, he may have opened new doors for funding opportunities.

“I think that if this thing gets funded substantially again by non-project financing, it’ll come from the markets that are buying the product. So it’s much easier – like an Indian investor, I don’t have to spend a minute explaining the absence of infrastructure to anyone whose lived or been to India. You’re sitting down on Bay Street and someone’s looking down on Lake Ontario and it’s beautiful blue and shimmering, and you’re trying to explain sewers don’t exist in other countries and they’re never been there. It’s a waste of time. They just don’t get it. How could you?”

Table 24: Summary of Learning from Internationalization and Change (Case D)

Change triggered by internationalization	Knowledge from foreign markets	Evidence from case	Demonstrated changes to operational capabilities and resources
<i>Modification of dynamic capabilities</i>	Business knowledge	Strategic decision to internationalize as a means of countering adoption difficulties in domestic market	Fundamental changes to the firm's service production and delivery processes Additional resources necessary to adapt services to foreign markets
	Institutional and business knowledge	Use of foreign trade missions as a consistent means of promoting the firm and its services	Required resources to be allocated to this promotional process, notably financial resources and the entrepreneur's time and presence
	Business and technological knowledge	Revision of the firm's revenue model to become a systems integrator, thus providing the complete solution	Creation of new operational capability for service delivery process to support the processes associated with project management
	Business and international knowledge	Creation of a wholly owned subsidiary responsible for the funding of international projects	Change in management of financial resources; impacts service production process
	Business and international knowledge	Creation of wholly owned subsidiaries in each foreign market concurrent to initial sale	Fundamental changes to the firm's service production and delivery processes
	Business and international knowledge	Creation of a system to allow for knowledge codification and systematic knowledge management	Impacts service production process
	International knowledge	Creation of an initial sales process particular to the firm's first sale in a foreign country	Allows for the acquisition of direct experiential internationalization and institutional knowledge Development of the entrepreneur's network and impact on the firm's hiring process
	Business and international knowledge	Decentralization of service production and delivery processes to foreign subsidiaries	Changes to the operational processes of the head office, decrease in human capital costs
<i>Ad hoc problem solving</i>	Business knowledge	Choice of targeted foreign markets in emerging countries	Impact on the sale process and service delivery depending on the country in which service is solicited
	International knowledge	Use of network ties to access project opportunities in targeted foreign markets	Impact on the sale process and service delivery depending on the country in which service is

			solicited
	Business knowledge	Capture opportunities in markets in which initial investments have been made	Unable to make necessary changes to operational capabilities and resources

4.2 Cross-Case Analysis

This section examines in all four cases the themes indicated as relevant in the literature review and emerging themes identified during the coding process. The cross-case analysis was completed using pattern-matching and explanation-building techniques to ensure the internal validity of the study's findings.

Table 25: Summary of Cases in the Study

	Case A	Case B	Case C	Case D
<i>Number of employees</i>	2	8	25	18
<i>Year established</i>	1984	1980	2000	2000
<i>Strategy type</i>	Adapting solutions	Client relations	Client relations	Adapting solution
<i>Critical operational capabilities</i>	Sales and marketing Project management Resource allocation	Project management Internal R&D Talent recruitment	Sales and marketing Project management Internal R&D Talent recruitment	Sales and marketing Project management Resource allocation
<i>Critical resources</i>	Technical knowledge and know-how Patents and IP	Clients Network Reputation	Clients Network Reputation	Technical knowledge and know-how Patents and IP

4.2.1 Internationalization and Learning

The study's first research objective strived to assess the impact of internationalization on the firm's acquisition of knowledge in foreign markets. The literature review uncovered several themes pertinent to this first research sub-question, notably the learning objective, type of knowledge acquired, and sources by which knowledge was acquired. These themes are further discussed below.

Table 26: Internationalization, Learning and Knowledge Acquisition in Foreign Markets

Theme	Case A	Case B	Case C	Case D
Internationalization pathway	Born global	Born global	Born global	Born-again global
Mode of entry	Export Licensing	Export	Export	FDI
Reason for internationalization	Niche market, domestic market size	Niche market, domestic market size	Shrinking domestic market, client followership	Responsiveness of domestic market
Evidence of learning objective	Exploitation	Exploration, Exploitation	Exploration, Exploitation	Exploitation
Type of acquired knowledge	International Business Technological Institutional	International Business Technological Institutional	International Business Technological Institutional	International Business Technological Institutional
Knowledge sources	Direct experience Grafting	Direct experience	Direct experience Vicarious learning Grafting	Direct experience External search

4.2.1.1 Explorative and exploitative learning objectives

All the firms experienced difficulties in their domestic markets, notably because of a limited domestic market size or simply a lack of adoption of their solution. Thus, internationalization was a means for the companies to exploit their existing resource base. This is aligned with the literature, as internationalization was found to be accelerated due in part to niche markets (Oviatt & McDougall, 1995; Bell, 1995), the liberalization of markets and the anticipation of competition (Oviatt & McDougall, 1995), and the limitations on growth caused by the local market's size (McNaughton, 2003).

Evidence of explorative learning during internationalization was demonstrated in two of the four cases (Case B and Case C). In those instances, internationalization was used as a means of acquiring new technological knowledge via the completion of projects in foreign markets. This was clear in the companies that continuously innovated their services to fuel their reputation and keep their clients satisfied. However, the need to develop a dynamic capability for knowledge dissemination was not observed in both cases. Case C demonstrated

evidence of relatively successful knowledge exploration followed by inconsistent knowledge dissemination.

“You do research, you issue thought leadership, go out and talk about it at conferences and that generates business. So we figured that out pretty early on. But because we were small and growing, and there were only so many of us to go around, you very rarely are in that sweet spot of doing all of those things just at the right level of efforts. It’s the typical we do it well, we get really busy, we deliver, we run out of clients, we say oh my god we have to do it all over again so we come up with a whole new way of doing it.” [Chairman, Case C]

In relation to the first case, Case A, given its size and its use of export as its chosen mode of entry, findings from the literature review would suggest that it should have been fairly simple for the firm to incorporate newly acquired knowledge, thus exploring for new knowledge in foreign markets. The restricted size of the firm should have allowed for rapid knowledge integration, which could then have translated into the development of new services or improvements to the firm’s existing services. However, the entrepreneur never stated or suggested that the firm was looking towards international markets for new opportunities, but rather reiterated that it internationalized as a means of exploiting its knowledge base. This may be explained by the hybrid organizational structure the entrepreneur had developed, which relied heavily on its network as a means of contracting expertise. Thus, given that the employees do not necessarily maintain consistent communication channels, processes by which knowledge is interpreted at the individual level and becomes integrated and shared at the group level may not exist between the members who complete international projects.

The fourth case demonstrated evidence of characteristics that explained why it had not internationalized to explore for new knowledge. Because of the capital intensity of the firm’s services, internationalization was used to exploit the company’s past investments in its knowledge base and other intangible assets (i.e., IP, patents). Furthermore, because the company internationalized much later in its life, it is reasonable to assume that it had already established deeply rooted routines that would have necessitated unlearning for it to explore for new knowledge (Autio et al., 2000).

4.2.1.2 Type of knowledge acquired and source of knowledge acquisition

The acquisition of new knowledge and learning was evident in all cases studied; all participants suggested that both were essential to the firm's survival and success. A common theme was the preponderant use of experiential knowledge over objective knowledge sources.

Table 27: Type of Knowledge Acquired and Sources of Knowledge Acquisition

Type of knowledge	Case A	Case B	Case C	Case D
<i>International</i>	Direct experiential knowledge Vicarious learning	Direct experience Grafting	Direct experience Vicarious learning Grafting	Direct experience Grafting External search
<i>Business</i>	Direct experience Internal information	Direct experience	Direct experience Internal information	Direct experience External search
<i>Technological</i>	Direct experience Grafting	Direct experience Vicarious learning	Direct experience Internal information Grafting	Direct experience
<i>Institutional</i>	Direct experience Vicarious learning	Direct experience Vicarious learning	Direct experience	Direct experience

All cases showed evidence of direct and indirect experiential learning through the use of their networks relationships and interactions with network ties as a means of acquiring experiential knowledge (Yli-Renko et al., 2002; Chetty & Campbell-Hunt, 2004). The prevalent use of networks to gain business and international knowledge suggests that firms mitigated their small size and resource constraints by using external sources of knowledge. The fourth case provided evidence of the use of network relationships during the early phases of internationalization to gain market and international knowledge. However, the importance of all cases' networks may be explained in part by their age. As these firms were all well-established, it is not unreasonable to assume that the entrepreneurs and entrepreneurial teams had had time to develop and grow their networks.

In two of the three born-global firms (Case A and Case B), the knowledge they acquired and integrated into their knowledge base deeply affected their resource allocation decisions, as the entrepreneurs further dedicated their firms to international projects. Case C, however, modified its decision making process over time in regard to proactively seeking out domestic

projects instead of international ones as a result of the experiential and objective knowledge it acquired.

“So we did all of that research and that put us on the radar screen and raised our profile domestically and internationally, because our research was much more detailed and at the time there were a number of leading companies particularly in the resource sector that were based in Canada. (...) So that raised our profile and had us getting requests largely within Canada but from many multinationals that were operating in Canada to benefit from that (...) We’ve always prided ourselves on the quality, the depth and the rigor of the work that we do and those values have driven where we’ve played. So one of those is that we strive to allow people to achieve work-life balance to the extent that you can in a professional services firm. In the consulting business which is a hard business to be in, you have to work very hard to generate new reasonable revenue – sort of margins and so on. If you’re operating internationally, that adds a whole other dimension to that and I would say that would be a deliberate limiting factor for us.” [Chairman, Case C]

In Case D, the firm continued to make significant investments in the foreign markets in which it had successfully sold an initial solution, demonstrating incremental foreign investments in response to successfully seizing an international opportunity. Although the firm demonstrated acquisition of new international, business and institutional knowledge on markets it had targeted but had yet to penetrate, the successful sale of its solution preceded the implementation of a wholly owned subsidiary in its targeted foreign markets.

“And so the big risk for our business going forward isn’t have you got a reference site in India? We have an unbelievable guy in India. Have you gotten one approved? Absolutely. Will you have one in the Philippines soon? Sure. It’s not getting the first, but then it’s ‘Are you doing the things to create a rapid succession of the next five?’” [CEO, Case D]

All entrepreneurs had previously acquired direct experiential knowledge in the form of previous work and international experience prior to their firm’s internationalization (Cohen & Levinthal, 1990; Sapienza et al., 2006; Westhead et al., 2001). This explains the early and rapid internationalization in the three born-global firms, but raises the question of why it took so long for the fourth case to look towards international markets as a means of exploiting its competitive advantage. Furthermore, the literature suggests that born-again globals internationalize rapidly upon their entry into foreign markets. However, Case D

demonstrated incremental investments in its foreign markets. Despite its slower pace in internationalizing, the firm's decision to use FDI as a means of entering foreign markets provides contrary evidence to the traditional internationalization pathway. This supports findings by Jones (1999) and Jones and Crick (2000) who demonstrated that born-global firms use hybrid structures to penetrate foreign markets and jump 'traditional' steps or stages in their internationalization.

In the three born-global firms, though the services required a high degree of interactions with their customer, the firms were not affected by the host country culture as their services were often provided to a multinational company. This is not uncommon in born-global firms. The firms operated in global markets where service offerings presented a certain degree of homogeneity as they crossed borders; the firms were therefore less likely to encounter cross-cultural difficulties (Petersen & Pedersen, 1999). In all three cases, this mitigated the need to appropriate deep international knowledge, as the multinational corporation provided a seamless environment for the service's production and delivery processes, which then acted as a driver for internationalization.

"But I mean people cross the border, go around the world. That's just the way the oil business is. So, we all speak the same language. Different accents maybe." [Principal, Case B]

"It doesn't, because the nature of our business could be anywhere in the world. Before you got here, I'm dealing with an outfit in Columbia who wants to build a distillery. I've been to Columbia and done several projects down there. But this is a fresh one. Last month I had one from Vietnam; as I mentioned the one from Bhutan that I turned down, but you know they come from all over the place." [CEO, Case A]

Case C demonstrated a need to modify its operational processes based on the direct and indirect experiential knowledge it gained from difficulties in managing projects with global alliances that necessitated the coordination of activities with both domestic and international companies. However, these cultural issues were not detrimental to the service's production or delivery.

"So obviously the Canadian-based companies are generally on the quicker end of approvals and being able to gather information and speak to people. The

ones that are international and large are taking magnitudes longer. Like just months longer to do the things that the local companies can do in a day, so it's affected schedule. It's also affected I would say the robustness with which we plan for internal company engagement." [Project manager, Case C]

However, the nature of Case D's services differed significantly from the other three as it had had to adapt its services and operational processes to the particular market in which it was providing its solutions by creating intricate relationships with its foreign partners. This explained the use of FDI as its chosen mode of entry and its choice of hiring local human capital as a means of bridging cultural differences and remaining competitive in its foreign markets. This further acknowledges the impact of capital intensity as a differentiating factor between types of PSFs (von Nordenflytch, 2010) and the difference between knowledge-intensive and location-intensive services (Ball et al., 2008).

"I think any business that has a system's integration and they want to maintain a locally competitive price have to have locally priced resources designing it (...)I just think you can actually just get some things done. If you don't have your own people, you have no ability to control anything (...)Probably the biggest challenge is to always have enough people with the right languages that you can afford. Because as soon as you go to export, you know we had to hire Chinese speaking people and Hindi speaking people. So part of the reason why I had to fire the engineers I had is that I can't teach them Chinese, Spanish, Hindi. So that was a big headcount change." [CEO, Case D]

4.2.2 Learning and Entrepreneurial Opportunity Recognition

All four cases demonstrated that the entrepreneur or entrepreneurial team were the key agents of change in the firms. Their recognition of opportunities and their corroborating actions once they sensed these opportunities paralleled the process of intuiting, interpreting and integrating new knowledge into the firm, thus demonstrating organizational learning prior to change (Crossan et al., 1999; Dutta & Crossan, 2005). However, it is impossible to assess whether the key agents in the firms understood and then acted or acted and then interpreted because data was collected during in-depth retrospective interviews rather than by longitudinal observation.

For example, Case D demonstrated recognition of an opportunity to diversify into foreign markets as it continued to encounter failure and lack of adoption in its domestic market.

After integrating this business knowledge and articulating this learning to the management team, the CEO suggested targeting emerging foreign markets in a way that would give the firm room to fail prior to succeeding in international markets.

“On that basis we said ‘Let’s pick 10 countries which are not aligned tightly, so that if we’re wrong in Peru, we won’t have any bleed over effect in India. And if we’re wrong in India, it won’t have any bleed over effect into China’.”[CEO, Case D]

Case C demonstrated recognition of an opportunity in the market as it vicariously learned from the success of UK firms researching corporate sustainability. The firm recognized the opportunity to focus the research on the Canadian market. Learning led to subsequent change in the firm, as it invested resources to develop new knowledge and enhance its expertise.

“The firm sustainability in the UK had done that globally, and we saw that research and said there would be value in drilling down and looking at the Canadian context, the state of sustainability reporting in Canada for both Canadian companies and international companies operating within Canada. So we did all of that research and that put us on the radar screen and raised our profile domestically and internationally, because our research was much more detailed and at the time there were a number of leading companies particularly in the resource sector that were based in Canada.”[Chairman, Case C]

Case A also recognized an opportunity in the market through advancements in technology that allowed it to develop a complementary product to its services.

“When we got into, for instance, the PC Base was a new product we developed when Windows 95 came out, and the Pentium computer was now powerful enough you could actually use in Industry and not just as a toy. At that point, we developed a brochure; I’ve got a separate brochure for it. We went into trade shows in the US.”[CEO, Case A]

Entrepreneurial action subsequent to the recognition of an opportunity and the integration of new knowledge resulted in change in all four firms. Change was often not planned, routinized or patterned. Neither the entrepreneurial actions taken by the key actors nor their discovery processes demonstrated evidence of adhering to the criteria of a dynamic capability. Rather, the sequence of opportunity recognition and subsequent action could be explained through the processes of organizational learning, as suggested above. The process

of opportunity recognition, evaluation and action would, following the study's definitional parameters, be defined as higher-order learning capabilities. These findings are in line with the theoretical work that bridge entrepreneurial opportunity recognition and the 4I framework (Dutta & Crossan, 2005). The entrepreneurs and entrepreneurial teams' previously acquired knowledge through past work and international experience suggested that the firms had developed absorptive capacity (Cohen & Levinthal, 1990) that enabled them to identify opportunities (Shane, 2003). The study's findings also suggest that the firms' actions subsequent to recognizing opportunities led to two types of changes: the creation or modification of planned change processes, as defined by dynamic capabilities, and ad hoc problem solving.

Learning was found to be particularly important in PSFs as it allowed the firms to continuously learn from their value-creating processes. Along with the firm's ability to learn, these processes were defined in the literature as client need recognition and subsequent sale of a service to meet the client need, followed by service delivery activities to achieve project completion.

Table 28: Triggered Change in Value-Creating Processes

Value-creating processes	Case A	Case B	Case C	Case D
<i>Client need recognition, subsequent sale of service</i>	Innovation to core service: dynamic capability Sales and marketing: ad hoc problem solving	Innovation to core service: dynamic capability Sales and marketing: dynamic capability	Innovation to core service: dynamic capability Sales and marketing: ad hoc problem solving	Innovation to core service: ad hoc problem solving Sales and marketing: dynamic capability
<i>Service delivery activities to achieve project completion</i>	Ad hoc problem solving Performance evaluation	Ad hoc problem solving	Knowledge management Performance evaluation	Knowledge management Dynamic capability

All cases demonstrated that they had invested in the implementation of change processes. However, they also often reverted to ad hoc problem solving to take action based on the firm's acquired knowledge without having established the necessary change processes. Thus, dynamic capabilities were examined by observing instances in the firms where their operational capabilities had been changed systematically in a routine way. Ad hoc problem

solving was observed by looking at other instances where change had not been routine, did not demonstrate any patterned behavior, and was not repetitious. The impacts of learning in both categories of change are the last two themes of the cross-case analysis and are further discussed in the following sections.

4.2.3 Learning and Change via Dynamic Capabilities

Dynamic capabilities are the firm's planned and routinized processes responsible for its ability to "create, modify or reconfigure" its resource base (Easterby-Smith et al., 2009). Their implementation often has strategic outcomes, as dynamic capabilities are responsible for the change processes that allow firms to remain competitive by renewing the resource and capability combinations on which their competitive advantage is founded.

Table 29: Change Triggered by Dynamic Capabilities

	Case A	Case B	Case C	Case D
<i>Areas of planned change</i>	Service innovation International mode of entry Performance evaluation	New service development Service innovation Knowledge dissemination	New service development Service innovation Knowledge management Performance evaluation	Revenue model Sales and marketing International mode of entry Project financing Knowledge management
<i>Changes to operational capabilities</i>	Service production process Sales and marketing process	Service production process	Service production process Service delivery process	Resource allocation process Service delivery process Service production process Recruitment and hiring
<i>Changes to resources</i>	Financial resources Physical resources Network ties (license partners)	Physical resources Knowledge assets	Knowledge base Knowledge information systems Clients Contracts	Financial resources Knowledge assets Clients Entrepreneur's network

4.2.3.1 Similarities and differences in the implementation of dynamic capabilities

The cases studied all demonstrated evidence of having implemented dynamic capabilities; however, the change objectives of these processes differed between cases. Some dynamic capabilities were found in multiple cases, while others only presented evidence in a single case.

For example, Cases B and C used their exploration activities and developed dynamic capabilities for new service development and service innovation. Cases A and D developed dynamic capabilities pertaining to their foreign entry mode. This may be explained by their choice to use entry modes that required greater investments (Case A, licensing; Case D, FDI), thus necessitating formalized planning processes that the company could improve as it acquired international and business knowledge. Cases A and C provided evidence of systematic change in their strategy as a result of performance evaluation processes. Knowledge management processes were developed in the two larger firms, Cases C and D.

This may demonstrate evidence of the need for more structured and formalized knowledge sharing processes as companies increase in size. Only Case D developed particular dynamic capabilities related to the firm's financing: an initial dynamic capability to ensure the financing of its projects and a second to modify its revenue model. However, this can be explained by the fact that it is the only service provider characterized as capital intensive.

Thus, the differences between the cases are in their investment choice in dynamic capabilities. Despite these differences, an underlying similarity between all cases was the learning processes that resulted in the creation and modification of dynamic capabilities and the learning processes that resulted in the subsequent modification and change of operational capabilities. This theme is further explored in the next section.

4.2.3.2 Implications of feed-forward and feedback learning processes in change triggered by dynamic capabilities

Evidence from the in-depth interviews suggests that the dynamic capabilities created in the firms studied came from either the recognition of a need for change and acting upon this learning, or from creating change processes and learning from the results (Crossan et al., 1999). Thus, the creation process of dynamic capabilities demonstrated feed-forward learning. Because dynamic capabilities are routinized and planned, they require maintenance and continued repetitive action (Zollo & Winter, 2002). The modification and change of dynamic capabilities also demonstrated a feed-forward learning process, as the firm acquired new knowledge and modified its change routines.

For example, Case A created a new revenue stream by licensing its intellectual property and knowledge assets. It maintained this secondary mode of entry as a means of generating revenue while encountering little risk. The learning process by which it recognized the opportunity and created the licensing process demonstrates feed-forward learning.

“(...) we have licensed our technology to a couple of Canadian firms, who have made a lot of money and capitalized – now they have this know-how. First we designed brewpubs and microbreweries of three different sizes, which they're marketing or did market for about 15 years when the craze was on about building these. And they build them all over the world, including two in Russia; Central Russia. One in Siberia – with our know-how. For which we got

paid every time they used the know-how (...) So they became my – call it – manufacturer; without the risk of whether I made or lost money on it.” [CEO, Case A]

Case D invested in its foreign market selection and entry processes. It established specific criteria that enabled the sale of its solutions in foreign countries and, on that basis, identified potential markets to penetrate. Specifically, the company researched whether the host markets required the new infrastructure and had a streamlined decision making process concerning investments in infrastructure and whether the communities suffered from variable water availability. It also examined whether traditional solutions would encounter significant difficulties because of the external environment and whether decision makers had predetermined buying behavior. The CEO furthered the choice in market by allowing the firm room for mistakes or failure as it began its internationalization. His extensive past work and international experience may explain the underlying reasoning for this decision.

“(...) So the circles that we started with, it’s much easier if regulation of water and sanitation and implementation is done by a city corporation rather than by a political. So if they have a Water Board, then that’s a first checkmark. If they don’t have a Water Board then we don’t want to go. Then we start looking down the list: do they have variable water availability? And really simply without teaching you how to build one, the problem that we have in Ottawa or they have in France or London is that the energy to power the sewage infrastructure is water. What I mean by that is that there has to be quite a lot used by everybody – lots of washing machines and Jacuzzis, showers, all these things. And when you use enough water everything moves. But we looked at places that have highly variable amounts of water seasonally, in the event that they have less than 100L per person per day every day, then those places can’t buy the old system. So that was one of the checkbox. Have you got a control system in the middle who buys? Have you got a technical problem? And only just started looking and saying where do they have enough urbanization activity, because if everybody stays out in the country – like Africa’s not going quite as quickly urbanizing as India for example. If you’re not urbanizing you’re difficult to service with a system which requires reasonable proximity. So when you put all those together, we quickly said ‘Go to China, go to India’ [CEO, Case D]

“On that basis we said ‘Let’s pick 10 countries which are not aligned tightly, so that if we’re wrong in Peru, we won’t have any bleed over effect in India. And if we’re wrong in India, it won’t have any bleed over effect into China’. (...) Initially the board said ‘Why are you doing that?’ and I said ‘Because I’m not smart enough to be right in each one, I need to pick some that if I screw up

they won't tell the guys'. The Chinese guys for sure won't tell the Indian guy, and the Indian guy won't know anyone in Peru. And so what we did is we tried to pick a basket of – they had a common problem but not a common communications channel. They weren't leveraging each other.”[CEO, Case D]

Furthermore, Case D created a replicable process to establish its foreign presence based on the recognition it required as a legal entity in the markets in which it sold its solutions. Again, the learning process by which it recognized this need and implemented the process demonstrates feed-forward learning.

“Yeah, I think that in every country you have to create a legal entity which is – unless I'm going to sell a piece through a channel who might take inventory, if you're going to try to do a systemic thing, you have to have the ability to contract, which means you have to have tax identification numbers, everything. So you have to create a 100% controlled subsidiary.” [CEO, Case D]

The dynamic capabilities were observed in the firms by identifying planned changes made to their operational capabilities. Again, the evidence of dynamic capabilities in the study's small firms suggest that the companies made their investments in planned change routines after having acquired knowledge and learned. In many cases, the dynamic capabilities in which the companies invested allowed them to exploit their existing knowledge base via the creation or modification of their operational capabilities. This was true of even the dynamic capabilities responsible for the development of new services and for those changing the firms' core service offerings. Evidence from the cases demonstrated that the use of a dynamic capability resulted in subsequent changes to the firm's operational process, often in their service production and delivery processes, through a feedback learning process. Knowledge that had been integrated into the firm's knowledge base to create or modify the dynamic capability was then subsequently exploited to modify the firms' operational capabilities.

For example, Case B demonstrated a dynamic capability for rapid service development. This dynamic capability resulted from a feed-forward learning capability where the principal intuited and interpreted new business and technological knowledge (recognition of client need). By integrating this new knowledge into the firm's knowledge base, the principals modified the firm's operational capabilities (service production and delivery processes) to

reflect the firm's learning. By doing so, they used the firm's dynamic capability or rapid service development and exploited the firm's knowledge base, thus engaging in a feedback learning process.

“Well ok, we developed the capability in our lab to produce ice. And so we can do experiments in our lab with ice, and that's a new thing. This tank that I've talked about in New Jersey, we've done a number of projects for them to help them develop the capability so that we could take advantage of it. Like the ability to do dispersant tests in the tank, which they had never done before. The ability to do test with ice – all sorts of different things. It's need based. We have to do it.” [Principal, Case B]

Case A demonstrated another example with its dynamic capability for service innovation. This dynamic capability resulted from a feed-forward learning process where the management team intuited and interpreted new business knowledge (maturation of corporate sustainability auditing market). By integrating this new knowledge and institutionalizing it into the firm's knowledge base, the management team modified the firm's operational capabilities (auditing service production and delivery processes) to reflect the firm's learning. By doing so, the firm demonstrated that it had used its dynamic capability for service innovation and exploited the firm's knowledge, thus engaging in a feedback learning process.

“Auditing we – environmental auditing was a big thing in the 90s. It as well started broadening out. What we've found with auditing is that it's become a commodity service so we can't compete there anymore. What we're doing now is providing advice on audit programs. So strategic advice on how the VP or the Chair of the audit committee – where they should be focusing their audit program around corporate responsibility or corporate sustainability issues. So we've kind of gone up the value chain on that one.” [Chairman, Case C]

4.2.4 Learning and Change via Ad Hoc Problem Solving

Dynamic capabilities are costly to implement and maintain as they require consistent investments and continuous use. This often makes them inefficient and costly in many operational areas of the firm that do not necessitate systematic change. Indeed, not all changes in small firms come from dynamic capabilities. Alternatively, small firms often demonstrate their capability for flexible and rapid problem solving. The next section

discusses ad hoc problem solving as a means for small firms to change without incurring the costly investment in dynamic capabilities.

Table 30: Change Triggered by Ad Hoc Problem Solving

	Case A	Case B	Case C	Case D
<i>Areas of ad hoc problem solving</i>	Foreign market selection Promotion	Foreign market selection Client prospecting and maintaining Improvement in physical infrastructure Development of knowledge base Capacity increase Elimination of services	Foreign market selection Sales and client prospecting processes Maintaining client relationships Recruitment Growth (offices) Improvement in physical infrastructure	Investment leveraging in foreign markets Secure external financing
<i>Changes to operational capabilities</i>	Service production process Service delivery process Marketing and sales process	Service production process Service delivery process Sales and marketing process	Resource planning and allocation process Service production process Service delivery process	Service production process Service delivery process
<i>Changes to resources</i>	Network ties Clients Contracts	Network ties Clients Contracts Reputation	Network ties Clients Contracts Reputation Financial resources Knowledge assets	Human resources Clients Contracts Financial resources Knowledge assets

4.2.4.1 Similarities and differences in the use of ad hoc problem solving

The four companies studied were all established firms that had been operating for some time. They had implemented operational capabilities that allowed their firms to sell, produce and deliver their services in a way that ensured to some degree of certainty that they could continue to do so. Of the four companies, Case D was the only one that had demonstrated difficulties in selling its products, and had taken the appropriate measures to reevaluate its strategy and make the required changes in the hope of finding success in foreign markets. The firm's investments in dynamic capabilities may be an indicator of its need to formalize

its change processes, as it had undergone significant changes in its strategy in the last three years. However, it too demonstrated the use of ad hoc problem solving to modify its operational capabilities.

Where Case D had invested in dynamic capabilities relating to its internationalization, all born-global companies demonstrated signs of ad hoc problem solving in their choice of foreign markets.

“Oh countries? Well, yeah that’s not easy to answer because I would say over the next year we’re going to have about three primary funding sources that will probably account for 80 percent of our revenue” [Principal, Case B]

“(…) the nature of our business could be anywhere in the world. Before you got here, I’m dealing with an outfit in Columbia who wants to build a distillery. I’ve been to Columbia and done several projects down there. But this is a fresh one. Last month I had one from Vietnam; as I mentioned the one from Bhutan that I turned down, but you know they come from all over the place.” [CEO, Case A]

Although knowledge and expertise were identified as critical resources in the firm, Case C recruited an expert to develop a new service in their company as a result of their recognition of a new opportunity.

“We recruited a guy out of the UK – a Canadian who had been to the UK. Brought him to Ottawa to help build our risk practice which we saw as a real emerging opportunity on both the public and corporate side of our business. He had relationships over in Europe which were complementary with some of the international industry association – that’s another stream, make sure we come back to that.” [Principal, Case C]

Furthermore, Cases A, B, and C often won new or recurring business through their networks and said that their clients were their most valuable resources.

“In about 2002 because of that relationship I was asked to contribute to a global environment facility project in Russia, where they were looking at cleaning up abandoned military sites in the Russian arctic. Basically, our federal government, Indian and Northern Affairs, was contributing to the Arctic Council and this conversation was there and they knew about this project and there was an opportunity to provide Canadian expertise.” [Chairman, Case C]

However, none of them had invested in routines to maintain and build client relationships, but rather demonstrated ad hoc actions to keep their clients happy. Examples of this include investments in physical infrastructure (Cases B and C) and outsourcing of expert knowledge (Cases A and C).

“I think that we also learned that having video capabilities associated with those types of interviews rather than just over the phone is valuable. We have upped our video conferencing capabilities over the last couple of years as a result of that project and other ones.” [International project manager, Case C]

“I mentioned earlier about this research fund by the US regulator. It wasn’t so much an “ah ha” moment, but when we started realizing how successful we could be with that, we really developed our lab testing capability.”[Principal, Case B]

“All of a sudden it’s like ‘how do we do all of this?’ and we weren’t experts in any of that but we were experts in integration and strategy and so on. So we brought in an external expert, a woman named Donna Kennedy-Glans who had been a VP of External Development with Exxon when they were getting into Yemen and so on and we helped develop PetroCan’s whole corporate responsibility strategy and there were big issues around human rights, and bribery and corruption which were whole new areas of interest for us.”[Chairman, Case C]

Furthermore, all three born-global firms asserted that their reputations were also often the source of new or repeat business. They further suggested that the reason for their limited sales and marketing processes was their international reputation and recognition in their fields as experts.

In comparison to the born globals, the born-again global firm had established formalized operational capabilities and demonstrated dynamic capabilities relating to its internationalization. However, it was unable to capture subsequent opportunities in its foreign markets. Having significantly invested in wholly owned subsidiaries in the countries in which it had completed its first sales, the company had been unable to win a second or third project in that market as a means to leverage the initial investments it had made. Although the CEO of the firm recognized the opportunity, the company had yet to take action.

“It’s like, that’s the cream on it. For sure. And so the big risk for our business going forward isn’t have you got a reference site in India? We have an unbelievable guy in India. Have you gotten one approved? Absolutely. Will you have one in the Philippines soon? Sure. It’s not getting the first, but then it’s ‘Are you doing the things to create a rapid succession of the next five.’” [CEO, Case D]

One of the reasons the firm was unable to capture subsequent opportunities in its foreign markets was severe resource limitations. The company continued to be undercapitalized and the CEO often sought external financing. He recognized the opportunity to gain financing from international partners, but actions had yet to be concretized.

“I think that if this thing gets funded substantially again by non-project financing, it’ll come from the markets that are buying the product. So it’s much easier – like an Indian investor, I don’t have to spend a minute explaining the absence of infrastructure to anyone whose lived or been to India. You’re sitting down on Bay Street and someone’s looking down on Lake Ontario and it’s beautiful blue and shimmering, and you’re trying to explain sewers don’t exist in other countries and they’re never been there. It’s a waste of time. They just don’t get it. How could you?” [CEO, Case D]

4.2.4.2 Implications of feed-forward and feedback learning processes in change triggered by ad hoc problem solving

All the companies demonstrated evidence of ad hoc problem solving by having made unplanned and responsive changes. The impact of these changes was felt in their service delivery and service production processes.

The above examples of ad hoc problem solving illustrate instances where the companies either intuited and interpreted changes in their environments and problems in their processes or recognized opportunities and sought to make ad hoc decisions based on their newly acquired knowledge. Although the evidence demonstrates that the firms used their existing knowledge and resources to seize the recognized opportunities, which allowed them to exploit their firms’ existing resource base, their actions suggest that the firms followed a feed-forward learning process. Ad hoc problem solving allowed them to meet various needs, often as a result of a feed-forward learning process. The initial evidence from this study’s four case studies suggest that ad hoc problem solving was a change mechanism that allowed the firms to rapidly act on newly acquired knowledge and learning without necessitating the

costly investments that characterize planned change processes, as defined by dynamic capabilities. However, the outcomes of these ad hoc problem solving instances were costly to the firms. For example, one could account the cost of Case B's development of a new tool with the time and resources it dedicated to the project, as well as the opportunity cost the decision incurred.

Despite the costs of the outcomes, these ad hoc problem solving instances were often fairly easy for the firms to accomplish because they did not require the continuous investments of dynamic capabilities. Their impacts were felt in the firms' core value-creating processes and these decisions had repercussions on the firms' longer term horizons. As the above examples demonstrate, instances of ad hoc problem solving significantly (and rapidly) modified the firms' operational capabilities and resources. The firms' ability to take these ad hoc problem solving actions could in part explain their ability to be agile in their rapid and dynamic environments without necessitating costly investments in knowledge search dynamic capabilities.

4.2.5 From Ad Hoc Problem Solving to Dynamic Capabilities

Findings from the study suggest that ad hoc problem solving may act as a precursor to the creation of dynamic capabilities. Findings also suggest that the pattern of actions and the period of time in which the actions are observed may provide insight as to how dynamic capabilities are created in small firms.

Ad hoc problem solving actions demonstrated instances where the entrepreneurs or entrepreneurial teams had acquired new knowledge, learned, and inherently recognized and acted upon an opportunity. Taken in the contexts in which the participants explained them, these actions did not seem to represent routine and patterned behavior. However, the accounts given by Case D's CEO, explaining the firm's implementation of a new internationalization strategy, provided evidence of ad hoc problem solving actions in the early stages of the firm's strategy implementation process that were later transformed into highly patterned and repetitious dynamic capabilities.

For example, the firm used its first foreign market entry to test its new operational capability—exploring for new knowledge while determining whether the new operational capability could be sustained in similar future decisions. Furthermore, upon entering foreign markets, it recognized the need for specialized human resources that were able to communicate with clients in these markets, requiring particular language and cultural skills to interface in the new environments. After recognizing this need, the CEO fired a large part of the firm’s engineering staff. Taken alone, these two instances of opportunity recognition and action can be seen as having led to ad hoc problem solving. However, the successful results of these ad hoc problem solving instances led to the development of a dynamic capability supporting the firm’s internationalization, which it was continuing to sustain at the time of the investigation (Zahra et al., 2006).

“One of the things that we did intentionally on this one was rather than hire someone of the country and teach them what our system does and then say ‘Can you go sell one?’ I thought you know, ‘I’m probably going to fire that guy in two or three years because he won’t have succeeded and I will be frustrated trying to work through the person’. So we said – we meaning me and the other version of me – I said I’m going to have to go to each country and sell the first one and understand the regulatory framework, the concerns they have, the engineering practices that are standard – whatever it is. And once we sell one, we’ll hire the people to repeat it. And so what we learned through that process is that that’s actually a workable solution. And what happens is that the people who gather around as you are moving up the value chain become the people you want to bring into your organization to run it.” [CEO, Case D]

The findings suggest that repetitive ad hoc problem solving could lead to the development of a dynamic capability. These findings follow that theoretical proposition advanced in recent DC research that the “close study of a series of ‘fires’ may well reveal that there is pattern even in ‘firefighting’” (Winter, 2003, p. 993).

Helfat and Winter (2011) recently suggested that when examining organizations, it is important to consider the time period in which change is assessed, as arguably nothing ever stays the same. Following Winter (2003) and Winter and Helfat’s (2011) work, the findings tentatively suggest that some of the dynamic capabilities observed in the firms first came from repetitive ad hoc problem solving. For example, Case B’s ability to quickly recognize client needs and create new products and services may have been ad hoc problem solving at

first. The entrepreneurs did not plan ahead for service improvements or the development of new services; they simply recognized the needs and acted.

“Well it was because of specific technical capabilities. You know a group of companies that a need to decide – or to develop a system for decision making on dispersants in the Gulf of Mexico and we realized that we needed this GIS component so we developed it. So yeah it was completely opportunistic. We didn’t think ahead and plan it.”[Principal, Case B]

By repeating this ad hoc problem solving behavior, they then demonstrated evidence of having created a dynamic capability on which the firm founded its competitive advantage: its ability to rapidly respond to its customers’ needs. Similarly, in Case A, the recognition of new certification (ISO 9001) led the CEO to invest in the company’s documentation processes to meet the certification code’s standards. By maintaining these change processes and continuously making improvements to its documentation standards, the firm developed a dynamic capability through which it successfully distinguished itself from its foreign competitors.

Consequently, based on the study’s findings, we suggest that repetitive and patterned ad hoc problem solving in response to similar opportunities (e.g., Cases A, B and D) can lead to the creation of a dynamic capability when the ad hoc problem solving actions are observed over a longer period of time.

5. RESULTS AND DISCUSSION

This study examined how the internationalization of PSFs impacts their resources and capabilities. The study took a particular interest in the impact of organizational learning as a result of the firm's internationalization and the subsequent changes to the firm's dynamic and operational capabilities. The use of the RBV and DC theoretical framework to examine internationalization in small PSFs allowed the investigator to adopt a different perspective to observe learning and change in these firms. Evidence from the case studies supports the importance of knowledge assets in PSFs (von Nordenflytch, 2010; Løwendahl, 2005, Maister, 1993) and indicates that modifications to their value-creating processes demonstrate evidence of relationships between knowledge acquisition and change (Maister, 1993). Findings from the study support the two theoretical propositions that were brought forward from the literature and provide grounds to refine the study's conceptual model as a third relationship between learning, ad hoc problem solving and the development of dynamic capabilities was observed.

In light of the above results, the key findings and contributions of this research are summarized and discussed in this chapter. The following sections first discuss the study's initial conceptual model and propositions and suggest refinements to both. The study's contributions to the IE literature and the RBV and DC constructs follows. The study's theoretical and practical implications, its limitations, and future research opportunities conclude the thesis.

5.1 Discussion of Model and Propositions and Suggested Refinements

This research project had originally put forward two propositions for study. The first pertained to the relationships between acquired knowledge in foreign markets and change triggered via new or modified dynamic capabilities. The second pertained to the relationships between acquired knowledge in foreign markets and change triggered via ad hoc problem solving. Evidence from the within-case and cross-case analyses strongly supports both

propositions. Additionally, a third relationship between ad hoc problem solving and dynamic capabilities was found in the cross-case analysis process.

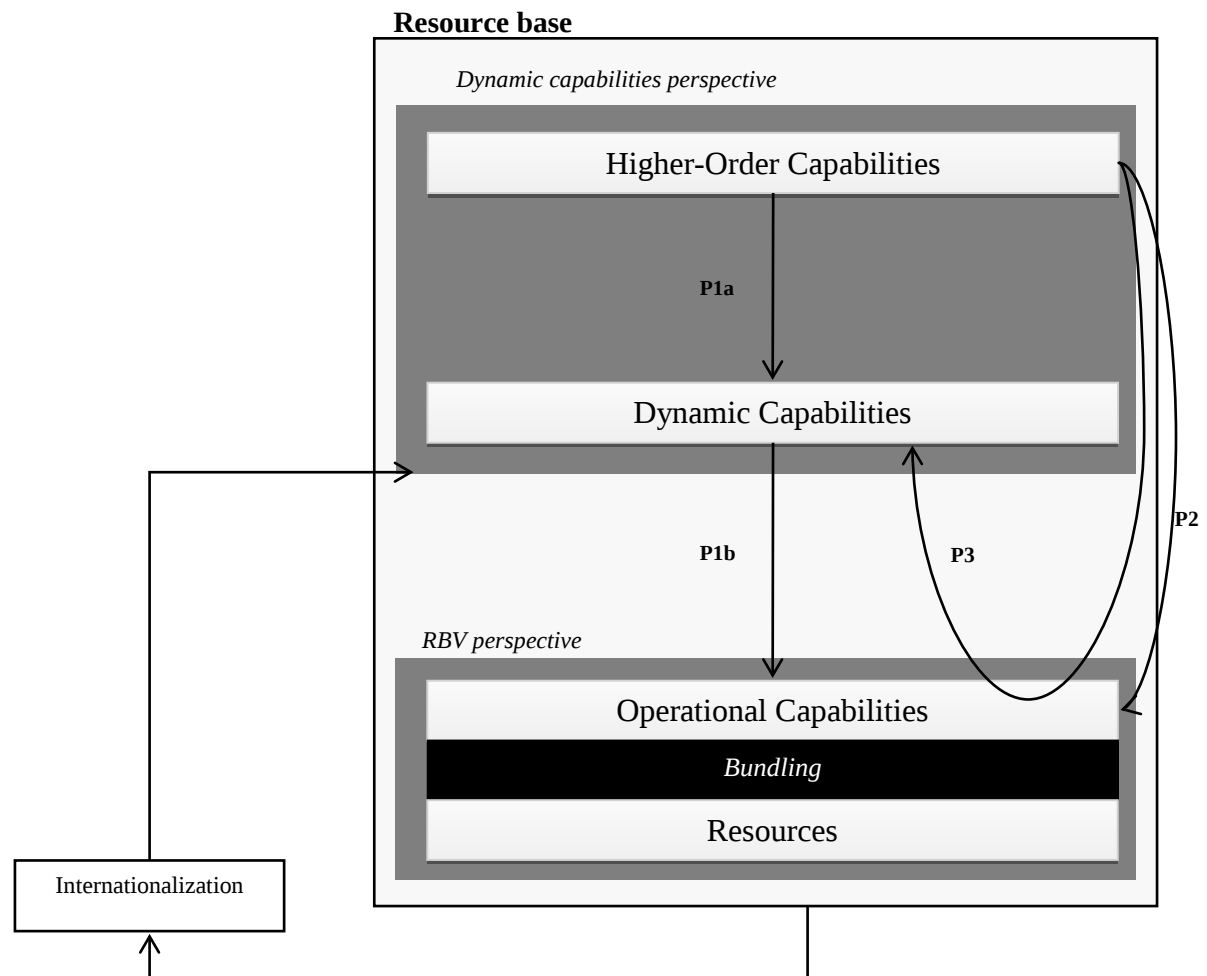


Figure 5: Revised Conceptual Model

The case studies exhibited needs and requirements for elements in each component of their resource base. All companies demonstrated that the core component of their service offering relied heavily on their knowledge base (Greenwood et al., 2005) and that knowledge was a critical resource in their firms (Grosse, 2000; Maister, 1993). This was true of both the information-intensive service cases (Cases A, B and C) and the location-intensive service case (Case D). They remained competitive by bundling their resources and operational

capabilities, which allowed them to continue with their business offerings by supporting their ability to sell, produce, and deliver their services.

Dynamic capabilities were also observed in all cases. They were used as change processes that enabled the firms to reconfigure their resources and capabilities subsequent to performance evaluation, knowledge management, new service development or service innovation. However, as the literature suggested, changes to the firm's resource base, either via ad hoc problem change or dynamic capabilities, occurred subsequent to the firm's acquisition and absorption of new knowledge into its knowledge base (Winter, 2003). These changes were observed subsequent to the firm recognizing a need or an opportunity. Recurring needs that were recognized in these firms were often in relation to their ability or inability to ensure proper delivery because of available resources (Løwendahl, 2005), further providing evidence of their reliance on their human capital (von Nordenflytch, 2010). Opportunities were rather related to new service development or market diversification and were often detected by absorbing external knowledge from the firms' networks (Owusu et al., 2007; Eriksson and Chetty, 2003).

It was concluded that the feed-forward learning processes by which the firm explores for and integrates new knowledge into its knowledge base and the feedback learning process by which the firm exploits its knowledge base in novel ways are both instrumental in the firm's resource base renewal process. The evidence from the cases suggests that this process is fundamental to the firms' ability to remain relevant and competitive in their markets. All cases relied on their knowledge base to produce and deliver their services, and the renewal of their knowledge assets was instrumental to their survival and success. Their ability to change via dynamic capabilities and ad hoc problem solving allowed them to renew their operational capabilities and resources (Zollo & Winter, 2002) on which their competitive advantages were based (Maister, 1993).

The following section is organized as follows: findings from each proposition are discussed and considered in comparison to the literature. The initial propositions are refined and a third proposition is put forward. The section concludes with a revision of the initial conceptual model based on the study's findings.

5.1.1 *Internationalization and Learning*

Findings from the study demonstrate a strong relationship between the acquisition of knowledge from foreign markets and organizational learning. Both the born globals and the born-again global said that they used their networks to acquire direct and indirect experiential knowledge (Yli-tenkari et al., 2002; Autio & Tontti, 2002). All participants indicated that they had previous international experience, which may have facilitated the process of opportunity recognition (Shane, 2003) in foreign markets and given them additional insight into how to manage relationships and operations internationally (Cohen & Levinthal, 1990; Sapienza, Autio, George & Zahra, 2006; Westhead et al., 2001). These antecedents to internationalization may have been particularly important in PSFs, as service firms often encounter difficulty in replicating their competitive advantage in foreign markets (Luo, 2000).

The three born-global firms were not capital-intensive. Although their services did require a certain degree of customization and a high degree of interaction with their customers, they all indicated that they had minimal to moderate adaptations to make to their operational processes. This follows findings from Contractor and colleagues (2003), who suggested that knowledge-intensive low capital-intensive service firms could rapidly reap the benefits of internationalization for three reasons: their lower burden of tangible assets, their existing clients abroad, and their greater global standardization, which lowers the cost per foreign entry. Thus, the barriers to entry are fairly low (Ball et al., 2008). However, the theoretical replication case was significantly different from the other three as it was capital-intensive and required several adaptations to its operational processes prior to internationalizing (Erramilli, 1990). This may explain why the firm internationalized much later in its life and only after repeatedly failing and not being adopted in its domestic market. Relational capital, long-term client relationships, repeat clients and reputation were identified as critical resources in all firms (Uzzi, 1997).

All four cases demonstrated that the entrepreneur or the entrepreneurial team were the key agents of change in the PSF (Vera & Crossan, 2004) and that their acquisition of tacit knowledge was critical to their internationalization (Anderson and Boocock, 2002). The

sequence of opportunity recognition and subsequent action could be explained through the processes of organizational learning, as suggested above. The processes of opportunity recognition, evaluation and action were, following the study's definitional parameters, defined as higher-order learning capabilities. The findings are in line with the theoretical work that bridges entrepreneurial opportunity recognition and the 4I framework (Dutta & Crossan, 2005). Direct experience was used as the primary source of knowledge acquisition, as a means of absorbing international, business, technological and institutional knowledge. Experiential knowledge was preferred over objective knowledge sources and all firms had previously used direct experience, indirect experience and grafting as means of acquiring new knowledge. External source of knowledge, particularly professional networks and organizations, business partners and clients, were particularly important in the firms' knowledge acquisition and absorption processes (Awuah, 2007; von Nordenflytch, 2010). Networks were used to acquire knowledge that then acted as a basis for decision making (Freeman & Sandwell, 2008). Following advancements in the international entrepreneurship literature, evidence from the cases suggests that the antecedents to internationalization originating from the environment, the firm and its management team had an impact on the firm's internationalization pattern (Fischer & Reuber 2008). More importantly, the knowledge and experience that was gained and absorbed by the owner/manager or management team had a subsequent effect on future internationalization decisions (Kuivalainen et al., 2012). Entrepreneurial action subsequent to the recognition of an opportunity and the integration of new knowledge resulted in two types of change in all four firms: change via dynamic capabilities and ad hoc problem solving.

5.1.2 Internationalization, Learning and Change via Dynamic Capabilities

As presented in the previous section, firms acquired new international, business, institutional and technological knowledge from their internationalization activities. In all the cases studied, new knowledge was absorbed and integrated into the firm's knowledge base. Regardless of the ways by which the firms changed, the impact of learning from internationalization did demonstrate a renewal of the firms' resources and capabilities as their resource base components were modified via dynamic capabilities and ad hoc problem

solving. Thus, the study finds support for the increased interest in organizational learning from the IE and strategic management literatures, as the evidence gathered demonstrates the firms' ability to renew themselves as they faced changing external environments (Crossan et al., 1999).

An important process by which firms changed was dynamic capabilities (Zollo & Winter, 2002; Easterby-Smith & Prieto, 2008). The study's findings support that dynamic capabilities are important for the creation and evolution of small firms (Newbert, 2005). They were found to encourage and facilitate internationalization, whether directly or indirectly, in all cases (Griffith & Harvey, 2001). In the PSF born-again global, they were found to be particularly important for successful entry into foreign markets. Firms demonstrated that they acquired new knowledge from foreign markets and by creating or making changes to their dynamic capabilities; this subsequently had an impact on the firm's value-creating operational capabilities. On that basis, the study found support for its first proposition.

Although the nature of the dynamic capabilities differed between cases, an underlying similarity in the learning processes that resulted in the creation and modification of dynamic capabilities was detected. In all cases, the creation and modification of dynamic capabilities demonstrated a feed-forward learning process. Entrepreneurs or entrepreneurial teams would recognize the opportunity for planned and patterned change (intuit), evaluate the opportunity (interpret) and act upon the acquisition of new knowledge (integrate) by creating a new dynamic capability or modifying an existing one. These findings confirm the work of Dutta and Crossan (2005), which had theoretically bridged the organizational learning 4I framework to entrepreneurship. The use of this framework allowed the adoption of a new perspective on organizational learning, opportunity recognition and subsequent decision making in small PSFs.

Once modified or created, the use of dynamic capabilities was the firms' way of exploiting their existing knowledge base and creating changes in their operational capabilities and resources. The dynamic capabilities embodied the institutionalized knowledge that was then used to modify and change the firms' operational capabilities and resources, thus engaging in

a feedback learning process. The observation of a feed-forward learning process in the creation and modification of dynamic capabilities and a feedback learning process in the exploitation of dynamic capabilities to change and modify operational capabilities and resources caused the investigator to revise the initial propositions.

Initial Proposition 1: Knowledge (experiential, tacit and explicit) gained during internationalization leads to the emergence of new and the evolution of existing dynamic capabilities, which change and modify the firm's operational capabilities.

Revised Proposition 1a: The acquisition of knowledge (experiential, tacit and explicit) in small PSFs during internationalization is intuited, interpreted, integrated and institutionalized into the firm's knowledge base via a feed-forward learning process to change operational capabilities by creating new dynamic capabilities or modifying existing dynamic ones.

Revised Proposition 1b: Dynamic capabilities modify operational capabilities and resources via a feedback learning process where institutionalized knowledge is used for change.

5.1.3 Internationalization, Learning and Change via Ad Hoc Problem Solving

Evidence of ad hoc problem solving was found in all four cases. Although the companies had been established for at least 12 years, the entrepreneurs still reverted to autonomous and reactive decision making. The examples of ad hoc problem solving illustrated instances where the companies had either intuited and interpreted changes in their environments and problems in their processes (Winter, 2003) or recognized or created opportunities. The evidence demonstrates that the firms used their newly acquired and existing knowledge and resources to seize opportunities that allowed them to exploit their firms' existing resource base. The actions they took to recognize or create these opportunities suggest that the firms followed a feed-forward learning process. The use of ad hoc problem solving allowed the firms to rapidly act on newly acquired knowledge and learning. Instances of ad hoc problem solving could in part explain their ability to rapidly respond to their environments without having to implement costly knowledge search dynamic capabilities. Consequently, the observation of a feed-forward learning process prior to ad hoc problem solving behavior caused the investigator to revise the study's second proposition.

Initial Proposition 2: Knowledge (experiential, tacit and explicit) gained during internationalization leads to the emergence of new and the evolution of existing operational capabilities.

Revised Proposition 2: The acquisition of knowledge (experiential, tacit and explicit) in small PSFs during internationalization is intuited, interpreted and integrated into the firm's knowledge base via a feed-forward learning process to change operational capabilities and resources through ad hoc problem solving.

5.1.4 Patterned Ad Hoc Problem Solving as a Precursor to Dynamic Capabilities

Ad hoc problem solving instances were examined in each case and patterns were observed as firms repeatedly reverted to comparable ad hoc problem solving behavior when facing similar situations. As the participants explained their actions over time, routinized and patterned behavior of ad hoc problem solving leading to the creation of dynamic capabilities was observed (Winter, 2003).

As small firms have limited resources at their disposal and a smaller margin for error than large firms, the study's findings suggest that ad hoc problem solving is used in initial instances of countering changes from the external environment or acting on newly discovered or created opportunities. As the outcomes of ad hoc problem solving actions are evaluated, firms can then decide whether or not to adopt comparable behavior when facing similar situations. Thus, learning by trial and error from ad hoc problem solving may lead to the development of dynamic capabilities in small firms. This finding led to the development of a third proposition.

New Proposition 3a: Subsequent to the acquisition of new knowledge (experiential, tacit and explicit) in small PSFs during internationalization, the repetitive use of similar ad hoc problem solving behavior leads to the creation of a dynamic capability

5.1.5 Summary of Findings

IE literature has begun taking a particular interest in the impact of organizational learning on internationalization pathways. It was demonstrated in the literature review that learning is implicit to internationalization in tradition, born-global and born-again global pathways to internationalization. Firms acquire experiential and objective knowledge through their foreign market activities, learn, and make subsequent changes to their decisions concerning their international involvement.

The findings of this thesis demonstrate that small firms make these changes in two ways: first by way of planned change processes, and second by way of ad hoc problem solving. From the case evidence, a relationship between ad hoc problem solving and dynamic capabilities was uncovered. As a result of this finding, the study suggests that repetitive and patterned use of similar ad hoc problem solving behavior leads to the creation of dynamic capabilities. This is particularly important in PSFs because value is continuously created in their operational capabilities as they learn from their service production and delivery processes and improve the efficiency and effectiveness of future projects (Løwendahl, 2005). As dynamic capabilities are costly to implement and maintain, ad hoc problem solving can be sufficient to trigger the necessary changes to the firm's operational capabilities. However, as the firm grows, the firm's needs in terms of types and combinations of resources and capabilities change and evolve (Penrose, 2009). It must develop capabilities that support the complex relationships PSFs develop with their clients (Reichheld & Sasser, 1990), which allow them to build relational capital (Uzzi, 1997) and long-term trust-based relationships with clients (Vanchan & MacPherson, 2008). As PSFs are highly reliant on their customer relationships, and these relationships become a reflection of their clients' willingness to continue to pay for their services, they must ensure that they continue to learn from their operations. Thus, it become inherently critical for a small PSF to identify when changes to their production and delivery processes should instead become planned, patterned, and routinized. By repeating the behavior adopted when facing similar situations of ad hoc problem solving, small PSFs can begin building their dynamic capabilities.

The literature on dynamic capabilities continues to gain attention, but examination of this phenomenon in small firms continues to be sparse. The findings attest to the need for additional research to further empirically examine the relationships between organizational learning and change in small firms. As the study's findings demonstrate, small firms do behave differently and the creation and development of their capabilities are centered on the decisions and actions taken by the entrepreneurs and entrepreneurial teams.

5.2 Contributions

This study responded to a call for empirical examination of organizational learning within the RBV and DC constructs (Vera et al., 2011). The aim of this thesis responded specifically to the call by demonstrating through case studies how, within the context of internationalization, organizational learning and dynamic capabilities modified operational capabilities and resources, which in turn had an impact on the firm's renewal of its resource base. As such, findings from this study provide preliminary support for the logic behind the hierarchical differentiation of capabilities and theoretical contributions are made by qualitatively examining the impact of organizational learning on the firm's resource base renewal process.

There continues to be a gap between abstraction of the RBV and DC constructs and empirical verification, which is scarce in the internationalization literature. Through case studies, this gap has been reduced by offering examples of modified operational capabilities that provide evidence of higher-order capabilities and change via dynamic capabilities and ad hoc problem solving (Winter, 2003; Easterby-Smith & Prieto, 2008; Vera et al., 2011). In doing so, the role of organizational learning is made clear in relation to the evolution and use of dynamic capabilities within the firm's resource base renewal process. The findings provide initial empirical results; however, additional research is required to further examine these relationships.

The use of the RBV and DC constructs as the study's theoretical framework have introduced to the PSF literature a new lens with which change and learning can be observed and examined. The initial findings demonstrate that the relationships between organizational learning, change and the firm's resource base renewal follows the theoretical advancements found in the literature. The initial findings also suggest that these relationships are present in small PSFs and have important implications for the firms' competitive advantage. The learning processes that drive ad hoc problem solving and planned change via dynamic capabilities hold important explanatory power when considering the resource base renewal that is necessary for knowledge-intensive firms like PSFs to remain competitive in the marketplaces in which they operate. As interest in internationalization and learning in PSFs

continues to gain momentum, the main contribution of this research is the application of the RBV and DC framework to explain triggered change subsequent to the acquisition and absorption of new knowledge in foreign markets.

The findings of this study also provide data with which to create and test measures to further extend the RBV and DC constructs to small knowledge-intensive service firms. Quantitative tests are required to further empirically examine this phenomenon and provide additional explanatory value to the RBV and DC constructs in both small firms and service firms. Early in this thesis, a case was made for the important role small service firms increasingly play in developing and developed economies. The RBV and DC constructs offer a different understanding of the evolution of small knowledge-intensive firms, as they provide insight from a resources and capabilities perspective.

5.3 Managerial and Practical Implications

From a practical standpoint, this study provides greater insight into the internationalization of PSFs. Given the current state of the Canadian commercial trade balance of services and the importance of services in developed economies worldwide, gaining insight into how PSFs evolve and learn from their international endeavours can further help researchers in providing policy makers with crucial factors promoting international trade. The small PSFs in the engineering sector examined in this study demonstrated intent to learn from their international activities. They relied heavily on their network relationships to access new information and knowledge was often acquired through direct and indirect experience. These initial observations suggest certain implications for owner/managers.

The process by which opportunities were intuited, interpreted and integrated into the firm's knowledge base triggered both ad hoc problem solving and the creation or modification of dynamic capabilities. Not all firms require the development of costly dynamic capabilities. However, owner/managers should recognize their continuous reverting to ad hoc problem solving when faced with similar situations as an opportunity to invest in their change processes. This could have performance implications, as the firm would begin making planned changes in the form of innovations and improvements to its services and processes,

in alignment with the firm's strategic objectives. Furthermore, as the firm grows, knowledge management processes must be created and put in place to leverage its ability to learn, acquire new knowledge and absorb it into its knowledge base. A noted difference between the two larger cases was their implementation of knowledge management processes and systems, as well as their need to improve these processes and systems as their firms evolved. Not only should owner/managers bring to the table an intent to learn, they should also recognize the need to empower other members of their organizations to learn from their experiences and integrate this new direct or indirect experiential knowledge into the firm's shared knowledge base.

5.4 Limitations of the Study

The study is not without its limitations. First, the findings are founded on the collection and analysis of data from a restricted sample of small firms within the sector of consulting and professional engineering. Thus, the main limitation of this study is the size and scope of its sample, as it looks specifically at a small sample of one sector of a highly heterogeneous industry. The study's objective was to provide explanatory evidence of theoretical relationships that had yet to receive empirical attention. Given the complexity of the relationships examined, the objective was not to achieve statistical generalization but rather analytical generalization (Yin, 2003). The study's limited size was countered by collecting multiple sources of data relevant to the changes that occurred in the firms subsequent to their internationalization and by completing in-depth analyses for each case.

Second, in three of the four cases, only one participant was interviewed at the participants' request or because of the unavailability of others in their firms. However, this limitation was partly countered because in all the companies, the key informants were the ones responsible for all strategic and internationalization-related decision making. In addition, where possible, the participants' data was triangulated with other sources of information.

Third, although the study incorporated selection criteria in its sampling strategy, all the firms that participated in this study had been in business for at least 12 years. As three of the four

firms had chosen to remain small and all had been established for a lengthy period of time, findings may need to account for survivor bias.

Fourth, the operationalization of the RBV and DC constructs remains largely undefined in the literature with regard to the context of small firms. The investigator's own bias may have influenced the interpretation of the results during the analysis stage of the research. This was countered by having the investigator's research supervisor present during four of the five interview sessions, analyze the cases independently, revise the coding scheme and tables, and attempt to achieve consensus on the results.

5.5 Future Research Opportunities

The study's findings open the door to two important future research avenues. First, further empirical work should aim to examine the entrepreneurial learning process. Findings from this particular research stream could enrich the community's understanding of the entrepreneur or entrepreneurial team's learning processes as small firms internationalize and make subsequent internationalization decisions

Second, further empirical work should examine how small firms develop dynamic capabilities. Dynamic capabilities have received little attention in the entrepreneurship literature in comparison to the popularity the concept has gained in other research fields. As a result, most studies on dynamic capabilities have looked at large firms and our understanding of the creation and development of dynamic capabilities in small firms is limited. The needs of small firms are particular because of the limited resources at their disposal and their smaller margin for error. Thus, this may have a significant impact on the way in which dynamic capabilities are created and modified, and the reason for the firms' investments in planned change processes or use of ad hoc change.

There is also the opportunity for future research on this topic to incorporate other qualitative research methods, such as participant observation and experiments. Alternatively to case study research, these methods would be a novel method of observation of this particular phenomenon. Findings could enrich our understanding of the cause-effect relationships between internationalization, learning and changes to the firm's resource base. As the

temporal setting in which the phenomenon takes place is important, longitudinal research methodologies should also be adopted.

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APPENDIX A: LETTER FOR PARTICIPATION

Study Title: **The Internationalization of Small Professional Service Firms: An Organizational Learning Perspective**

Dear Sir/Madam,

The purpose of this email is to request your participation in a study titled: “The Internationalization of Small Professional Service Firms: An Organizational Learning Perspective.” The objective the research is to examine specific cases of small professional service firms “internationalizing”, focusing on the impact of organizational learning on the renewal of the firm’s resources and capabilities.

This study, which has received University of Ottawa Research Ethics Board approval, is being conducted by researchers, Professor Martine Spence and MSc student Anika Laperrière of the Telfer School of Management, University of Ottawa. It is anticipated that the study will provide us with valuable insight on a research question that continues to persist in the internationalization literature. It is anticipated that the final report on the study will be published in an academic journal.

If you accept for your firm to participate, we will ask to meet with two individuals in your team: the person responsible for your firm’s international activities, and a project manager who has previously worked on your firm’s international projects. We will also ask that you share additional internal documents (e.g. internal memos, quarterly reports, yearly objectives, project portfolio, and assessment appraisals) that would allow us to better understand your international endeavours. At your request, we will gladly share with you the interview protocol along with the recruitment e-mail we will send your employees.

By participating to this study, the participants will be asked to meet with us for an interview of approximately 60 minutes. No travel on their part will be required, and we will set the meeting at a mutually agreed upon time and date. At their convenience, this may be during or outside working hours. At that time we will discuss the firm’s internationalization process, how the organization has learned from its international activities, and how it has changed its operating procedures from said learning. We will ask that they read carefully and sign a letter of consent that provides additional information about the study.

We also ask that the interview’s audio be recorded so that we can accurately reflect on what was discussed. We assure you and your employees that the tapes will only be reviewed by the core research team and that the data will be securely stored in compliance with the University of Ottawa’s ethical research protocol. Participation is absolutely voluntary and will be kept confidential. The study’s collected data will be kept in a secure location at the

University of Ottawa. The results of the study may be published or presented at professional meetings, but neither their identity nor the firm's will ever be revealed.

We expect to derive practical implications for both practitioners and policy makers, and will gladly share these with you upon completing this study.

Thank you for your consideration. We are happy to answer any questions you have about this study. You may contact us by email at xxxx or at xxxx for any study related question. With that said, we would appreciate if you could formally authorise us to conduct our study with your firm. Upon acceptance, we will contact you to arrange the interviews with the relevant participants.

Yours sincerely,

Anika Laperrière
MSc Candidate
Telfer School of Management
University of Ottawa

Martine Spence, PhD
Associate Dean (Academic) and Full Professor
Telfer School of Management
University of Ottawa

APPENDIX B: CONSENT FORM

Title of the study: **The Internationalization of Small Professional Service Firms: An Organizational Learning Perspective**

Martine Spence, PhD
Telfer School of Management, University of Ottawa

Anika Laperriere
Telfer School of Management, University of Ottawa

Invitation to Participate: I am invited to participate in the abovementioned research study conducted by Anika Laperriere, MSc candidate at the Telfer School of Management, University of Ottawa, and supervised by Professor Martine Spence, Telfer School of Management, University of Ottawa.

Purpose of the Study: The purpose of the study is to further explore how internationalization enables the renewal of small professional service firms' resource bases. Specifically, the study looks at how organizational learning enables the modification of operational and change processes in the firm. Our aim is to identify how what is learned from experiences in international markets impacts the firm's renewal of its resource base.

Participation: My participation will consist essentially of participating in an interview of approximately 60 to 90 minutes during which I will be asked to describe certain operational processes completed domestically and internationally pertaining to the completion of international projects. I agree to this session being recorded for data collection purposes only, and understand that this information will be kept private at all times. I will also be asked to provide additional documents (e.g. internal memos, quarterly reports, yearly objectives, project portfolio, and assessment appraisals) that will allow the researchers to better understand the firm's international endeavours.

The interview session has been schedule for _____.
I may be asked to participate to future interviews, at which time it will be at my discretion to continue my participation.

Upon the transcription of the interview completed, I will be sent a document by e-mail and asked to review its content to verify the data's integrity. At which point, I will be able to make amendments to the information provided during the interview, or to withdraw the data from the study.

Risks: My participation in this study will entail that I volunteer information regarding the internationalization of the firm where I work. I have received assurance from the researcher that there are no anticipated risks associated to this study.

Benefits: My participation in this study will contribute to the reducing the gap between the theory and practice of organizational learning and resource renewal in the field of international entrepreneurship.

Confidentiality and anonymity: I have received assurance from the researcher that the information I will share will remain strictly confidential. I understand that the contents will be used only for the above project and that my confidentiality will be protected by disguising my name and that of my employer when presenting the research's results. The researchers have signed confidentiality agreements to undertake this study.

Anonymity will be protected by using codes for which only the researcher knows the true identity.

Conservation of data: The data collected in form of digital interview recordings, hand written notes and recording transcript hard copies will be safely kept in a locked filing cabinet and in password-protected computer files. The data will be kept for 5 years and destroyed thereafter. Only the researcher and her thesis supervisor will have access to the digital interview recordings and the other data from the study.

Voluntary Participation: I understand that I am under no obligation to participate and if I choose to participate, I can withdraw from the study at any time and/or refuse to answer any questions, without suffering any negative consequences. If I choose to withdraw, all data gathered until the time of withdrawal will be destroyed, as to adhere to the protocol of this study.

Acceptance: I, _____, agree to participate in the above research study conducted by Anika Laperriere of the Telfer School of Management at the University of Ottawa under the supervision of Professor Martine Spence.

If I have any questions about the study, I may contact the researcher or her supervisor.

If I have any questions regarding the ethical conduct of this study, I may contact:

Protocol Officer for Ethics in Research,
University of Ottawa, Tabaret Hall,

There are two copies of the consent form, one of which is mine to keep.

Participant's signature: _____ Date: _____

Researcher's signature: _____ Date: _____

APPENDIX C: INTERVIEW PROTOCOL

Study Title: The Internationalization of Small Professional Service Firms: An Organizational Learning Perspective

Required Historical Artefacts

- 1) Personal interviews
- 2) Documents, e.g. business plans, letters, faxes, minutes of meetings, answers to international RFIs and RFPs, project portfolio, financial statements (optional)
- 3) Physical artefacts, e.g. the firm's services, brochures, etc.

Historical Backdrop and Time References

On a sheet with a chronological timeline, ask the interviewee to best place the following milestones:

- a) Time of firm's inception
- b) First entry into an international market
- c) Subsequent entries into international markets until present date
- d) Launch of new service, if applicable
- e) Elimination of existing service, if applicable

Background Questions

1. Respondent's profile: job title, responsibilities
2. Company background: nature of business activities
3. Size of total business prior to internationalization (sales, number of employees, number of offices/facilities)
4. Strategic objective prior to internationalization
5. Resources in the firm that enable it to serve its domestic market
 - a. Assets: financial capital, technology, time, human resources, brand name, reputation, expertise
6. Capabilities in the firm that enable it to serve its domestic market
 - a. Capabilities: management skills, project management skills, resource allocation skills, R&D capabilities, sales and marketing capabilities
7. What were then the most precious resources and capabilities in the firm? Which ones made the firm stand out from the rest?
8. The firm's perceived competitive advantage

Initial Internationalization Event

1. Please describe the company's first move to an international market

Focus on first internationalization event (e.g. deriving revenue from an international market for the first time)

- a. Who, when, where, for how long, and what business?
 - i. Gestation activities, e.g. business plan, develop network contact
 - ii. Search, discovery, luck
 - iii. Decision-making process
 - iv. Resources and capabilities in the firm that enable it to serve its first international markets, and the resource allocation process
 - v. External environment: capacity for knowledge absorption, assimilation, transformation, and exploitation
 - vi. Internal environment: capacity for intuition, interpretation, integration and institutionalization
- b. What was the time frame between recognizing the opportunity overseas and exploiting it?
- c. Were there any obstacles along the way until you entered the overseas market?
- d. Did you know how the international market that the firm entered worked prior to the firm going there?
 - i. E.g. business customs, capital requirements, legal issues, how business relationships work, where to find suppliers and partners, or “what to avoid” principles in the entered foreign market.
 - ii. How was this knowledge obtained? How was this knowledge used?
 - iii. If not, how did you gain access to this knowledge?

2. What were the outcomes of this first internationalization event?

- a. Impact on value creating processes:
 - i. Client need recognition, and subsequent sale of service to respond to client need;
 - ii. Service delivery activities to result in project completion; and,
 - iii. Continuous learning in the previous two processes, as to improve efficiency and effectiveness of future projects. *Did you recognize any gained or lost efficiency and effectiveness in completing the first project abroad?*

- b. Did the resources and capabilities necessary to provide the firm's services to its client require adaptation to the foreign market? Were new resources and capabilities required? If so, how were these obtained?
 - c. Impact on service portfolio: were there changes to the services the firm provides?
 - d. Impact on the firm's organizational structure
 - e. Was the newly obtained knowledge and information of value to the firm? If so, how did it impact the firm?
 - f. Changes to the firm's behavior towards international opportunities: general sense for a favorable or negative predisposition

- 3. What were the costs to this first internationalization event?
 - a. Did the benefits outweigh the costs?
 - b. What were the financial implications derived from this first internationalization event?

Second International Event

- 4. Please describe the firm's following international event.
Focus on second internationalization event (e.g. deriving revenue from an international market for the first time)
 - a. Who, when, where, for how long, and what business?
 - i. Gestation activities, e.g. business plan, develop network contact
 - ii. Search, discovery, luck
 - iii. Decision-making process
 - iv. Resources and capabilities in the firm that enable it to serve its first international markets, and the resource allocation process
 - v. External environment: Capacity for knowledge absorption, assimilation, transformation, and exploitation
 - vi. Internal environment: Capacity for intuition, interpretation, integration and institutionalization
 - b. What was the time frame between recognizing the opportunity overseas and exploiting it?
 - i. Was the second opportunity derived directly or indirectly from the firm's first international event?
 - c. Were there any obstacles along the way until you entered the second overseas market?

- d. Did you know how the second international market that the firm entered worked prior to the firm going there?
 - i. E.g. business customs, capital requirements, legal issues, how business relationships work, where to find suppliers and partners, or “what to avoid” principles in the entered foreign market.
 - ii. How was this knowledge obtained? How was this knowledge used?
- 5. What were the outcomes of this second internationalization event?
 - a. Impact on value creating processes:
 - i. Client need recognition, and subsequent sale of service to respond to client need;
 - ii. Service delivery activities to result in project completion; and,
 - iii. Continuous learning in the previous two processes, as to improve efficiency and effectiveness of future projects. *Did you recognize any improvement to the efficiency and effectiveness in which you completed your second project abroad?*
 - b. Did the resources and capabilities necessary to provide the firm’s services to its client require adaptation to the foreign market? Were new resources and capabilities required? If so, how were these obtained?
 - c. Impact on service portfolio: were there changes to the services the firm provides?
 - d. Impact on the firm’s organizational structure
 - e. Was the newly obtained knowledge and information of value to the firm? If so, how did it impact the firm?
 - f. Changes to the firm’s behavior towards international opportunities: general sense for a favorable or negative predisposition
- 6. What were the costs to this second internationalization event?
 - a. Did the benefits outweigh the costs?
 - b. Were the costs less than in the first international event? If so, why?
 - c. What were the financial implications derived from this second internationalization event?

Subsequent International Events

- 1. Please describe the firm’s following international events.

Focus on second internationalization event (e.g. deriving revenue from an international market for the first time)

- a. Who, when, where, for how long, and what business?
 - i. Gestation activities, e.g. business plan, develop network contact
 - ii. Search, discovery, luck
 - iii. Decision-making process
 - iv. Resources and capabilities in the firm that enable it to serve its first international markets, and the resource allocation process
 - v. External environment: Capacity for knowledge absorption, assimilation, transformation, and exploitation
 - vi. Internal environment: Capacity for intuition, interpretation, integration and institutionalization
 - vii. Were the subsequent opportunities derived directly or indirectly from the firm's previous international events?
 - b. Were there any obstacles along the way that you had not encountered in your first two international events?
 - c. Did you know how the international markets that the firm entered worked prior to the firm going there?
 - i. E.g. business customs, capital requirements, legal issues, how business relationships work, where to find suppliers and partners, or "what to avoid" principles in the entered foreign market.
 - ii. How was this knowledge obtained? How was this knowledge used?
7. What were the outcomes of the following internationalization events?
- a. Impact on value creating processes:
 - i. Client need recognition, and subsequent sale of service to respond to client need;
 - ii. Service delivery activities to result in project completion; and,
 - iii. Continuous learning in the previous two processes, as to improve efficiency and effectiveness of future projects. *Did you recognize any improvement to the efficiency and effectiveness in which you completed your second project abroad?*
 - b. Has the scope and scale of the firm's international projects increased?
 - c. Did the resources and capabilities necessary to provide the firm's services to its client require adaptation to the foreign markets? Were new resources and capabilities required? If so, how were these obtained?
 - d. Impact on service portfolio: were there changes to the services the firm provides?

- e. Impact on the firm's organizational structure
- f. Was the newly obtained knowledge and information of value to the firm? If so, how did it impact the firm?
- g. Changes to the firm's behavior towards international opportunities: going forward, is the general sense a favorable or negative predisposition

Miscellaneous

Collect any data available to support case:

- Sales data, accounts, company reports and financial statements
- Project portfolio
- Mission statement, brochures